

**Supporting Leadership Development in European
Universities:
A Mixed Methods Study of Digital Education Leadership
Literacies for Higher Education**

Doctoral thesis

by

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Dedication

This thesis is dedicated to my parents: my father, for his constant support and long-held belief in the power of education, and my late mother, who would have been so proud of me.

Bibliographical sketch

Deborah Arnold is currently national and international projects coordinator at AUNEGe, the French digital university for economics and management. She has three decades of experience in the field of education and training, holding teaching and managerial roles in both the private training and higher education sectors. She obtained a Bachelor of Science degree in Modern Languages (French) at Aston University in the United Kingdom in 1990 and trained as a teacher of English as a foreign language. After a year teaching in Greece, she moved to France where she worked as Director of Studies for a language training institute, developing innovative pedagogical approaches including Computer-Assisted Language Learning and the use of audio and video. This experience encouraged her to delve deeper into media production through a Master's degree at the University of Burgundy (1999-2000), before taking up a position as e-learning project manager at Vidéoscop Université Nancy 2 from 2000 to 2011. During this time, Deborah became involved in European projects, co-founding the eLene network in 2004 with Higher Education Institutions across Europe, including Politecnico di Milano, Universität Bremen and Universitat Oberta de Catalunya.

From 2012 to 2018, Deborah was head of the educational technology and distance learning department at the University of Burgundy in France and led the education strand of the institution's digital strategy. It was this experience, combined with a growing interest in research in the field, which encouraged

Deborah to embark on a PhD at Universitat Oberta de Catalunya in order to explore the topic of Digital Education Leadership in Higher Education. Her prime motivation for this research project was to develop an evidence-based approach to support Higher Education Institutions, and campus-based universities in particular, in developing a more strategic approach to Digital Education, grounded in sound pedagogical and ethical principles.

Deborah is a member of several professional associations, including ANSTIA (the French association of learning technology and media production units) and ALT (Association of Learning Technology). From 2010 to 2016 she served on the Executive Committee of EDEN (European Distance and E-learning Network) and held the position of Vice-President for Communication. She is a Senior Fellow of EDEN, a member of the EDEN Fellows Council Board, and serves on the board of the Media and Learning Association.

PhD-related publications

Arnold, D., & Sangrà, A. (2020). Digital Education Leadership Development for Strategic Change in Higher Education. In V. Wang (Ed.), *Educational Leadership: Perspectives, Management and Challenges*. Nova Science Publications.

Arnold, D., & Sangrà, A. (2019). Building Bridges Over Troubled Water: eLeadership Literacies for Technology-Enhanced Learning in Complex Times. In M. Brown, M. Nic Giolla Mhichil, E. Beirne, & E. Costello (Eds.), *Proceedings of the 2019 ICDE World Conference on Online Learning* (Vol. 2, p. 33). Dublin: Dublin City University.

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Arnold, D., & Sangrà, A. (2018a). Dawn or dusk of the 5th age of research in educational technology? A literature review on (e-)leadership for technology-enhanced learning in higher education (2013-2017). *International Journal of Educational Technology in Higher Education*, 15(1), 24. <https://doi.org/10.1186/s41239-018-0104-3>

Arnold, D., & Sangrà, A. (2018b). Developing a Framework of e-Leadership Literacies for Technology-Enhanced Learning in Higher Education: a Delphi Study. In *Towards Personalized Guidance and Support for Learning. Proceedings of the 10th European Distance and E-Learning Network Research Workshop, Barcelona*, (pp. 161–169). http://www.eden-online.org/wp-content/uploads/2018/11/RW10_2018_Barcelona_Proceedings.pdf#page=169

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Abstract

English

Digital technologies have been used to support Higher Education teaching and learning for well over two decades. But are these technologies being used in innovative and pedagogically sound ways, or are they being shoehorned into existing practices? The picture painted by scholars since the turn of the century is one of “business as usual”, with a lack of strategic thinking particularly notable in campus-based universities. This Mixed Methods Case Study research addresses the problem through the development and application of a novel concept, that of Digital Education Leadership Literacies for Higher Education (DELLHE). To this end, the study combined prior work on Leadership Literacies for professional staff in HE and e-leadership for educational technology, framed in the notion of multiliteracies as both meaning-making for the self and meaning-making for others. The research questions (RQ) guiding the study were: How can existing frameworks and concepts be combined into a single framework of Digital Education leadership Literacies (DELLHE)? (RQ1); How are DELLHE experienced by key informants in selected European universities? (RQ2a); How do key informants in European universities develop (i.e. “learn”) DELLHE? (RQ2b); How are DELLHE reflected in the institutional strategic plans and in the organisational structure? (RQ2c); How are DELLHE reflected in existing Leadership Development Programmes? (RQ3a); What changes should be proposed to reinforce the development of DELLHE? (RQ3b). The resulting DELLHE framework was developed iteratively throughout the study, mobilising qualitative approaches (a Delphi study, three Case Studies in European campus-based universities in France, Belgium and the United Kingdom, Thematic Analysis of interview data and documents, an online focus group) as well as quantitative analysis in the form of statistical descriptions of survey data (n=102). The main findings of the study confirm the importance of context in terms of institutional culture and external policy constraints in

defining a vision and strategy for Digital Education, the need for a greater focus on pedagogical, ethical, relational, and environmental issues in a world of ever-increasing complexity, and the potential of a whole-institution approach to Leadership Development to increase leadership capacity for Digital Education over time.

Keywords: leadership, Digital Education, leadership literacies, leadership development, Higher Education

Français

Les technologies numériques sont utilisées pour soutenir l'enseignement et l'apprentissage dans l'enseignement supérieur depuis plus de deux décennies. Mais ces technologies sont-elles utilisées de manière innovante et pédagogique, ou sont-elles simplement plaquées sur des pratiques existantes ? Le tableau dressé par les chercheurs depuis le début du siècle est celui du statut quo, avec un manque de réflexion stratégique particulièrement notable dans les universités centrées sur l'enseignement en présentiel. Cette étude à méthodes mixtes aborde le problème par le développement et l'application d'un nouveau concept, celui de *Digital Education Leadership Literacies for Higher Education* (DELLHE), traduit par Littéracies de Leadership pour la Pédagogie Numérique dans l'Enseignement Supérieur. À cette fin, l'étude a combiné des travaux antérieurs sur les littéracies de leadership pour l'enseignement supérieur et sur le e-leadership pour les technologies éducatives, enrichis par la notion de « multilittéracies » en tant que construction de sens pour soi et pour les autres. Les questions de recherche (RQ) qui ont guidé l'étude étaient les suivantes : Comment des référentiels et concepts existants peuvent-ils être combinés en un cadre unique de Digital Education Leadership Literacies (DELLHE) ? (RQ1) ; Comment les informateurs clés dans les universités européennes sélectionnées vivent-ils les DELLHE ? (RQ2a) ; Comment les informateurs clés des universités européennes développent-ils les DELLHE ? (RQ2b) ; Comment les DELLHE se reflètent-elles dans les plans stratégiques institutionnels et dans la structure

organisationnelle ? (RQ2c) ; Comment les DELLHE se reflètent-elles dans des programmes de développement du leadership existants ? (RQ3a) ; Quels changements devraient être proposés pour renforcer le développement de DELLHE ? (RQ3b). Le cadre DELLHE qui en résulte a été développé de manière itérative tout au long de l'étude, en mobilisant des approches qualitatives (une étude Delphi, trois études de cas dans des universités en France, en Belgique et au Royaume-Uni, l'analyse thématique des données d'entretien et des documents, un focus groupe en ligne) ainsi qu'une analyse quantitative sous la forme de descriptions statistiques des données d'enquête (n=102). Les principaux résultats de l'étude confirment l'importance du contexte en termes de culture institutionnelle et de contraintes politiques externes dans la définition d'une vision et d'une stratégie pour la pédagogie numérique, la nécessité de focaliser davantage sur les questions pédagogiques, éthiques, relationnelles et environnementales dans un monde de plus en plus complexe, et le potentiel d'une approche de développement du leadership à l'échelle de l'institution afin d'augmenter de manière durable la capacité de leadership pour la pédagogie numérique.

Mots clés : leadership, pédagogie numérique, littéracies de leadership, développement du leadership, enseignement supérieur

Español

Durante más de dos décadas, las tecnologías digitales se han utilizado para apoyar la enseñanza y el aprendizaje en la educación superior. Sin embargo, ¿se están utilizando estas tecnologías de forma innovadora y pedagógicamente sólida o simplemente se están incorporando a las prácticas anteriormente existentes? Desde el cambio de siglo, el escenario que dibujan los académicos es “el de siempre”, con una falta de pensamiento estratégico particularmente notable en las universidades presenciales. Esta investigación, diseñada a partir de estudios de caso y métodos mixtos, aborda el problema a través del desarrollo y la aplicación de un concepto novedoso, el de las alfabetizaciones

del liderazgo en educación digital para la educación superior (DELLHE). Con este fin, el estudio combina trabajos previos sobre alfabetizaciones de liderazgo para los profesionales de la educación superior y el e-liderazgo para la tecnología educativa, enmarcado en la noción de multialfabetización como creación de significado para uno mismo y para los demás. Las preguntas de investigación (RQ) que guiaron el estudio fueron: ¿Cómo se pueden combinar los marcos y los conceptos existentes en un marco único de Alfabetizaciones de liderazgo en educación digital (DELLHE, por sus siglas en inglés)? (RQ1); ¿Cómo experimentan el DELLHE los informantes clave en las universidades europeas estudiadas? (RQ2a); ¿Cómo desarrollan el DELLHE (es decir, “aprenden”) los informantes clave de las universidades europeas? (RQ2b); ¿Cómo se refleja el DELLHE en los planes estratégicos institucionales y en la estructura organizativa? (RQ2c); ¿Cómo se refleja el DELLHE en los programas de desarrollo de liderazgo existentes? (RQ3a); ¿Qué cambios se deberían proponer para reforzar el desarrollo del DELLHE? (RQ3b). El marco DELLHE resultante se desarrolló de manera iterativa a lo largo del estudio, movilizando enfoques cualitativos (un estudio Delphi, tres estudios de caso en universidades europeas con sedes en campus en Francia, Bélgica y el Reino Unido, análisis temático de datos de entrevistas y documentos, un grupo focal en línea), así como un análisis cuantitativo en forma de descripciones estadísticas de los datos de una encuesta (n = 102). Los principales hallazgos del estudio confirman la importancia del contexto en términos de cultura institucional y restricciones de políticas externas para definir una visión y una estrategia para la Educación Digital, la necesidad de un mayor enfoque en los temas pedagógicos, éticos, relacionales y ambientales en un mundo de complejidad creciente, y el potencial de un enfoque institucional integral para el desarrollo del liderazgo que permita aumentar la capacidad de liderazgo para la educación digital a largo plazo.

Palabras clave: liderazgo, educación digital, alfabetización del liderazgo, desarrollo del liderazgo, educación superior

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List of Abbreviations

Grouped thematically according to the context in which they are employed.

General

AIT: Advanced Information Technology

BYOD: Bring Your Own Device

CoP: Community of Practice

CPD: Continuing Professional Development

DELLHE: Digital Education Leadership Literacies for Higher Education

DigEd: Digital Education

HE: Higher Education

HEI: Higher Education Institution

ICT: Information and Communication Technologies

IT: Information Technology

LA: Learning Analytics

LD: Leadership Development

LDP: Leadership Development Programme

LMS: Learning Management System

MOOC: Massive Open Online Course

NLG: New London Group

ODL: Open and Distance Learning

OER: Open Educational Resources

SoTL: Scholarship of Teaching and Learning

TEL: Technology-Enhanced Education

TEL-eLL: e-leadership Literacies for Technology-Enhanced Learning

US(A): United States (of America)

UK: United Kingdom

VLE: Virtual Learning Environment

VUCA: Volatile, Uncertain, Complex, Ambiguous

The DELLHE framework

W-VISION: WORLDLY context, culture, vision and strategy

W-PEDA: WORLDLY (self)-relationship with teaching and learning

W-TECH: WORLDLY (self)-relationship with (educational) technology

SUST: SUSTAINING

LEAD: LEADINGFUL

RELA: RELATIONAL

LEARN-LS: the leader as LEARNINGFUL self

LEARN-LC: supporting the development of a LEARNINGFUL community

Methodology

IQR: Inter-Quartile Range

APMO: Average Percentage Majority Opinion

Med: Median

MM-CS: Mixed Methods-Case Study

MMR: Mixed Methods Research

QUAL: Qualitative

QUAN: Quantitative

RQ: Research Question

SEM: Structural Equation Modelling

TA: Thematic Analysis

Case Studies

ABL: Active Blended Learning

BE: Belgium

CAIeRO: Creating Aligned Interactive educational Resource Opportunities

CC: Cross Case (study)

CS1: Case Study 1

CS2: Case Study 2

CS3: Case Study 3

CSI: Case Study Institution

DFIOP: Direction de la Formation, de l'Orientation et de l'Insertion
Professionnelle

FR: France

GOV: Governance

IC: Individual Case (study)

ICTS: Directorate for Information & Communication Technology and Systems

ILT: Institute for Learning and Teaching

KI: Key Informant

LIFUS: Leuven Institute for University Studies

LIMEL: Leuven Institute for Media and Learning

LLL: Leuven Learning Lab

LLS: Library and Learning Services

KUL: Katholieke Universiteit Leuven

MM: Middle Management

REF: Research Excellence Framework

SM: Senior Management

SUZIP: Service Universitaire d'Ingénierie et d'Innovation Pédagogique

TEF: Teaching Excellence Framework

TICE: Technologies de l'Information et de la Communication for
l'Enseignement

UL: Université de Lorraine

UoN: University of Northampton

Organisations and projects

ALT: Association for Learning Technology

C-DELTA: Commonwealth Digital Education Leadership Training in Action

COL: Commonwealth of Learning

D-TRANSFORM: Transforming Universities in the Digital Age

EDEN: European Distance and E-learning Network

EUA: European Universities Association

IELOL: Institute for Emerging Leadership in Online Learning

ICDE: International Council for Distance Education

JISC: Joint Information Systems Committee

OECD: Organisation for Economic Cooperation and Development

UNESCO: United Nations Educational, Scientific and Cultural Organization

Abbreviations in French

DL : Développement du Leadership

EES : Établissement d'Enseignement Supérieur

TICE : Technologies de l'Information et de la Communication for
l'Enseignement

PDL : Programme de Développement du Leadership

UFR : Unité de Formation et de Recherche

PART I

Chapter 1: Introduction

At its most basic, the introduction of digital technology to the university system offers opportunities to change existing practices, but there is also an opportunity to explore new educational horizons and re-evaluate the university's purpose and potential for new forms of social engagement.

— Johnston, MacNeill and Smyth (2018)

The problem

Digital technologies have been used to support Higher Education (HE) teaching and learning for well over two decades (Weller, 2020a). But are these technologies being used in innovative and pedagogically sound ways, or are they being shoehorned into existing practices? In an investigation of technology-adoption in California, Cuban (2001) found that

the overwhelming majority of teachers employed the technology to sustain existing patterns of teaching rather than to innovate ... [and that] ... only a tiny percentage of high school and university teachers used the new technologies to accelerate student-centred and project-based teaching practices. (p. 134)

Cuban's study dates back to the beginning of the 21st century, so it might be expected that HE has moved on since then. However, the general pattern noted by scholars in the field is one of "business as usual" (Bates & Sangrà, 2011, p. 101) or at the most "cautious implementation" (Orr et al., 2018, p. 22).

Beetham and Sharpe (2007) explain this as a tendency to "focus the majority of

technology provision on what we already understand – information systems, data gathering, communication processes, presentation – rather than using it to tackle the really difficult problems presented by our ambitions for universal and effective education” (p. xvi).

In order to move away from such technocentric approaches, it is necessary to adopt a terminology which reflects this focus. It is for this reason that the current study refers to Digital Education, situating the problem firmly in the realm of teaching and learning in a digital age (Bates, 2015; Johnston et al., 2018). Furthermore, Digital Education needs to be understood within the wider “kaleidoscopic social context within which higher education now must create, present, and maintain itself” (Sangrà & Cleveland-Innes, 2020, pp. 149–150).

This brings us to examine the extent to which the development of Digital Education is seen as being of strategic importance. Open and Distance Education universities such as The Open University (United Kingdom) and Universidade Aberta (Portugal) have made the transition from traditional correspondence courses to an online learning model, whereas others (for example, Universitat Oberta de Catalunya) were designed as online universities from the start (Bates & Sangrà, 2011). However, for campus-based universities, the strategic development of Digital Education is far from being the norm, with Orr et al. (2018) noting that

tools that can be more readily added-on to core functions, but do not require wholesale organisational change, are more likely to be used frequently. Technology that requires a more fundamental shift in how these are conceptualised and implemented tends to be implemented more cautiously and for specific audiences or projects. (p. 23)

This lack of attention to the wider context of the role of digital technology in society and education (Castañeda & Selwyn, 2018; Johnston et al., 2018) has been made painfully apparent in the responses to the coronavirus (COVID-19) pandemic, where in the spring of 2020, campus-based universities were forced into what became known as the “online pivot” (Weller, 2020b). Where previously many of these universities were using digital technology primarily with a “business as usual” approach, they suddenly had to provide education in a solely online modality as lockdowns in many countries made presence on campus impossible. And despite decades of research on educational technology (Bozkurt, 2020), and online learning (Zawacki-Richter & Naidu, 2016), a global study of responses to the coronavirus pandemic qualified these “as emergency remote education [as opposed to] planned practices such as distance education, online learning or other derivations” (Bozkurt et al., 2020, p. 1).

In particular, this study highlighted how the pandemic brought to the forefront and exacerbated existing inequalities such as social injustice and the digital divide, as well as a lack of attention to the social and ethical implications

of surveillance and data privacy. The technocentric approach would appear to have prevailed, and the lack of a sophisticated critical understanding of the digital world, devoid of a true reflection on learning, teaching and ethics, led to a series of strapped-on solutions such as online proctoring of exams and the three-hour Zoom lecture. Of course, this is not true across the board and, in the United Kingdom at least, universities which had fully embraced Digital Education at strategic level and had already invested heavily in staff development were in a better place to face this challenge (Jisc, 2020a).

However, the main conclusions, formulated in a follow-up report (Maguire et al., 2020) were that:

- Many universities were starting from a low digital base with a long way to go to secure high-quality provision capable of meeting rising student expectations.
- There is a need for universities to be more adaptable, open and responsive as they work towards creating a financially sustainable higher education system.
- Digital poverty is a critical issue for universities to understand and address.
- The level of digital maturity in higher education learning and teaching is generally low but growing quickly.

- There are extensive pockets of expertise and many examples of experimentation in online learning but, with a few notable university exceptions, it has not yet reached mainstream deployment levels.
- There is significant willingness to support national efforts to develop capabilities and share best practice in the quickly emerging online and blended models of learning and teaching. (p. 10)

Among the recommendations formulated by the Maguire et al. report is to “Embed digital at the heart of university culture” (p. 6), stating that “Leadership and vision are essential for transformation as digital becomes a central feature of learning and teaching” (p.6). But this question of leadership for digital education is nothing new, already highlighted as an important factor by Bates and Sangrà (2011), and identified as a growing field of research since the beginning of the 21st century by Jameson (2013). Indeed, the focus of current study was determined well before the impact of the coronavirus pandemic drew this question of leadership into such sharp relief and, as has already been stated, the problems stemming from a lack of consideration of pedagogical and social factors in decision-making around educational technology in higher education were pre-existing.

Significantly, Bates and Sangrà (2011) argue against adopting traditional ‘great-man’ approaches of visionary and charismatic leadership, stating that “Successful leadership [for technology integration] requires a complex

environment that supports change, with engagement from a number of key players, all working together and developing and sharing a common vision or set of goals for the use of technology” (p.84).

If we are to reach the point where digital is indeed embedded “at the heart of university culture” (Maguire et al., 2020, p. 6), then we need to address the very issue of the existing culture. As argued by Bergquist and Pawlak (2007), there is no single culture at play within a given university. What can be observed is rather a dominant culture functioning in a complex interplay with other, sometimes competing, cultures. Two of these – the physical and the virtual cultures – are those with the most direct relevance to the question of Digital Education, where the physical culture places a high importance on the ‘campus experience’, while the virtual culture fully embraces the complexities of the digital world.

Such cultures are reflected in the attitudes, mindsets and practices of the people who work in the university, and one of the tasks for leadership is to work with, not against, these cultures (Bergquist & Pawlak, 2007). So, if we are seeking to bring about a change in attitudes, mindsets and practices with respect to Digital Education among academic staff in higher education (not to mention among students), then a starting point would be to examine those same attitudes, mindsets and practices among members of the university leadership themselves. In the context of this study, while accepting that

leadership for Digital Education can exist at many levels within a university, the choice has been made to focus on those in formal leadership roles, at governance and senior management level, as well as at middle management level in order to include staff responsible for Digital Education initiatives within learning technology and academic development units.

The approach taken by this study draws on prior work on Leadership Literacies (Davis, 2012, 2014) and adapts it to the specific field of Digital Education. This is developed further in the following section, which provides definitions of key concepts mobilised in the study, as well as in the theoretical background (Chapter 2). However, at this stage it is useful to state that the focus on Leadership Literacies entails exploring how HE leaders view the digital world, how they communicate those attitudes and mindsets through concrete behaviours and actions, how these are reflected within the overall institutional strategy, and how academic staff perceive this leadership. In addition to this, the study also considers the wider socio-economic and cultural context in which this leadership operates, in terms of the historical and political context of national HE systems (Bleiklie & Michelsen, 2013; Musselin, 2009), and integrates the issue of academic culture (Bergquist & Pawlak, 2007). Finally, it addresses the question of leadership development (Day, 2000; Spendlove, 2007), hereafter referred to as LD, examining how HE leaders develop their own leadership for Digital Education, and how they and the organisation itself

support the development of leadership capacity in order for the university as a whole to be in a better position to respond to the challenges of the digital age.

Definition of key concepts

Digital Education

Digital Education is understood as the mobilisation of technology to support teaching and learning in a digital age. This term has been chosen with a ‘pedagogy first’ and ‘people first’ approach to the question, in a conscious move away from other terms such as e-learning, educational technology or learning technology, which put the emphasis on the technology itself, and technology-enhanced learning (TEL), often used to mean many different things, or implying that technology alone is sufficient to improve learning (Bayne, 2015; Fawns, 2019; Kirkwood & Price, 2014; Passey, 2019).

Leadership

This study frames leadership as a social influence process with the view to achieving common goals (Northouse, 2015), also defined by Locke (2003). as “the process of inducing others to take action toward a common goal” (p. 271). This understanding of leadership is clearly situated within the shift from leader-centric theories focussing on the traits of individual ‘heroic’ leaders, to a more contextualised, systemic approach (Bolden et al., 2003; Chelf, 2018; Gronn, 2002).

Leadership Literacies

Leadership Literacies are understood as a set of attitudes, understandings and mindsets which enable leaders to address complex problems and solve them in ways which are respectful of people and the environment (Davis, 2012, 2014). The concept of Leadership Literacies also draws on the understanding of literacies as *representation* (attitudes, understandings and mindsets) and as *communication* (how these representations are communicated to others through behaviours and actions) as developed by Cope et al. (2017).

As Davis focused on Leadership Literacies for professional staff in HE, with no reference to Digital Education, the current study entails developing a truly novel concept, that of Digital Education Leadership Literacies for Higher Education (DELLHE). The way in which this was achieved is described in the results of the theory-building stage (Chapter 4) together with the iterative refinements throughout the study, as described in Chapters 5 to 8.

Leadership Development

Consistent with the understanding of leadership as a social process, leadership development involves “expanding the collective capacity of organizational members to engage effectively in leadership roles and processes” (Spendlove, 2007, p. 409). This is distinct from leader development which “is based on a traditional, individualistic conceptualisation of leadership” (Day,

2000, p. 605). However, as Day argues, leader development and leadership development need to be taken together rather than separately. This study thus looks at both the way in which individual HE leaders develop their own Digital Education Leadership Literacies, and how they, and the organisation itself, support the development of leadership capacity for Digital Education. Hereafter, the acronym LD is used to refer to both leader and leadership development, except where the distinction between the two is required.

Justification for the study

This study is a direct response to Jameson's (2013) call for more interdisciplinary research addressing educational technology leadership in HE. Jameson notes that "the many scholarly educational research and professional communities that span the liminal edges bordering the two fields of educational technology and leadership do not, for the most part, relate to or recognise each other's work very much" (p. 891). By drawing on both leadership theory, from the field of management science¹, and research in the use of digital technology for teaching and learning², the current study makes a significant contribution to bridging this gap. Furthermore, the integration of the notion of

¹ ISCED-F 0413 Management and administration

² ISCED-F 0111 Education science

Leadership Literacies provides the ‘glue’ which holds this all together, mobilising the concept of multiliteracies (Cope et al., 2017; Cope & Kalantzis, 2009; Serafini & Gee, 2017; The New London Group, 1996) anchored in both information and communication science and critical pedagogy (Freire, 1974).

To expand on Jameson’s (2013) observation of the lack of connection between different fields, it is useful to identify the place of Digital Education in the literature on HE leadership on the one hand, and the place of leadership in the educational technology field on the other hand. There is a considerable literature base addressing HE leadership, often from the point of view of educational management or academic leadership (Bolden et al., 2012, 2014; Bolden & Petrov, 2014; Hemsall, 2014; Jones et al., 2012). However, none of this specifically addresses the question of leadership for Digital Education. Similarly, the literature on HE LD (Dopson et al., 2019) is largely devoid of specific references to Digital Education (Arnold & Sangrà, 2020). Looking at the educational technology side, the picture is less dramatic, with leadership becoming a growing focus, as already identified by Jameson (2013) and confirmed by Arnold and Sangrà (2018a). However, there is still a distinct lack of robust empirical studies addressing Digital Education Leadership at a multi-stakeholder organisational level (Arnold & Sangrà, 2018a).

As we have already seen, educational technology is still not being used to its full potential in HE, and numerous scholars have noted a lack of strategic

thinking, vision and leadership (Bates & Sangrà, 2011; Fullan, 1993; Fullan & Scott, 2009; Workman & Cleveland-Innes, 2012). Furthermore, in the literature to date, there is no example of empirical research applying the specific concept of Leadership Literacies to the field of Digital Education Leadership.

A further reason for this study lies in the professional experience of the researcher herself, having worked in HE as a member of professional staff for nearly two decades, in two different campus-based universities in France. In addition to responsibilities for Digital Education at both project and middle-management level, she also had direct experience of designing and teaching online and blended courses herself. During these two decades, she was able to observe first-hand the aforementioned lack of vision and strategic thinking around Digital Education (Bates & Sangrà, 2011), along with the consequences of taking an overly technocentric approach (Fawns, 2019).

By way of example, both these French universities made the organisational decision to merge learning technology departments with Information Systems during a restructuring process, reinforcing the message that Digital Education is more about technology than learning and teaching. As this was observed to be part of a wider organisational trend in France, despite recommendations to the contrary formulated in a report to the French Minister of Higher Education (Isaac, 2008), one of the researcher's motivations for this

study was to explore the question in the wider context of campus-based universities in Europe.

Furthermore, while numerous studies on the place and role of learning technologists with respect to institutional strategy and organisation were identified (e.g. Brown, 2014; Hudson, 2009; Roushan et al., 2016; Shurville et al., 2009), there was still a significant gap in the literature regarding the question of Digital Education Leadership itself (Garcia, 2015; Jameson, 2013).

Turning now to the research design of leadership studies, Alvesson (2017) questions whether the field is actually interested in organisational reality and highlights the limits of abstract questionnaires and interviews of leaders who may express “hyped versions of their leadership, often not confirmed by observations or interviews by subordinates and colleagues” (p. 10). Among the remedies proposed by Alvesson are to avoid only using questionnaires and interviews with one part of a leadership relation, and to recognise the political aspects of an organisation which may influence the way in which leadership operates.

The design of the current study is intended to address these criticisms, through a Mixed Methods Research (MMR) approach (Cameron, 2011; Creswell & Plano Clark, 2007). This entails conducting qualitative (QUAL) Case Studies (Yin, 1981) in three campus-based universities combined with quantitative (QUAN) analysis of survey data. The case studies involve QUAL interviews with

several key informants, at different levels of the HE hierarchy, covering both governance (political) and management (operational) leaders, at senior and middle management level. The historical, political and cultural context of the Case Study institutions (CSIs) is considered; strategy and organisational documents are analysed; and within-case and cross-case analysis is conducted. The QUAN survey is designed to identify academics' perceptions of Digital Education Leadership and contribute to establishing 'both sides of the story' in response to Alvesson.

By taking up Jameson's (2013) call for action, and by studying Digital Education Leadership with reference to Davis' (2012) Leadership Literacies within the context of European universities, it is intended that this research will contribute to generating significant new knowledge in the following ways:

- Bridging the divide between the fields of educational management and educational technology through a multidisciplinary approach.
- Generating new knowledge through a robust empirical MMR study.
- Developing and applying a novel concept, that of Digital Education Leadership Literacies in Higher Education (DELLHE).
- Supporting future research by developing a conceptual framework which can be applied in further studies, including the development of research instruments such as interview guides and surveys.

Over and above the contribution of this study to research and knowledge, the results are also intended to have an impact within HE itself, through the proposed use of the DELLHE framework for designing and implementing LD programmes and interventions, supporting the development of leadership capacity for pedagogically and ethically sound Digital Education.

Research goals

This Mixed Methods-Case Study (MM-CS) research (Guetterman & Fetters, 2018) aims to determine how a framework of Digital Education Leadership Literacies in Higher Education (DELLHE) can support European campus-based universities in improving the way technology is used for teaching and learning. Details of the research design and methodology can be found in Chapter 3.

This aim is achieved through investigating the role of DELLHE in European campus-based universities and developing evidence-based recommendations for LD, guided by the following research questions (RQ):

- RQ1) How can existing frameworks and concepts be combined into a single framework of Digital Education leadership Literacies (DELLHE)?
- RQ2a) How are DELLHE experienced by key informants in selected European universities?

- RQ2b) How do key informants in European universities develop (i.e. “learn”) DELLHE?
- RQ2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?
- RQ3a) How are DELLHE reflected in existing Leadership Development Programmes (LDPs)?
- RQ3b) What changes should be proposed to reinforce the development of DELLHE?

In order to answer these RQs, the specific objectives are to:

- Design a framework of Digital Education leadership Literacies in Higher Education (DELLHE).
- Determine whether there is theoretical congruence between the proposed DELLHE framework and the lived experience of key informants in European campus-based universities.
- Identify whether and how key informants develop (i.e. learn) DELLHE.
- Analyse current strategy, organisation and practice in three European campus-based universities in relation to Digital Education Leadership.
- Analyse HE LDPs with respect to DELLHE.
- Develop and validate evidence-based recommendations for DELLHE for in support of LD in European universities.

Research paradigm

This study is grounded in pragmatism “adopt[ing] a methodologically eclectic, pluralist approach to research, drawing on positivism and interpretive epistemologies based on the criteria of fitness for purpose and applicability, and regarding ‘reality’ as both objective and constructed” (Cohen et al., 2013, p. 23). Rather than fall into the paradigm incompatibility trap of opposing different epistemologies (Denzin, 2010; Howe, 1988; Teddlie & Tashakkori, 2003), pragmatism represents an open and pluralist approach which enables the researcher to move beyond such dichotomies as opposing representation and reality, or the individual and the collective. As such, this approach is of particular relevance for studying leadership, management and organisations (Lorino, 2018).

Pragmatism is frequently associated with MMR (Biesta, 2010; Cameron, 2011) where QUAL analysis is considered to draw on an interpretive epistemology and QUAN analysis on positivism or post-positivism. However, this alignment is contested (Denzin, 2012; Morgan, 2014) in that, while “there may be an affinity between paradigms and methods,... there is no deterministic link that forces the use of a particular paradigm with a particular set of methods” (Morgan, 2014, p. 1045). Rather than focus on the practicalities of research (the how), researchers are encouraged to consider instead the

philosophical underpinnings of pragmatism, first developed by Dewey (1910).

As Denzin (2012) points out:

Classic pragmatism is not a methodology per se. It is a doctrine of meaning, a theory of truth. It rests on the argument that the meaning of an event cannot be given in advance of experience. The focus is on the consequences and meanings of an action or event in a social situation. This concern goes beyond any given methodology or any problem-solving activity. (p. 82)

A further criticism addressed at the MMR community is in giving excessive importance to QUAN methods, and paying lip-service to QUAL research (Denzin, 2010, 2012). The current study is firmly anchored in Mixed Methods interpretivism (Howe, 2004) where QUAN methods are mobilised in support of the overarching QUAL approach. The research design, detailed further in Chapter 3, reflects this, with the initial theory building phase and case studies mobilising QUAL methods (a Delphi study, semi-structured interviews), and statistical analysis from QUAN survey data being brought in to provide additional insights, before a final QUAL validation of the results in the form of an online focus group. In this way the current study includes different voices, from both within the direct populations participating (Digital Education leaders and academics) and through the mobilisation of experts who themselves form part of the overall population involved in Digital Education.

The way in which pragmatism informs the current study thus goes beyond the traditional association with MMR. This research considers the lived experience of key informants in European universities with respect to leadership for Digital Education. It does this from multiple perspectives: exploring mindsets and attitudes on the part of those in formal leadership roles, and the way that leadership behaviours and actions influence the mindsets and attitudes of others (in particular HE teaching staff) with respect to Digital Education.

Furthermore, pragmatism does not preclude reference to moral, political, ethical and political issues (Denzin, 2010), fully recognising their place at the centre of human experience (Morgan, 2014). In addition to this, the open, pluralist approach of pragmatism enables the consideration and acceptance of value pluralism, whereby "...organisational tensions between differing concepts of the digital, pedagogy, curriculum, and the university... will be manifest in the behaviour of institutional actors on the organisational stage and in the substance of their decisions about strategy, funding, structures, and daily practice" (Johnston et al., 2018, p. 5).

It is in this spirit, then, that the current study takes a critical lens where relevant, consistent with modern conceptualisations of the digital university (Johnston et al., 2018) and indeed the multiliteracies approach itself (The New London Group, 1996), both of which are framed in terms of critical pedagogy

(Freire, 1974). The overall aim of the study being to explore the role of Digital Education Leadership Literacies in fostering the pedagogically sound and ethical uptake of technology for teaching and learning, this critical lens is intended to provide significant insights not only into the attitudes and mindsets of the different participants, but also into the context in which Digital Education Leadership operates.

Overview of chapters

Part I continues with chapters 2 and 3, setting out the theoretical background (Chapter 2) and the research design and methodology (Chapter 3).

Part II presents the results of the overall study. Chapter 4 concerns the development of the initial framework. Chapter 5 presents the detailed results of the three Case Studies, and Chapter 6 the statistical analysis of the survey on teachers' perceptions of DELLHE. Chapter 7 presents the recommendations for Digital Education Leadership Development and Chapter 8 the final DELLHE framework.

Part III groups the discussion of the results (Chapter 9) and the overall conclusion (Chapter 10). Finally, an extensive Executive Summary presents the main results and conclusions of the study in French, designed to widen the reach of the study within the country in which the researcher lives and works.

Chapter 2: Theoretical background

Transformation is a highly complicated process in which new values and beliefs about what is right, what is important, and what is possible become part of people's hearts and minds. Leadership is needed to broaden the vision of what can be accomplished, provide guidance through uncharted waters, gain commitment and create systems that are responsive, energising and sustainable.

— Latchem and Hanna (2002)

Introduction

This research brings together three fields of study which are notable for their complexity: leadership, literacies and Digital Education. It is therefore important for each of the key concepts to be clearly defined, and to demonstrate how they can be brought together to form the novel concept of Digital Education Leadership Literacies for Higher Education (DELLHE, pronounced 'Delly').

This chapter begins by reviewing the literature on Digital Education, including the implications of the use of previous and different terminologies such as Technology-Enhanced Learning (TEL), educational technology, e-learning and online learning. This is followed by a detailed account of the relevant, contemporary leadership theories of e-Leadership and Distributed Leadership, addressing criticisms of these and the need to consider leadership

in context. The chapter then turns to the notion of Leadership Literacies and weaves in further relevant leadership theories and concepts to demonstrate the construction of the novel DELLHE concept and framework. The literature on LD is also reviewed, both from a general perspective and with respect to LD in HE, highlighting the lack of research relating specifically to LD for Digital Education Leadership.

The last section of the chapter introduces the different conceptual frameworks mobilised in the study, explaining how they relate to each other to address the central research goal of determining how the DELLHE framework can support European campus-based universities in implementing strategic change to improve the way technology is used for teaching and learning.

Digital Education

The research on the use of technology for teaching and learning uses a wide variety of terms which are not always clearly defined (Passey, 2019). Among these can be found technology-enhanced learning (TEL), educational technology, online learning, e-learning, instructional technology, digital learning (Bayne, 2015; Wheeler, 2012), some of which are brought together in the concept of Online, Open, Flexible and Technology-Enhanced Learning (Orr et al., 2018). Indeed, in reviewing the literature on (e-)leadership for educational technology in HE, Arnold and Sangrà (2018a) note the need to use

a variety of search terms (digital, e-learning, educational technology, ICT, TEL) in order to produce significant results.

Given that the current study is concerned with leadership for higher education teaching and learning in a digital world, the focus here is on the actual use of digital technology for educational purposes, rather than on the technology itself, and covers the whole spectrum of application from a classroom setting to fully online and distance learning (Bates & Sangrà, 2011). The choice of the term Digital Education (Brown, Czerniewicz, Mayiesela, et al., 2016) is thus a conscious decision in an attempt to move away from the technocentric approaches associated with educational technology and the value-laden use of the term TEL (Bayne, 2015; Kirkwood & Price, 2014) described in further detail later.

Having said this, due to its prevalence in the literature (Daniela et al., 2017; Kirkwood & Price, 2014), the term TEL cannot be ignored. Johnston et al. (2018) refer to the working definition of TEL provided by the Universities and Colleges Information Systems Association (UCISA) as: “Any online facility or system that directly supports learning and teaching. This may include a formal VLE, e-assessment or e-portfolio software, or lecture capture system, mobile app or collaborative tool that supports student learning” (p. 22). Bates (2015) distinguishes between technology: “things or tools used to support teaching and learning... computers, software programs such as a learning management

system, or a transmission or communications network” (p. 222), and media: “text, graphics, audio and video as media ‘channels’ in that they intermediate ideas and meanings that convey meaning” (p. 223). To these examples can be added educational uses of advanced or emerging technologies such as Artificial Intelligence, blockchain or robotics (Selwyn et al., 2020).

However, there is a need to address issues with the use of the term TEL, where the underlying meaning behind the word ‘enhance’ is not always made explicit (Kirkwood & Price, 2014), where it implies that the existing way students learn is fine and just needs to be made better through the use of technology (Bayne, 2015), or where the field of TEL research has expanded beyond the initial scope of technology-enhanced learning (Passey, 2019) to encompass the wider area of educational provision with technology, and the management of that education, in addition to applying the term TEL to the way technology supports teaching, and the management of teaching and learning. While fully recognising these limitations, it is important to point out that the terms TEL and educational technology will still be used throughout this thesis dissertation wherever these were the actual terms employed in the research cited.

In a comparative analysis of 69 HEIs from across the globe, categorised into primarily online, primarily distance and correspondence, and primarily campus-based providers, Orr et al. (2018) look at the use of a range of

technologies for teaching and learning. These include online assessment, Open Educational Resources (OER), Learning Management Systems, mobile learning, social media, Virtual Learning Environment, Massive Open Online Courses (MOOCs), videoconferencing, Learning Analytics, e-portfolios, Bring Your Own Device (BYOD), wikis, teleconference, blogging and microblogging, digital badging and Artificial Intelligence. The authors note “a pattern of cautious implementation across the board... with a tendency towards... ‘older’ technology, for example Learning Management Systems (LMS) or Virtual Learning Environments (VLE)” (p. 22). Of particular interest to the current study are the findings that “Campus-based institutions tend to implement technologies for a specific need” (p. 22), and that innovative practices, for example around the use of Artificial Intelligence, are far from mainstream.

This question of practice enables us to move away from a focus purely on the technology and to look more closely at how “particular features of the technology shape practice and how practice shapes the ways that technology is used” (Veletsianos, 2016, p. xi). The choice of the term Digital Education has been made not only in response to the criticisms surrounding TEL, but also to situate the study firmly in the realm of ‘intelligent problem solving’ (Biesta, 2010; Ross, 2017) with respect to the integration of digital technology for teaching and learning in a digital age (Bates, 2015). To this end, Digital Education needs to be understood within the wider “kaleidoscopic social

context within which higher education now must create, present, and maintain itself” (Sangrà & Cleveland-Innes, 2020, pp. 149–150). Understanding the role of the digital in higher education requires a systemic, critical perspective (Castañeda & Selwyn, 2018; Johnston et al., 2018) in order to develop a much more sophisticated and strategic vision of the role and potential of digital technology with respect to teaching and learning, which is precisely what is addressed in this study of Digital Education Leadership Literacies in Higher Education.

Leadership

The field of leadership studies is particularly complex, fragmented and confusing (Alvesson, 2017). The term “leadership” itself

...can refer to a manager’s personality, behaviour, an interaction, a relation, an ideal, the manager’s constructions or the follower’s constructions of “leadership”. It easily captures almost everything. Some authors equate leaders with all managers or senior people, others emphasize the difference between leaders and managers. Sometimes leadership is tied to a person, often a relation, sometimes it is a group phenomenon (shared leadership), sometimes any function that exercises any kind of influence is leadership, sometimes it is even the absence of a leader (self-leadership). Often leadership seems to just mean management or “influencing” or good things done by someone influential or a group working together. (p. 7)

Over and above the different meanings attributed to the term 'leadership', there are also a great many different theories, with Dinh et al. (2014) identifying 23 different categories of leadership theories. The main evolutions identified in the development of leadership theory are recognised as a shift from leader-centric theories focussing on the traits of individual 'heroic' leaders, to a more contextualised, systemic approach (Bolden et al., 2003; Chelf, 2018; Gronn, 2002). For the purposes of this research, leadership is understood as a social influence process with the view to achieving common goals (Northouse, 2015), also defined by Locke (2003) as "the process of inducing others to take action toward a common goal" (p. 271).

The purpose here is not to provide an exhaustive overview of leadership theory, which can already be found in the literature (Dinh et al., 2014; Uslu, 2019), rather it intends to focus on those theories particularly relevant to Higher Education leadership in general, and Digital Education Leadership in particular. In a systematic review of studies of leadership models in educational research from 1980 to 2014, Gumus et al. (2018) identify Distributed Leadership, instructional leadership, teacher leadership and Transformational Leadership as by far the four most frequent leadership models. While instructional and teacher leadership are associated with school leadership in the studies reviewed, Distributed Leadership also features strongly in the literature on HE leadership (Bolden et al., 2009; Gronn, 2016) and Digital

Education Leadership in HE in particular (Arnold & Sangrà, 2018a; Jameson, 2013). In place of instructional and teacher leadership, the notion of Academic Leadership (Lucas & Associates, 2000) has more relevance to HE in terms of bringing about changes in the way digital technology is used for learning and teaching, and is integrated in the section on LD later in this chapter.

Transformational Leadership (Bass, 1985; Bass & Avolio, 1993; Burns, 1978) is included in this theoretical background due to its tight connection with change management (Kotter, 1995; Kotter & Schlesinger, 1979), while acknowledging that Transformational Leadership theory still adheres largely to a leader-centric, heroic leadership approach (Stewart, 2006). More contextualised approaches to theorising leadership can be found in the concepts of leadership configurations (Gronn, 2009, 2011) and leadership as practice (Youngs, 2017), as well as in the theories of Relational Leadership (Uhl-Bien, 2006) and Complexity Leadership (Baltaci & Balci, 2017; Uhl-Bien et al., 2007). Finally, the concept of e-leadership is addressed for its close but sometimes problematic relationship with Digital Education Leadership (Arnold & Sangrà, 2018a; Brown, Czerniewicz, Mayiesela, et al., 2016; Preston et al., 2015), and indeed this forms the starting point for the following contextualisation of leadership theory with respect to Digital Education.

The problematic concept of e-leadership

The concept of e-leadership first emerged in the business world at the beginning of the 2000s (Avolio et al., 2001) and is defined as “a social influence process embedded in both proximal and distal contexts mediated by AIT [Advanced Information Technology] that can produce a change in attitudes, feelings, thinking, behavior, and performance” (Avolio et al., 2014, p. 107). According to Jameson (2013), e-leadership for educational technology in HE implies the knowledge and skills required for leaders in terms of purpose (vision and planning for technology and for teaching and learning), people (values, ethics, trust, human resources management) and structures and social systems (organisational structure, infrastructure). However, Arnold and Sangrà (2018a) identify a number of problems surrounding the definition of e-leadership in the context of TEL leadership, as “the leadership interventions, behaviours and attitudes of higher education governance and academic leaders in strategic thinking and decision-making around TEL are themselves not necessarily mediated by technology, although they may be” (p. 22).

Some scholars accept the notion of e-leadership as conceptually ambiguous (Salmon & Angood, 2013), while others propose widening the definition to include e-leadership as “the ability to effectively select and use ICTs for both personal and organizational purposes” (Van Wart et al., 2017, p. 529). More directly related to TEL, Preston et al. (2015) recommend that e-

leadership in this context be defined as “the effective promotion and integration of technological learning and literacy into and within [educational] environments” (p. 991). Finally, Brown et al. (2016) challenge the use of the term e-leadership for its virtual leadership origins in the business world and the fact that when it is used in relation to education “it is primarily concerned with the successful implementation of technology in teaching and learning practices. ... emphasis[ing] leadership in educational technology” (p. 2).

In recognition of this and in the light of the aforementioned problems, Arnold and Sangrà (2018a) align with Van Wart et al. (2017) in writing (e-)leadership rather than e-leadership, while at the same time arguing the need for an agreed definition of e-leadership as applied in this context. Taking these issues into account, this study adopts Brown et al.’s (2016) argument for referring to Digital Education Leadership, focusing as it does on “the fostering of leaders who have the qualities to lead in a digital culture” (p. 2).

Change Management and Transformational Leadership

As the premise of this study is that digital technology is still not being used to its full potential for teaching and learning in HE, it follows that there needs to some kind of change or transformation in order for this to become reality. This section begins by examining change management and change

leadership, before addressing the potential and limitations of Transformational Leadership theory.

In his seminal work *Leading Change*, Kotter (1995) examines the reasons why change initiatives fail in the business sector, and proposes eight steps in order to address these: “establishing a sense of urgency, forming a powerful guiding coalition, creating a vision, communicating the vision, empowering others to act on the vision, planning for and creating short-term wins, consolidating improvements and producing still more change, institutionalizing new approaches” (p. 3). In prior work, Kotter and Schlesinger (1979) identify the four most common reasons for resistance to change on the part of those impacted by the proposed change. Firstly, both managers and employees may fear losing something they value and will thus defend their own self-interest. Secondly, misunderstandings about the reasons for the change and the form that change will take need to be surfaced and clarified. Thirdly, those charged with implementing the change may not believe that it will actually benefit the organisation and need to be listened to. Finally, some staff will have a generally low tolerance for change anchored in doubts about their ability to develop the skills that the new way of working will require of them, and will need to be reassured and supported.

Change management entails assessing which of the reasons for resistance to change apply to those affected by the proposed change and

deploying a combination of appropriate approaches in order to overcome such resistance (Kotter, 1995; Kotter & Schlesinger, 1979). Of particular interest for this study is the notion of the strategic continuum proposed by Kotter and Schlesinger, which considers these approaches in relation to the speed of change required. Where the change needs to be implemented rapidly, more time-consuming approaches such as facilitation, support and involvement in decision-making may simply not be possible, requiring a recourse to negotiation or the more covert strategies of manipulation, co-optation and coercion. However, change management in itself is insufficient, as argued by Gill (2003) who defends a shift in focus towards that of change leadership. This entails approaching change through the multiple lenses of vision, values and culture, strategy, empowerment, and motivation and inspiration.

Turning now to the question of strategic change in HE, the aforementioned reasons for resistance are compounded by a strong attachment to tradition in terms of culture, values and customs (Caruth & Caruth, 2013; Hechanova & Cementina-Olpoc, 2013). Pisapia et al. (2016) examine in detail the contextual factors limiting strategic change in HE, where universities have little control due to external and internal constraints in terms of governmental policy, public expectations of HE, student demands in terms of tuition fees and employability and tensions between the tradition of consensual governance on the part of academics and faculties, and the more vertical top-down leadership

adopted by university administrators. The two main recommendations formulated by Pisapia et al. (2016) are to mobilise horizontal leadership in conjunction with vertical leadership and for university leaders to devote time and energy to developing sense-making.

This question of horizontal leadership will be developed in the following section on Distributed Leadership. However, before moving on, it is necessary to address the relationship between change management and Transformational Leadership, and then to examine how this has been applied in relation to Digital Education Leadership. Transformational Leadership theory can be traced back to the work of Burns (1978) who distinguished it from transactional leadership in that the transformational leader “looks for potential motives in followers, seeks to satisfy higher needs, and engages the full person of the follower” (p. 4) whereas the transactional leader will focus on rewards and exchange.

Despite much criticism of Burn’s theory as being devoid of any empirical grounding and continuing to focus on the heroic individual leader (Stewart, 2006), Transformational Leadership and its incarnation in the form of Full Range Leadership and the Multifactor Leadership Questionnaire (Bass, 1985; Bass & Avolio, 1996) have been the subject of a multitude of studies on HE leadership and Digital Education Leadership in particular (Antonopoulou et al., 2019; Franciosi, 2012; Gençer & Samur, 2016; Ng, 2008; Vermeulen et al., 2015),

some of which even report apparently contradictory results. For example, Antonopoulou et al. (2019) use the Multifactor Leadership Questionnaire (Bass & Avolio, 1996), finding correlations between transformational leadership and digital leadership, as well as between digital leadership and a high level of declared digital attributes. However, Gençer and Samur (2016), using a similar approach, find that leadership style is not directly correlated with competency in technology leadership and indeed highlight among the limitations of their study that aspects such as “digital age learning culture and [teacher] excellence in professional practice” (p. 232) were excluded from their study.

Yet another exploration of Digital Education Leadership through the lens of Transformational Leadership would not add much to the current literature in terms of originality. Furthermore, the current study rejects the leadership styles school of thought in favour of a more systemic approach addressing leadership in terms of the mindsets, attitudes and behaviours of individual leaders as well as leadership as process, considering the political, cultural, organisational and technological environment in which this leadership operates. In response to this, Distributed Leadership and its subsequent evolutions need to be examined.

From Distributed Leadership to Leadership-as-Practice and Leadership Configurations

Since the turn of the century, Distributed Leadership (Gibb, 1954; Spillane, 2006) has been one of the most frequently applied leadership theories in educational research (Bolden et al., 2009; Gronn, 2016; Gumus et al., 2018) and, indeed, two extensive literature reviews covering the periods 2000-2013 (Jameson, 2013) and 2013-2017 (Arnold & Sangrà, 2018a) confirm that Distributed Leadership is also the most popular leadership theory in the sub-field of educational technology leadership research in higher education. Distributed Leadership offers an alternative to 'leader-centric' theories, which focus on the individual traits of leaders, by taking into account the environment in which leadership operates from a more systemic perspective (Bolden, 2011). In this sense,

Distributed leadership is not something 'done' by an individual 'to' others, or a set of individual actions through which people contribute to a group or organization... [it] is a group activity that works through and within relationships, rather than individual action. (Bennet et al., 2003, p. 3)

Bolden (2011) also identifies other related terms, such as shared leadership, collective leadership, collaborative leadership, co-leadership and 'emergent leadership', considering that

Common across all these accounts is the idea that leadership is not the monopoly or responsibility of just one person, with each suggesting a similar need for a more collective and systemic understanding of leadership as a social process (Barker, 2001; Hosking, 1988). (p. 252)

With respect to higher education leadership, Jones (2014) argues that distributed leadership is too frequently, and erroneously, considered synonymous with collaboration and concludes that “for a distributed leadership approach to be appropriate and effective, higher education institutions need to instigate action supported by formal leaders and underpinned by an action reflective approach that enables change over time” (p. 129).

Alternative approaches to studying higher education leadership are put forward by Youngs (2017), in the form of ‘leadership as practice’, and Gronn (2016), with the notion of hybrid leadership configurations. These two approaches are outlined below. Youngs (2017) situates his criticism of Distributed Leadership within the context of the rise of New Public Management in Higher Education, which has further heightened an existing duality between academic and professional staff, where the former traditionally engage in a collegial approach to decision-making and the latter are more bound by a top-down managerial approach. Given the fact that Digital Education leadership by its very nature concerns both academic and professional staff, it is important to explore this concept further.

According to Youngs, Distributed Leadership might actually reinforce this duality, by “subtly reaffirm[ing] embedded interests and structures” (p. 140). He points to several studies in which Distributed Leadership gives the illusion of participation in decision-making (Bolden et al., 2009); where, despite delegation of responsibility, a formal leader or group keeps a grip on power (Davis, 2014) or where silos and hierarchical structures form barriers to Distributed Leadership (Kezar, 2006). Overcoming these tensions is addressed in Whitchurch’s (2008, 2018) concept of an emerging *third space* of academia “in which professional staff engage in leadership activity based on their expertise, particularly in learning and teaching support areas” (Bolden et al., 2015, p. 7) and which “sees professional and academics collaborating as they align learning and teaching and research quality to strategic aims and accountability” (Jones et al., 2014, p. 425).

This concept of *third space* professionals is reflected in the literature on TEL and TEL leadership, even if not explicitly mentioned. For example, Hudson (2009) refers to New Professionals in conceptualising the struggles of educational developers and learning technologists; Burnette (2015) identifies strategies for online education administrative leadership in the context of a struggle for authority; others argue for recognition of the strategic importance of educational technologists (Shurville et al., 2009; Watson & Watson, 2013). The ability of Digital Education leaders at different levels to recognise and work

both with and within this *third space* is thus of particular interest for the current study. For governance-level leaders and senior management in particular, this implies ensuring that organisational structures are appropriately configured around the institutional strategy to optimise *third space* collaboration with sufficient flexibility and recognition for both academic and professional staff to navigate across boundaries.

Gronn (2016) also considers that Distributed Leadership “provides merely part of the story of what goes on in educational organizations such as universities...” (p. 172) given that “*both* collectivism and individualism operate in tandem in the university sector” (p. 170). Indeed, over the course of the first decade of the 21st century, Gronn became progressively disillusioned with Distributed Leadership’s inability to account for the reality of leadership. This resulted in a proposal for the consideration of a new unit of analysis in leadership research, in order to overcome the traditional dichotomies resulting from the individual as unit of analysis (leader versus follower) or by opposing individuals and the organisation. Gronn (2009) proposes that this new unit of analysis should be that of the leadership configuration, providing “a conceptually over-arching term to denote a pattern of leadership” (p. 547). The need to consider both the individual and the collective aspects of leadership is also addressed by Crevani (2018) who argues that “Taking a process ontology means trying not to reduce the phenomenon to single leaders” (p. 87).

However, while the leadership configurations approach may explain the leadership processes at play within a given organisation, and as such is of interest to HE leadership in understanding organisational dynamics, there is still an insufficient empirical research base to provide insights into how this might support universities in bringing about the required change for improving the way digital technology is used for learning and teaching. Over and above this, as has been highlighted frequently throughout this chapter, the context in which such change is introduced is of paramount importance.

Leadership in context

It is clear that the Digital Education Leadership Literacies of individual leaders cannot be fully understood without taking into account the context in which these leaders operate, nor can Digital Education leadership as a process be fully understood without attention to these individuals, their Leadership Literacies and identity. As stated previously, this requires looking beyond some of the many dichotomies in leadership studies, namely the divide between leader-centric and distributed perspectives, in addition to the leader-follower dichotomy (Collinson, 2014) in a shift towards the consideration of a hybrid configuration in which varying degrees of focused individual leadership and distributed leadership co-exist (Gronn, 2009).

One way of framing the interactions between the individual and collective aspects of leadership is through Relational Leadership theory. Uhl-Bien (2006) identifies two orientations: the first as an 'entity' perspective, which "approaches relationship-based leadership by focusing on individuals (e.g., leaders and followers) and their perceptions, intentions, behaviors, personalities, expectations, and evaluations relative to their relationships with one another" (p. 654); the second "a relational orientation [which] does not focus on identifying attributes of individuals involved in leadership behaviors or exchanges, but rather on the social construction processes by which certain understandings of leadership come about and are given privileged ontology" (p. 654).

Complexity Leadership Theory (Uhl-Bien et al., 2007) goes even further, building on the understanding of "leadership as a complex interactive dynamic from which adaptive outcomes (e.g., learning, innovation, and adaptability) emerge" (p. 298). In the conceptual model developed by Uhl-Bien and colleagues, different leadership roles (adaptive, administrative and enabling) are themselves entangled when considered in the light of "a dynamic relationship between the bureaucratic, administrative functions of the organization and the emergent, informal dynamics of complex adaptive systems" (p. 298). Universities themselves have been framed as such complex adaptive systems (Rouse, 2016) and complexity leadership can be seen as way of

helping organisations shift from a focus on technical problem-solving, characteristic of the industrial age, towards addressing the challenges of the information era (Baltaci & Balci, 2017).

Oc (2018) states that “Leadership does not occur in a vacuum” (p. 218) and Alvesson (2017) criticises the field of leadership studies for often neglecting the internal and external forces influencing organisational life and failing to recognise that organisational reality “is often messy, political and focused on short term results” (p. 10). One way of framing this reality is in terms of organisational culture. With specific reference to HE, Bergquist and Pawlak (2007) update Bergquist’s earlier work (1992) defining six sets of cultural values of the academy. These are defined and explained below.

Collegial: “a culture that finds meaning primarily in the disciplines represented by the faculty in the institution” (Bergquist & Pawlak, 2007, p. 15) and characterised by an attachment to the generation and dissemination of knowledge and to collegial decision-making.

Managerial: “a culture that finds meaning primarily in the organization, implementation, and evaluation of work that is directed toward specific goals and purposes” (p. 43).

Developmental: “a culture that finds meaning primarily in the creation of programs and activities furthering the personal and professional growth of all members of the higher education community” (p. 73).

Advocacy: “a culture that finds meaning primarily in the establishment of equitable and egalitarian policies” (p. III) characterised by tensions in terms of the balance of power between management and faculty and the recourse to negotiation and bargaining.

Virtual: introduced by Bergquist and Pawlak in the revised edition, the virtual culture “finds meaning by answering the knowledge generation and dissemination capacity of the postmodern world” (p. 147). It embraces the complexity and ambiguity of the digital world and is attached to principles of Open Education.

Tangible: also introduced in the revised edition in order to counterbalance the virtual culture, the tangible culture “values the predictability of a value-based, face-to-face education in an owned physical location” (p. 185).

The virtual culture is naturally of interest to this study on Digital Education leadership. However, in interpreting the six cultures described above, it is important to resist the temptation to align a particular institution with a single dominant culture. Instead, it is more a question of understanding the complex interplay of multiple cultures within a particular institution, placing this in the wider economic and policy context within which the university operates, and of leveraging the potential for change. Bergquist and Pawlak propose two possible ways in which to do this. The first is through

Appreciative Inquiry (Cooperrider & Whitney, 2005), a collaborative exploration focusing on strengths, hopes and vision for the future rather than on deficits and barriers to change. The second approach is to take an ironic perspective (Rorty, 1989) through which leaders develop a keener understanding of the tensions and polarities at play within and between the six cultures, putting them in a better position to identify and address opposition and to anticipate the consequences of any attempt to bring about change.

Bergquist and Pawlak's model is not the only one to have been studied and applied by scholars with respect to institutional change and Digital Education Leadership. For example, Kezar and Eckel (2002) combine Bergquist's (1992) initial four cultures of the academy and Tierney's (1988) individual characteristics of institutional culture, namely Environment, Mission, Socialization, Information, Strategy and Leadership. Czerniewicz and Brown (2009) study the relationship between institutional policy, organisational culture and e-learning use in South Africa, applying McNay's (1995) organisational cultural types of Collegium, Bureaucracy, Corporation and Enterprise, concluding that "although a Structured Corporate institutional type enables the attainment of a "critical mass" within e-learning, Unstructured Collegium institutions are better at fostering innovation. Unstructured Bureaucratic institutions are the least enabling of either top down or bottom up e-learning change" (Czerniewicz & Brown, 2009, p. 121).

Looking at McNay's (1995) typology in more detail, the Collegium is characterised by "institutional freedom from external controls... and academic autonomy" (p. 106) and as such manifests itself in the collegial culture as defined by Bergquist and Pawlak (2007). However, McNay notes the risk of bias due to the influence of individual or disciplinary perspectives. The Bureaucracy is defined by regulation, consistency, quality and efficiency, reflected in Bergquist and Pawlak's managerial culture. Here the risk is in not being able to navigate rapid change. In the Corporation: "the executive asserts authority, with the vice-chancellor as chief executive" (p. 107), with the risk of generating resentment among others. Aspects of this may be found in both the managerial and advocacy cultures. Finally, the Enterprise culture embraces the notion of client "where the knowledge and skills of experts, and the needs and wishes of those seeking their services, come together" (p. 107). Looking back to the six cultures defined by Bergquist and Pawlak, it is not immediately obvious as to where to situate McNay's Enterprise culture. On closer examination, McNay could be said to be addressing institutional culture from the point of view of strategy and operations, whereas Bergquist and Pawlak are more concerned with values, including those which remain tacit. There is thus a clear argument for considering different complementary approaches to institutional culture in the current study.

More recently, and in the specific field of TEL, Voce (2018), combines three elements of Tierney's characteristics (mission, strategy and leadership) with McNay's (1995) typology. Voce (2018) also brings in the notion of sub-cultures within institutions, referring to Trowler and Knight (2002) who state that a "university possesses a unique and dynamic multiple cultural configuration which renders depiction difficult and simple depiction wildly erroneous" (pp. 145–146). Voce identifies two main findings with respect to the influence of organisational culture on the adoption of TEL in HE in the United Kingdom, namely "departmental/school culture and the role of influential people" (p. 229). These internal influencers were found to be both senior managers and students, as well as the heads of TEL units. This role of students (and staff) as change agents was already identified by Marshall (2010) who recommends "finding ways that the experiences of students and staff can be used to frame future technology supported organisational and pedagogical change" (p. 189). Furthermore, the influence of departmental subcultures is echoed by Evans and Morris (2016), who consider that:

Effective TEL-focused strategic change leadership in HEIs requires an understanding of what academics may – either immediately or over time – recognise and accept, on balance, as a 'better' academic professionalism. It involves appealing to their perceptions of a professionalism that works for them, and with which they can identify. In this respect, a one-size-fits-all approach is unlikely to work in a

university setting, where epistemic tribes, territories and tribalistic rituals determine local, departmental cultures.” (p. 76)

When considering institutional culture, it is important to avoid over-generalisations, and to remember that this culture is also a result of historical and political developments. As the current study focuses on European universities, national specificities need to be taken into account. Paradeise et al. (2009) compare university governance in Western Europe, identifying a paradox in that “reforms of higher education (HE) in Western European countries have much in common and yet each is path dependent” (p. 227). One approach to providing more detail as regards these different paths is to look at the different levels of autonomy of HEIs (Enders et al., 2013) in European member states. The one characteristic noted by Paradeise et al. (2009) as showing little difference is “in the pattern of high organizational turbulence in the HE systems between well known reform-prone countries such as those in Northern Europe, and supposedly rigid societies like France” (p. 227). However, Musselin (2005) argues the need to examine both the policy and the individual levels, noting that “while the national reforms deeply affected the governance of higher education systems within European countries, this in turn obliged academics to develop new practices but it barely impacted upon their identities and beliefs” (p. 77). In a footnote to this statement, Musselin raises issues which are of particular relevance to the current study:

This means that there is no perfect connection here between practices and ideas or representations. Or to put it differently, actors may change their practices (as a result of the introduction of new instruments, rules, settings) but nevertheless still adhere to the same norms, values and identities.” (p. 77)

While Musselin is talking about the influence of policy reforms on practice and representations, the current study explores the role of leadership, and Digital Education Leadership Literacies in particular, in improving the way technology is used for teaching and learning, and as such fully addresses the question of representations and attitudes as well as that of practice.

Leadership literacies

A central aim of the current study was to take the concept of Leadership Literacies as developed by Davis (2012) in order to explore how these could be applied to Digital Education Leadership. From Davis’ work (2012, 2014), Leadership Literacies are understood as a set of attitudes, understandings and mindsets which enable leaders to address complex problems and solve them in ways which are respectful of people and the environment. Davis (2012) situates her theory within Freire’s (1970) notion of “literacy as conscientization pointing to possibilities for empowerment, social transformation and emancipation for leadership practitioners and scholars” (p. 27).

It is vital at this stage to delve deeper into the concept of ‘literacies’ in order to determine the relevance and significance of this choice of this term, where others might have chosen ‘skills’ or ‘competences’. Moreover, it is important to recognise the complex, multiple, imprecise or overlapping understandings and use of the terms ‘skills’, ‘competences’ and ‘literacies’ in particular in reference to digital literacy (Belshaw, 2014; Brown, 2017).

The concept of literacies as understood and applied in this study is inspired by the work on multiliteracies of the New London Group (NLG) (Serafini & Gee, 2017; The New London Group, 1996). Literacy in its most basic form refers to the ability to read and write, however, the NLG saw the need for a much wider understanding of literacy in a multicultural, multilingual world, taking into account different forms of communication resulting from the growing use of information and communication technologies. While at this time the notion of multiliteracies still related to understanding, producing and communicating media-based messages, in a personal retrospective on the work of the NLG, Gee (2017) considers that “there are many different semiotic systems that can be looked at as “literacies”, such as digital literacy, emotional literacy, gamer literacy, scientific literacy, and so on” (p. 29).

So, if we can talk about emotional literacy, or scientific literacy, can we also talk about leadership literacy? One approach is to look at the purposes of literacies, as literacies for work, for citizenship and for contemporary

community life (Kalantzis et al., 2016). This is reinforced by the UNESCO definition of literacy as the ability to use cognitive skills “in ways that contribute to socio-economic development, to developing the capacity for social awareness and critical reflection as a basis for personal and social change” (Unesco, 2006, p. 147).

Furthermore, literacy involves making and participating in meanings, where “our focus is not only on “communication” (making meanings for others, and the interpretation of those meanings according to the experience and interests of the interpreter), but also for “representation” (making meanings for oneself, or literacies as tools for thinking)” (Cope et al., 2017, p. 37).

In linking literacies with leadership, Davis (Davis, 2012, 2014; Davis & Macauley, 2011) draws on the concept of global leadership literacies developed by Rosen (2000), Hames (2007) and Renesch (2007). Of these three, Renesch in particular is perhaps the clearest in connecting the traditional understanding of literacy with its application to the field of leadership:

The new literacy isn't about reading, writing and arithmetic or simply understanding content. It is about being experienced at reframing, creating new mental models, and shifting the place from where thinking comes. It is more about the *context* of thinking than the *content*. (p. 20)

As Davis (2012) continues, “To be literate also implies a deeper understanding of the particular phenomenon under review and an ability to

make sense of, embody, comprehend, interpret, analyse, respond, and interact with complex sources of information and experiences within that domain” (p. 75).

Thus, by understanding literacies as meaning making — for the self (*representation*) and for others (*communication*) — it is possible to frame Leadership Literacies in these terms, within the wider understanding of leadership as a social influence process with a view to achieving common goals (Northouse, 2015). The proposal here is therefore to build on Davis’ initial concept, enriching it through this additional association with the multiliteracies work of the NLG.

Literacies, and Leadership Literacies in particular, are understood as referring to mindsets and understandings (*representation*) as well as actions and behaviours (*communication*) rather than the ability to perform a particular task. These literacies integrate the notions of critical reflection, social transformation and empowerment. Applying this to the study of Digital Education Leadership Literacies for Higher Education (DELLHE), it can be said that these are concerned on the one hand with leaders’ *representations* of the digital world, of the higher education system in which they operate, of the meaning they make of technology for teaching and learning; on the other hand, with these same leaders’ *communication* in terms of behaviours and actions when engaging in Digital Education Leadership. Leadership Literacies are thus

distinct from individual traits as they are inextricably tied to the context in which they are developed and practised, as “mindsets amenable to navigating complex and turbulent conditions of work” (Davis, 2014, p. 372).

Davis (2012) identifies five Leadership Literacies: Worldly, Sustaining, Leadingful, Relational and Learningful. The first three are considered to be “necessary cognitive shifts” (p. 98), and the last two “enablers to be of particular value once these shifts in thinking have occurred” (p. 99). Davis’ definitions of and theoretical grounding for each of the five Leadership Literacies are provided below, followed by additional considerations for contextualising these with respect to Digital Education Leadership.

The Worldly Leadership Literacy

The Worldly Leadership Literacy “acknowledges that leaders understand themselves as well as their place in the many interrelated inner and outer worlds they occupy” (Davis, 2012, p. 99). As such, it clearly resonates with Freire’s view of literacy as *reading the world* (Freire & Macedo, 1987). In the context of Digital Education Leadership, the Worldly literacy can be seen as relating to the way in which HE leaders understand the digital world, from a personal, organisational and societal point of view, as well as the role they see educational technology as playing in support of teaching and learning. This addresses attitudes to educational technology (Bayne, 2015), including critical

perspectives (Castañeda & Selwyn, 2018) and an awareness of the affordances of technology for teaching and learning (Beetham & Sharpe, 2007; Gibson, 1979; King & Boyatt, 2015; Stoddart, 2015) as well as an understanding of teaching and learning theory and practice (Bates, 2015), in particular the notion of teaching as design (Goodyear, 2015; Laurillard et al., 2018).

Looking beyond the digital to the wider context of HE, the Worldly literacy also encompasses representations of the purpose of HE in terms of values (Fullan & Scott, 2009; Johnston et al., 2018; Laurillard, 2016) as well as leaders' awareness of current and future challenges to HE (Fernandez & Shaw, 2020; Selwyn et al., 2020) and how these representations are communicated to others through the institutional vision and strategy for Digital Education.

The Sustaining Leadership Literacy

The Sustaining Leadership Literacy takes “sustainability and ecologies [as] key considerations globally and locally for the conduct of leadership in the 21st century” (Davis, 2012, p. 100). Here, Davis refers to the triple bottom line concerns of “economic, social and sustainability outcomes” (Scott et al., 2008, p. 137) as key components.

Framed in terms of Digital Education Leadership, the Sustaining literacy covers the environmental impact of educational technology choices (Selwyn et al., 2020), both in terms of awareness and how this is translated into policy and

concrete action. It is also concerned with the human implications of technology choices for staff and students, with a particular focus on ethical and privacy issues surrounding the use of staff and student data (Pardo & Siemens, 2014; Prinsloo & Slade, 2017; Slade & Prinsloo, 2013).

The ability of HEIs to adapt to a rapidly changing environment can be considered in terms of organisational agility (Fernandez & Shaw, 2020; Hemsall, 2014; Hutchings & Quinney, 2015; Mukerjee, 2014), with wider sustainability goals including the fostering of digital citizenship (Akcil et al., 2017; Brown, Czerniewicz, Mayiesela, et al., 2016), Open Education (Lane, 2017) and the production and sharing of Open Educational Resources (OER) for public good (Downes, 2007).

The Leadingful Leadership Literacy

The Leadingful Leadership Literacy concerns “a shift to a post-heroic age for leadership... acknowledging the distributed nature, processes and practices of leadership” (Davis, 2012, p. 100). Underlying this is Fletcher’s (2004) work on post-heroic leadership, and the notion of leadership as practice (Raelin, 2016; Youngs, 2017) already outlined above. In the current study, the Leadingful Leadership Literacy is understood as referring to the generic leadership attitudes and behaviours required of Digital Education leaders. It involves knowing about different leadership models, grounded in theory, and

being able to implement the most appropriate model according to purpose and context (Dopson et al., 2019). For example, in the literature regarding Digital Education Leadership (Arnold & Sangrà, 2018a), several authors argue the need for more Distributed Leadership in order to bring about change (Brown, 2013; Cifuentes & Vanderlinde, 2015). However, if Distributed Leadership is indeed the chosen model, there needs to be an explicit commitment to collaborative leadership engaging all levels of the institution (Garrison & Vaughan, 2013; Jones, 2014), a position echoed by Holt et al. (2015) who note a gap between the existence of distributed leadership and participants' understanding of it, including acceptance of its value, concluding that "building distributed leadership must start through deliberative formal leadership commitment and action starting at the highest levels of the institution" (p. 382).

Related to this is the way in which a particular HEI is organised around Digital Education (Bolden et al., 2008a; Gunn, 2011; Kanwar et al., 2018), including the concept of *third space* (Whitchurch, 2008, 2013, 2018). Further Leadingful considerations include the unification of top-down and bottom-up leadership (Singh & Hardaker, 2017), middle-out leadership (Murphy, 2016; Roushan et al., 2016) and mobilising the leadership potential of educational technologists (Ashbaugh, 2013; Shurville et al., 2009; Watson & Watson, 2013). This last aspect raises the question of agency, which is dealt with under the Relational Leadership Literacy.

The Relational Leadership Literacy

The Relational Leadership Literacy involves “enacting leadingful approaches by privileging relationships...with the self, with others, with our place and purpose in the world” (Davis, 2012, p. 101). As such it is closely related to the Leadingful literacy but framed by Davis as an ‘enabler’ once the cognitive shift in thinking to a post-heroic leadership perspective has taken place. In particular, it draws on Uhl-Bien’s (2006) Relational Leadership theory. In terms of Leadership Literacies as representation (attitudes and mindsets), the Relational Leadership Literacy might appear at first sight to align more closely with the interpersonal orientation, but in fact it is not interested in personality and individual attributes. Furthermore, the focus on the communication aspect of leadership literacy reflects Uhl-Bien’s relational perspective, where “relating is a constructive, ongoing process of meaning making—an actively relational process of creating (common) understandings” (p. 654).

Other concepts mobilised within the Relational Leadership Literacy are questions of agency (Bolden et al., 2008b; Chreim, 2015) where this is defined “as the capacity to take action” (Tourish, 2014, p. 80). This entails not only the way in which governance and senior management enable the agency of junior staff, academics and students, but also the impact of the organisation as a social system, the institutional culture and the wider political context in enabling or

hindering such agency. Complementary to this is Appreciative Leadership (Orr & Cleveland-Innes, 2015), which “supports innovation throughout the organization by rejecting problem-based and deficit models in favour of freeing staff to generate new and innovative solutions” (p. 239). The question of building a culture of trust is frequent in the literature on HE Leadership (Dasborough et al., 2015; Hemsall, 2014) as well as in the specific field of Digital Education Leadership (Bennet, 2014; Lisewski, 2004; Risquez & Moore, 2013).

The Learningful Leadership Literacy

The Learningful Leadership Literacy concerns “alternative sense-making models... unlearning and relearning” (Davis, 2012, p. 101). According to Hedberg (1981), “knowledge grows, and simultaneously it becomes obsolete as reality changes. Understanding involves both learning new knowledge and discarding obsolete and misleading knowledge” (p. 3). This concept can refer to both individual and organisational unlearning (Becker, 2005) and can be applied in support of change management for the implementation of new technology (Becker, 2010). In this way the Learningful Leadership Literacy is indeed an enabler for the Learningful Leadership Literacy under which change management falls.

The Learningful Leadership Literacy can be considered from two angles. The first of these is the leader as learningful self, in terms of attitudes and practices with respect to LD (Day, 2000). This is covered in more detail in the following section. The second angle is that of leadership to support the development of a learningful community. This is situated within the concept of organisational learning (Senge, 1995, 2006) with specific reference to universities as learning organisations (Bui & Baruch, 2012; Senge, 2000; Tintoré & Arbós, 2013) and to organisational learning with respect to Digital Education (Trevitt et al., 2017). Of particular relevance in terms of unlearning and relearning are Azmi's (2008) recommendations of overhauling traditional structures, redesigning organisational processes, rethinking work, realigning people and resources, and "developing a system that is forever conforming itself to emergent opportunities and incipient trends" (p. 253).

Leadership Development

This research also explores Digital Education Leadership in terms of Leadership Development (LD). This section begins with a clarification of the concept, before presenting the current state of knowledge in relation to LD in HE, as well as that specific to LD for Digital Education in HE.

In his seminal work on LD, Day (2000) highlights the need to distinguish not only between the concepts of management development and

leadership development, but also between those of leader development and leadership development. In particular, “Leader development is based on a traditional, individualistic conceptualisation of leadership... on the other hand, leadership development has its origins in a more contemporary, relational model of leadership” (p. 605). As such, leadership development involves “expanding the collective capacity of organizational members to engage effectively in leadership roles and processes” (Spendlove, 2007, p. 409). However, Day (2000) argues that leader development and leadership development need to be taken together rather than separately, and identifies and analyses six selected practices (p. 588):

- 360° feedback: described as “multi-source ratings of performance, organised and presented to an individual”
- Coaching: “practical, goal-focused form of one-on- one training”
- Mentoring: “advising, developmental relationship, usually with a more senior manager”
- Networks: “connecting to others in different functions and areas”
- Job Assignments: “providing “stretch” assignments in terms of role, function, or geography”
- Action learning: “project-based learning directed at important business problems”.

In addition to the definitions provide by Day (2000), it is useful to look more closely at the distinction between coaching and mentoring. Guccione and Hutchinson (2021) consider them to be sister-disciplines and highlight the similarities, in that they both concern “A designed conversation to aid the clarification and achievement of an individual’s goal(s) and to help them capture the learning involved in the processes of doing so” (p. 7). The authors position mentoring as bringing in “some experience-based contextualisation, advice or guidance” (p.7) to the wider coaching conversation.

Solansky (2010) evaluates two of the aforementioned practices: 360° leadership skills assessment and mentoring, concluding that while leaders’ self-awareness is vital for bringing about change in their behaviours, self-reports are insufficient, and that 360° skills assessment is a more effective way of identifying strengths and weaknesses. Mentoring requires the training of mentors, as well as sufficient time to commit to the mentoring relationship.

Day (2000) considers that one disadvantage of the networking component is that it is informal and ad hoc, yet this was written before the advent of online social networks. Cullen-Lester et al. (2017) study the incorporation of such social networks into LD, proposing a conceptual model articulated around three approaches: Individuals Developing Social Competence (intrapersonal and interpersonal skills); Individuals Shaping Networks; Collectives Co-Creating Networks. This focus on both the individual

and the collective aspects of LD reflects the later work of Day and colleagues, who consider that "...through the examination of an array of factors including experience, skills, personality, self-development, social mechanisms, 360-degree feedback, self-other agreement, and self-narratives, leadership development represents a dynamic process involving multiple interactions that persist over time" (Day et al., 2014, p. 78).

Leadership Development in HE

Dopson et al. (2019) note the fragmented nature and poor empirical base of much of the literature on LD for HE. The authors categorise the main results (32 papers) into three clusters: content, design and outcomes. With respect to content, they note a sometimes simplistic application of Transformational Leadership as reported by Bolden et al. (2003) while at the same time recognising the emergence of (and need for) more contextualised approaches which take into account aspects of HE culture such as distributed, participative and collegial leadership, and which address tensions resulting from a desire for autonomy and academic resistance to management-centred approaches (Bolden et al., 2014; Bryman & Lilley, 2009; Debowski, 2015).

Dopson et al.'s recommendations for LD design are introduced at the end of this section. One of the main conclusions of their literature review on HE LD is a lack of attention to the purposes of HE, despite the fact that "The

leadership tasks of university leaders, along with the skills, behaviours and values needed, should be driven by core purposes” (p. 226). This finding is of particular relevance for the current study, both in terms of addressing purpose and values with respect to Digital Education, and of considering the leadership attitudes and behaviours required to foster the strategic development of digital technology for learning and teaching. Finally, Dopson et al. (2019) identify the academic leadership model developed by Bolden et al. (2008a) as being a particularly appropriate way of conceptualising leadership in HE through its consideration of individual, collective and contextual aspects. The relationship between this model and the current study on Digital Education Leadership in HE is explained later in this chapter in the section on Conceptual Frameworks.

Digital Education Leadership Development in HE

While the literature base on HE LD is quite sparse, it is practically non-existent when it comes to Digital Education LD. Considering Digital Education LD as a subset of HE LD, this dearth of significant literature comes as little surprise given the paucity already noted by Dopson et al. (2019). Even multiple specific searches on the topic of Digital Education LD in HE (see Chapter 3 for details of the methodology) produced only a handful of relevant results. The majority of these were conference papers, where a follow-up search for journal publications on the topic by the same authors yielded no additional results.

Other results come from the grey literature such as reports related to the LDPs selected for analysis in Chapter 7 (Bacsich, 2017; Brown, Czerniewicz, Mayiesela, et al., 2016; Jisc & Ucisa, 2019) with a single academic journal paper relating to the JISC Digital Leaders Programme (Phipps & Lanclos, 2017). In an approach mirroring that taken by Dopson et al. (2019), the results identified are presented hereafter, grouped into three clusters in terms of their relevance to the current study. The first cluster examines three articles which make explicit reference to Digital Education LD. The second cluster analyses five articles addressing recommendations for Digital Education LD. The third and final cluster highlights the contribution of two papers in terms of alternative approaches.

Cluster 1: Explicit reference to Digital Education LD

Lefoe and Parish (2010) present a framework for leadership capacity development in the form of a Faculty Scholars Program implemented in several Australian universities. While this programme addresses leadership for teaching and learning in general, the authors report on its application in a series of e-learning related projects, such as e-portfolios, a database of assessments and online learning resources. The action-research approach to both implementing and evaluating the programme highlighted five critical success factors: application in real-life faculty-level projects, formal leadership

training, engaging in ongoing dialogue about leadership (through coaching and mentoring in particular), reflective practice and developing professional networks.

Konting (2012) also places Digital Education LD in the realm of academic leadership, using the Malaysian Higher Education Leadership Academy (AKEPT) academic LD model as a foundation for a programme to develop the sustainability of e-learning in line with the goals of the national HE strategic plan. The model centres on ‘inner competence’, framed as “values and ethics which are culturally bound, emotional and spiritual intelligence, as well as communication and interpersonal skills” (p. 318). Looking back to Davis’ (2012) Leadership Literacies, it is clear that these reflect the Worldly dimension in addressing the leaders’ inner worlds, as well as partly to the Relational dimension for the interpersonal aspects. The framework then covers five domains of leadership competencies. The first three — leading change, driving results, leading people — relate to Davis’ Leadingful dimension and again to some extent Relational; organisational capabilities and scholastic excellence are associated with the Learningful Leadership Literacy from both the individual and the organisational learning perspectives. Interestingly, the scholastic excellence domain is also associated with ‘business sagacity’ focusing on results, organisational sustainability and benchmarking. While this conference paper provides a detailed account of both the national e-Learning policy and the

academic leadership framework, it is disappointing in that it does not provide any empirical evidence as to how these two were actually implemented in Digital Education LD, and no further research on this initiative could be identified.

Finally, the account of the JISC Digital Leaders Programme (Phipps & Lanclos, 2017) provides valuable insights into how the Digital Residents/Digital Visitors framework (Lanclos et al., 2016; White & Le Cornu, 2011) is applied to support conversations around how participants envisage themselves and their institution with respect to the digital world.

Cluster 2: Recommendations for Digital Education LD

In addition to the few articles explicitly addressing Digital Education LD outlined above, it is frequent to find examples where scholars formulate recommendations for LD without actually providing empirical evidence of such LD in action. The earliest such work identified (Latchem & Hanna, 2002) is a theoretical paper containing a series of recommendations for leadership for open and flexible learning still relevant nearly 20 years on, and criticising leadership training for focusing too much on management and not enough on building leadership capacity throughout the organisation. As the majority of the papers identified in this cluster converged in terms of the recommendations formulated, they are grouped here according to the main themes rather than

presented separately. It should also be noted that while the majority of these are recommendations for leadership, rather than for LD, they are of interest in identifying the areas that Digital Education LD needs to focus on in terms of content.

Defining and articulating the vision and strategy, including involving staff and key external stakeholders in defining this vision (Keengwe et al., 2009; Latchem & Hanna, 2002; McPherson & Nunes, 2008; Nworie et al., 2012).

Providing training and support, with specific reference to understanding both the technological and pedagogical implications (Keengwe et al., 2009; Nworie et al., 2012).

Providing sufficient and appropriate resources in terms of both infrastructure and funding (Galeon et al., 2019; Keengwe et al., 2009; Latchem & Hanna, 2002; McPherson & Nunes, 2008).

Supporting organisational learning: providing a safe environment in which staff throughout the organisation can engage in conversations, build relationships and experiment with technology to improve their teaching (Keengwe et al., 2009); developing a culture of eLearning (Galeon et al., 2019); encouraging early adopters and change agents (Latchem & Hanna, 2002).

In addition to these themes, Latchem and Hanna (2002) also address the leadership behaviours of identifying risks and benefits, walking the talk

(exemplary leadership), delegating responsibility to the right people, clear planning and accountability and being prepared to “change any systems, structures or practices that seriously undermine the vision and staff endeavours” (p. 212).

Cluster 3: Alternative approaches

The final cluster concerns articles which, while not directly addressing Digital Education LD, have been retained for the implications they raise for consideration when designing and implementing such programmes. The paper by McCarthy et al. (2017) is of interest as one of the few examples of empirical findings. In this action-research study, the act of introducing institutional leaders to data on student retention was correlated with a shift from task-orientated leadership behaviours towards change-oriented behaviours. However, the authors also note a move away from relations-orientated behaviours, which has implications for any LD focusing solely on the interpretation of data to the detriment of other leadership approaches.

In addition to this, the longitudinal case study of leading organisational change for e-learning (Trevitt et al., 2017) is of relevance for its framing of the university as a learning organisation (Senge, 2006) . While the authors do not explore how the identified leader (the head of a department with the College of Law at an Australian university) developed his own leadership, other than

showing exemplary leadership in enrolling himself on the graduate programme in education, they do provide a detailed account of the process of supporting organisational learning in the introduction of e-learning for legal education.

The interesting take here is in positioning the departmental initiative as an entrepreneurial endeavour on the periphery the university, with the aim of generating growth in terms of student enrolment. The authors point to both the advantages and disadvantages of this: on the positive side the department was able to pursue its own clearly defined strategy, on the other hand such an entrepreneurial approach was not understood at the level of the wider university and even frowned upon, with limited impact on the overall organisation.

The other aspects of organisational learning highlighted by the authors are that of leadership for educational innovation, supporting collaboration and providing space and time for academic development in Digital Education, and the mobilisation of internal networkers who fulfilled the role of change agents. This study is of particular interest when designing Digital Education LD as an intervention over time with a view to developing leadership capacity across an institution, as will be seen in the section devoted to organisational learning below.

The way forward: applying generic LD principles to Digital Education LD

Although there is little prior specific theoretical background to draw on for this study, it is both possible and relevant to contextualise the more generic literature in terms of Digital Education LD, and to bring in the few specific studies identified. It is in this spirit, then, that this section begins by establishing the relevance of the mindsets approach for this study on Digital Education Leadership Literacies before addressing the contribution of the literature on organisational learning and concluding with issues relating to LD design.

The mindset approach: beyond skills, competences and leadership styles

One major implication for Digital Education LD is that it should not be concerned with developing technical skills: “The leaders might not be the most proficient users of digital tools, but they can see how digital tools, networks and associated structural changes impact on their organisation and the work people do and can thereby make appropriate critical decisions” (Brown, Czerniewicz, Mayiesela, et al., 2016, p. 3). Furthermore, in the field of LD, the competency-based approach has come under criticism. Bolden and colleagues (Bolden et al., 2003; Bolden & Gosling, 2006) summarise the limitations of the use of competencies in terms of offering a fragmented picture, the assumption that a

given set of competencies is universal and context independent, the fact that they are present and past focussed rather than future oriented, and that the approach seeks to identify measurable behaviours rather than capture the subtleties of leadership interactions and context. Bryman (2007) identifies 13 aspects of leadership behaviour found to be effective at department level in HE, but warns against using these as a competency framework for LD, on the grounds that they are quite general and do not provide detailed guidance about appropriate actions, and again that they do not take into account the question of context.

The leadership styles school of thought is still present in the literature relating to digital leadership (Antonopoulou et al., 2019; Gençer & Samur, 2016). However, Gençer and Samur (2016) found that leadership style was not directly correlated with competency in technology leadership and indeed highlight among the limitations of their study that aspects such as “digital age learning culture and [teacher] excellence in professional practice” (p. 232) were excluded from their study. April and Dalwai (2019) take a more nuanced approach, recognising that leadership is both situational and relational. In their study of South African business leaders engaged in digital transformation, the authors find that additional factors such as situational awareness, emotional attentiveness and the cultivation of an appropriate culture to cope with a

changing environment needed to be considered over and above the focus on leadership styles.

The limitations of focusing on leadership styles and digital competency are therefore exposed when considered in the light of contemporary theories such as Relational Leadership (April & Dalwai, 2019). A promising alternative is to focus on developing the mindsets which enable leaders to deal with complexity (Kennedy et al., 2013). Hannah et al. (2014) argue that such an approach distinguishes behaviour from the person, looking at deep structures, identity, values and perspectives. Bolden et al. (2003) go as far as asking whether LD should focus on mindsets rather than behaviours. However, by framing Digital Education Leadership (and LD) in terms of Leadership Literacies, the mindsets approach comes under the 'literacy as representation' angle, and behaviour under 'literacy as communication' (Cope et al., 2017). Therefore, if LD is to have any impact on the way technology is used for teaching and learning, it can be argued that such mindsets need to be translated into concrete actions in terms of identifiable behaviour.

Organisational learning

Digital Education LD involves HE leaders not only developing their own Leadership Literacies, but also supporting the development of these in others, in order to increase the leadership capacity of the organisation. Organisational

learning (Senge, 2006) is a key concept found in much of the LD literature, whether general or related specifically to HE. In Senge's (2000) exploration of the academy as learning community, he asks the question "Where will the leadership for change come from?" and to which his answer is "that leadership for profound change is too important, too multifaceted, and too demanding of day-to-day attention to be left to executives alone" (p. 293).

Related to this is the role of leaders in building a Community of Practice (Wenger, 2011), identified by Gibbs et al. (2009) as an academic leadership activity observed at departmental level. To differentiate Communities of Practice (CoP) from the learning organisation concept, it should be noted that CoPs can exist at many different levels, bringing together different stakeholders within and beyond the organisation according to areas of shared interest, whereas the concept of the learning organisation concerns the institution as a whole.

A further potential area for consideration in supporting the development of a learning organisation around Digital Education is that of the Scholarship of Teaching and Learning (SoTL) which concerns reflexive practice and inquiry with a view to enhancing students' learning (Boyer, 1990; Huber & Hutchings, 2005; Hutchings et al., 2011). Simmons and Taylor (2019) examine the leadership attitudes and practices required for SoTL to become instilled within the institutional vision and culture, and identify four dimensions of SoTL

leadership as engagement, connection, collaboration and advocacy.

Engagement concerns providing the necessary resources and recognition to foster SoTL; connection implies identifying relevant clusters of stakeholders and bringing them together; collaboration needs to be actively fostered; advocacy entails not only arguing for the recognition of SoTL but also integrating it within institutional practice and policy. Simmons and Taylor (2019) also accept that leadership for SoTL can come from faculty, educational developers, administrators and students, a position which has implications for the integration of the digital dimension as a focus of SoTL, where other stakeholders such as educational technologists also have a role to play.

An extension of SoTL particularly relevant for Digital Education LD is the practice of digital scholarship (Pearce et al., 2011; Raffaghelli, 2017; Raffaghelli et al., 2016). Also known as Networked Participatory Scholarship, this is defined as “scholars’ participation in online social networks to share, reflect upon, critique, improve, validate, and otherwise develop their scholarship” (Veletsianos & Kimmons, 2012, p. 766). With respect to Digital Education LD, the same principles as for SoTL apply, namely engagement, connection, collaboration and advocacy (Simmons & Taylor, 2019).

These two complementary approaches of mindsets and organisational learning provide the theoretical grounding for the LD component of the current study, enabling both the individual and collective aspects to be addressed

within the overall framework of Digital Education Leadership Literacies.

Having established this, we now consider in more detail the implications for the design of Digital Education LD.

Considerations for the design of Digital Education LD

Turning to the second cluster of HE LD research identified by Dopson et al. (2019), the question of LD design is addressed. According to Turner et al. (2018):

Current leadership development programs need to be realigned to better meet the needs of innovation, complex problems and dynamic work environments while providing a culture that questions strategy and plans to better meet the demands of operating in dynamic work environments. (p. 539)

This is reflected in what participants in one study on LD for teaching and learning leadership are reported as wanting, in the form of opportunities which are “future oriented, capacity enhancing, knowledge enhancing, professionally engaging, career-long and self-managed” (Marshall et al., 2011, p. 101).

From the literature identified by Dopson et al. (2019) complemented by the few articles specific to Digital Education LD, six key themes can be identified.

Developmental. First and foremost, LD should be grounded in development theory (Garavan et al., 2015). Development is defined as “an

unfolding process of growth that occurs in various ways along multiple trajectories at different levels of analysis, influenced by context and leading to a range of positive outcomes” (p. 364), may be intentional or emergent, and may focus on both the individual, in terms of andragogy (Knowles, 1984) and adult development (O’Connell, 2014; Skipton Leonard, 2017) and organisational development (Kuchinke, 2014).

Situated. LD should take the form of situated learning (Marshall et al., 2011; Phelps, 2014). This entails contextualised on-the-job action learning (Ardichvili et al., 2016; Hannah et al., 2014; Marshall et al., 2011; Skipton Leonard, 2017) taking place over time and evolving with practice (Gigliotti & Ruben, 2017).

Collective. LD need to be designed from a collective perspective, although individual development should also be addressed. Athanasopoulou and Dopson (2018) recommend collective executive coaching rather than individual, while Gigliotti and Ruben (2017) talk of building bridges between faculty and staff, and Marshall et al. (2011) frame this in terms of network building.

Differentiated. LD should be differentiated according to level in institution, in terms of focus, rate, and timing (Ardichvili et al., 2016). Customised, differentiated instructional models should be used, mobilising

experiential learning, project-based learning and collaboration (Gigliotti & Ruben, 2017).

Reflexive. Skipton Leonard (2017) recommends providing opportunities for participants to reflect on their experience. This can be at the individual level through reflective learning journals (McMaster, 2014; Zuber-Skerritt & Louw, 2014), or conducted collectively (Gentle & Clifton, 2017; Morgan, 2016).

Assessed. A variety of different mechanisms are proposed and recommended to be used in conjunction with one another. These include pre- and post-programme assessment, 360° inventories, research-based interviews with participants, formal and informal conversations, participant observation, learning journals, real-time feedback and debriefing (Gigliotti & Ruben, 2017; Skipton Leonard, 2017; Zuber-Skerritt & Louw, 2014). The outcomes and longer-term impact of LD also need to be evaluated (Dopson et al., 2019).

As seen earlier, Leadership Development (as opposed to Leader Development) is concerned with increasing the leadership capacity of an organisation. And for this to become reality, such LD needs to be considered in terms of context and to take place over time (Day et al., 2014; Dopson et al., 2019), suggesting that isolated one-off LD courses or programmes are insufficient in themselves. With reference to the specific context of higher education, Dopson et al. (2019) recommend designing LD *interventions* by working through the following phases:

- defining the purpose of a particular HEI,
- determining the model of leadership most appropriate for this purpose,
- designing and embedding LD interventions which support leadership capacity over time,
- evaluating the effectiveness of these according to the identified purpose.

Framing these recommendations in terms of Digital Education, it is evident that identifying the purpose of a given HEI will provide valuable insights into the vision that institution develops around using technology for teaching and learning, and such a vision will differ according to whether the university sees itself as research-led or grounded in principles of widening participation. The institutional culture also comes into play here and will impact the choice of models of leadership. Should the vision and strategy require a complete rethink in terms of organisation and focus, then particular attention will need to be paid to change leadership. The mindsets approach to LD fully supports this by addressing deep structures, identity, values and perspectives.

The development of Digital Education challenges the status quo of campus-based universities in particular, bringing to the fore the need for a shift in mindsets and attitudes towards both technology itself and the place of

learning and teaching in institutional priorities. Considering the theoretical background detailed in this chapter, there is a compelling argument for the application of Leadership Literacies as a lens through which to study Digital Education Leadership with the ultimate aim of developing a novel and theoretically-sound approach to LD in order to help these universities rise to the challenge.

Conceptual frameworks

The main purpose of this study is to determine how a framework of Digital Education Leadership Literacies for Higher Education (DELLHE) can support European campus-based universities in implementing strategic and organisational change to improve the way technology is used for teaching and learning. The literature review showed that, although such a framework had not been developed by other scholars, there was a wealth of prior work which could be drawn on and combined in order to design a framework representing this novel concept of DELLHE. A series of individual conceptual frameworks selected for their relevance to DELLHE are described in detail below, followed by a proposal for drawing them together in a single framework. The first two, from Davis (2012) and Jameson (2013) are presented as the primary frameworks as it is these two which form the heart of the study. These are followed by a

series of secondary frameworks which provide input to the overarching concept of DELLHE.

Primary conceptual framework (1): Leadership Literacies

The detailed description of each of the five Leadership Literacies developed by Davis (2012) has been provided in the previous section (Theoretical Background). Table 1 below is a proposal for representing these in the form of a conceptual framework.

Table 1: Leadership Literacies

Cognitive shifts required		
Worldly Leaders' understandings of themselves and their place in the many interrelated inner and outer worlds they occupy.	Sustaining Sustainability and ecologies as key considerations for the conduct of leadership in the 21st century.	Leadingful Generic leadership attitudes and behaviours, grounded in a post-heroic approach to leadership.
Enablers once shifts in thinking have occurred		
Relational Relationships with the self and with others, including in terms of organisational dynamics.	Learningful Leader and leadership development, through unlearning and relearning.	

Note: Adapted from Davis (2012, pp. 98-101)

Primary conceptual framework (2): e-leadership for educational technology in HE

Jameson (2013) summarises the literature on e-leadership for educational technology in HE in terms of Purposes, People, and Structures and social systems (Figure 1).

The novel concept of DELLHE, as examined in this study, is the result of combining these two conceptual frameworks of Leadership Literacies and e-leadership for educational technology.

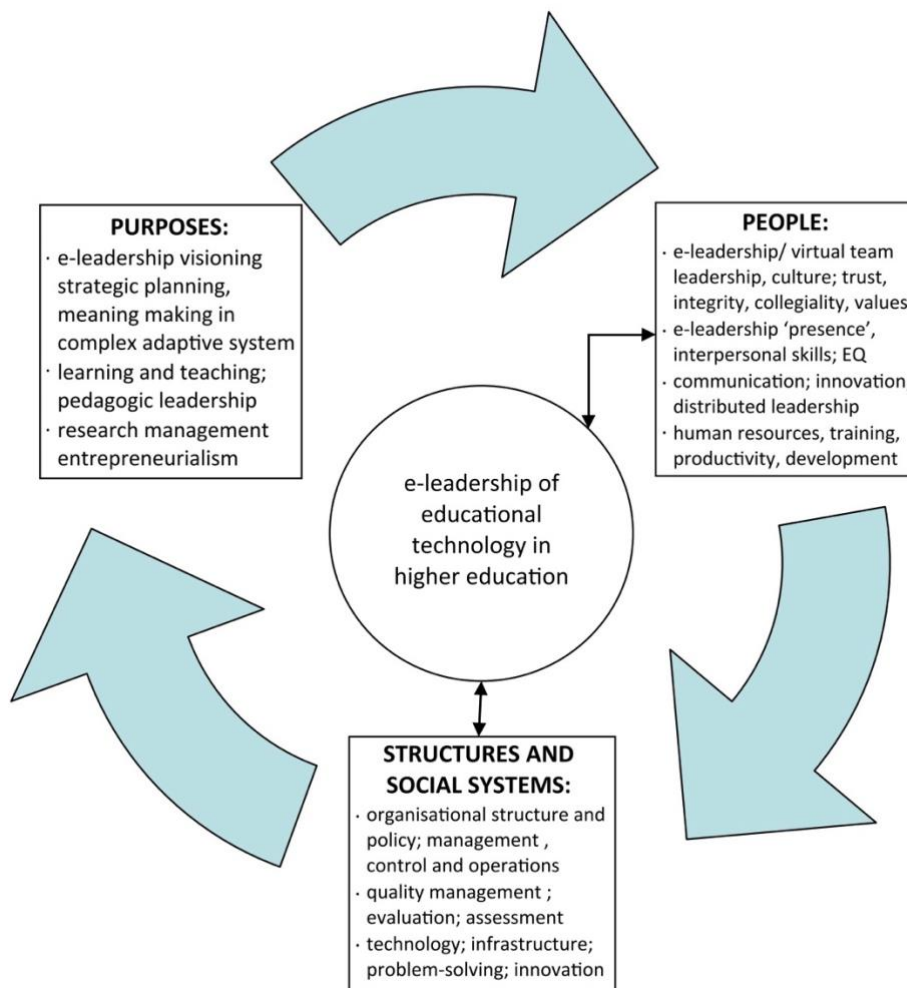


Figure 1: e-leadership of educational technology in higher education (Jameson, 2013, p. 911)

Secondary conceptual frameworks

In addition to combining the two aforementioned conceptual frameworks, the DELLHE framework also draws on a wider body of existing work. As the majority of this is to be found in books on digital leadership rather than research papers, it is presented here in the Conceptual Frameworks section rather than in the Theoretical Background. It is precisely by subjecting this work to rigorous research methods, in this case a Delphi study (Dalkey & Helmer, 1963) that the current study is able to validate the DELLHE which are derived from the integration of these various sources.

Johansen's leadership skills for an uncertain world

Johansen (2012) defines ten leadership skills for a VUCA (Volatile, Uncertain, Complex, Ambiguous) world. The term VUCA was first used by the US military at the end of the Cold War but has come into more general usage since the 2008-2009 financial crisis (Kinsinger & Walch, 2012). While Johansen is addressing business leaders, Davis (2012) transposes these leadership skills to her concept of Leadership Literacies for professional staff in HE, and as this VUCA world is also increasingly digital, they are also deemed relevant for Digital Education Leadership in the context of the current study.

The C-DELTA curriculum for Digital Education Leadership

The C-DELTA project concerns the development of a curriculum for Digital Education Leadership (Brown, Czerniewicz, Huang, et al., 2016) and as such is the most directly relevant reference. The authors reference and critique a number of existing frameworks, two of which were selected for the current study, namely Sheninger (2014) and Ahlquist (2014).

Sheninger's seven pillars of digital leadership

Sheninger (2014) defines seven pillars of digital leadership for the education sector. Although Sheninger is writing from the perspective of a US school principal with significant focus on the school leader modelling appropriate use of digital technology, and social media in particular, this work is relevant in that it considers the strategic, pedagogical, technological, organisational and contextual aspects of Digital Education Leadership required to bring about a change in mindsets and behaviours.

Ahlquist's ten competencies of a digital leader

Examining social media within the framework of the Social Change Model, Ahlquist (2014) formulates ten competencies of a digital leader as a “positive social change agent” (p. 58). Again, while these are not specific to Digital Education, they consider digital leadership from both the angles of *representation* (awareness of emerging technologies, a focus on purpose, self-

awareness in terms of online presence) and *communication*, including digital leadership presence, decision-making and mediation. Furthermore, they cover several aspects of digital literacy (Belshaw, 2014) which Digital Education leaders can be expected to master.

Beaudoin's recommendations for decision makers

Beaudoin (2016) formulates a series of ten recommendations for distance education decision makers in HE. Their specificity with respect to Digital Education combined with their close alignment with Davis' (2012) Leadership Literacy dimensions (with the exception of Sustaining) makes them an ideal candidate for the current study.

The task of bringing these different works together to develop a DELLHE framework is complexified by the different terminology used. Johansen (2012) and Jameson (2013) talk about skills, Beaudoin (2016) about qualities, Sheninger (2014) about pillars. Belshaw (2014) explicitly refers to literacies, although these are digital literacies rather than Leadership Literacies. Brown et al. (2016) refer to the development of digital literacies among learners as the desired outcome of Digital Education Leadership, yet use the term capabilities when referring to what it is the leaders themselves are expected to develop. It is here that the concept of multiliteracies (Cope et al., 2017), as *representation* (attitudes and mindsets) and as *communication* (actions and behaviours) comes

into play in order to provide clarity and consistency. Table 2 provides a proposed categorisation in terms of Davis' (2012) Leadership Literacies.

Table 2: The five secondary conceptual frameworks

Dimension	Brown et al. (2016)	Johansen (2014)	Sheninger (2014)	Ahlquist (2014)	Beaudoin (2016)
WORLDLY	Developing Digital Identities Cultivating innovation	Maker instinct Dilemma flipping Rapid prototyping	Opportunity Learning spaces & environment Student engagement/ learning	Online self-awareness Awareness of emerging technology (Critical) digital & information literacy	Conditions for innovation & change Manage change, not technology Distance education theory & practice Micro & macro perspectives Resist latest trends Learner-centred
SUSTAINING	Enhancing access Capacity building	Bio-empathy Commons creating		Privacy and wellbeing Social media for social good	
LEADING-FUL	Mobilising resources Making informed decisions	Clarity Smart-mob organizing	Public relations Branding	Online branding Digital leadership presence Digital decision-making	Transformative leadership Strategic planning Assess before acting Data-driven decision making Operationalising vision Distance ed. advocacy Quality
RELATIONAL	Engaging with networks	Conflict resolution Transparency	Communication	Conflict resolution & mediation	Patience, resilience, tolerance for ambiguity & risk
LEARNING-FUL		Immersive learning	Professional development	Personal Learning Network	Networking, sharing ideas, strategies & resources

Context: Organisational culture

In the current study, the aforementioned conceptual frameworks are used to develop the DELLHE framework itself, which serves as an instrument to analyse the Digital Education Literacies of HE leaders. However, in order to appreciate the context in which this Digital Leadership operates, it is necessary to draw on specific complementary conceptual frameworks (Table 3).

Table 3: Conceptual frameworks for organisational culture

Tierney's (1988) individual characteristics of institutional culture	Bergquist and Pawlak's (2007) six cultures of the academy	McNay's (1995) cultures of universities
Environment	Collegial	Collegium
Mission	Managerial	Bureaucracy
Socialisation	developmental	Corporation
Information	Advocacy	Enterprise
Strategy	Virtual	
Leadership	Tangible	

For the current study, the choice was made to use a combination of McNay (1995) and Bergquist and Pawlak (2007), with specific reference to the virtual culture as being of relevance to this study of Digital Education Leadership. These two conceptual frameworks are used to compare the cultures of the three Case Studies, and to identify the underlying institutional culture of the respondents to the survey on academics' perceptions of Digital Education Leadership. The individual characteristics developed by Tierney (1988) differ from the other two frameworks in that they are descriptive rather than offering a typology. They are thus used in the study to inform the data collection with

respect to the institutional context of the CSIs, but do not lend themselves to developing comparisons in the same way as the other two frameworks.

Context: Autonomy

As already highlighted in the theoretical background, one distinguishing factor among European HEIs is the level of autonomy (Enders et al., 2013). The conceptual framework applied here is the University Autonomy Tool (European University Association, 2016d) which classifies HEIs in 29 European countries in four dimensions: Organisational, Financial, Staffing, and Academic.

According to this tool (bold as in original):

- “Organisational autonomy refers to a university’s capacity to determine its **internal organisation and decision-making processes**.”³
- “Financial autonomy refers to a university’s ability to **manage its funds and allocate its budget** independently.”⁴
- “Staffing autonomy refers to a university’s ability to **recruit and manage its human resources** as it sees fit.”⁵
- “Academic autonomy refers to a university’s capacity to **manage its internal academic affairs** independently.”⁶

³ <https://www.university-autonomy.eu/dimensions/organisational/>

⁴ <https://www.university-autonomy.eu/dimensions/financial/>

⁵ <https://www.university-autonomy.eu/dimensions/staffing/>

⁶ <https://www.university-autonomy.eu/dimensions/academic/>

Context: overarching dimensions of leadership in HE

In their report on Collective Leadership in HE, Bolden et al. (2008a) provide a systemic framework of the main dimensions of leadership in higher education (Figure 2). This takes into account the interactions between the individual, the collective and the contextual as recommended in later work by Gronn (2009). While the aforementioned report relates to academic leadership in HE, it provides a valuable overview for situating the study of DELLHE within the overall relational, structural and political context of HE.

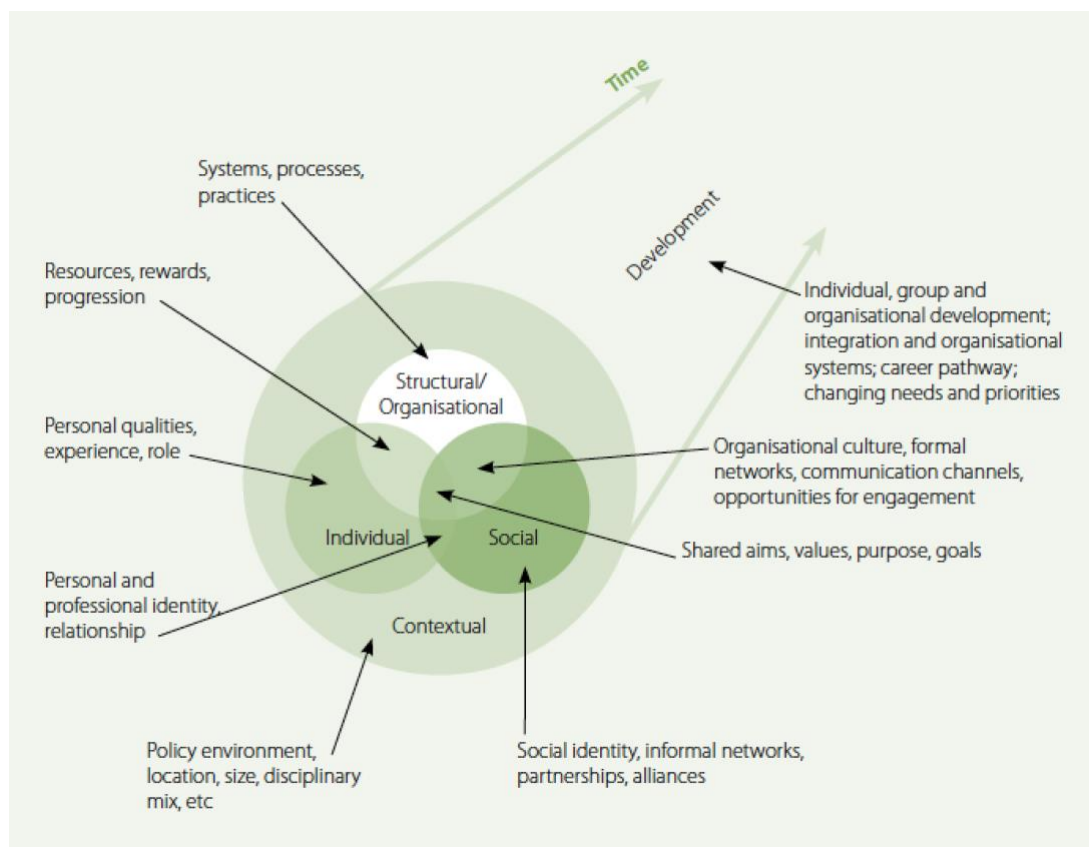


Figure 2: The academic leadership model (Bolden et al., 2008a, p. 60)

Theoretical and conceptual frameworks in relation to the research questions

Table 4 shows how the investigation of the role of DELLHE in European campus-based universities and developing evidence-based recommendations for Digital Education LD is articulated around a series of research questions, each associated with a specific objective, and drawing on relevant theoretical and conceptual frameworks.

Table 4: Research questions, objectives and theoretical / conceptual frameworks

Research Questions	Research Objectives	Theoretical & conceptual frameworks
1) How can existing frameworks and concepts be combined into a single framework of Digital Education leadership Literacies (DELLHE)?	Define DELLHE and create a framework to be used as an instrument throughout the rest of the study.	Leadership Literacies (Davis, 2012) e-leadership (Jameson, 2013) Multiliteracies (Cope et. al., 2017)
2a) How are DELLHE experienced by key informants in selected European universities? 2b) How do key informants (KIs) in European universities develop (i.e. “learn”) DELLHE? 2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?	Determine congruence between the DELLHE framework and the lived experience of KIs in European campus-based universities. Identify whether and how KIs develop DELLHE. Analyse current strategy, organisation and practice in relation to DELLHE.	DELLHE as developed in Phase 1. Leadership development (Day, 2000) HE leadership (Bolden et al., 2008a) Organisational culture (Bergquist & Pawlak, 2007; McNay, 1995; Tierney, 1988) Third space (Whitchurch, 2018)
3a) How are DELLHE reflected in existing LDPs? 3b) What changes should be proposed to reinforce the development of DELLHE?	Develop evidence-based recommendations for DigEd LD. Refine and validate recommendations for DigED LD.	DELLHE as developed in Phase 1. Leadership development (Day, 2000; Day et al., 2014; Dopson et al., 2019) Learning organisations (Senge, 2006)

Summary of Chapter 2

Chapter 2 has presented the main theoretical background to the study in terms of digital education, leadership theory and Leadership Literacies, explaining how these come together in the development of a new contribution to the field, namely the concept of Digital Education Leadership Literacies for Higher Education (DELLHE).

The chapter has also situated this concept of DELLHE within wider approaches which address the overall organisational context and culture of HE, and explores the relevant literature on LD.

The second section of the chapter has presented the conceptual frameworks which serve to guide the analysis, detailing how these existing frameworks relate to Davis' (2012) Leadership Literacies.

Finally, Chapter 2 has introduced the relationship between the research questions and objectives and the theoretical and conceptual frameworks, serving as a transition into Chapter 3: Research Design and Methodology.

Chapter 3: Research design and methodology

Although wherever you are going is always in front of you, there is no such thing as straight ahead.

— Jeanette Winterson, *The Passion* (1987)

This chapter situates the exploratory study within the overall context of Mixed Methods Research (MMR), and provides an overview of the research design along with an explanation of how the principles of integration in MMR have been applied in this design. This is followed by a detailed description of each of the three phases, including the design of data collection instruments, how each phase was conducted, and the methodologies mobilised for data analysis.

Mixed Methods Research

Leadership research has been criticised for an over-reliance on quantitative, statistical studies which do not reflect organisational reality (Alvesson, 2017; Stentz et al., 2012), with Stentz et al. calling for more use of MMR in order to gain a better understanding of the complex phenomenon that is leadership. According to Creswell and Plano Clark (2007) MMR is:

a research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis and mixture of qualitative and quantitative approaches in many phases of the research

process. As a method, it focuses on collecting, analyzing and mixing both quantitative and qualitative data in a single study or a series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems than either approach alone. (p.5)

As explained in Chapter 1, the philosophical assumptions behind this study are grounded in pragmatism, “adopt[ing] a methodologically eclectic, pluralist approach to research, drawing on positivism and interpretive epistemologies based on the criteria of fitness for purpose and applicability, and regarding ‘reality’ as both objective and constructed” (Cohen et al., 2013, p. 23). In addition to a clear alignment of MMR with pragmatism (Cameron, 2011), this study on Digital Education Leadership Literacies in HE mobilises MMR to increase robustness (Venkatesh et al., 2013). In concrete terms, this involves collecting and analysing qualitative (QUAL) data from a variety of sources: interviews with key informants at governance and management level, strategic plans and LDPs, combined with statistical analysis of quantitative (QUAN) survey data collected from academics. In this way the study aims to provide the most complete picture possible by analysing diverse viewpoints and by considering contextual factors, to answer “research questions that call for real life contextual understanding, multi-level perspectives and cultural influences” (Klenke, 2016, p. 154).

To situate this choice of methods with respect to related work, it is useful to refer to the literature review on (e)-leadership for TEL in HE (Arnold & Sangrà, 2018a), which identified 16 QUAL studies (semi-structured interviews, action research, phenomenology, community of inquiry and narrative inquiry), nine QUAN studies and two MMR approaches. The majority of the QUAN studies focused on a single participant profile (formal leaders, academics, students) whereas almost all of the holistic, multi-stakeholder studies (nine out of ten) used QUAL methods, either on their own or as part of MMR (see Table 5).

The choice of MMR for this doctoral research is not only relevant to meet the main objective of determining how a framework of Digital Education Leadership Literacies can support European universities in improving the way technology is used for teaching and learning, but also contributes to filling a gap in the field, where only one previous study mobilising the same approach was identified (Cifuentes & Vanderlinde, 2015). As these authors focused on distributed leadership for ICT integration in HE in Columbia, the current study makes a significant contribution both by taking a European perspective and by widening the focus of the research beyond that of distributed leadership.

Table 5: Methodologies and research design by population scope (holistic studies)

SCOPE	NUMBER	METHODOLOGY	RESEARCH DESIGN	REFERENCE
Multi-institution	5	MMR	Semi-structured interviews, focus groups, document analysis, survey (n=348)	(Cifuentes & Vanderlinde, 2015)
		QUAN	Online survey (n=259)	(Ng'ambi & Bozalek, 2013)
		QUAL	Document analysis, focus groups	(Domingo-Coscollola et al., 2016)
		QUAL	Multiple case studies	(Brown, 2013)
Single institution	1	QUAL	Exploratory case studies	(Singh & Hardaker, 2017)
		QUAL	Action research	(Roushan et al., 2016)
Faculty level	2	QUAL	Phenomenology: focus groups, individual interviews	(King & Boyatt, 2015)
		QUAL	Interviews	(Trevitt et al., 2017)
Project level	2	QUAL	Practical inquiry and community of inquiry	(Garrison & Vaughan, 2013)
		QUAL	Case Study	(Stoddart, 2015)

Source: (Arnold & Sangrà, 2018a, p. 17)

Research design

The overall research plan follows a Mixed Methods-Case Study (MM-CS) design (Guetterman & Fetters, 2018), where QUAL data from three Case Studies in European campus-based universities is integrated with QUAN data gathered during a wider survey with academics beyond the CSIs, together with additional QUAL data from selected LDPs. The precise way in which these different data sources are integrated is described later in this chapter, as are the adjustments to the initial research design as a result of external factors.

The study is organised into three main phases, as illustrated in Figure 3 and summarised here before detailing the methods applied (see also Table 6).

In Phase 1 (theory development), an initial literature review informs the creation of a preliminary framework (v.0) of Leadership Literacies for Digital Education. This preliminary framework is refined and validated via an online Delphi study, resulting in a new version of the framework (v.1). In Phase 2, the framework (v.1) is used to a) design semi-structured interviews for the case studies, b) to provide a theoretical base for the coding of these interviews and c) the analysis of five LDPs. Through an iterative process of open and closed coding of these different data sources mobilising Thematic Analysis (Braun & Clarke, 2006), hereafter referred to by its commonly accepted acronym TA, the framework evolves through two successive versions (v.2, v.3), the latter of which is applied to build the QUAN survey. In Phase 3, this survey is implemented with a population of academics in European universities and statistical analysis performed to determine the relationship between their perceptions of Digital Education Leadership and the importance of DELLHE in affecting their own attitudes towards the use of technology for teaching and learning. The results of this are then merged with the QUAL data to produce the final results: the definitive DELLHE framework (v.4) and the recommendations for LD validated by an online focus group.

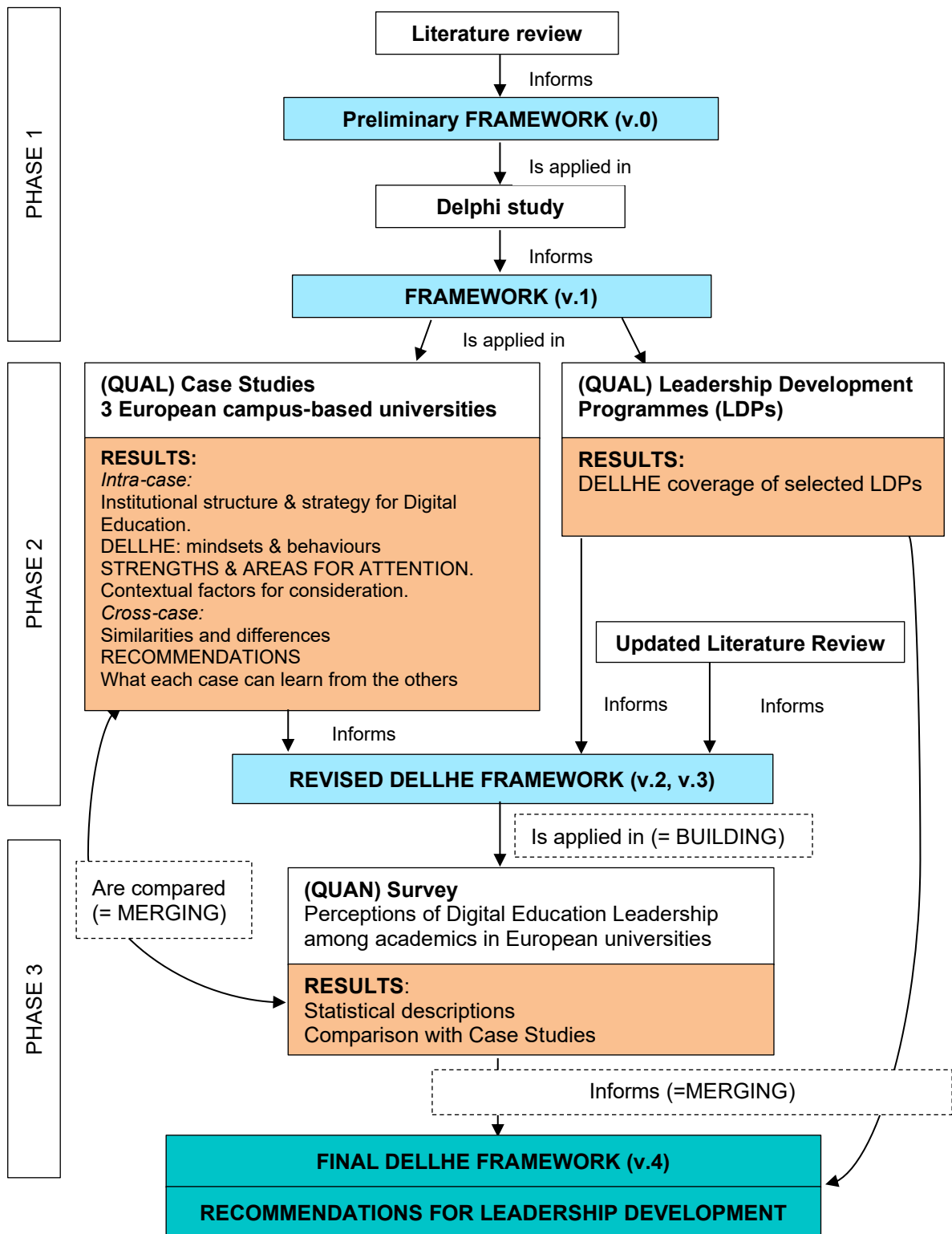


Figure 3: The research design

Table 6: Research questions, objectives, strategies and instruments, expected outcomes

	RESEARCH QUESTIONS	RESEARCH OBJECTIVES	STRATEGIES AND INSTRUMENTS	EXPECTED OUTCOMES
PHASE 1	RQ1) How can existing frameworks and concepts be combined into a single framework of Digital Education leadership Literacies (DELLHE)?	Design a framework of Digital Education leadership Literacies in Higher Education (DELLHE)	Review of extant literature Online Delphi study	Preliminary framework (v.0) Definition and framework (v.1) for application in Phase 2
	RQ2a) How are DELLHE experienced by key informants in selected European universities? RQ2b) How do key informants in European universities develop (i.e. “learn”) DELLHE? RQ2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?	Determine congruence between the proposed DELLHE framework and the lived experience of key informants in European campus-based universities Identify whether and how key informants develop DELLHE Analyse current strategy, organisation and practice in relation to Digital Education Leadership	THREE QUAL CASE STUDIES Thematic Analysis of: semi-structured interviews, strategic documents, organigrams Key informants: Vice-rectors, Senior and Middle Managers with a remit for Digital Education	THREE CASE STUDY REPORTS: DELLHE maturity: Mindsets and behaviours Strengths and areas for attention Institutional structure / strategy Context / culture CROSS-CASE ANALYSIS: Similarities and differences Recommendations Revised DELLHE framework (v.2)
	RQ3a) How are DELLHE reflected in existing Leadership Development Programmes (LDPs)?	Analyse LDPs with respect to DELLHE	QUAL Thematic Analysis of five LDPs	DELLHE coverage of LDPs Revised DELLHE framework (v.3)
PHASE 3	RQ2a) How are DELLHE experienced by key informants in European universities?	Determine how DELLHE are perceived by academics	QUAN survey of academics’ perceptions of DELLHE	Statistical descriptions Comparison with Case Studies
	RQ3b) What changes should be proposed to reinforce the development of DELLHE?	Develop and validate evidence-based recommendations for improving Digital Education Leadership Development (LD)	Online focus group	Recommendations for integrating DELLHE in LD Final DELLHE framework (V.4)

Phase 1: Theory development: literature review and Delphi study

The aim of Phase 1 was to create a framework of Digital Education Leadership Literacies, to be used as a theoretical and conceptual basis throughout the overall study. Specifically, Phase 1 was designed to answer *RQ1: How can existing frameworks and concepts be combined into a single framework of Digital Education Leadership Literacies for Higher Education?* This entailed developing and validating a definition of this novel concept and to produce an initial version (v.1) of the framework. At this stage the framework was provisionally entitled the TEL-eLL framework (e-Leadership Literacies for Technology-Enhanced Learning) which explains references to this acronym (TEL-eLL) in the account of the Delphi study. This is replaced by the term Digital Education Leadership Literacies in Higher Education (DELLHE) as of Phase 2, during which this novel concept was stabilised.

Literature review

The results of the literature review specific to skills, competences, attributes and literacies relevant to Digital Education Leadership have been described above in Chapter 2: Theoretical background. In addition to this, a specific exploratory literature review was conducted in order to establish whether e-leadership, the term used by Jameson (2013), was a relevant

theoretical framing for the current study. The full account and results of this literature review were published as a journal article (Arnold & Sangrà, 2018a).

On the complementary topic of Digital Education LD in HE, a focused search was conducted on three occasions (November 2019, May 2020 and April 2021) in Scopus and Web of Science, combining the criteria for LD applied by Dopson et al. (2019) with those applied by Arnold and Sangrà (2018a), as shown in Table 7. Wildcards were used to surface results with different spellings or word variations, for example program* to identify program and programme as well as the plural forms.

Table 7: Search criteria for Digital Education LD literature review

Search terms from Dopson et al. (2019)			Search terms from Arnold and Sangrà (2018)
Leadership	Development	Higher	Digital
	Interventions	Education	Educational Technology
	Training		ICT
	Programmes		e-learning
	Activities		

This search produced only a handful of relevant results (nine in total), almost half of which (four) were conference papers. A parallel search Google Scholar surfaced only a few more relevant results, as did alternative techniques such as following up references to the Digital Education LDPs selected for analysis in Phase 2.

Designing the preliminary framework

This stage began with the identification of potential Leadership Literacies within the secondary conceptual frameworks described in Chapter 2 (Ahlquist, 2014; Beaudoin, 2016; Belshaw, 2014; Brown, Czerniewicz, Mayiesela, et al., 2016; Johansen, 2012; Sheninger, 2014). These were then integrated with the two primary conceptual frameworks, ensuring coverage of the elements in Jameson's (2013) e-leadership framework for educational technology, and organised according to Davis' (2012) five dimensions: Worldly, Sustaining, Leadingful, Relational and Learningful. Some rewording of the original content was necessary for these items to be expressed as Leadership Literacies focusing on attitudes, mindsets and behaviours. The result of this was a proposed framework (see Appendix A) for validation via an online Delphi study.

The Delphi study

The Delphi method (Dalkey & Helmer, 1963) is a recognised technique in qualitative research, employed to achieve consensus among a group of experts. As outlined in the detailed account of the Delphi study conducted as part of this research (Arnold & Sangrà, 2018b), it enables “anonymity of individual responses, revision of contributions by individuals and assessment of the group view” (Linstone & Turoff, 1975; Pawlowski & Okoli, 2004). Furthermore, the Delphi method has been successfully applied in related

studies designed to develop competency frameworks, for example in a doctoral thesis on leadership competencies for library directors and senior managers (Lewis, 2015) and another thesis on identifying skills for virtual team leaders (Whited, 2007).

Given the way in which the proposed (v.0) framework was developed, combining diverse works (several of which came from non-peer-reviewed publications as already mentioned), the Delphi method is also very valuable as a way to minimise researcher bias (Lincoln & Guba, 1985) and to enable expert judgment (Pawlowski & Okoli, 2004). Furthermore, while the traditional way to begin a Delphi study is by eliciting information from the group of experts, basing the first round of a Delphi study on a questionnaire developed from a literature review is “both an acceptable and a common modification of the Delphi process format” (Hsu & Sandford, 2007, p. 2).

The Delphi study was organised in three rounds, deemed by numerous scholars (Brooks, 1979; Custer et al., 1999; Cyphert & Gant, 1970; Ludwig, 1997) as sufficient to reach consensus. A full chronological account of this Delphi study was presented as a conference paper at the 2018 EDEN Research Workshop in Barcelona (Arnold & Sangrà, 2018b).

Selection and invitation of experts

The selection and profile of experts is of significant importance for the validity of a Delphi study (Hsu & Sandford, 2007; Pawlowski & Okoli, 2004) hence the attention paid to this aspect of the study. The identification of potential experts was conducted within the researcher's extensive networks, from the supervisor's own network and from key publications in the field of Digital Education Leadership. Additional potential experts were added following conversations at the ICDE World Conference in Toronto (October 2017). The criteria for the selection of the experts were: significant knowledge and/or experience of (Digital Education) Leadership in HE, knowledge of educational technology in particular from a pedagogical rather than a technical perspective, coverage of both Distance Education and campus-based HE contexts, gender balance of the overall panel.

A short background document (see Appendix F⁷) containing the theoretical background and rationale was prepared for the experts, and an expert sign-up form was created in Google Forms. Between January 18th and January 23rd 2018, a total of 113 experts were contacted individually by email

⁷ To facilitate consultation of the Appendices, these are ordered thematically rather than in the order of appearance in the thesis dissertation. Appendix F is preceded by Appendices A to E which concern the successive versions of the framework.

(55) or via LinkedIn (58). Follow-up emails were sent to a number of those experts initially contacted via LinkedIn when a much lower response rate was noted in this group, suggesting that this channel, although providing a quick way of reaching out to people, was not particularly effective. Indeed, after receiving the email follow-up invite, one expert did say that they avoided LinkedIn because they received too many aggressively commercial messages. LinkedIn contacting resulted in 17 sign-ups. By January 24th, a total of 30 experts had signed up via the online form and a further 6 had confirmed (by email) their willingness to participate. These were sent a reminder on January 24th to fill in the online form. Further reminders resulted in 18 more sign-ups, bringing the total number of experts agreeing to participate to 48.

These results indicate a response rate of 42.48%. Ten experts (8.85%) declined the invitation and 55 (48.67%) did not respond to the invitation. One error committed by the researcher in the initial invitations was to omit to mention the time required to read the background document and complete the surveys in each round. This was rectified for subsequent invitations but may have resulted in some experts not responding.

The link to the online survey (a textual version of which can be found in Appendix G) was sent in individual emails to the 48 registered experts. Individual emails were necessary because the university webmail being used did not support email lists or blind copy, but also to send each expert their own

personal code. This code preserved experts' anonymity when completing the survey while at the same time enabling the researcher to know which experts effectively completed Round 1 to be able to include only these experts in the subsequent rounds.

The list of experts with the associated codes was stored in a separate file to that used for data collection and analysis. The association of code and expert name was thus only known to the expert and to the researcher, and the fact of separating this from the data file generated by the online survey meant that the researcher was not influenced by knowing who had given which responses, except for the two 'late' experts who answered after data analysis had begun (for reasons of available time, the researcher was obliged to begin the data analysis on February 3rd in order not to delay the subsequent rounds).

The initial deadline of January 31st was perceived as very short, and following the request of several experts, this was extended to February 3rd, with an additional group email being sent from Gmail (with all experts in Blind Copy to preserve anonymity) being sent to announce the extra time allotted. By the deadline of February 3rd, 36 experts had completed Round 1, with a further two contributing by February 5th after alerting the researcher, bringing the total number of Round 1 respondents to 38 (79.17% of those who signed up). Of these, 31 (82%) completed both Rounds 2 and 3. This represents a reasonable response rate at sign-up stage, and an excellent rate of Round 1 participation

compared to sign-up, as well as an excellent continuation rate, helped by regular polite reminders and a certain amount of flexibility accorded to experts who requested an extension of the deadline. For the validity of the study, it was important that all those who contributed to Round 2 also completed the final round.

Delphi study Round 1

While Delphi studies traditionally begin by eliciting proposals from experts in the first round, Hsu and Sandford (2007) note that “it is both an acceptable and a common modification of the Delphi process format to use a structured questionnaire in Round 1 that is based upon an extensive review of the literature” (p. 2). This was the approach taken for the Delphi study described here.

The aim of Round 1 was to:

- a) submit a working definition of TEL-eLL to experts in order to validate or refine it;
- b) ask experts to rate a series of 68 statements derived from the aforementioned sources;
- c) ask experts to suggest improvements to the proposed statements;
- d) ask experts to suggest statements of their own to complete the framework.

A working definition of TEL-eLL was presented to the Delphi experts, who were asked whether they found the proposed definition perfectly

satisfactory, reasonably satisfactory or unsatisfactory. Those who answered 'reasonably satisfactory' or 'unsatisfactory' were then asked to propose a reformulation. This question was repeated at the end of the questionnaire, to enable experts to revise their proposed reformulation after gaining better knowledge of the framework and its contents through completing the survey.

For the second part of the first round, the provisional framework was submitted to the Delphi expert group in the form of an online questionnaire (see Appendix G). The experts were asked to rate each of the 68 literacy statements on a five-point Likert scale from 1 = highly important to 5 = not at all important. They were encouraged to think of a governance-level Digital Education leader that they knew (or to think of themselves if they held or had held such a position) in order to situate these literacies in real-world practice. All rating questions were mandatory. An optional text response was provided to give experts the opportunity to suggest an improved formulation for each statement. At the end of each dimension or sub-dimension, experts were given the option of proposing new statements to include in the framework.

Data analysis. Analysis of the Round 1 questionnaire took place between February 3rd and 7th. A pre-analysis as of January 28th (by which time 15 responses had been collected) enabled the researcher to gain a general picture of the types of responses and to set up a test questionnaire for Round 2, in order to determine the most appropriate format for the questions.

Calculating consensus for the statements. Calculating consensus in Delphi studies can be done in many different ways and there is little agreement among researchers as to the most appropriate way (von der Gracht, 2012). The first approach applied was that of Average Percentage Majority Opinion (APMO) where

$$\text{AMPO} = (\text{total number of majority agreement} + \text{majority disagreement}) / \text{total number of opinions expressed} \times 100\%$$

Majority agreement was set at 50% for 'highly important + important' on the Likert scale. Majority disagreement was set at 50% for 'not important + not at all important'. All statements passed the majority agreement threshold. The total number of majority agreements in Round 1 was 2160.

The AMPO consensus threshold was calculated as:

$$(2160+0)/2583 \times 100\% = 83.7\%$$

Consensus was thus considered to have been reached on all statements receiving an agreement score of >83.7%. Overall, by using AMPO, consensus was reached on 39 of the 68 statements (57.5%) in Round 1. These statements were considered to have been validated for the final framework, although reformulations still needed to be evaluated by the experts in Round 2. Those statements on which consensus had not been reached were resubmitted to the experts for validation, in the initial wording or with a proposed reformulation, or for exclusion from the framework.

An alternative method of consensus calculation was also tested, to determine whether the AMPO approach was sufficiently reliable. Median and Interquartile Range (IQR) (von der Gracht, 2012) resulted in 81% of statements being considered to have achieved consensus. Given the nature of this Delphi study, in that it was permitted to include new statements and reformulations in Round 2 rather than submit exactly the same statements to experts, it was important to set a high threshold as of Round 1, and so the APMO of >83.7% was retained.

Delphi study Round 2

Based on the results of Round 1, the survey for Round 2 (see Appendix H) was again designed in two parts, the first concerning the TEL-eLL definition and the second concerning the statements.

TEL-eLL definition. The 21 reformulations were put into a PDF document, classed into the two categories of adjustments and major rewordings. For the 14 adjustments to the initial definition, bold typeface and barred text were used to indicate where these changes had been made. Experts were asked to choose their top three definitions: first choice, second choice, third choice.

Statements. For statements which had achieved consensus in Round 1 but for which reformulations had been proposed, experts were asked either to

validate the initial definition or choose one of the proposed reformulations. For statements which did not achieve consensus in Round 1, experts were asked to validate the initial definition, choose one of the proposed reformulations or eliminate the statement from the framework. For the new proposed statements in Round 1, experts were asked to rate these on a five-point Likert scale as in Round 1. Optional text responses were included at the end of each dimension/sub-dimension for experts to explain their choice, and a final optional text response provided at the end of the survey. To support the objective of reaching consensus by the end of round 3, no new statements were solicited.

The resulting questionnaire for Round 2 consisted of 133 questions, 13 of which were optional text responses. A total of 31 experts participated in Round 2.

Data analysis. Concerning the TEL-eLL definition, a score of 3 was attributed to definitions selected as first choice, a score of 2 attributed to definitions selected as second choice, and a score of 1 to definitions selected as third choice. The top four definitions (with scores ranging from 16 to 24) were selected for inclusion in Round 3.

For the statements and reformulations, the consensus threshold was set at 80%. Using APMO, the calculation set a much lower threshold (66.3%) inconsistent with the need for a high level of consensus. This disparity in the

consensus threshold between two rounds is something which requires further investigation as to the appropriateness of AMPO as a technique for calculating consensus.

Delphi study Round 3

The top four definitions were put to experts again. Experts also had the option to choose not to align with the consensus but to justify why. The Round 3 survey (Appendix I) included only the statements which did not achieve consensus in Round 2. For each statement, experts were presented with the results from Round 2 in graph form. To avoid dispersion of the answers in Round 3, only the reformulations which achieved a score of >20% were included, while leaving experts the option of choosing 'other' so as not to force their hand. This questionnaire consisted of 89 obligatory questions. All 31 experts who completed Round 2 also participated in Round 3 (see Appendix P for the final list).

Data analysis. As this was the final round in the Delphi study, the data analysis consisted of identifying the definition of TEL-eLL on which consensus (threshold >80%) was achieved as well as the statements for inclusion in V.1 of the framework. These results are presented in Chapter 4.

Closing remarks on the Delphi study

It is hoped that this detailed account of the design of the Delphi study will help other researchers wishing to implement such an approach. Indeed two related theses on leadership competencies for library directors and senior managers (Lewis, 2015) and identifying skills for virtual team leaders (Whited, 2007) provided valuable guidance for this study thanks to a very high level of detail concerning the process. The selection and profile of experts is vital to the validity of a Delphi study (Baker et al., 2006), hence the attention paid to this aspect.

A final remark concerning terminology is required here, in order to introduce the term of Digital Education Leadership Literacies in HE (DELLHE). Up until the end of the Delphi study, and indeed during the interviews conducted in the following phase, the term TEL-eLL was still used before being replaced with DELLHE as a result of the updated literature review and remarks by Case Study participants. For reasons of clarity and consistency, the term DELLHE is now used throughout (except in direct reference to the Delphi study). Further details are provided in Chapter 9 when discussing the evolution of the study.

Phase 2: Case Studies and Analysis of LDPs

The main aims of Phase 2 were to determine congruence between the DELLHE framework and the lived experience of key informants (KIs) in European campus-based universities, and to establish an evidence base for the development of recommendations for Digital Education Leadership conducted in Phase 3.

Phase 2 consisted of two main QUAL studies. The first of these, a series of three Case Studies, was designed in order to answer the following three research questions:

- *RQ2a) How are DELLHE experienced by key informants in selected European universities?*
- *RQ2b) How do key informants in European universities develop (i.e. “learn”) DELLHE?*
- *RQ2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?*

An additional study in Phase 2 concerned the TA (Braun & Clarke, 2006) of selected LDPs, again with reference to the DELLHE framework, to answer *RQ3a) How are DELLHE reflected in existing LDPs?*

Case studies

QUAL Case Studies were carried out in three European campus-based universities in France (FR), Belgium (BE) and the United Kingdom (UK). The

aim was to provide rich contextual data on institutional strategy and organisation (*RQ2c*), to explore how participants demonstrate and experience DELLHE (*RQ2a*) and how, or whether, they develop these literacies through formal or informal learning (*RQ2b*).

Case study design

The Case Study design is that of multiple holistic case studies, classified by Yin (2018) as a Type 3 multiple-case design. Following the case study procedure described by Yin, the first stage of theory development was completed within the overall context of the MMR study, via the development of the framework via the literature review and Delphi study conducted in Phase 1. The case selection was based on the principle of replication rather than sampling, as recommended by Yin (2018).

The criteria for the selection of case studies were as follows:

- For the Higher Education Institution to define itself as a primarily campus-based university, located in the geographical region of Europe.
- The existence of a strategy for Digital Education. This could be in terms of the overall institutional strategy, the integration of teaching and learning innovation within the digital strategy or plan, the integration of digital education within the teaching and learning innovation strategy or plan.

- The ability for the researcher to conduct the data collection in English or French.
- The authorisation to interview KIs at governance, senior-management and middle-management level and to access strategic documents.

The rationale behind this Case Study research design is to enable replication across multiple cases. The type of replication is that of literal replication (Yin, 2018) where each case predicts similar results. Given the time constraints of this doctoral research, the number of case studies is limited to three. The consequence of this (covered in more detail in the limitations section of Chapter 9) is that, should the results of the cases prove to be contradictory, further studies will need to be carried out:

If all the individual case studies turn out as predicted, these ... cases, in the aggregate, would have provided compelling support for the initial set of propositions pertaining to the overall multiple-Case Study. If the individual case studies are in some way contradictory, the initial propositions must be revised and retested with another set of case studies. (p.55)

For this Multiple Case Study, it was predicted that the first two case studies (FR and BE) would demonstrate a comparable level of DELLHE maturity, defined as a rich representation of all five dimensions of the DELLHE framework expressed across all levels of KIs – at governance, senior-

management and middle-management level. This prediction was based on the similarity between the HE systems in the two countries (comparable historical development of HE, no selection at Bachelor level and an absence of tuition fees).

However, as described in the Results (Chapter 5), one surprising finding was that the BE case showed much greater DELLHE maturity than the FR Case Study, leading to a revision of the theory as recommended by Yin (2018). This entailed integrating a greater focus on context, including questions of institutional culture and the issue of autonomy, and indeed the final UK Case Study showed greater similarity with the BE Case Study in terms of DELLHE maturity. These results are presented in detail in the cross-case report as part of Chapter 5.

Case study protocol

In order to explain the Case Study design, the structure of this section is inspired by Yin's (2018) Case Study protocol.

Overview of the multiple Case Study: Mission and goals

- To determine congruence between the proposed DELLHE framework and the lived experience of KIs in European campus-based universities.
- To identify whether and how KIs develop DELLHE.

- To analyse current strategy, organisation and practice in relation to DELLHE.

Case Study questions and propositions

The Case Study questions are those defined in Phase 2 of the overall research design, namely:

2a) How are DELLHE experienced by KIs in selected European universities?

2b) How do KIs in European universities develop (i.e. “learn”) DELLHE?

2c) How are DELLHE reflected in the institutional strategic plan and in the organisational structure?

The main Case Study proposition is to obtain data that provide evidence of the presence or absence of DELLHE. This proposition is broken down into the following components, which determine the data collection and analysis:

- That leaders (at both governance and management levels) will demonstrate a certain number of DELLHE as defined in the DELLHE framework and may also demonstrate other Leadership Literacies not included in the aforementioned framework.
- That there may be differences between how leaders express these DELLHE and how they are perceived by others.
- That the institutional strategy for Digital Education will reflect (or not) a certain number of DELLHE, showing the extent to which these principles are adopted and integrated at strategic level.

- That the organisational structure for Digital Education will reflect (or not) a certain number of DELLHE, showing the extent to which these principles are adopted and integrated at organisational level.
- That leaders engage (or not) in identifiable actions to develop their DELLHE, through formal and/or informal learning.
- That there may be differences in DELLHE maturity between the case studies.

Theoretical framework for the Case Study

The main theoretical framework for the case studies is that of Digital Education Leadership Literacies developed in Phase 1 of the research. This framework was used to design the semi-structured interviews and to provide a theoretical base for the coding of these interviews. In order to analyse the organisational and contextual characteristics, reference is also made to the concept of *third space* (Whitchurch, 2008, 2018) to organisational culture (Bergquist & Pawlak, 2007; McNay, 1995; Tierney, 1988) and to university autonomy (Enders et al., 2013).

Preparation prior to the fieldwork

Preparation for the case studies included desk research to identify available strategic plans, to be certain that the case studies were relevant for the study. The preparation also included a summary document to be sent to Case Study candidates, including precise information about the KIs to be

interviewed, authorisation to access key documents, data protection measures and any other ethical issues.

Protocol questions: line of inquiry and data sources for each question

The line of inquiry was structured around the main dimensions of the DELLHE framework defined in Phase 1 of the research. For each of the dimensions, the questions cover the notions of *representation* (understandings and mindsets) and *communication* (behaviour and action) in line with Cope et al.'s (2017) understanding of multiliteracies. Table 8 shows the questions for the line of inquiry and the associated data sources, with *representation* indicated by (R) and *communication* by (C).

Outline for the Case Study Report

Yin (2018) also recommends defining a tentative outline for the Case Study report to keep the researcher focused on the main questions during data collection and analysis. Table 9 shows this proposed outline, distinguishing between sections which concern each individual case (IC) and those which address the cross-case (CC) level.

Design of Case Study instruments, data collection and analysis

The design of the instruments for data collection is described for each of the data sources, followed by the techniques used for data analysis.

Semi-structured interviews with key informants

Semi-structured interviews ensure that the same topics are covered in all interviews while allowing participants to provide additional input and the researcher to ask additional questions for clarification or development. The topics guide the structure of the interview without the participant being subjected to a closed list of questions from an interview guide (Corbin & Strauss, 2015). Klenke (2016) identifies two of the advantages of semi-structured interviews as enabling complex issues to be addressed and clarified, and “reducing prejudgement on the part of the interviewer” (p. 132), both of which were deemed of particular importance for this study. The choice of face-to-face semi-structured interviews was made in order to gather accounts of the lived experience of the KIs while ensuring that all DELLHE dimensions were covered and could be clarified and developed in more depth with participants when necessary.

Table 8: Line of inquiry and data sources

QUESTIONS	DATA SOURCE(S)
<i>General information</i>	
Describe the way the university is organised around Digital Education.	Interviews Organisational structure charts
What are the different roles and remits of key informants at governance and management level?	Interviews
<i>WORLDLY</i>	
(R) How do key informants describe their vision for Digital Education?	Interviews Strategic plan
(C) How does this compare with the institutional strategy?	
(C) How is the vision for Digital Education implemented?	
<i>SUSTAINING</i>	
(R) How present are environmental and human issues in the preoccupations of Digital Education leaders?	Interviews Strategic plan
(C) How present are environmental and human issues in the Digital Education strategy?	
<i>LEADINGFUL</i>	
(C) What kinds of leadership behaviour are demonstrated by Digital Education leaders?	Interviews
(R) How do the Digital Education leaders themselves see their leadership role?	
(C) How is this leadership perceived by professional staff?	
<i>RELATIONAL</i>	
(R) What emphasis is put on relationship building by Digital Education leaders?	Interviews
(C) How is this perceived by professional staff?	
<i>LEARNINGFUL</i>	
(R) What are the attitudes of key informants towards LD?	Interviews
(C) What activities, if any, do Digital Education leaders engage in to develop their Leadership Literacies?	LDPs (if any)
(C) How do Digital Education leaders support the professional development of others?	

Table 9: Outline for the Case Study Report

SECTION TITLE	CONTENTS OF EACH SECTION
(IC) National context	Historical and political development of HE in each Case Study country.
(IC) Local context: strategy	The place of Digital Education in the overall strategy. The place of teaching and learning innovation in the digital strategy or plan. The place of technology in the teaching and learning strategy or plan.
(IC) Local context: Governance and organisation	The structure of governance in relation to Digital Education. The organisation of educational technology / teaching and learning innovation support, and how these relate to each other.
(IC) DELLHE	DELLHE as expressed and experienced by key informants. DELLHE as present in the Digital Education strategy or plan.
(IC) Recommendations	Strengths and areas for attention.
(CC) Cross-case analysis	Comparisons between the three cases in terms of DELLHE maturity as well as of organisational context and culture.

Choice of population. The main criterion for the choice of KIs to be interviewed was that they held a formal Digital Education Leadership position within each CSI. In order to gain a wider picture than could be obtained by just interviewing Vice-Rectors and others in governance roles, the population was extended to include senior managers and middle managers with remits for educational technology, teaching and learning, or both. University Presidents and Rectors were excluded on the basis that this profile would be inaccessible to a doctoral researcher. The minimum number of key informants per Case Study was set at five, with a least two at governance level.

Design of the interviews. A template was drawn up for the overall structure of the interviews, to ensure the five dimensions of the DELLHE framework were covered in all interviews. An approximate amount of time for

each was determined so that the interviewer could move on to the next question and ensure all dimensions were covered within the one-hour time limit set for the interviews. Participants were informed of this at the start of each interview.

Advantages of this approach were that each key informant was treated equally and was given the opportunity to develop further any points they wished at the end of the interview. The main disadvantage could be that some aspects might not have been developed fully due to the need to move on to the next dimension, although in practice the shift to the next questions came during natural breaks, identified by locutions or by several seconds of silence, signalling that the interviewee had said what they had to say.

Data collection. The interviews for the French Case Study were conducted in French and transcribed verbatim. It was decided not to translate the transcriptions to avoid the risk of alteration of meaning during translation. Furthermore, the fact that the researcher is bilingual in French and English guaranteed understanding of the subtleties of language in the expression of the participants for the subsequent process of coding, described hereafter. The interviews for the Belgian Case Study were conducted in English, in full recognition of the fact that this is a second language for the KIs. All KIs were sufficiently fluent in English to express attitudes and opinions with nuance and precision. The interviews for the UK Case Study were conducted in English.

Data analysis. The method used for the analysis of the interview transcripts was TA (Braun & Clarke, 2006; Clarke & Braun, 2017). As TA “is not wed to any pre-existing theoretical framework” (Braun & Clarke, 2006, p. 9), it is consistent with the pragmatic paradigm of this research, and is applied in this study as

a ‘contextualist’ method, sitting between the two poles of essentialism and constructionism, and characterised by theories such as critical realism (e.g., Willig, 1999), which acknowledge the ways individuals make meaning of their experience, and, in turn, the ways the broader social context impinges on those meanings, while retaining focus on the material and other limits of ‘reality’. Therefore, thematic analysis can be a method which works both to reflect reality, and to unpick or unravel the surface of ‘reality’.” (p. 9)

The coding was conducted iteratively using the NVivo software package. Given the fact that the interviews were based on the initial framework (v.1) developed in Phase I of the research, a hybrid process of inductive and deductive TA (Fereday & Muir-Cochrane, 2006) was used, integrating data-driven codes (open coding) with theory-driven codes (closed coding). The first stage of data analysis consisted of closed coding against the initial DELLHE framework, which served as the initial codebook. A second round of open coding was conducted to identify any themes that were not present in the pre-existing DELLHE framework.

Initial coding (both closed and open) was conducted on the interviews from the first Case Study (FR) to test the approach. This coding was cross-checked with a third-party researcher and served to define a level of coding consistent with TA. As TA concerns the identification of 'ideas', themes and concepts, these could be a word, a sentence fragment, a sentence or a group of sentences, representing "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon" (Boyatzis, 1998, p. 63).

Following this third-party validation, all interviews were coded both vertically (transcript by transcript) and horizontally (literacy by literacy) to ensure precision and to contribute to reaching saturation. During the open coding process, new themes external to the framework were identified. These were defined as counter examples (where there was a clear absence of a particular DELLHE), tensions, and perceptions of leadership as exercised by others (to distinguish from DELLHE demonstrated or expressed by KIs themselves).

The resulting intermediate framework was further analysed and reorganised to integrate more clearly the notions of *representation* and *communication* (Cope et al., 2017) and those of *purposes, people and structures and social systems* (Jameson, 2013). The new themes identified through the open coding were integrated, and all existing and new themes were merged

into higher order themes. This process was conducted through a series of six rounds in total and resulted in a revised framework (v.2) which can be found in Appendix C.

All interview transcripts were then checked against the revised framework (v.3), working horizontally (literacy by literacy) and involving uncoding, recoding and refinement to check coherence. A final third-party validation of the coding was conducted with a different researcher to the one who had participated in the initial check. Agreement was obtained, no new themes were identified, and it was concluded that saturation had been reached.

Collection and analysis of strategic plans and organisational charts

In order to gain a finer understanding of the context of each CSI, and with a view to establishing how DELLHE are reflected in the institutional strategy and organisation in answer to RQ2c, a list of document types was defined. The main document for analysis was the overarching institutional strategy. Specific strategies and plans for digital development and/or teaching and learning innovation were also identified as potential sources, together with the remits and mission statements of the departments and units responsible for Digital Education. The second family of documents concerned organisational charts, to identify how each university was structured around Digital Education and to gain a clear picture of the hierarchical relationships between the KIs.

Data collection. Overall strategic plans were obtained from the university websites and their current validity was checked through consultation with the main institutional key contact. These were supplemented by specific Digital Education and/or teaching and learning innovation strategies or plans and organisational structure charts. Some of these were publicly available on the university websites, others were provided by the KIs on request. The documents collected for each of the CSIs are shown in Table 10.

Table 10: Documents collected in each Case Study Institution

Type of document	UL	KUL	UoN
Strategy documents	The UL strategic plan 2018-2022 Remit of the Strategic Commission for Digital Affairs and Information System Remit of the Strategic Committee for teaching and learning innovation Digital roadmap Current state and planned evolutions concerning digital practice	KUL strategic plan 2018-2021 “Going Digital” plan (part of overall strategy)	UoN strategic plan 2015-2020 Learning and teaching plan 2019
Organisational structure charts and documents	Administrative and technical support units Directorate for Digital Affairs Sub-directorate for digital practice Teaching and learning innovation department Strategic Committee for teaching and learning innovation	Educational Policy division Directorate ICTS (Information & Communication Technology and Systems) Facilities for Education, Research and Collaboration unit within the Directorate ICTS	Organisational structure of Library and Learning Services

Data analysis. For the strategic documents, inductive and deductive TA (Fereday & Muir-Cochrane, 2006) was mobilised as for the interview data, with successive rounds of coding. The organisational structure documents came in diverse forms, from hierarchical charts (organigrams) to a series of webpages on the university website. These were used as a reference for developing a narrative description of the way each CSI was structured around Digital Education and for cross-case comparison, in particular with a reference to the notion of *third space*. They also served to inform the analysis of both the strategic documents and the semi-structured interviews, notably where the latter enabled the identification of tensions directly related to the organisational structure.

Leadership Development Programmes

Phase 2 also included the identification and analysis of selected LDPs to answer *RQ3a) How are DELLHE reflected in existing LDPs?*

Data collection

For reasons of time and feasibility, the number of LDPs to be analysed was set at five. The selection was conducted through purposeful sampling according to the following principles. The LDP must: 1) address the specific topic of Leadership for Digital Education and 2) be relevant for governance, management and/or academic staff in HE. In addition, it must be a) mentioned

specifically by one of the KIs, b) offered in one of the Case Study countries (FR, BE, UK), or c) offered at international level and be relevant for participants from Europe. The identification of the LDPs for analysis consisted of noting references to and recommendations of LDPs by key informants during the interviews, completed by additional desk research. In fact, all the LDPs mentioned by key informants were generic leadership programmes or not specific to Digital Education Leadership and so were not retained for analysis as they did not meet criterion 1 above. Table II summarises the five LDPs selected for analysis. For reasons of consistency, the main data analysed for each of the LDPs came from publicly available documentation, primarily the programme presentation and content itself, on websites or as downloadable brochures.

Data analysis

The five selected LDPs were analysed in terms of a) content and b) form. For the content, TA (Braun & Clarke, 2006) was applied mobilising the same approach as for the case-study interviews and the strategic plans: closed coding applying the DELLHE framework developed in the Delphi study in Phase 1, combined with open coding to identify any new themes (Fereday & Muir-Cochrane, 2006). For the form, a combination of Day's (2000) typology was used, together with reference to the modes or modalities of delivery (Bates, 2015).

Table II: LDPs selected for Thematic Analysis

ACRONYM	ORGANISATION	GEOGRAPHIC SCOPE	TITLE OF LDP	MODE	COMMENTS
EDUCAUSE-LTL	EDUCAUSE	USA/INTL	Learning Technology Leadership Program	4-day face to face event	Identified through desk research
D-TRANSFORM	D-TRANSFORM	INTL	University Strategies in the Digital Age	MOOC	Known to researcher prior to the current study
JISC-DL	JISC	UK	Digital Leaders	4-day face to face event	Identified through desk research
C-DELTA	Commonwealth of Learning	INTL (Commonwealth)	C-DELTA: Digital Education Leadership Training in Action	Online	C-DELTA preparatory work was used to inform creation of DELLHE framework
IELOL	Online Learning Consortium	USA/INTL	Institute for Emerging Leadership in Online Learning (IELOL)	Blended	Identified through desk research

The preliminary results of this analysis were published as a book chapter (Arnold & Sangrà, 2020) and the final results merged with the QUAL data collected during the Case Studies and the QUAN data from the survey (described in Phase 3) to produce version 3 of the DELLHE framework (Appendix D).

Phase 3: Recommendations for Digital Education LD

The third and final phase of the research was designed to answer *RQ3b*) *What changes should be proposed to reinforce the development of DELLHE?* This phase also included QUAN analysis of a survey conducted with academics in Europe, to provide additional insights in answer to *RQ2a* concerning the perception and experience of DELLHE.

As the ultimate aim of Digital Education Leadership is to improve the way technology is used for teaching and learning, the analysis would be incomplete without taking into account the views of those directly involved in Digital Education practice, namely teachers in higher education, referred to hereafter as academics. This where MMR makes a vital contribution to the overall robustness of the study, whereby the statistical analysis of QUAN data collected via an online survey of academics across Europe was merged with the QUAL results from the previous phases to produce the final version of the DELLHE framework (Appendix E) and a series of recommendations for LD, validated by an online focus group.

Survey with academics (QUAN)

The quantitative study involved an online survey to provide statistical descriptions of how academics themselves perceive Digital Education Leadership through the lens of DELLHE.

Survey design

In order to create a survey which would be meaningful for academics in terms of their own perceptions of Digital Education Leadership, the following steps were carried out. Firstly, the statements in the DELLHE framework were coded in terms of the leadership characteristics covered. The codes were defined as a) knowledge and competences of the leaders themselves, b) vision, c) organisation, d) leadership attitudes and behaviour. As the purpose of the survey was to study HE teachers' perceptions of DELLHE, rather than for academics to evaluate their leader(s), it was not considered appropriate to ask this population about leaders' personal knowledge and competencies, but to concentrate on observable manifestations of Digital Education vision, organisation, attitudes and behaviours.

Three existing survey instruments from the literature review (Cifuentes & Vanderlinde, 2015; Davis, 2012; Tintoré & Arbós, 2013) were identified as being relevant for further analysis and adaptation in order to create a robust survey. Cifuentes and Vanderlinde (2015) study ICT leadership in higher education via a multiple case-study in Columbia. The subject of the study as well as the related methodology made this an obvious choice. An initial version of the survey instrument was obtained on request from one of the authors, who stated, however, that this was not the final version, which unfortunately was no longer available. The survey instrument was translated from Spanish and then

analysed for its potential to contribute to the objectives of the current study.

The majority of questions in the survey pertained to teachers' use of and attitudes towards technology for teaching and learning, as well as opportunities for professional development, rather than their perceptions of Digital Education Leadership, and as the authors point out, the exploitation of the survey was limited "to complement[ing] the understanding of beliefs and attitudes among academic staff at each institution" (p. 136). The only questions from this instrument selected for inclusion in the DELLHE survey were those pertaining to academics' perceptions of the Digital Education strategy, the level of participation of teachers in this strategy and the possibilities that the institution gave teachers to innovate.

The second survey instrument analysed was that created by Davis (2012) to develop her concept of Leadership Literacies for professional staff in HE. As this survey is fully aligned with the five Leadership Literacy dimensions, it forms a highly relevant basis and indeed several of the concepts relating to general leadership attitudes and behaviours (SUSTAINING, LEADINGFUL and RELATIONAL) were already integrated into the DELLHE framework during the theory development in Phase 1. However, the survey instrument used by Davis is aimed at professional rather than academic staff and does not deal specifically with Digital Education.

The third instrument was that developed by Tintoré and Arbós (2013) for identifying the stage of growth in the organisational learning capacity of universities. Indeed, studying universities as learning organisations was identified as an emerging trend in an extensive literature review on e-leadership for TEL in HE (Arnold & Sangrà, 2018a), and the concept of organisational learning is reflected in the LEARNINGFUL dimension of DELLHE framework. Several compatibilities were identified, as shown in Table 12.

Table 12: Comparison between Tintoré and Arbós (2013) and the DELLHE dimensions

Tintoré and Arbós (2013) survey instrument	DELLHE dimensions
Section 1: Teamwork	RELATIONAL, LEARNINGFUL
Section 2: Leadership and vision	WORLDLY, LEADINGFUL
Section 3: Culture and values	WORLDLY, RELATIONAL
Section 4: Structures	Transversal
Section 5: Resources	SUSTAINING
Section 6: Openness to the environment	WORLDLY
Section 7: Barriers to learning	WORLDLY, RELATIONAL, LEARNINGFUL

Both Davis (2012) and Cifuentes and Vanderlinde (2015) use a five-point Likert scale, while Tintoré and Arbós (2013) use a four-point scale, the argument for the latter being to avoid central tendency bias. As the main inspiration for this study is that of Davis (2012), it was decided to use a five-point Likert scale for consistency. The final instrument designed for the DELLHE survey was thus the result of combining relevant questions from the

three aforementioned instruments, with additional statements formulated from the DELLHE framework itself.

Validation of the survey instrument

An initial version of the survey was created in Limesurvey and submitted for validation to a group of five researchers with experience in the field of Digital Education. Each member was provided with background information to the study, a PDF version of the survey instrument and a validation grid in order to provide feedback on univocity, relevance and importance. Univocity refers to the level of linguistic precision in the way the item has been formulated, to avoid ambiguity or multiple interpretations. Relevance concerns whether or not a particular survey question or statement supports the aim of the study. Importance involves the weighting on a scale of one to five to be attributed to each question or sub-question in the final analysis.

Each member of the group worked independently, and the identity of the other members was not disclosed. One member also reviewed the French version of the survey. It is important to raise here the particular challenge of multilingual surveys, where direct translation does not always result in survey respondents understanding the same thing. Certain questions and statements required adaptation rather than literal translation, considered an acceptable and even recommended approach for multilingual surveys (Pan et al., 2014). A

detailed summary table was communicated to each member of the group showing how the survey had been adapted to take into account the remarks made and justifying where no changes were made. This table received the validation of all members, and the survey was then finalised in Limesurvey, in both English and French.

Data collection (1)

The validated survey was first distributed to academics within the three CSIs. Despite an initial agreement from each of these universities to implement the survey within the frame of their participation in the study, the implementation phase came up against considerable barriers. The first was the impossibility of using internal mailing lists to reach the whole population of teaching staff within each university, due to institutional policies on the use of such mailing lists. In order to overcome this obstacle, the definition of the population was refined to that of “teachers who have participated in Digital Education related professional development or projects in the past five years” with a target sample of 50 responses per CSI. The key contacts at each institution (governance members or heads of educational development departments) agreed to circulate the survey to this restricted population, and the data collection was launched between January and February 2020. The second challenge came in the form of the coronavirus pandemic, which hit

Europe a few weeks later. As the CSIs were all campus-based universities, they were faced with the need to suddenly shift all teaching online. Not only were teaching staff fully mobilised by this emergency, but there was also a serious risk of the data being corrupted by teachers' attitudes to the way in which Digital Education Leadership addressed the challenge. With the agreement of the key contacts, it was therefore decided to stop the data collection in the third week of March 2020, at which point only the following data had been collected:

- Univeristé de Lorraine (FR): Total responses: 21; Complete: 12
- KU Leuven (BE): Total responses: 13; Complete: 12
- University of Northampton (UK): Total responses: 9; Complete: 7

Given the very low overall number of complete responses ($n = 31$) no analysis was performed on this dataset. Contact was made with the CSIs in July 2020 with a view to reopening the survey. However, the institutional relays reported a high level of survey fatigue among academics due to the numerous Covid-19 studies in relation to Digital Education and expressed serious doubts as to the possibility of mobilising sufficient numbers a second time.

Several alternative strategies (Table 13) were devised and discussed between the researcher and the supervisor, weighing up the pros and cons of each in terms of impact on the overall study.

Table 13: Alternative scenarios for addressing issues with the survey

Scenario	Remarks	PRO	CON
A) Re-run survey in October 2020	Consider initial run of survey as a pilot. Use the lessons learned to design a more effective survey.	QUAN data from CSIs can be collected and analysed. Consistent with MMR.	No guarantee that the same population will complete the survey again. The context has changed.
B) Abandon survey	Need to collect and analyse QUAL data from academics through interviews.	Data can be collected from academics within the CSIs.	Entails changing research design to solely QUAL rather than MMR. No guarantee of access to faculty members.
C) Redesign survey significantly and run in October 2020	Redesign the survey to consider academics' perceptions of leadership responses to the emergency switch to remote teaching.	QUAN data can be collected and analysed. Consistent with MMR research design. Current context is taken into consideration.	Changes the focus of the research. No guarantee that the same population will complete the survey again.
D) Run survey with wider population of HE teachers	Redefine target population as 'teachers in European campus-based universities' and distribute survey via EDEN and social media.	Survey not dependent on mobilisation of case-study institutions. Potential for gathering more data. Consistent with MMR.	Requires a greater number of respondents due to wider population. Need to filter out respondents not belonging to target population. Results not directly relatable to the three case studies.

The strategy retained for the implementation of the survey was scenario D, to preserve the MMR approach. Furthermore, this also offered the opportunity to redesign the survey to integrate the results of the updated theoretical background, which indicated that an additional focus on context in terms of institutional culture was desirable. In addition to this, the survey was refined to include questions to identify the country, the type of university (primarily campus-based, dual mode or distance) and any changes in attitudes

towards Digital Education Leadership as a result of how this leadership had dealt with pandemic-related issues. The revised survey was submitted to the same group of five experts who had validated initial version and piloted with a further 10 researchers in both English and French, before being finalised and launched with a wider population of academics across Europe.

As the revised survey was designed to be circulated widely, using social media, it was necessary to integrate measures to counter the impact of survey bots (Simone, 2019). Survey bots are automated programmes which trawl the web, completing surveys with random answers. This results in much time lost cleaning data before it can be analysed. The following measures recommended by Simone (Perkel, 2020) were integrated in the survey.

- Skip logic: questions dependent on a particular answer to a previous question.
- Open text questions that only human participants should be able to answer meaningfully.
- The decision not to circulate the direct survey link via Twitter, as this increases the likelihood of it being found by survey bots.

However, as the survey needed to reach a large population, the recommendation of individualised recruitment and the use of tokens was not retained as it was considered to represent a barrier.

Data collection (2)

The revised survey (see Appendix M) was launched mid-October 2020 and ran for four months until mid-February 2021. The number of complete responses obtained at the time of closing the survey was 119, however as 12 of these came from countries outside of Europe, and a further five of the European responses were from respondents who stated that they did not teach in HE, the final dataset retained for analysis was $n=102$.

Data analysis

The size and nature of the dataset (nominal and ordinal data) determines the statistical tests and approaches which can be applied. Reliability tests when dealing with ordinal data need to be used with caution. In particular, Cronbach's alpha has been shown to produce inaccurate results with such data (Gadermann et al., 2012). In addition to this, Cronbach's alpha has limitations when dealing with datasets below $n=250$ (Bonett, 2002, 2003; Charter, 2003). Finally, these tests are only useful when considering a single construct. The DELLHE framework is too broad in itself to be considered such a construct and indeed the DELLHE survey was never intended to be a psychometric instrument. Taking into account these different elements, internal consistency was not considered relevant to the analysis.

The solution retained was that of exploratory statistical analysis, mobilising rich descriptive statistics generated using the open-source software

JASP⁸. As the majority of questions were formulated as a five-point Likert scale, or as other Likert-type scales (Uebersax, 2006) the Median and Interquartile Range (IQR) were chosen as strong indicators (Jamieson, 2004), using boxplots to visualise and compare the distribution of the data. Frequency tables were also used for analysis where relevant.

The questions defined in order to guide the exploration of the data were the following:

- Which DELLHE are the most demonstrated by Digital Education Leaders identified by the survey respondents?
- Which DELLHE are the least demonstrated by Digital Education Leaders identified by the survey respondents?
- Which DELLHE have the greatest positive influence on the respondents' attitude to towards Digital Education?
- How is support for the development of a LEARNINGFUL community reflected in the DELLHE demonstrated by individual Digital Education leaders, and in institutional culture and practice?

While descriptive statistics enable a detailed exploration of the data, they do not enable hypothesis testing, nor do they identify causal relationships. Further research using a modified survey design and a larger dataset would

⁸ <https://jasp-stats.org/about/>

open up the possibility of using more advanced statistical approaches such as Structural Equation Modelling (SEM) “to study the relationships among latent constructs that are indicated by multiple measures” (Lei & Wu, 2007, p. 33).

Developing recommendations for LD

This final part of Phase 3 is concerned with developing evidence-based recommendations for Digital Education LD. The theoretical background referring specifically to LD is covered in Chapter 2. These recommendations were then submitted for validation by an online focus group. Frequently used in market research, online focus groups are recommended for research situations involving ex-post research phases and international checks (Brüggen & Willems, 2009), both of which correspond to the context in question, where an efficient method is required to gather final feedback from a geographically dispersed group of busy experts.

In order to provide for sufficient breadth and depth, the online focus group was designed with both asynchronous and synchronous interaction (Brüggen & Willems, 2009). The asynchronous part consisted of an online survey (Appendix O), which was followed by a one-hour synchronous online meeting for discussion and final validation.

The main criterion for the selection of experts for the focus group was deep knowledge of Digital Education leadership (through research and/or

having fulfilled the role of Digital Education leader in HE). In addition to this, specific criteria were defined at group level to ensure relevance of the results with respect to the main goal of validating recommendations for LD in European universities (see Table 14).

Table 14: Criteria for online focus group

CRITERION	FOCUS GROUP MEMBERS	CRITERION MET
At least one participant from each of the three Case Study countries.	UK = 4 FR = 2 BE = 1	Accepted: YES Participated: YES
At least three participants fulfilling a governance or senior management role with a remit for Digital Education (not necessarily from a Case Study country).	Governance = 1 Senior managers = 4	Accepted: YES Participated: partially met*
At least two participants fulfilling a middle management role with a remit for Digital Education (not necessarily from a Case Study country).	Middle managers = 2	Accepted: YES Participated: NO*
At least two non-university participants with experience in or responsibility for designing LDPs.	Independent LDP designers and LD consultants= 3	Accepted: YES Participated: YES
Gender balance.	Female = 6 Male = 6	Accepted: YES Participated: YES
At least a two-thirds majority of participants based in Europe.	Europe (including UK) = 11 USA = 1	Accepted: YES Participated: YES

*Note: *The two criteria not met at participation stage were due to a) the last-minute unavailability of the governance member and b) the fact that the two participants identified as Middle Managers based on their public profiles did not declare their status as such.*

A provisional list of 16 experts was drawn up based on these criteria, and an invitation email sent with an explanation of the process and expectations in terms of the final outcome. Twelve of these accepted, with the final make-up of

the group meeting all criteria. The focus group members, who all agreed to be named, can be found in Appendix Q.

Eleven of the twelve confirmed focus group members completed the online questionnaire. One participant was unable to do so due to unforeseen family circumstances. Eight members also participated in the synchronous session: two had informed that they were unavailable, and the researcher held a one-to-one discussion two days later with the final outstanding member who had to honour a last-minute engagement on the day of the synchronous session.

The following profiles were represented in the group. In recognition of the fact that roles frequently overlap, participants were permitted to provide several answers or to provide their own definition of their role. Senior manager in HE (5); Researcher in Digital Education or related areas (6); Independent consultant (2); E-learning specialist (1); Chief executive (1); Public administration (1). The members possessed a very high level of knowledge of Digital Education, as well as expertise and experience in designing, implementing and evaluating Digital Education LDPs, in particular two researchers involved in the JISC Digital Leaders programme and two representatives of the D-Transform programme.

The geographical coverage criterion was met, with members based in the three case study countries (France, Belgium, the United Kingdom) as well as

from Croatia, Ireland, Italy, Sweden and the United States. Finally, the gender balance of the group was respected, with six female members and five males.

Iterative development of the DELLHE framework

As clearly shown in the research design (Figure 3) the DELLHE framework was developed iteratively throughout the whole study. Originating in the literature review (v.0), it was further developed via the Delphi study (v.1) and then refined through the open and closed coding of the semi-structured interviews and strategy documents conducted in the Case Studies (v.2). Input to v.3 came from the integration of elements from the selected LDPs and the updated literature review. At this stage the content was reorganised to better reflect the distinction between the notions of *representation* and *communication* (Cope et al., 2017), requiring a thorough revision and refinement of the coding. As the results of the QUAN survey did not impact the framework, in that no literacies were deemed to have a negative impact on academics' attitudes to Digital Education, the production of the final DELLHE framework (v.4) concentrated on clarity and visual attractiveness to support wider uptake, taking on board suggestions formulated by the DELLHE focus group. The successive versions of the framework can be found in Appendices A to E.

Integration within Mixed Methods Research

Given the diversity of data sources and the combination of both QUAL and QUAN analysis as part of this MMR design, this section describes the way

in which these are integrated in order to answer the research questions.

According to Fetters et al. (2013), integration needs to be considered at the three levels of design, methods, and interpretation and reporting.

Integration at design level

As a Mixed Methods-Case Study (MM-CS) design (Guetterman & Fetters, 2018) the current study involves integrating a QUAL Case Study component with a QUAN component. Such a design falls under the category of Multistage Mixed Methods Frameworks combining exploratory sequential and convergent approaches (Fetters et al., 2013). As can be seen in the research design (Figure 3), the exploratory sequential approach consists of the development of the DELLHE framework via the Delphi study (QUAL) with the findings informing the design of the data collection for both the Case Studies (QUAL) and the survey (QUAN). The convergent nature of the design resides in the numerous iterations of refinement of the DELLHE framework, with QUAL findings from different data sources (Case Study interviews, strategic documents and LDPs) influencing the design of the QUAN survey, and all the results feeding into the final version of the DELLHE framework (v.4 – Appendix E) as well as to the recommendations for LD.

Integration at methods level

Fetters et al. (2013) define four types of integration at methods level. *Connecting* refers to linking different databases through sampling. *Building* concerns an approach whereby “One database informs the data collection approach of the other” (p. 2140). *Merging* is where “The two databases are brought together for analysis” (p. 2140) and finally *Embedding* concerns linking data collection and analysis at multiple points.

In the current study, the two main integration approaches applied at methods level are *building* and *merging*, as shown in Figure 3. In terms of *building*, the items for inclusion in the QUAN survey are built on the QUAL data collected from the Delphi study, the Case Studies and the LDP analysis. *Merging* takes place through bringing together the QUAL data from the Case Studies and LDP analysis with the QUAN data from the survey.

Integration at interpretation and reporting level

At this level, Fetters et al. (2013) define three approaches for integration: “(1) integrating through narrative; (2) integrating through data transformation; and (3) integrating through joint displays” (p. 2142). The two approaches employed in the current study are that of *integration through narrative*, taking a contiguous approach with different chapters (5, 6, 7) for the QUAL and QUAN findings, and *joint display*, where a summary table in Chapter 8 (Table 51)

precedes the final DELLHE framework. Furthermore, as the final recommendations for LD (Chapter 7) draw on both the QUAL and QUAN findings, this is considered to come under the definition of *weaving* (which Fetters et al. (2013) also associate with *joint display*), whereby “both qualitative and quantitative findings [are presented] together on a theme-by-theme or concept-by-concept basis” (p. 2142).

Adjustments to the research design due to external factors

The study was initially planned as a Case-Study Mixed Methods (CS-MM) design (Guetterman & Fetters, 2018), where the Case Studies themselves had both a QUAL and QUAN component, the latter being the data collected by the survey. As previously reported in this chapter, the survey was launched in January 2020, but insufficient data had been collected by the time Europe was hit by the Coronavirus pandemic. The impact of this change in design is that the DELLHE as expressed by Digital Education leaders in the CSIs cannot be compared with the perceptions of academics in their own institution. However, meaningful analysis can be made in relation to the general perception of DELLHE among academics in European HEIs, and the results contribute to the final version of the DELLHE framework, as well as to the recommendations for LD.

Summary of Chapter 3

Chapter 3, which concludes Part I of the thesis, has situated the overall study within the context of MMR. It has explained the research design in three phases.

PHASE 1: THEORY DEVELOPMENT

Methods: literature review and online Delphi study

Results: presented in Chapter 4

Outcome: definition and framework of Digital Education Leadership Literacies

PHASE 2: CASE STUDIES AND LDP ANALYSIS

Methods: Three QUAL Case Studies / Thematic Analysis

Results: presented in Chapters 5 and 7

Outcomes: Three individual Case Study reports, a cross-case analysis; DELLHE coverage of five Leadership Development Programmes

PHASE 3: SURVEY/LD RECOMMENDATIONS/FINAL DELLHE FRAMEWORK

Methods: QUAN survey (n=102) / MMR integration / online focus group

Results: presented in Chapters 6, 7 and 8

Outcomes: Statistical descriptions of academics' perceptions of DELLHE; final DELLHE framework; recommendations for Digital Education Leadership Development.

Chapter 3 has also demonstrated how the principles of integration were applied to make sense of multiple sources of data and has addressed and justified the evolution of the initial research design as a result of external factors.

PART II - RESULTS

Digital education leaders need to understand the digital system from the inside out as well as the outside in.

— *Brown, Czerniewicz, Huang, et al. (2016)*

Chapter 4: Theory development via a Delphi study

Introduction

The first version of the theoretical framework for this study was developed through a Delphi study conducted in three rounds between January and March 2018. As the way in which this study was implemented is described in Chapter 3 (Research design and methodology), this chapter focuses on presenting the actual results. It should be noted that at the time of the Delphi study the term used was that of e-Leadership Literacies for Technology-Enhanced Learning, hence the reference to the acronym TEL-eLL throughout this chapter. The evolution towards the definitive term of DELLHE (Digital Education Leadership Literacies for Higher Education) is explained at the end of the chapter. The dual aim of the Delphi study was to achieve consensus on a definition as well as on the elements which the framework should contain. Finally, it should be noted that from this point on in the dissertation, the five dimensions (WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL and

LEARNINGFUL) are capitalised in order to distinguish them from the original Leadership Literacies for professional staff (Davis, 2012).

TEL-eLL definition

The working definition put to the Delphi experts was:

a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.

Less than a quarter of experts (21.1%) found this definition perfectly satisfactory. The majority (68.4%) found it reasonably satisfactory, and 10.5% found it unsatisfactory. A total of 21 reformulations were proposed, 14 of which were adjustments to the initial definition (changing words and punctuation, omitting words and phrases). The remaining seven were major rewording or alternative definitions.

In Round 2, these 21 reformulations were presented to the Delphi experts, who were asked to choose their top three definitions: first choice, second choice, third choice. The results of Round 2 are shown Table 15.

Table 15: The top four definitions resulting from Round 2 of the Delphi study

ID	DEFINITION	SCORE (ROUND 2)
(A)	“a set of attitudes, understandings, mindsets and visions which enable leaders in higher education to employ sound judgment for making consistently good decisions for addressing complex problems relating to the integration of technology-enhanced learning and to solve these problems in ways which are respectful of people and the environment; and which contribute to socio-economic development and enhancing the capacity for individual social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”	18
(C)	“a set of attitudes, understandings and mindsets, including an awareness of how technology changes the traditional paradigms of education, research, scholarship and administration. TEL-eLL should enable leaders in higher education to address complex problems relating to the integration of technology in education, and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”	24
(D)	“a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning.”	20
(O)	“a set of attitudes, understanding, and mindsets that empower leaders in higher education with skills to practice foresight, insight, and action to address complex problems in relation to the integration of technology-enhanced learning.”	16

In Round 3, these top four definitions (A, C, D and O) were put to experts again, with the option of not aligning with the consensus, on condition that they justified their choice. The result was an absence of any clear-cut consensus, but which favoured the most concise, general definition of TEL-eLL (Option D in Table 15) selected by just over two fifths of the participants.

Furthermore Table 15 shows that the second-choice definition (C), which obtained a score of 32.3% in Round 3, actually includes Definition D.

The definition

“a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning.”

The implication of this is to retain a workable, understandable general definition, while taking care not to neglect the additional issues addressed by nearly one third of the experts: an awareness of how technology changes the traditional paradigms of education, research, scholarship and administration; and solving these problems in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.

TEL-eLL framework

Concerning the TEL-eLL framework, an initial set of 68 statements (see Appendix A) was put to the Delphi expert group. Of these, the following four statements were validated outright and with no proposed reformulations.

WORLDLY: Making informed decisions about TEL appropriate to context.

LEADINGFUL: Being able to create conditions for innovation and change.

RELATIONAL: Articulating a shared vision to give meaning and inspiration.

RELATIONAL: Investing time and energy in managing relationships.

In Round 1, consensus was also reached on 34 further statements, however these all produced proposed reformulations. No statements were eliminated, and 51 new statements were proposed. Rounds 2 and 3 involved rating both the reformulations and the new statements. The result consisted of 109 statements, with four of the original and six of the new statements eliminated. Here, 69 statements received a clear consensus of over 80%. The remaining 40 statements received weaker consensus of between 50 and 80%. Almost half of these (18) concerned the proposed reformulations, which did not lend themselves to a clear-cut decision. This highlights one of the limitations of pre-defining the study with three rounds, whereas a fourth round would have been useful. Given these results, a primary framework was retained, consisting only of those statements which obtained a consensus of >80%.

Furthermore, as noted by several of the Delphi experts, there was a certain overlap of some statements, for example 'Quality' featured once in the WORLDLY dimension and twice within LEADINGFUL, and 'Shared meaning and purpose' twice within RELATIONAL. TA (Braun & Clarke, 2006) enabled these duplicates to be merged and attributed to a primary dimension alongside further minor reorganisation for clarity and consistency. Table 16 provides a summary of the framework, with the full version (v.1) presented in Appendix B.

Table 16: Summary of the TEL-eLL framework (v.1)

DIMENSION		MAIN THEMES	
WORLDLY	VISION	Clear vision of institutional mission Ownership of vision Big-picture thinking Future vision	Informed decision making Involving external stakeholders
	TECHNOLOGY	Digital developments in society Knowledge of edtech Personal use of digital technology Students' use of technology	People before technology Ethics, cybersecurity Critical digital literacy
	PEDAGOGY	Knowledge of learning theory Affordances and risks of edtech Characteristics of learners	Design thinking for pedagogy Multidisciplinary teams
SUSTAINING		Human implications Environmental implications Learning spaces Organisational agility	Safe, legal and ethical use policy Access, equity and inclusion Social good & digital citizenship Open education
LEADINGFUL	LEADERSHIP STYLE	Conditions for innovation & change Strategic recruitment Risk-taking Quality	Change management Distributed Leadership Empowering others Humility
	BRANDING & PUBLIC RELATIONS	Brand image centred on quality teaching and learning supported by technology	Promoting open forms of education
RELATIONAL		Shared vision, meaning, purpose Open and respectful discussion Networking and sharing	Managing relationships Trust Positive affect and caring Conflict management
LEARNINGFUL	LEARNINGFUL SELF	Formal and informal LD Training in change management	Information and digital literacy Learning the art of delegation
	LEARNINGFUL COMMUNITY	Organisational culture of learning and innovation Reward mechanisms	Digital scholarship (teacher and staff development)

Comments formulated by the Delphi experts

Over and above the specific responses to the survey questions, in terms of validating the proposed statements, some of the Delphi experts also provided comments which helped shape the researcher's understanding of issues relating to Digital Education Leadership and informed the interpretation of the framework when conducting and analysing the Case Studies in Phase 2.

A selection of these comments is presented here. The expert is identified by the code attributed to them, together with the round in which the comment was made. While the issues raised by these experts are dealt with more fully in Chapter 9, an initial reaction on the part of the researcher is included here.

Certain experts felt that the more general RELATIONAL Leadership Literacies did not have their place in the framework. "If we focus on digital leadership: eliminate from framework" (Round 3, 1050). "These are first level leadership skills...[and don't] really illuminate the specifics for TEL" (Round 3, 1044). While only two of the 31 experts made such a comment, it encouraged the researcher to think more deeply about the purpose of the framework and to defend the inclusion of the general RELATIONAL and LEADINGFUL Leadership Literacies. Indeed, Digital Education Leadership is first and foremost a question of leadership. Only focusing on aspects specific to the digital would give an incomplete picture of the range of mindsets, attitudes and

behaviours involved in improving the way technology is used for teaching and learning, as illustrated by the following comment.

The "e-" is a (probably "the") distinctive fact of and the distinctive challenge for our social and educational world. Its importance is well described in the survey. Yet it should be made clear that "non-e" sides of all the leadership roles, traits and duties listed still apply. "Digital" is a tool, a challenge, maybe even a context, a medium, but it does not transform, just mediates, leadership. (Round 3, 1027)

This question of whether or not to retain the e- in e-leadership has been addressed in Chapter 2 and is developed further in the discussion in Chapter 9. Consistent with the focus on Leadership Literacies, one expert drew attention to the fact that personal mastery of (educational) technology was not the main issue: "Leadership is an attitude. It doesn't mean that the leader must be a specialist in everything" (Round 2, 1046). A second expert highlighted the need to go beyond purely technical considerations:

For senior institutional leaders, single and dual mode institutions, leaders must think broader than just technology in creating their institution puzzle. Technology is important but it is not a panacea for solving all the institution's issues - leadership is about people. (Round 2, 1024)

Finally, two of the experts used the final open comment field to provide general feedback on their perception of the overall Delphi study: "Interesting convergence of views during the process" (Round 3, 1033); "Thanks for this.

Very interesting and well done. The consensus or disagreement relating to statements was clearly articulated, easy to follow and meaningful to read” (Round 3, I055).

The Delphi expert group

The following subsections report on the profile of the expert group. They cover the gender balance and geographical distribution of the group (from sign-up to completion of Round 3) as well as the professional profiles.

Gender balance

The gender balance was consistent throughout. Invitations were sent out to 64 male (56,64%) and 49 (43,36%) female experts. Actual participation reflected this balance, with 56% male, 42% female and 2% preferring not to say.

Professional profile

Figure 4 shows the distribution of Delphi experts by professional profile. The most-represented group (n=12) was that of academics, who described their role as professor or teacher. Directors (n=11) were equally distributed between academics leading a learning technology or distance education unit and administrative staff in a senior management position. Four participants held a GOV role, either as (former) president or vice-president. In the ‘Other’ category, the roles were: Project manager, Research Associate, Retired

European Commission staff / e-learning expert, Senior advisor, e-learning specialist.

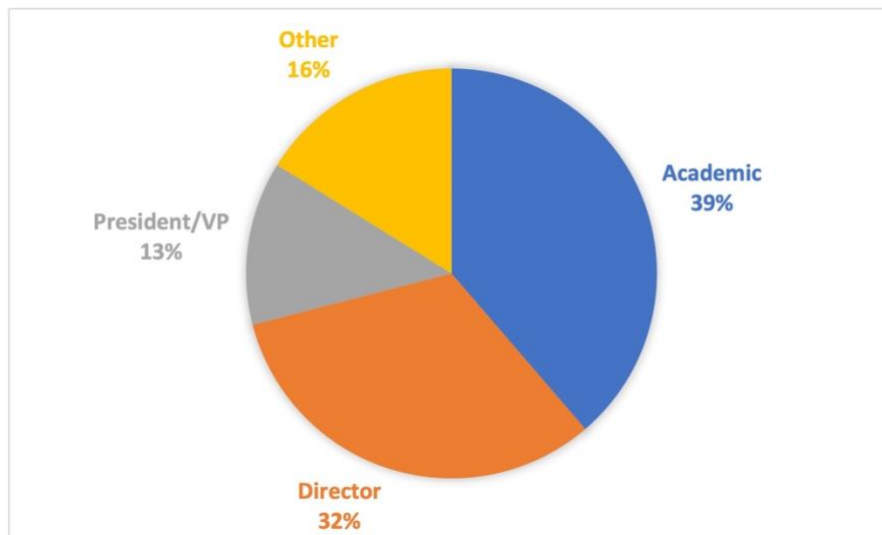


Figure 4: Distribution of Delphi group members by professional profile

Geographical distribution

As shown in Figure 5, the majority of experts were from Europe, consistent with the focus of the overall research.

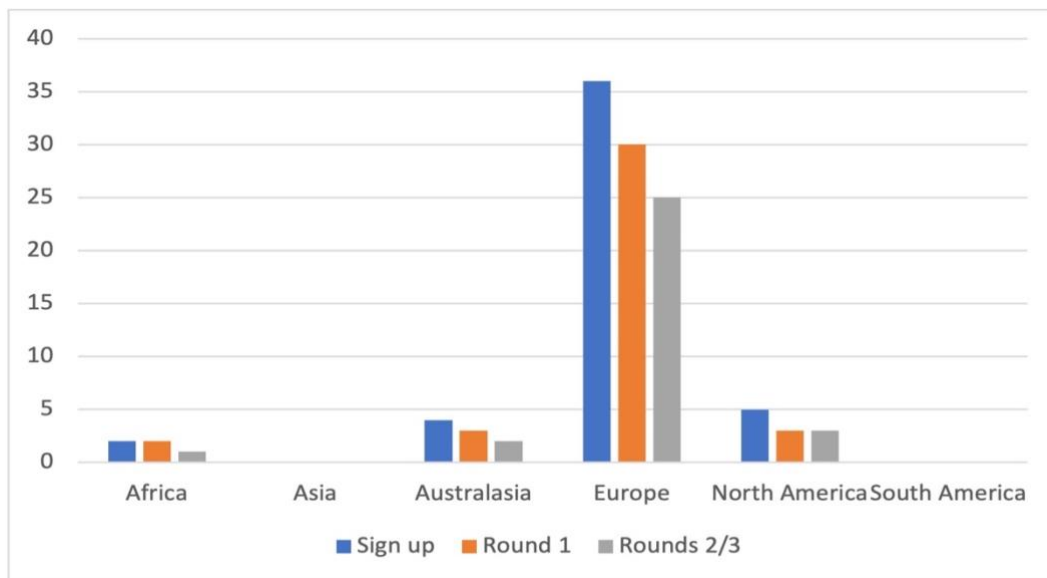


Figure 5: Geographical distribution of Delphi group members

Evolution of the framework

As a result of the Delphi study described in this chapter, the framework evolved from the preliminary version (v.0) established from the literature (Appendix A) to version 1 (Appendix B). This version (v.1) was then applied in the three Case Studies, the results of which are presented in the following chapter. Through the TA involving closed and open coding of the QUAL data collected in these Case Studies and an update of the theoretical background between the second and third Case Studies, the acronym TEL-eLL was replaced by that of DELLHE to reflect a growing preference for the term Digital Education over that of technology-enhanced learning, for reasons already explained in the theoretical background.

Key results of the Delphi study

Chapter 4 has demonstrated how a Delphi study was mobilised to answer *RQ1*) *How can existing frameworks and concepts be combined into a single framework of Digital Education leadership Literacies (DELLHE)?*

Three rounds of consensus-building with 31 mainly European-based experts in the field of Digital Education resulted in the following **definition** of TEL-eLL (subsequently reframed as DELLHE):

“a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning.”

An initial proposal for a framework, grounded in the literature, was revised and enriched through the same three rounds of the Delphi study. The result of this phase in the study is a **detailed framework of 69 individual DELLHE statements** (Appendix B), organised into the five dimensions of WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL and LEARNINGFUL as defined by Davis (2012).

These overarching dimensions served to design the main instrument used for data collection (semi-structured interview guide) in the three Case Studies reported in the following chapter, and the detailed framework provided the basis for the coding of the data.

Chapter 5: The Case Studies

Introduction

This chapter presents the results of the three Case Studies. Each individual report begins with background information to situate the Case Study within each national or regional HE system. Details about each Case Study Institution (CSI) are provided, with key figures (e.g. staff and student numbers) for the year in which the interviews in each Case Study were conducted. The reports are organised around the five dimensions of the DELLHE framework, integrating results from the semi-structured interviews with KIs and the analysis of strategy documents. Each report concludes with a synthesis of the main strengths and recommendations, an overview of DELLHE maturity, and a summary of the findings with respect to the research questions addressed:

RQ2a) How are DELLHE experienced by key informants in selected European universities?

RQ2b) How do key informants in European universities develop (i.e. “learn”) DELLHE?

RQ2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

The final section in this chapter concerns the cross-case analysis, comparing results between the three CSIs.

Case Study Report: Université de Lorraine (FR)

The first Case Study (CSI) was conducted at Université de Lorraine (UL) between April 2018 and March 2020.

Context

The French Higher Education System

In order to understand the environment in which this Case Study is conducted, it is important to provide some background information about the French HE system itself. This account is voluntarily limited to public higher education. In October 2019, France counted 142 public HEIs, known as “établissements publics à caractère scientifique, culturel et professionnel” or EPSCP (Ministère de l’Enseignement supérieur de la Recherche et de l’Innovation, 2019). 67 of these are public universities, 19 are Communities of Universities and Establishments, and 20 are ‘grand établissements’. The latter are public HEIs with a special administrative status governed by article L717-1 of the Code de l’éducation on the basis that they are either longstanding institutions with specificities linked to their history, or institutions which do not deliver diplomas across the three cycles of higher education (République française, 2013).

French HE has undergone several reforms in recent decades (Musselin, 2009, 2017), the most significant being the 2007 LRU (La loi relative aux

libertés et responsabilités des universités) designed to give universities more autonomy. However, as the European Universities Autonomy Scorecard (European University Association, 2016b) indicates, French public HEIs still score low for autonomy in each of the four categories, being ranked low for academic autonomy (27th out of 29 countries) and medium low for organisational autonomy (20th out of 29); financial autonomy (24th) and staffing autonomy (27th).

The trend in France for HEIs to merger is well documented by Musselin (2017), who identifies and then deconstructs four main beliefs driving this trend. The first belief is that ‘big is better’ in order to compete in the international arena, but in 2015, the average size of the top 50 universities in the Shanghai ranking was about 28 000 students (Musselin, 2017). The second belief is anchored in the model of ‘complete universities’, covering all disciplinary fields (which would define UL), but again “being specialised does not exclude from featuring at the top of the rankings” (Musselin, 2017, p. 233). The third belief identified by Musselin is the need to simplify the French HE system, however other systems (USA, Germany) are also complex. Finally, the fourth belief is that these new configurations need “a strong governance, capable of establishing a strategy and implementing it, which, in the French case, is translated by a reinforcement of the hierarchy and centralisation” (Musselin, 2017, p. 236).

Linguistic and cultural issues in relation to Digital Education policy and practice

In French, the most common term used in relation to educational technology is “TICE” (Technologies de l’Information et de la Communication pour l’Enseignement) which translates as Information and Communication Technologies for Teaching. Indeed, in French, the use of the words “enseigner” (to teach) and “apprendre” (to learn”) has important implications for the way teachers, governance and policy makers, and even students, actually conceive of the teaching-learning relationship (Lebrun & Lecoq, 2015).

The term “e-learning” is also used in France, coming into usage around the time of the European Commission’s e-learning initiative (2000) and subsequent programme 2004-2006 (Thibault, 2007). However, it has come to be predominantly associated with private sector providers. In the second half of the 2000s, the term ‘Pédagogie numérique’ came into usage (MESR, 2012; Valluy, 2013). This translates as digital pedagogy, a term not without its own issues, as illustrated by this excerpt from the 2012 French Ministry of Education white paper:

talking of pedagogy at the university can still today be qualified as a new – even strange, even foreign – phenomenon in France. In the report written for the Agence pour la Mutualisation des Universités (AMUE), Albero and Charignon (2008) recalled that in the university habitus, pedagogy is generally accepted as self-evident, rarely questioned in its principles, its modalities or its instruments. The pedagogical question is

therefore left to individual initiatives and is very rarely discussed in its globality and in terms of coherence of the institutional strategy. (MESR, 2012, p. 12)

Poteaux (2013) goes as far as to consider that the term ‘pedagogy’ has a negative connotation in French HE, also generating controversies which oppose the content to be taught and the way to do this. Given the difficulties reported in gaining acceptance of the notion of pedagogy itself, adding the qualifier ‘digital’ further compounds the problem. This not helped by organisational tensions in the French HE system, where more often than not, separate units deal with academic development and with TEL (ANSTIA, 2009).

Finally, it is important to note that there is no word in French for ‘leadership’. The English term is used, and is often used interchangeably to refer to the leader (a person) or to the process of leadership (Pelletier, 2011). This is compounded by attempts to render the concept in French with terms such as ‘direction’, which convey an authoritarian, managerial and hierarchical assumption. The question of HE leadership in the sense understood by the currently study has received little attention by scholars in France. Musselin’s (2005, 2009, 2017) sociological perspective on university governance provides useful contextual insights with respect to the policy environment, but does not address the individual characteristics of leadership, and the one study identified relating to digital education leadership in a French HEI, in fact a

business school, purports that there is no difference between management and leadership (Hamlin & Patel, 2017).

As the initially identified literature did not provide a satisfactory answer this question of the perception of leadership in French HE, additional interviews were conducted with two scholars (one in France, the other from francophone Belgium to address the linguistic angle) and with one LD practitioner in France. The insights drawn from these interviews were that the problem does not stem from the linguistic side, but from the very structure of HE, where as part of the civil service, French public universities are organised along very strict hierarchical lines (especially with respect to professional staff), in addition to the statutory divide between academic and professional staff. These insights were confirmed by a further exploration of the literature relating to public-sector (and HE) leadership in France, which notes the challenge of delegating responsibility, and by extension leadership, within such a structure, the difficulty of recognising expertise-based leadership as opposed to political leadership, as well as a certain distrust of those who govern (Bories-Azeau et al., 2016; Brest, 2011; Deneire, 2010).

Université de Lorraine (UL) within the French HE System

UL has the status of ‘Grand Etablissement’ based on its historical specificities, as it brings together four existing HEIs spread over the whole of

the Lorraine region. As indicated in the decree announcing the creation of Université de Lorraine:

Le statut de grand établissement (au sens de l'article L. 717-1 du code de l'éducation) permet d'assurer, au sein de ces conseils, une représentation des grands secteurs de formation et des sites d'implantation de l'établissement et d'instaurer une gouvernance de proximité au travers de collègiums et de pôles scientifiques qui disposent de compétences propres. (République française, 2011)

UL resulted from the merger on January 1st 2012 of the four existing HEIs in the Lorraine region (Université Nancy 1, Université Nancy 2, Université de Metz, Institut national polytechnique de Lorraine).

In 2017-2018⁹, the key figures for UL were as follows:

- 59,409 students + 1859 doctoral students
- 3900 academic staff
- 3000 administrative and technical support staff
- Budget: 630 million Euros
- Buildings: 243, on 53 sites in the Lorraine region
- Teaching departments: 44, organised into 9 'Collegiums'.

This makes UL the second or third largest HEI in France in terms of student numbers, after Aix-Marseille (which resulted from the merger of the

⁹ <http://welcome.univ-lorraine.fr/fr/propos/lul-en-chiffres> Accessed 22/07/18

Universities of Aix-en-Provence and Marseille). It is more or less equivalent in size to Université de Strasbourg, again the result of a merger. Musselin (2017) considers that this process of mergers is characterised by both the centralised, top-down approach of national government and by initiatives reflecting local interests, as also highlighted by Barrier (2014) who identifies the key role played by local government in the merger which led to the creation of UL.

In terms of the relevance of this merger process for the questions which interest us in this Case Study on Digital Education Leadership, there are two main factors which need to be considered. First of all, the UL merger in 2012 required a total reorganisation of the teaching, research and administrative support structures. Secondly, the number and geographical spread of the university sites impacts the Digital Education strategy, and the way TEL support is organised, as detailed later. Before the merger, there were two longstanding audiovisual production centres (Vidéoscop at Université Nancy 2 and the audiovisual production department in Metz), as well as a learning technology unit (NUTICE) common to the three HEIs located in Nancy. Vidéoscop had also developed an educational technology strand, focusing on innovation through national and international projects. The merger resulted in the fusion of these units with IT and information systems within the Directorate for Digital Affairs.

During the semi-structured interviews which formed part of this Case Study, the two KIs at GOV level highlighted the fact that the first governance mandate after the merger (2012-2016) was devoted to stabilising structures and working processes, and that the second mandate (for which the existing governance team was re-elected) was operating in a context of organisational maturity after this period of adaptation.

Organisation of UL around Digital Education

At UL, educational technology lies within the remit of the ‘Direction du Numérique’ (Directorate for Digital Affairs), a large operational department of over 200 staff comprising 4 sub-directorates or units: Information Systems, User support, Infrastructure and services, and ‘Usages du numérique’ (usage of digital technology). Educational technology sits within this last unit. It is important to note that there is no reference to educational uses of digital technology in the unit’s name at sub-directorate level, only in that of one of the two teams it houses: ‘TICE et pédagogie numérique’, which translates as TEL and digital pedagogy. The other team oversees audiovisual and multimedia production.

A separate sub-directorate, the SU2IP (Service Universitaire d’Ingénierie et d’Innovation Pédagogique, equivalent to an educational development unit) is part of the Direction de la Formation, de l’Orientation et de l’Insertion

Professionnelle (DFOIP). This Directorate has an overall remit for programme administration, student orientation and employability, lifelong learning and educational development.

A further distinction between the two is that the Directorate for Digital Affairs sits within the group of Directorates for the administration of resources, whereas the DFOIP belongs to the more strategic group of Directorates in support of the university's missions (Université de Lorraine, 2019b). The implications of this distinction will be developed further in the analysis of the UL Case Study results and in the cross-case analysis.

Governance bodies and commissions

Two main commissions were mentioned as intervening in decision-making with respect to Digital Education.

La Commission Stratégie du Numérique et du Système d'Information. Its main role is to ensure governance of the information system (IS) and digital projects. It prepares the decisions of the university's Board of Directors relating to the digital strategy and the evolution of the IS as well as the definition of the action plan on information systems security. It also aims to prepare and formalise the evolution of the digital services for teaching, research and management, as well as investment plans. (Université de Lorraine, 2018a).

Le Comité Stratégique Ingénierie et Innovation Pédagogique. This strategic committee states its missions as: providing impetus for pedagogical transformation, training staff, accompanying transformation projects (Université de Lorraine, 2019a). Its members include governance representatives, operational staff members from several directorates, including DFIOP and Digital Affairs, as well as academic and student representatives.

The different roles and remits of key informants

In order to be as precise as possible, the job titles of each KI are provided in French with an English translation or explanation of the role.

At governance level, Digital Education comes under the joint remit of two members of the governance (GOV) team:

- Vice-Président numérique (elected Vice-Rector for Digital Affairs). The remit of this Vice-Rector concerns primarily information systems and infrastructures. Digital Education can be said to come under the ‘usage of digital technology’ aspect of the remit.
- Vice-Président délégué à la Transformation Pédagogique (nominated Vice-Rector for Pedagogical Transformation, reports to an elected vice-rector for Teaching and Learning). The main remit of this governance member is to develop a dynamic of accompanying the transformation of pedagogical practices.

At management level, the KIs and their remits reflect the organisational structure:

Senior management (SM):

- Directeur du Numérique (Director for Digital Affairs)

Middle management (MM):

- Sous-directeur en charge des usages du numérique (Sub-director for Usage of Digital Technology)
- Responsable du SU2IP (Head of educational development unit)

As stated in the UL strategic plan:

La transformation pédagogique initiée depuis plusieurs années à l'UL s'est concrétisée par la création d'un Service Universitaire de Pédagogie (SU2IP). Ses activités s'appuient sur les travaux issus de la recherche en pédagogie universitaire. Elles s'articulent avec les différentes expertises internes et externes en matière de numérique et de pédagogie et se concrétisent par l'accompagnement de la communauté enseignante et le développement de services, d'outils et de contenus numériques. Les activités de soutien et de déploiement des dispositifs seront accentuées. (Université de Lorraine, 2018b, p. 14)

All KIs were aware of the challenge of articulating the activities of two distinct units, housed in separate directorates. Furthermore, while on paper (according to the organisational charts), neither sub-director has a direct hierarchical link to a governance member, in reality the head of the educational development unit worked in close tandem with the Vice-Rector for Pedagogical Transformation.

The WORLDLY Leadership Literacy

The WORLDLY Leadership Literacy is articulated around three key concepts: vision (W-VISION), pedagogy (W-PEDA) and technology (W-TECH), with each of these being considered in terms of *representation* (understandings and mindsets) and *communication* (behaviour and action) in line with Cope et al.'s (2017) understanding of multiliteracies. In order to maintain the trace of these distinctions, *representation* is indicated by R, and *communication* by C.

In conformity with the line of inquiry described in Table 8, the results are presented in answer to the three main questions:

- How do KIs describe their vision for Digital Education? (R)
- How does this compare with the institutional strategy? (C)
- How is the vision for Digital Education implemented? (C)

The data sources concerned are the semi-structured interviews with KIs and the strategic plan. In order to preserve anonymity, KIs are identified by a code, which is related neither to the order in which they were interviewed, nor to their hierarchical position in the organisation. The five KIs from CSI are identified as IKIA, IKIB, IKIC, IKID and IKIE, where 1 refers to the Case Study number, to facilitate identification when presenting the results of the cross-case analysis later in this chapter.

Vision for Digital Education. There was a clear vision at GOV level of the institutional strategy and the role that educational technology plays in support of that strategy. However, the results show that big picture thinking was more prevalent at MM than GOV level. There was distinct ownership of the institutional strategy by one of the GOV-level KIs. However, such ownership was not expressed at SM level, and one of the MM-level KIs felt that there was not even a clear strategy. The KIs showed understanding of how educational technology relates to, and supports, different forms of teaching and learning. However, a finer analysis of the data shows more attention paid to affordances than risks, with the exception of one example (see Table 17).

Despite a high level of awareness of how teachers approach the transformation of their teaching practice, there were few references to theory and research, and no evidence of this informing Digital Education.

Table 17: WORLDLY sub-themes and data snapshots – UL

WORLDLY sub-themes	Data snapshots
Vision for Digital Education	C'est d'abord une transformation des pratiques pédagogiques que l'université souhaite impulser ... et celle-ci s'appuie ou pas sur le numérique. (IKIA)
Strategy (absence of)	On a des... des grands axes, je dirais, comme la transformation pédagogique, comme euh, peut-être notamment appuyée sur l'hybridation, euh, ces concepts, mais on n'a pas de, de stratégie établie. (IKIB)
Big-picture thinking	En réalité le numérique n'est que le révélateur pour moi... de changements qui sont beaucoup plus profonds. (IKIB)
Ownership	Donc ça c'est quelque-chose que vraiment je porte euh, dans l'établissement. (IKIA)

WORLDLY sub-themes	Data snapshots
W-PEDA Transformation of teaching	Et certains enseignants entrent plutôt par les outils, et le fait d'avoir des outils qui leur permettent de faire des nouvelles choses amène une transformation de leurs pratiques...d'autres enseignants ont besoin... que les choses soient plus théorisées et...validées par des travaux de recherche avant d'engager une transformation de leurs pratiques et éventuellement d'utiliser le numérique. (IKIA)
W-TECH Technology supporting different forms of learning and teaching	...on essaie de mixer, c'est plus que du transmissif mais, on mixe les pratiques, donc on repense aussi et on les aide à repenser l'intégration du numérique en lien avec les pratiques ... Que ce soit formation à distance, classe inversée, ou pédagogie active..., travail en autonomie aussi. (IKIB)
W-TECH Risks	Aujourd'hui je vois trop souvent des concepts pédagogiques... qui ne sont pas pensés, ou qui sont importés, ... de façon déraisonnée, ... je pense aux SPOCs, aux MOOCs, à la pédagogie inversée, ... Toutes ces initiatives, enfin tous ces concepts pédagogiques euh, s'ils sont mis en œuvre de façon, comment dire, trop brutale, ou... mal amenée, peuvent avoir des résultats tout à fait négatifs. (IKID)

The place of Digital Education within the institutional strategy.

The overall UL strategic plan 2018-2022 (Université de Lorraine, 2018b) consists of a 23-page document organised into five sections. The sections or subsections which are of direct relevance to this study are section 3.1, the teaching and learning strategy (pp. 13-15), and section 4, the digital strategy (pp. 18-21).

UL defines itself as a multidisciplinary, innovative and entrepreneurial research-intensive university (p.2). The strategic plan indicates UL's values as being those of universality, creativity, reflexivity, solidarity and responsibility (p.7). The teaching and learning strategy is designed to address the challenge of an increase in the student population (due to a combination of demographics

and the growing attractiveness of UL), with lifelong learning at the heart of its teaching and learning model (p. 13).

Section 3.1 of the strategic plan focuses on three pillars of the transformation of teaching practice: reflection on practice, the integration of technology and the transformation of formal and informal spaces:

...l'UL s'attachera à développer une approche combinée des trois piliers fondamentaux de la mutation des pratiques pédagogiques : réflexion sur les pratiques pédagogiques, déploiement de technologies et transformation des espaces (formels et informels). En ce sens, les rythmes et possibilités d'apprentissage et les projets individuels des étudiants seront davantage pris en compte, par exemple grâce au développement de pédagogies multi-modales (formation hybride présentiel/distanciel). (p. 14)

The ambitions of this strategic plan with respect to Digital Education are to modernise and develop shared platforms and learning spaces, and to develop Open and Distance Learning (ODL) with a focus on quality in terms of the requirement levels of diplomas awarded and the quality of teaching. However, there were no explicit references to developing ODL by any of the KIs during the interviews, suggesting that this aspect of the strategy had not been fully integrated in daily practice at the time of the Case Study.

In terms of how the WORLDLY Leadership Literacy is reflected in the strategic plan, big picture thinking is illustrated by the following excerpt:

Façonné par nos usages, le numérique transforme en profondeur la société, et donc l'université. Il transforme notre rapport aux espaces et au temps, nos métiers et ceux auxquels se destinent nos étudiants, nos pratiques professionnelles, les logiques de la production et de l'édition scientifique, nos outils de travail. (p. 18)

Implementation of the vision for Digital Education. The vision for Digital Education is implemented through a Digital Roadmap, a spreadsheet-based dashboard which enables the governance to keep track of the advancement of key strategic projects. One of the GOV members explicitly said that the choice had been made not to develop a Digital Master Plan (Schéma Directeur du Numérique) as is done in many French universities, on the basis that such documents, which usually run to over a hundred pages, are often never updated and rarely used as a strategic instrument. The Digital Roadmap was chosen as a more operational and agile form, combined with inventories for each of the five action lines of the digital strategy.

Digital Education forms a sub-objective of Action line C: “Dynamiser et faciliter l’usage du numérique en formation et recherche”. Specifically, this covers:

- evolution of the learning platforms,
- evolution of the anti-plagiarism service,

- implementation of the digital axe of NUMOC (transversal module on digital culture and tools for all 1st year Bachelor students) and Pix (the national certificate for digital competence based on the European DigComp framework¹⁰),
- developing an ePortfolio approach for learning and employability,
- developing blended learning: producing digital resources and accompanying teachers.

The KIs provided additional information about how this worked in practice. Internal calls for project proposals were the main instrument for identifying and supporting Digital Education initiatives, although it was mentioned at GOV level that these are often occasional rather than strategic projects. The transformation of teaching practice was organised around a network of academic developers, themselves academic staff who have been trained in educational development and coaching.

During the interviews, there were relatively few occurrences of the WORLDLY Leadership Literacies relating to *communication*, in other words concrete actions and behaviours in support of the vision and strategy. The most frequently coded items were ‘Focusing on student success’ and ‘Providing support for teachers to integrate digital technology in their practice’, but both

¹⁰ <https://ec.europa.eu/jrc/en/digcomp>

were surprisingly low at MM level where the KIs are on the front line of such support.

In addition to this, ‘Encouraging educational awareness of digital developments’ was only coded at GOV level. “Donc, euh, c'est tout un rôle d'explication sur euh, sur le BYOD, sur euh, le travail à distance, sur euh les plates-formes, voilà, s'il y a, il y a beaucoup de, de pédagogie à faire pour expliquer les solutions” (IKIA).

The SUSTAINING Leadership Literacy

The main sub-themes with the SUSTAINING dimension are presented in Table 18 together with snapshots from the data.

Environmental aspects. The KIs showed a keen understanding of the environmental implications of digital technology in general, and educational technology in particular. In addition to this, IKID expressed concern about the reliance on nuclear energy in France. In terms of strategy and policy, IKIC accepted that environmental concerns required more explicit treatment:

Euh, alors c'est pas, aujourd'hui, je pense, ce n'est peut-être pas affiché assez clairement, euh, comme axe stratégique, euh, dans la stratégie de l'établissement, euh, l'aspect, euh, environnement, en tout cas, le numérique au service de l'environnement n'est peut-être pas assez clairement affiché, à mon sens. (IKIC)

The same KI also gave concrete examples of actions already undertaken (a special edition of an internal newsletter devoted to environmental concerns) and talked about how these might be further formalised in policy, in particular through systematically integrating an environmental impact component in projects in the same way that security issues are addressed.

Human aspects. The human aspects were well-represented from the point of view of inclusiveness and a sense of social responsibility. This was also reflected in terms of ‘Promoting the use of digital technology for social good and digital citizenship’. The use of Open Educational Resources by teachers was recommended, as was the need to raise awareness of them among students, however, MOOCs were seen more as a way of marketing the university than as support for opening up education.

Financial aspects. While there was an awareness of the need for scalable educational technology solutions, no mention was made of cost.

Agility. In the DELLHE framework, agility is considered as a supporting literacy within the SUSTAINING dimension. It is addressed at two levels: first of all in terms of one’s own actions, including at team and project level, and secondly in terms of ‘Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges’. The only related references were framed in terms of the use of agile software development methods, and the need to apply these to pedagogical developments.

Table 18: SUSTAINING sub-themes and data snapshots – UL

SUSTAINING sub-themes	Data snapshots
Environmental	Energy consumption Alors le numérique est vu comme un consommateur en tout cas de... d'énergie... on essaie que, en tout cas les... tout ce qui est datacenter soit rassemblé dans des locaux uniques et on évite euh, on essaie de faire diminuer les salles, les salles serveurs pour euh, réduire l'impact énergétique. (IKIA) Mais par ailleurs, euh, le numérique il peut aussi être utile pour réduire la facture énergétique, et euh actuellement j'ai une réflexion avec mon collègue Vice-Président Patrimoine sur les bâtiments intelligents. (IKIA)
	Carbon footprint of travel C'est un des, un des volets sur la formation à distance aussi, de pouvoir diminuer l'impact environnemental... Ne serait-ce qu'aux déplacements...Voilà... même si c'est pas le premier critère, euh, pour la formation à distance. (IKIC)
Human	Social responsibility Je pense que l'université a.. un devoir euh, de de former et d'informer euh... des usages enfin au sens large mais aussi d'éclairer, euh, l'étudiant sur l'usage du numérique, euh, ses dérives, ce que ça entraîne, euh, ce que, enfin, en faire le citoyen de demain, quoi, même le citoyen d'aujourd'hui et que toutes les dimensions que comprennent le numérique... (IKIB)
	Digital technology for social good and digital citizenship Et c'est cette volonté démocratie, cette diffusion de l'information qui alimente cette démocratie elle-même et qui fait que, euh, on a des moyens technologiques d'encore plus partager l'information etc. (IKID)
	Open Education (MOOCs) Enfin il y a plein de dispositifs qui peuvent rendre les choses plus euh, visibles, et on utilise, euh, aussi la production de MOOCs comme un produit d'appel entre guillemets, du savoir-faire de l'université. (IKIA)
Organisational Agility Donc encore une fois, hein, c'est, euh, il faut, euh, il y a que les méthodes agiles, appliquées à la pédagogie, qui me semblent pouvoir corriger ce genre de problème, c'est à dire on fait une expérimentation dans un périmètre réduit, et on corrige jusqu'à ce que, euh, on obtient une formule qui fonctionne. (IKID)	

The LEADINGFUL Leadership Literacy

The main sub-themes in the LEADINGFUL Leadership Literacy

dimension are summarised in Table 19.

Table 19: LEADINGFUL sub-themes and data snapshots – UL

LEADINGFUL sub-themes	Data snapshots
Leadership and decision-making approaches (collegial, distributed)	Donc les décisions elles sont prises de façon collégiale, bien entendu si c'est des décisions qui sont à caractère très politique, elles sont prises par l'équipe présidentielle, et à défaut par le,... et a fortiori par le Président mais je veux dire, voilà, elles sont partagées, échangées et elles sont mises à discussion auprès de... de façon collégiale. (IKIE) Donc ce serait un leadership distribué.... La transformation pédagogique étant transversale, euh, on ne pourrait pas être hyper compétent dans tous les domaines que touche la transformation pédagogique... (IKIB)
Giving due credit to the leadership of others	C'est moi qui était euh... voilà, attention, il faut pas que je mente, c'était, euh, mais on était tout à fait d'accord pour que le faire, c'était le, le chargé de mission de l'époque, euh, qui euh, voulait... instaurer ce mécanisme-là. (IKID)
Empowerment and agency	On part du principe, enfin c'est une vision, une vision de se dire mais finalement euh, la transformation ne peut que s'opérer que par les agents eux-mêmes. (IKIB)
Change Management	Moi mon obsession aujourd'hui, euh, vis à vis de, de, des équipes, et pas seulement des usages du numérique mais également les autres, hein, c'est de leur dire que le métier de l'informatique et, change, euh, les usages du numérique évoluent, hein, on parle de transformation, euh, c'est de, c'est essayer de réfléchir à comment est-ce qu'on se positionne aujourd'hui, comment on se transforme demain pour répondre à, à ces usages, à ces nouveaux usages. (IKIC)
Advocacy	Voilà, donc c'est aussi tout un travail de, d'explication, de toutes les solutions qui s'offrent aux composantes et qu'elles ne connaissent pas toujours. (IKIA)
Risk-taking	Je pense honnêtement que... que les transformations pédagogiques elles reposent beaucoup sur euh des processus d'essai-erreur. (IKIE) On est parti du principe de se dire on ne sait pas si ça va marcher,... mais on s'est dit ben qui ne tente rien n'a rien. (IKIB)
Quality	On demande aux porteurs de retours réguliers, et on voit si ça avance. (IKIA)
Working across institutional silos	Voilà, donc, qui eh, assemble, euh, les deux services en appui qui sont euh, le service des usages du numérique et le service SU2IP, hein, innovation Pédagogique,... de l'autre et en VP référent donc le VP transformation pédagogique et le VP numérique, et le VP formation, voilà. (IKIA)
Using data and evidence to defend vision	Et donc... on essaie de montrer déjà par l'usage des salles, en les corrélant aux usages des emplois du temps, que leur usage n'est plus aussi important qu'il ne l'était autrefois, que la collaboration ben est difficile à appliquer avec des salles qui sont euh mono-organisation et une formation, voilà. (IKIA)

Collegial decision-making was mentioned as the main approach towards decision-making, although one KI highlighted the role of the presidential team, and the president in particular, in making highly political decisions.

There was also mention of the collective, distributed nature of leadership, in particular with respect to the transformation of teaching and learning. “Et c'est un travail collectif, voilà, c'est pas, il y a pas, c'est pour ça que c'est compliqué de dire une personne, je ne crois pas au leadership unique, ça mobilise plusieurs acteurs” (IKIA).

The posture of leaders at different levels was that of conduit or relay, at both GOV and MM level, using words such as ‘transmission belt’ or ‘interface’. “Moi je me vois, de toute façon, plus comme un, une interface, entre euh, des instances euh, mon directeur, la direction générale des services, les politiques” (IKID).

Voilà, donc mon rôle en fait c'est plus une courroie de transmission et un portage, entre guillemets, politique, de toutes les actions relevant de la transformation pédagogique au sens large au niveau équipe présidentielle. (IKIE)

Empowering teachers was mentioned as being an important factor in bringing about change. However, there were differences in the way KIs talked about their own empowerment and agency. One MM felt that they had no place in what they understood as the leadership: “Alors moi, ma place est pas

dans, je crois pas que ma place soit véritablement dans le leadership...

J'alimente, à mon avis, j'essaie d'alimenter le leadership, mais, euh, je... je me sens exclu de ce leadership en tout cas” (IKID), whereas another perceived their role as benefitting from a high degree of agency.

Je pense que maintenant, toute situation euh, pourrait me dire oui je pense que j'ai un certain euh, une certaine écoute en tout cas je sais pas si c'est du leadership, mais une certaine écoute et que je compte dans le paysage euh, politique pour euh... en tout cas des politiques qui me sont proches. (IKIB)

In terms of creating the conditions for innovation and change, KIs mentioned instruments such as internal calls for proposals, combined with support from relevant operational departments. Related to this is the recognition of pedagogical innovation in local reward mechanisms. Of notable interest in the UL Case Study is the identification and mobilisation of change agents. “C'est des... des agents de changement implantés dans des composantes, et selon euh leur façon d'appréhender euh euh leur contexte euh, agissent de façon euh... autonome, mais au sein d'un groupe” (IKIB). However, the question of Digital Education within the wider focus on pedagogical transformation was not explicit.

One GOV-level KI was particularly active in advocacy at different levels, arguing for a strategic approach to Digital Education, promoting and explaining educational technology within commissions, and engaging in advocacy beyond

the institution. There were also interesting examples of awareness-raising of the need for transformation within one's own team. "Voilà, et faire prendre conscience surtout, à l'ensemble de, des équipes, que, euh... oui, ils doivent être au service de cette transformation, euh, qu'on doit se transformer nous-mêmes pour pouvoir demain accompagner, ou dès aujourd'hui, cette transformation" (IKIC).

Risk-taking and accepting failure with a view to learning from mistakes was considered desirable and embedded in the approach to transforming pedagogical practice if not with direct reference to educational technology. The focus on quality was expressed primarily in terms of reporting mechanisms.

There were several mentions of the way in which KIs at different levels worked across institutional silos, including how this was facilitated by an overarching commission. It should be noted however that some of these mentions ended with a reference to possible tensions or a prolonged silence before changing the subject, which suggests that the reality might not be as rosy as the picture painted. This is developed further in the subsection on organisational tensions.

The RELATIONAL Leadership Literacy

Table 20 summarises the sub-themes noted in the RELATIONAL dimension.

Table 20: RELATIONAL sub-themes and data snapshots – UL

RELATIONAL sub-themes	Data snapshots
Shared meaning and purpose	Il faut chercher toujours à... euh, entrer dans euh, la communauté des enseignants autour d'un diplôme, autour d'une étape de diplôme, autour d'un enseignement, autour d'une didactique, pour essayer de trouver, euh, ce qui peut les réunir et ce qui peut porter le projet. (IKID) Je suis intimement convaincu qu'on ne changera pas sur la base d'une injonction, ça n'a pas de sens. Et que le processus-là c'est un processus d'irrigation d'essaimage progressif de prise de conscience, d'aide, de... de dialogue d'un pair avec un autre. (IKIE)
Relationship-building	Un politique change mais vous connaît pas, alors soit vous bénéficiez d'une réputation qui, euh, qui a été faite, qui vous a précédé, ou alors, voilà euh, mais à chaque fois le rapport de confiance doit être reconstruit. (IKIB)
Trust	Euh, voilà, il faut surtout apporter beaucoup de confiance dans le numérique, donc ça aussi c'est un des, un des... un fil rouge, un cheval de bataille. (IKIC)
Positive affect	Et donc moi je voulais absolument être dans la douceur avec eux. (IKID) ...et j'ai vu cette... cette personne enfin dans son mal-être pendant 3 ans. (IKIB) Euh, donc, euh, dès que je suis arrivé, je suis arrivé dans un bouillon où, euh, se mélangeaient, effectivement, euh, des questions de leadership, des questions, euh, de numérique, euh, qui a un impact, qui avait un impact, et des questions, euh, de conflit, très, très marqué, avec en plus une notion de risque imminente, qui était très, très forte. Très, très forte. (IKID)
Resistance to change	Il y a eu une présentation par un collègue belge sur euh, la transformation des pratiques pédagogiques avec le numérique qui était particulièrement intéressante parce qu'il montrait par les freins à la fois, les freins euh, pédagogiques, en tout cas liés aux enseignants euh, qui ne souhaitent pas forcément euh, qui ne saisissent pas, et ne voient pas les, les bienfaits d'une évolution à la réflexion d'une évolution pédagogique, et puis aussi des, des freins liés euh aux étudiants et à la structure. (IKIA)
Constructive change management	Il y a souvent une écoute assez, euh, assez attentive, hein, après s'il y a des blocages on essaie de, de discuter, hein. Qu'est-ce qui bloque, quelle est la raison du blocage? (IKIA) Travaillons plutôt en bonne intelligence pour savoir qui faut quoi et puis, si aujourd'hui je suis allé un peu sur ton champ, peut-être que demain ce sera l'inverse, et puis, je pense qu'il faut qu'on arrive à travailler comme ça. (IKIC)

Relationship-building had only one mention, and positive affect was absent at GOV and SM level. Trust was mentioned with respect to both relationship-building and to technology itself. KIs showed an awareness of

resistance to change, with learning from other HEIs cited as useful in this respect.

The LEARNINGFUL Leadership Literacy

Leader as LEARNINGFUL Self (LEARN-LS). Overall, there were no explicit mentions of LD for Digital Education at UL. Only one form of formal training was mentioned, and this in fact was management rather than leadership training. Examples of non-formal and informal learning were bootcamps, coaching, MOOCs, conferences, feedback from peers and networking, however none of these related explicitly to Digital Education LD. There was also no interest expressed in future opportunities for LD.

Supporting the development of a LEARNINGFUL Community (LEARN-LC). The main instrument in support of a LEARNINGFUL Community was the peer-to-peer academic development support network where teachers who volunteer are trained in both pedagogy and in coaching to support their colleagues. The network is organised in a distributed way, as the academic developers work within their faculties, but also form a network among themselves with the support of the educational development unit.

Pour l'instant le réseau d'accompagnateurs est en cours encore de formation ça fait un an qu'ils sont formés à la pédagogie, là ils sont en deuxième année de formation sur l'accompagnement, c'est quoi

accompagner, la posture, la formation de formateur, formation d'adultes.
(IKIB)

While this network is mainly centred on educational development and not necessarily in relation to Digital Education, the question of how digital technology can support pedagogical transformation is not excluded, as mentioned in relation to one of the Commissions governing the actions of the network.

il y a des représentants dans les composantes, er, des des référents, les référents pédagogiques sont aussi invités, pédagogie numérique, donc c'est un lieu aussi de discussion des évolutions et des innovations pédagogiques mais pas seulement avec le numérique. (IKIA)

Tensions and counter examples

The theme of tensions was identified where KIs talked about difficulties they encountered. These were at different levels: systemic factors influencing higher education in general; organisational, where features of the institutional structure itself created tensions; and individual, where KIs mentioned difficulties arising from conflictual situations with other people.

Counter examples are defined as the absence of DELLHE within the five dimensions: WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL or LEARNINGFUL. As both tensions and counter examples identify areas for concern with respect to Digital Education Leadership, they are grouped in Table 21, followed by examples from the data.

Table 21: Tensions and counter examples at UL

	SYSTEMIC	ORGANISATIONAL	INDIVIDUAL
WORLDLY	Lack of readiness of HE to respond to societal transformations Contradictory or multiple visions Tensions between personal values and the system Systemic limits to institutional vision and strategy	Absence of Digital Education in IT dept preoccupations	Digital not a question in itself Lack of personal experience in Digital Education Limited representations of Digital Education
SUSTAINING	Human impact of organisational change		
LEADINGFUL	Barriers to management and leadership in public sector Nationally defined job descriptions Limits of local reward mechanisms in wider context Permanence of professional staff / changing governance	Workload calculation for academics Size of team Multi-stakeholder projects (e-portfolio)	Difficulties with the notion of leadership Not recognising own leadership Over-delegating
RELATIONAL	Resistance to change faculty, students Inhuman nature of public sector management	Tensions within and between departments	Tensions between individuals
LEARNINGFUL	Lack of training at HE governance level	No provision for LD	Not addressing own training needs

Systemic tensions and counter examples. These were noted within all dimensions of the DELLHE framework.

WORLDLY. The fast pace of technological change was noted as a source of tension. “Il y a là peut-être une difficulté c'est qu'il y a une très grande rapidité d'évolution des dispositifs” (IKIE). “Et qu'on est toujours un petit peu obligés de, de courir pour, euh, pour amener, pour amener les choses” (IKIC).

One KI expressed doubts as to the readiness of HE to respond to societal transformations: “L'enseignement supérieur français dans sa grande globalité, même si je n'aime pas faire des généralités, n'est pas, n'est pas prêt. Euh, n'est pas prêt par rapport à ces, à ces transformations” (IKID). Further tensions concerned the existence of contradictory or multiple visions due to the way in which HE is organised. “Et je dirais que, en plus si on regarde, la communauté universitaire de l'enseignement supérieur français, elle est composée de strates, et à chacune de ces strates, correspond une vision quasiment différente de cet enseignement numérique, parfois contradictoire” (IKID). Another KI expressed tensions between their personal values and those of the system. “Et quand on est euh, manager, euh, et qu'on n'adhère pas à ce genre de choses, mais on fait partie euh de ce système à broyer ou euh à ne pas savoir quoi faire des personnes” (IKIB).

External policy constraints were seen as systemic limits to institutional vision and strategy. “...que l'université, que les politiques ne peuvent non plus avoir une vision puisque c'est aussi les injonctions ministérielles, où c'est là que les choses se pensent” (IKIB). “Donc le Ministère a des objectifs par rapport à l'enseignement et à la transformation, qui sont parfois contraires à des objectifs qui sont portés à des niveaux plus bas” (IKID). “Les processus d'accréditation qu'on a subis ou suivis, peu importe...” (IKIE).

Further systemic barriers to change concerned the question of status. The first of these was expressed as a tension between the statutory autonomy of academics and institutional strategy.

Euh, euh, voilà, euh, en plus si on croise ça avec le statut d'enseignant-chercheur, euh, voilà, l'enseignant-chercheur par définition a une liberté d'action et de mouvement qui, qui fait que, euh, il peut très bien monter un dispositif avec le ministère, hein, sans véritablement avoir le soutien de, du, de, de la gouvernance. Ce qui crée fatalement un flou par rapport aux objectifs de, stratégiques. (IKID)

Linked to this was the notion that academics only listen to other academics of comparable or higher rank. “Il y a la notion de d'égal, hein, il faut pas plaisanter avec ça... dans le monde enseignant, un maître de conférence ne fait pas la leçon à un professeur” (IKIE).

This would seem in contradiction to the fact that the head of the educational development unit was not an academic, and that it was a conscious strategic decision. The argument for this was that there were tensions at disciplinary level between educational science and the other disciplines, and that educational development needed to be seen as independent and neutral.

LEADINGFUL. At systemic level, barriers to management and leadership in the public sector were noted. “Je pense que quand il y a quelqu'un qui est statutaire à vie et qui a plus envie d'exercer son... c'est pas une question de leadership” (IKIB).

Dans la fonction publique. Je suis désolée de le dire comme ça, mais bon, en même temps ma ques... mon questionnement c'était, dans la fonction publique, justement, quelles sont nos marges de manœuvre, quand on parle de management.... Donc du coup est-ce qu'on peut parler de management quand on a aucun levier qu'il soit positif ou négatif? (IKIB)

In addition to this, top researchers in pedagogy were not necessarily seen as being 'good' leaders. "Après j'ai vu d'autres personnes qui avaient toute la légitimité d'agir, d'action (*laughs*) qui étaient des grandes pontes de la pédagogie, et ça s'est pas forcément bien passé là où ils étaient, pour autant" (IKIB).

At organisational level, still defined by the overarching French HE system, nationally defined job descriptions were seen as creating silos with particular reference to professional staff: "Donc, euh, c'est très compliqué à faire... tant qu'on continuera à faire des cases avec des gens qui doivent rentrer dans des cases, ça ne fonctionne pas bien" (IKIC). Similarly, on the academic side, there were limits to local reward mechanisms in the wider national context.

One point of interest with respect to the LEADINGFUL dimension was the permanence of professional staff compared to changing governance: "Je suis restée, les politiques sont partis... on est un peu la constance quand-même... dans l'établissement" (IKIB).

RELATIONAL. Resistance to change was noted at faculty management level. “Donc il y a des directions des composantes qui sont tout à fait prêtes à réfléchir à faire évoluer leurs salles différemment et d'autres qui expliquent que c'est impossible” (IKIA).

Concerning professional staff, one KI was acutely aware of the inhuman nature of management in the public sector.

On gère, pour moi c'est les, euh, les silos de placards euh de gens que... bon il va plus là alors bon ben.... le fonctionnaire on va le mettre là, puis là, puis là, puis là... enfin c'est... c'est une gestion horrible euh, des ressources humaines. (IKIB)

LEARNINGFUL. A lack of expectation and possibilities for personal and professional development were highlighted, again linked to the nature of the public sector.

Et ils sont tellement euh, différents dans la fonction publique, de par leur statut, ils n'attendent pas forcément la même chose et j'ai envie de dire il y en a certains qui n'attendent... rien. Euh, donc, euh, voilà, c'est une réalité de terrain. (IKIB)

The absence of training for those taking up governance positions was mentioned, in addition to the lack of LD provision for professional staff. “Mais de façon plus générale, pas que sur le numérique, il y a la problématique de la formation de la gouvernance dans les établissements” (IKIA). “Parce que je pense que, sincèrement la question de la gouvernance aujourd'hui, elle est...

centrale, et de la formation aussi des gouvernants, hein, ça il faut pas l'oublier” (IKID).

J'ai pas, à mon niveau de responsabilité on n'a plus vraiment droit aux formations... on a droit à des formations sur le management, on a droit à des formations sur, euh, voilà des compétences cœur de métier, mais, euh, sur ces domaines-là on a, on a moins l'occasion de se former. Sincèrement. (IKID)

Organisational tensions and counter examples. KIs at all three levels mentioned challenges relating to the organisational structure.

WORLDLY. Digital Education itself was not seen as priority within Directorates for Digital Affairs: “Je dirais que c'est pas le sujet aujourd'hui qui est le plus, le plus évoqué” (IKIC). Digital technology itself was seen as a source of tension when the human dimension is neglected.

Le numérique, c'est, euh, ces dimensions humaines, quoi. Et ces implications et cette dimension humaine, elle fait que... mal maîtrisés, ces sujets peuvent amener y compris quelque-chose qu'on va ressentir très, très physiquement, la violence physique, la violence verbale, euh, du harcèlement au travail, euh, tout ça se sont des choses qui se sont manifestées ici, uniquement sur une incompréhension, de ce que pouvait être, euh, le numérique et les, ses différentes facettes, quoi. (IKID)

LEADINGFUL. Workload calculation for academics was identified as being a barrier to acceptance of Digital Education, even though it was stated

that this question had been resolved within UL. The large size of the overall team in the Directorate for Digital Affairs was also seen as challenging.

At organisational level, a large multi-stakeholder project on e-portfolios was seen as a source of tension, due to different visions and understandings, and the question of ownership: “Voilà, je prends la question du e-portfolio, quand je suis arrivé dans l'établissement euh, c'était une chasse gardée, euh, c'était un terrain miné, c'était...voilà” (IKID).

Data on the use of computer rooms was used by one KI to defend the shift to BYOD, but there was no mention of using research-based evidence in relation to Digital Education. There were also no examples of using digital communication channels for leadership presence, apart from a reference to an internal newsletter.

RELATIONAL. Several tensions were noted within and between departments. Within the educational development unit, these concerned the lack of identification of new staff who had been brought into the department from elsewhere. “Et il y a, euh, des personnes qui, euh, étaient dans d'autres, dans d'autres, euh, structures avant, et donc, euh, ont perdu un peu le sens à leur métier, un peu, n'ont pas compris et n'ont pas adhéré, voilà” (IKIB).

Within the educational technology unit, similar reasons were given, again in terms of professional identity and the challenge of bringing together different cultures. Indeed, the restructuring that had taken place merged two

audiovisual and multimedia production departments (where staff had been used to working creatively and independently) learning technologists (seen as having a more educational science background) and technical staff with an IT background.

Donc là il y avait, euh, le, le, le numérique aurait pu être un terrain d'entente, et en réalité il est juste un, une source d'incompréhension. Entre la perception que les informaticiens peuvent en avoir, et la perception que, euh, des ingénieurs qui sont plus de l'ordre des sciences de l'éducation, ou de l'infocom, peuvent avoir, de ces dispositifs-là. Et ça se manifestait donc par une incompréhension, euh, euh, puis du mépris... (IKID)

Beyond the units themselves, tensions between the different departments were noted, sometimes in a rather elusive way. “Donc on travaille ensemble à ce qu'il y ait pas ce... cette fracture qui, qui.. qui ne doit pas exister, qui est souvent présente” (IKIE). “Il n'y a pas de séparation. Et autant... s'il y a une séparation elle est... c'est par un oubli, voilà” (IKIE). “Voilà, donc ça c'est le rôle des directeurs aussi à s'assurer que tout ça, que ça... que le travail se fait de cette façon intelligente [*Silence*]” (IKIC).

Je veux dire de toute façon la structuration est ça vous voyez bien des informaticiens et vous voyez bien des pédagogues, on appelle ça des pédagogues, les autres des informaticiens donc on est bien dans un conflit, donc oui on a eu des différends c'est pas des conflits, c'est des

différends, des différends peut-être par rapport à une... sans doute par rapport à une crainte. (IKIE)

Off the record comments by one KI confirmed these tensions, but as they were made in confidence and not recorded, they cannot be reproduced here.

Individual tensions and counter examples were noted in relation to representations of leadership and the digital world itself, as well as in the lack of attention to LD.

WORLDLY. One area for concern is the fact that the GOV member whose remit covered teaching and learning admitted to no actual experience or expertise in Digital Education. This was compensated for by working in tandem with one of the MMs (as mentioned by both), as well as with the GOV member for Digital Affairs who fully embraced the pedagogical aspects of educational technology. This lack of personal experience in Digital Education was also noted by the SM KI.

Ambiguities were noted in terms of representations of the digital world, with one KI saying that ‘the digital’ was not a question in itself: “Le numérique dans tout ça. Et j’ai envie de dire euh, en fait peut-être un peu être brutal euh, mais le numérique n’est pas une question en soi pour moi” (IKIB).

It is also notable that there were no occurrences of the following items from the DELLHE framework: ‘Encouraging future vision’, ‘Mobilising external

expertise to define strategy’, ‘Being able to construct dynamic models of real-world processes’ ‘Building multi-disciplinary teams’, ‘Focusing on design-thinking for pedagogy’, ‘Encouraging personal awareness of digital developments and of their social adoption and impact’, ‘Fostering critical attitudes to educational technology in others’.

LEADINGFUL. Several KIs had difficulties with the notion of leadership itself: “J’ai toujours du mal un peu avec cette question, donc il faudrait que vous me l’expliquiez en peu davantage” (IKIA) ; “J’ai pas de vision franchement euh, du leadership” (IKID).

Je pense que ça n'apporte rien un leadership, leadership peut... peut-être soit on suit un leader, on est d'accord, ou on n'est pas d'accord, mais c'est donner je pense qu'au niveau d'une institution comme l'université c'est donner tous les moyens pour pouvoir répondre à des questions qui se posent, à un moment T et à un autre moment pour un autre etc, qui font que...on arrive à quelque-chose. (IKIE)

Linked to this, several KIs did not consider themselves to be demonstrating leadership and used the term leadership interchangeably with that of leader. “Moi je ne me considère pas comme un leadership” (IKIE); “Je suis pas un leadership, je suis un facilitateur de” (IKIE); “J’ai pas la sensation euh, dans les actions que je mène auprès euh des, des enseignants qui... Je pense pas que ce soit une question de... de leadership” (IKIB); “Euh... Alors moi, ma place est pas dans, je crois pas que ma place soit véritablement dans le

leadership” (IKID). There were no mentions of exemplary leadership and one KI went as far as expressing doubt as to their own legitimacy: “Je sais pas, c'est peut-être une erreur de casting!” (IKIE).

LEARNINGFUL. Finally, at the individual level of the LEARNINGFUL dimension, there were notable examples of KIs not addressing their own training needs. “Je sais pas, je vois pas trop. Euh... c'est pas dire que j'ai pas à m'améliorer” (IKIC); “Oui, j'ai pas suivi de cours la-dessus, voilà et là mon âge fait que pour l'instant [*laughs*] c'est plus très utile” (IKIA).

From the results detailed above, four overarching themes can be identified among the tensions and counter examples: (1) systemic barriers resulting from the way in which French HE is organised; (2) largely techno-centric representations of educational technology (with some exceptions); (3) difficulties with the notion of leadership itself; (4) the human impact of change, with particular reference to the impact of organisational restructuring on professional identity.

Conclusions and recommendations

Without having the pretention of proposing a complete diagnostic of UL, Table 22 highlights some of the strengths perceived during CSI and suggests areas that could be developed. This is useful not only for comparison with the two other Case Studies, but also for other institutions operating in a

similar context. It is evident from the background information provided at the start of this section, and from the results of the analysis, that there are considerable systemic constraints to overcome. The cross-case analysis which follows the results of the other two Case Studies draws out lessons learned in all three contexts and suggests possible avenues to be explored, while recognising the principal specificities of each national environment.

Table 22: Université de Lorraine – strengths and areas for attention

	Strengths	Areas for attention
WORLDLY	Well-developed at GOV, SM and, noticeably, at MM level. The TEL strategy takes into account the specific challenges of a large multi-site university, in particular with respect to the transformation of learning spaces.	Address systemic and cultural issues to develop a shared understanding of leadership. Bring Open and Distance Learning into the wider conversation around pedagogical transformation: mentioned in strategic plan as an area to be developed, but not in the Digital Roadmap or the interviews.
SUSTAINING	Environmental considerations are well-developed, integrated into strategic plan and digital roadmap and expressed in alignment with institutional values.	Consider the human implications of technology choices for staff and students. Continue developing and reinforcing policies for safe, legal and ethical use of educational technology.
LEADINGFUL	Efforts to get faculty management on board appear to be paying off, with large disciplinary areas (health and law) mentioned as being drivers for Digital Education.	Seek ways of recognising the leadership potential of MM, in particular to benefit from their WORLDLY Leadership Literacies. Address the perception at MM-level of a lack of strategic thinking around Digital Education. Consider developing change management and 'leading in a manner that engages everyone as change agents' at GOV level. Consider the strategic and human implications of the current organisational structure with separate departments for educational development and TEL, and TEL being housed in IT.
RELA	The creation of shared meaning and purpose was mentioned at all levels. Positive affect at MM level.	Consider further developing the RELATIONAL literacies at all levels.

	Strengths	Areas for attention
LEARN-LS	GOV: national network of Vice-rectors for Digital Affairs as opportunity for LD among peers.	Consider addressing the lack of LD, as well as the lack of interest, while taking into account the systemic limitations to leadership culture, and consequently LD.
LEARN-LC	The network of academic developers who are teachers themselves, considered change agents within the faculties, trained in both pedagogy and coaching.	Develop digital scholarship. Further develop the network of academic developers, as this has the potential to become a true Community of Practice (Laurillard, 2014; Wenger, 2011) and bring TEL staff fully into this community.

In terms of the research questions addressed in this part of the study, an initial response is proposed here, with respect to CSI.

RQ2a) How are DELLHE experienced by key informants?

This question is best answered in terms of DELLHE maturity, a qualitative interpretation based on the descriptive Case Study findings, the balance between the tensions and counter examples (Table 21), and the strengths and areas for attention (Table 22). Overall, DELLHE maturity at UL is medium to low, as can be deduced from the following synthesis (Figure 6).

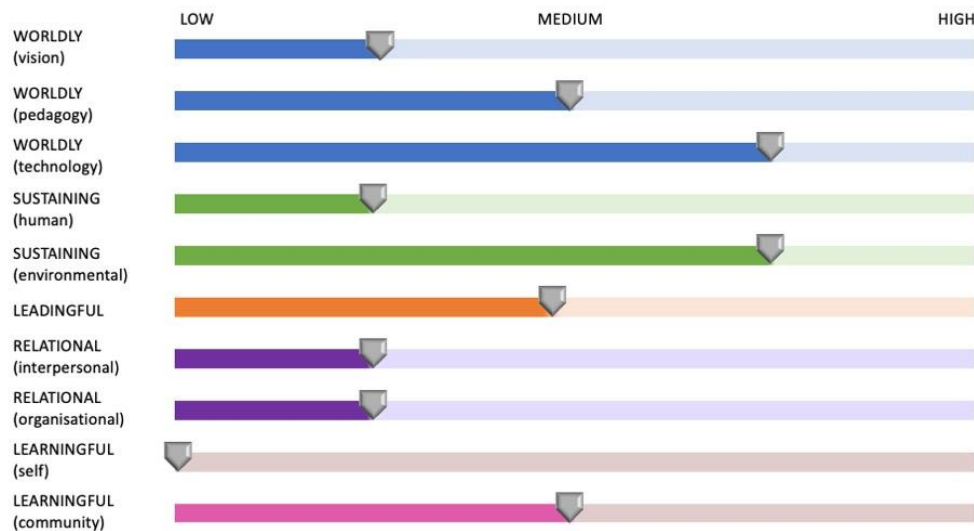


Figure 6: DELLE maturity - UL

Of particular interest are the findings that WORLDLY vision was noted much more at MM than at GOV or SM level, that the human (ethical) subdimension of the SUSTAINING Leadership Literacy was underdeveloped, as were both aspects (interpersonal and organisational) of the RELATIONAL dimension. Finally, while the LEARNINGFUL community was well-developed for pedagogical transformation, Digital Education itself was insufficiently integrated in this community.

2b) How do key informants develop (i.e. “learn”) DELLHE?

The answer to this RQ is a clear “They do not”. LD in any form was absent from the discourse of all KIs. While there was some mention of coaching, this was for management competencies and not at all in relation to

Digital Education. Systemic factors residing within the culture and organisation of the French public sector have been put forward as a partial explanation for this.

2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

With respect to the strategic plan, DELLHE were reflected in the recognition of the impact of an increasingly digital world, both on society and Higher Education itself. The strategy focuses on articulating three pillars for the transformation of learning and teaching: reflective practice, the implementation of technology, and the transformation of formal and informal spaces.

Regarding the organisational structure, the main finding concerns the divide between the academic development and the educational technology units, with the former housed in a strategic directorate and the second relegated to a team within a sub-directorate of a very large operational directorate. Tensions between the two were noted, despite recognition of the need to overcome these.

Case Study Report: Katholieke Universiteit Leuven (Flanders, BE)

The second Case Study (CS2) was conducted at Katholieke Universiteit Leuven (KUL) in Flanders, Belgium, between February 2019 and March 2020.

Context

The Belgian and Flemish Higher Education Systems

Before detailing the organisation of KUL itself, it is important to provide a wider picture of the Higher Education system in Belgium, and in the Flanders region in particular. Education in Belgium is organised in three autonomous education systems around linguistic communities: the Flemish Community, the French Community and the German-speaking community. (OECD, 2017). KUL is part of the public Flemish higher education system, traditionally highly regulated by the state, but in which moves towards more autonomy for HEIs have been introduced while still increasing accountability to the government (Broucker & De Wit, 2013). A further contextual factor to be considered is the integration of university colleges into the Flemish HE system, embodied at KUL by the KU Leuven Association, an agreement concluded in 2002 with fourteen Flemish university colleges with a view to harmonisation in line with the 1999 Bologna declaration (“The Bologna Declaration of 19 June 1999,” 1999). Since 2013, all academic degree programmes offered by the university colleges have been integrated into KUL, with the colleges focussing on professional degrees.

(KU Leuven, 2019; OECD, 2017). As within the French HE system, there is no selection at entry to Bachelor level.

As the European Universities Autonomy Scorecard (European University Association, 2016a) indicates, Flemish public HEIs score medium high for autonomy in three of the four categories: financial (ranked 6th out of 29), staffing (11th) and organisational (12th), but still low for academic autonomy (28th).

Regarding Digital Education policy for Flemish HE, Goeman (2006) highlighted the difficulty of identifying relevant information and a lack of focus on higher education at the time. More recently, and relevant to the period during which the KUL case study took place, a 2014 recommendation from the Flemish Education Council (Vlor), the official advisory body on the education and training policy of the Flemish Community, notes that Digital Education needs to be seen as a means to improve the effectiveness of learning, that more research is needed on this particular aspect, and that Digital Education needs to be linked to overarching policy objectives of sustainability, internationalisation and widening access (Vlaamse Onderwijsraad, 2014). The recommendation also draws attention to the need for Digital Education to be grounded in a quality-focused approach rather than as a cost-saving measure, and highlights the need for stable funding, for both infrastructure and staff development, rather than a reliance on project-based funding.

KUL within the Flemish Higher Education System

Founded in 1425, KUL is one of the oldest European universities (KU Leuven, 2019). In 2017-2018, the key figures for KUL (Sels & Deams, 2018) were as follows:

- 58 278 students, 853 doctoral students
- 1 769 tenured academic staff, 1 755 postdoctoral staff, 5 22 teaching staff¹¹
- 4 145¹² administrative and logistic staff
- Budget: 967 million Euros (Sels & Deams, 2018)
- 14 campuses, across 10 cities in the Flanders region
- Faculties and teaching departments: 47¹³, organised into 3 groups: Humanities and Social Sciences, Science, Engineering and Technology (SET) and Biomedical Sciences.

Linguistic and cultural issues

Although the native language of the key informants is Flemish, they all mastered English with sufficient fluency to participate fully in the Case Study, and key strategic documents were provided in English.

¹¹ https://www.kuleuven.be/english/research/about_research/facts-and-figures (consulted 30/12/2019)

¹² *ibid*

¹³ https://www.kuleuven.be/english/faculties_schools (consulted 30/12/2019)

Organisation of KUL around Digital Education

At KUL, the remit for Digital Education is shared between three units. Two of these, the Educational Development Unit and LIMEL, the Leuven Institute for Media and Learning, are housed within the Educational Policy division, a strategic department headed by the Vice-Rector for Educational Policy. The technical side falls under the responsibility of Facilities for Education, Research, Communication and Collaboration, a unit within the Directorate ICTS (Information & Communication Technology & Systems), itself part of University Administration and Central Services.

Governance bodies and commissions. The Education Council “provides advice to the Academic Council on matters relating to teaching and learning. This opinion is formulated at the request of the Academic Council, the Executive Board and relevant vice deans or on the own initiative of the Education Council¹⁴”.

The different roles and remits of KIs at governance and management level. Digital Education comes under the joint remit of two members of the governance team: the Vice Rector for Educational Technology, and the Vice-Rector for Educational Policy. Within the current governance

¹⁴ <https://admin.kuleuven.be/raden/en/education-council#section-3> (consulted 30/12/2019)

team, all Vice-Rectors work in tandems on key policy areas, with one taking the lead and the other seconding them. These two Vice-rectors thus form a close tandem around matters relating to Digital Education.

At management level, the key informants and their remits reflect the organisational structure: head of the Educational Development Unit (SM), head of LIMEL, the Leuven Institute for Media and Learning (MM), head of the Facilities for Education, Research, Communication and Collaboration unit (MM) within IT services. This is consistent with one of the principles of the current strategy, as expressed by one of the Vice-Rectors who indicated that it had been a conscious choice not to restructure. These departments had already undergone restructuring in recent years, and it was felt that the time needed to recover from such changes would be better spent focussing on strategic priorities, in particular the networked concept of the Leuven Learning Lab, designed to bring all relevant stakeholders together around policy priorities.

The WORLDLY Leadership Literacy

Table 23 provides a summary of the main sub-themes in the WORLDLY dimension together with data snapshots.

Table 23: WORLDLY sub-themes and data snapshots – KUL

WORLDLY sub-themes	Data snapshots
W-VISION	Vision for Digital Education So, for me, the vision on Going Digital is interlinked with the vision we have on Future Oriented Education. So, we don't use, as I said in the beginning, we don't use technology as a goal in itself, so this means that the vision, em, linked with Going Digital, is linked with our vision on education. (2KID)
	Strategy Em, for the first time in years, so this is the first team that did this, there is a digital plan Going Digital plan...in line with the different phases of em, educational technology within the university. (2KIE)
	Big-picture thinking I think in whole, in the whole transition that I think the university has to go through the following years otherwise it will become irrelevant, in a way, I think technology plays a big role in, em, mediating and supporting and er, yeah, those, those changes. (2KIA)
W-PEDA	Technology supporting different forms of learning and teaching We want our students to be much more active, we want to accept, our professors to accept, that er, lecturing in front of four hundred students is no longer the primary and the ideal solution for teaching and learning. (2KID)
	Awareness of relevant pedagogical theory So if you if you look at, for instance, the quite old Bloom taxonomy, we are focussing em, too much on reproduction, on description, on let's say elementary application. Not enough on critical thinking, analysis, communication skills, evaluation. (2KID)
	Characteristics of current and future learners I think, students at the moment, the new kids who are coming, ... they learn a lot on, on, on YouTube, on video and so on. (2KIE)
	Support for teachers I think there is, there is a lot of work to do within the university to get teachers there, or educational supporters to help them, em, in making those kind of materials. (2KIE)
W-TECH	Support for experimentation Well the, the early adopters they are always keen to learn they are experimenting and so on, they, they they are the se... they are giving us the seeds and we are trying, from our policy also, to seeding, these initiatives, to support them, but also positioning them, em, very much as, not as early adopters but as creative innovation, innovators. (2KIB)
	Societal impact of digitalisation For me it's like a normal evolution, every, everything is er, is becoming more digitised and I, there I think that my worry is that we do not find a way to cope with that evolution. (2KIA)
	Risks I think a lot of people who are combining technologies and then lose a lot of focus on their, on what they want to teach. (2KIC)

Vision for Digital Education. This vision was shared across all KIs and was particularly well-developed at GOV level. Both GOV members expressed ownership of the institutional vision and strategy, and SM and MM KIs made frequent references to the strategy. Big-picture thinking was also evident across the board. Within the W-PEDA subdimension, frequent reference was made to different forms of teaching and learning supported by educational technology, relevant pedagogical theory and the socio-cultural aspects of teaching and learning. Awareness of the characteristics of current and future learners was also evident at all levels, including some of the digital practices of the younger generation. There was a belief at MM level that younger students needed a campus-based experience. With respect to teachers, there was recognition of the need for support.

In the W-TECH subdimension there was a good balance between mentions of basic and advanced educational technology, and knowledge of the affordances for teaching and learning. Basic educational technology solutions mentioned were the VLE, lecture capture and podcasting. Concerning lecture capture, the following remark was made: “And it's also, it's something we don't consider as content making. It is content making of course, but it's not shaping the content, it's just recording the content, then put it somewhere online” (2KIE). Among the more advanced solutions were references to learning analytics, remote, hybrid and virtual classrooms for multi-location learning

(2KID), and interactive video, virtual and augmented reality (2KIE). Online assessment was seen as going beyond the question of digital exams: “but much more also to what extent can we have for assessment, formative and summative evaluation, more technology-enhanced components” (2KID).

Risks were expressed in terms of over-enthusiasm for digital technology. On a broader level, in terms of the societal impact of digitalisation, there was a keen awareness. ‘Encouraging future vision’, ‘Supporting others to experiment’ and ‘Encouraging educational awareness of digital developments’ were also very present. “We want to focus on innovation. Through projects. And we have to allow our organisation to put in place enough innovation, new projects that are independent from our operational systems, it's eh, seed money, seed projects” (2KID).

Design thinking for pedagogy was not mentioned explicitly, although the following two examples highlight reflection and co-creation, with a balance between pedagogical and technological concerns. “To work together, to co-create, and to get acquainted with a kind of technologies or with ways to teach, so, so it's always a combination... where we try to motivate people to co-create and reflect upon education” (2KIB). Working in a multidisciplinary way was also mentioned as being one of the drivers behind the Leuven Learning Lab network:

We have come to an agreement with the Vice Rectors of the groups, that each of the groups takes one or two of those priority (sic) topics, which means that throughout the groups, all topics are covered, and the engagement is that, the ambition is that they work cross-group. (2KID)

The place of Digital Education within the institutional strategy.

The overall KUL Strategic Plan 2018-2021 (KU Leuven, 2018) consists of an internal document entitled “On Crossroads, for a Sustainable Society” which is summarised on the KUL public website¹⁵. While KUL defines itself as a research-intensive university, there is a very strong focus on teaching and learning, as exemplified by several of the five strategic projects:

- 1) Truly International. The transition from a national university with a global reputation to a truly international university, in the North and in the South.
- 2) Future-oriented Education. The choice for a future-oriented teaching model based on activation and a matching structure of the academic year.
- 3) Going Digital. The use of educational technology in a way that facilitates collaborative learning and multi-campus education and broadens the international reach.

¹⁵ <https://www.kuleuven.be/english/about-kuleuven/strategic-plan>

- 4) Interdisciplinarity. The establishment of an interdisciplinary dialogue in addition to disciplinary depth, in education, research and public outreach.
- 5) Sustainability. The choice for sustainable management and a commitment to the Sustainable Development Goals in research and education. (KU Leuven, 2018)

The teaching and learning strategy (Future-Oriented Education) is centred on developing active learning. Furthermore, the Going Digital strategic project links explicitly to the vision for teaching and learning. The ambitions of the strategic plan with respect to Digital Education are detailed in the policy priorities of the Going Digital project¹⁶, namely: efficiency and effectiveness in the use of digital tools for learning and teaching; improvements in IT infrastructure; adaptation of the LMS to enable more active learning, automated feedback and Learning Analytics; development of digital exams; strategic development of MOOCs; renovating learning spaces; development of a networked structure, the Leuven Learning Lab; development of support for pedagogical innovation; support for highly innovative projects; development of a research institute focusing on the university of the future.

¹⁶ <https://www.kuleuven.be/english/about-kuleuven/strategic-plan/going-digital>

In terms of how the WORLDLY Leadership Literacy is reflected in the strategic plan, there were numerous examples of W-VISION, for example: “The relevant question is no longer if we want to use technology in our education, but why we use it, which technological choices we make, and how we want to implement them” (p.31).

Overall, the KU Leuven strategic plan reads as a document aimed at informing and convincing staff, in particular with respect to teaching and learning innovation and to educational technology. Strategic choices are presented and defended, backed up by results from research; fears and limitations are addressed. This demonstrates a willingness to create a dialogue around both Digital Education and innovation for teaching and learning, through the strategic plan itself.

Implementation of the vision for Digital Education. The vision for Digital Education is implemented through the “Going Digital” dimension of the strategic plan, closely related to the “Future-Oriented Education” objective, and, to a lesser extent, “Truly International” and “Sustainability”.

The main instruments for the implementation of the plan are the Academic and Education Councils at governance level, the setting up of a Leuven Institute for University Studies (LIFUS) at research level, an annual Innovation in Digital learning Award and the Leuven Learning Lab (LLL). The LLL is described as “a networked interface structure between all actors in our

multicampus organisation” (p. 45). It covers training, coaching and guidance of academic staff development, stimulating project-based innovation, internal and external dissemination of results, and providing policy input. The concept of the LLL reflects the WORLDLY Leadership Literacies ‘Building multidisciplinary teams’ and ‘Focusing on design thinking for pedagogy’. The LLL was mentioned by all of the key informants as a positive development with great potential to act as a catalyst for change and innovation, for example:

...it's to create a big network, em with the faculty supporters within the faculty, educational supporters within the faculties, and the the central, er, er services of which we are one of them, to make a network to support the teachers better, close to their home, er so close within the faculties. (2KIE)

Finally, the numerous references to examples coming from other universities, in Belgium, Europe and the rest of the world, would suggest the inclusion of a new WORLDLY Leadership Literacy within the W-VISION subdimension, that of ‘Awareness of how Digital Education is being implemented successfully beyond the institution’.

The SUSTAINING Leadership Literacy

Table 24 shows the main subthemes for the SUSTAINING dimension together with data snapshots.

Table 24: SUSTAINING sub-themes and data snapshots – UL

SUSTAINING sub-themes	Data snapshots
Environmental	Energy consumption I know that there are energy issues eh and such also environmental issues em, with the, with the digital world, em, the amount of energy that Google needs for sending around data in searches, yes, it's very important, I think we should be aware of that and should, in that sense, also be much more sustainable and conscious about what do we expect from what kind of thing. (2KIB)
	Carbon footprint of travel There is also an impact of sustainability and ecology on our operational businesses, and we can see that multilocation learning, for instance, reduces eh, the physical mobility er of our staff and students, and creates, has some impact on ecology and sustainability. (2KID)
Inclusiveness	If we use bring your own device and we use technology as a starting point, does all our student have access to that technology? Do we have the good device, or not? This is also for me an ethical question. (2KID)
Human	Ethical issues I mean through technology, of course there is, there are much more traces, globally speaking, of the way we teach, interact with students, how students interact with, with each other, and we have to manage that. (2KID) Of course there is... from the, ethical perspective and there is also the way of looking at automation, about artificial intelligence, about taking over by technology, being taking over by technology em, so the critical point as, as they call it, yes I'm aware of these things and I think as a university we should really also make students aware of that. (2KIB)
	Cost of technology
Financial	Scalability And, yeah, then the third thing is then, OK, yes, this is a scale-up initiative er, then we go to the departments and the units, er, to also em, study the workload and the, the extra investments em, time wise, money wise, that it brings along. (2KIA)
Organisational Agility	And the nice thing is, so we started with the whole transition three years ago and now a lot of other departments at the university are coming to us and to to look at us, how we're doing and we talk about what we faced in this change em, in these years, so so just to explain it, explain, tell them, tell them our story is very important, to, to other leaders in the university. (2KIC)

Environmental aspects. These were mentioned from the point of view of energy consumption and the carbon footprint of travel.

Human aspects. The human aspects were well-represented from the point of view of inclusiveness and a sense of social responsibility. KIs at all levels were also very sensitive to the human implications of digitalisation. Privacy issues around the use of data were frequently mentioned, particularly in relation to learning analytics. “Of course learning analytics are so interesting to, to make the, the quality of the course a lot higher, but you have to be so careful in using it, em, in good way, and not jumping to conclusions” (2KIE). Open Education was considered mainly through the lens of MOOCs as a way of attracting international students and helping them prepare for study in Belgium.

Financial aspects. Cost implications were a major concern for one KI in particular. This linked to the focus on developing scalable Digital Education, mentioned frequently and embedded in the strategic plan.

Agility. The notion of agility was strongly tied to the introduction of agile development methods such as SCRUM within the ICTS Directorate. The interesting points here are firstly, that this new way of working was introduced through a comprehensive staff development programme, and secondly, that the department is now presented as an exemplar for the rest of the university (and

beyond) in terms of supporting the development of an agile organisation able to respond quickly and efficiently to new challenges.

Sustainability as expressed in the strategic plan. Sustainability is one of the five key projects of the overall strategic plan. In relation specifically to Digital Education, the Going Digital section contains references to the majority of the themes contained within the SUSTAINING Leadership Literacy, addressing issues of access, equity, inclusion and wellbeing, in terms of bridging the digital divide and the implications of BYOD.

Particular attention is paid to safe, legal and ethical use of educational technology. This is combined with a clear statement about Learning Analytics (LA): “It does not need saying that predictive LA in particular raises many questions on the safeguarding of privacy, but also on the interpretability of quantitative indicators. Therefore, we will only use predictive LA with great caution” (p.41).

The Going Digital section of the strategic plan also makes reference to supporting the development of an agile organisation able to respond quickly and efficiently to new challenges. While there is no explicit reference in this section to ‘Awareness of the environmental implications of technology choices for teaching and learning’ or ‘Promoting the use of digital technology and Digital Education for social good and digital citizenship’, the Sustainability section goes into great detail about environmental and wider sustainability

issues, a number of which refer implicitly to technology choices for teaching and learning, such as the purchasing policy and the use of energy in buildings.

There is also reference to the creation of a MOOC on societal mega-trends, relating to the UNESCO Strategic Development Goals, which clearly relates to Digital Education for social good and digital citizenship. On the other hand, while there is much about encouraging the use of green modes of transport in the subsection on Mobility, there is no mention of increasing online or blended learning provision as a way of reducing the carbon footprint of students or teachers.

The LEADINGFUL Leadership Literacy

The main sub-themes coded in the LEADINGFUL subdimension are summarised in Table 25 and illustrated by data snapshots. The full table can be found in Appendix L.

Table 25: LEADINGFUL sub-themes and data snapshots – KUL

LEADINGFUL sub-themes	Data snapshots
Leadership and decision-making approaches (collegial, democratic)	And that, that's what makes the em, the decisions more democratic, and, and the debates more thoroughly, em, and you have to, to speak up, and you also have to challenge each other on, on that, and make sure that there is no hidden agenda and things like that. So, so, leading the university is, is more like bringing up reasoning and, and bringing up the, the debates. (2KIB)
Giving due credit to the leadership of others	So I know that now who is the director of em, the services for education, she is very young, but I think she is a marvellous leader because em, er,... she really takes her team in a, in a very turbulent (<i>laughs</i>) er period er to, to a very focussed direction. (2KIC)

LEADINGFUL sub-themes	Data snapshots
Empowerment and agency	The point was discussing about priorities, about em, let's say who takes the leadership and the responsibility for the ownership,... Who will be responsible for the processes? (2KID)
Change Management	You don't have to start a new idea with people who are a little bit sceptical, you have to start, er, something new with people who are really em, champions, or who really believe... and then just start. (2KIC)
Advocacy	Yeah I er also have a lot of talks with people in faculties for example in a few weeks I will, I will go to a meeting of all the administrative directors to tell them a bit about the LLL concept and what we are trying to do. (2KIA)
Risk-taking	And the third element for me is manage successes and failures. Never, never promise, let's say that technology will be the ultimate goal and leans to solve our problems. Not at all. And it's not a problem. If some of those elements doesn't succeed. (2KID)
Quality	So beyond that of course there is the quality culture, too, quality assurance you could say, but it's more on quality em, creating the quality culture for getting accreditation and so on. (2KIB)
Working across institutional silos	And what I tried throughout those five years is to make er links with other support units and departments because of the, yeah, interwovenness of that educational technology. (2KIA)
Leading by example	And then leading by example also, showing that, we I have realised myself some of those eh, innovations, with successes and failures, but I guess that if you want to show leadership in that field and you have never worked in the field yourself, it could be quite hard. (2KID)
Using data and evidence to defend vision	And showing by example that eh, this could make a difference, and have a good narrative, but evidence-based. An evidence-based narrative. Creating the buy-in of the staff. If the staff is not, doesn't have the beginning of conviction, of what you want to realise, it will never get, happen. (2KID)

Support for and facilitation of distributed leadership was evident, with several mentions of the aim to develop a 'self-steering organisation'. Decision-making was presented as being collegial with space for democratic debate. The leadership of the Rector and of the governance team with respect to Digital Education was mentioned on several occasions. "So, now this team, this er

group of vice-rectors has a very strong focus on technology and learning and e-learning, this was the first time since 2002” (2KIC); “Em, for the first time in years, so this is the first team that did this, there is a digital plan Going Digital plan, and em, in line with the different phases of em, educational technology within the university” (2KIE); “I think er our present rector and er his vice-rectors really try to embody another kind of leadership and there, which is focussed on, em, collaboration, on em, taking into account input from different levels” (2KIA).

The main mechanism for creating the conditions for change and innovation was the LLL, seen to foster a culture of shared responsibility.

That was a change in the mindset of those services. They are really, they depend upon, to a certain extent, of course, they have their basic staff, but they depend to a certain extent on the willingness of the faculties, groups and faculty members, to invest, to co-invest, to co-develop eh, technology-enhanced learning trajectories. (2KID)

At team level, one KI supported change in the department through collective reflection. Another KI framed this in terms of a change trajectory supported by training: “so every team who, so we're using scrum and HI working in the teams, every team was stepped into the, so we, we took, em every ten weeks we took three teams to, to this change trajectory” (2KIC).

The idea of starting to work with people who are already on board before trying to convince others was also mentioned: “I think I try to find those people

I can maybe already convince and try to em, in that network idea, try to connect to other people” (2KIA).

Advocacy was presented in the form of awareness-raising among teachers. “And so em, motivating events is also very, very important, so buy-in of the staff is for me the crucial driver” (2KID). There were also interesting examples of awareness-raising of the need for transformation within one’s own team.

Yeah, constantly talking with them about this and trying to work out, trying to work with them as a team as well, em, in letting them, letting themselves em, formulate these kind of frames and let themselves, er, er, take charge of the things. (2KIE)

A few years ago when I started as head of unit to, convince my colleagues that we had to, em, yeah, ..that we had to do, that we had to... that educational technology, the integration of educational technology in education. (2KIA)

Other examples of advocacy were framed in terms of influencing strategy and policy: “I discussed and I argued with [X] that I thought well, e-learning should be part and integrated, er, development together with how we look at, at learning, and should come together with policy decisions” (2KIB).

Encouraging risk-taking with a view to learning from mistakes was considered important, as was empowering both academic and professional staff.

Quality was mentioned in terms of both creating a culture of quality and of monitoring, both linked closely to the LLL. The LLL also exemplified the practice of working across institutional silos, in particular with respect to the strategic decision not to engage in restructuring: “...it would be much stronger if we could involve both the educational em, reasoning and educational, or the vision on, on education from the university together with, with, with the edtech strategy” (2KIB). Over and above this, several KIs mentioned collaboration with other departments and units.

For one KI in particular (2KID), being an exemplar, with appropriate experience in Digital Education was very important. The same KI also went as far as personally participating in staff training courses, with a dual approach of leading by example and advocacy, and also considered evidence for Digital Education to key a key factor in bringing about a change in teachers’ attitudes and practice.

Furthermore, the strategic plan contains several references to evidence grounded in research and international studies. In terms of generating internal evidence, this would come under the remit of the LIFUS institute which had not yet been created at the time of the case study.

The RELATIONAL Leadership Literacy

The sub-themes coded within the RELATIONAL dimension are summarised in Table 26. Attention to the creation of shared meaning and purpose was evident across all levels, and KIs made several references to investing time and energy in building relationships. However, the notion of trust was not mentioned at all. This is quite surprising given the maturity in other aspects of the DELLHE framework and would benefit from further exploration. Similarly, positive affect received few mentions and was concentrated in a single KI.

KIs at all three levels were generally aware of resistance to change. Explicit conflict management was not mentioned as such. Instead, the following example shows attempts to deal with resistance to change.

So then you look at what can best facilitate the, em, the change or what can help them to overcome their hesitance and, I think it has to do with starting with examples, building blocks... also looking for lean ways of, organisation. Looking at, in the same time as putting forward new things, looking what can be taken away, what is no longer em, really necessary, what can we just stop doing, and make things leaner. What can we do different, and help them in that process, and then take them in the team. (2KIB)

Table 26: RELATIONAL sub-themes and data snapshots – KUL

RELATIONAL sub-themes	Data snapshots
Shared meaning and purpose	And in Leuven Learning Lab we bring, we want to bring together, we are building it, eh, particular groups of teachers, particular groups of policy makers within faculty. To work together, to co-create, and to get acquainted with a kind of technologies or with ways to teach, so, so it's always a combination, or to look together to evidence from old practices. (2KIB)
Relationship-building	I think we have a big tool set already, we always try to, talk with the professors, that's the best thing. (2KIC) Er, got the teachers on board, so, of course we, we, er, talked a lot within the different kinds of er, areas that there are at university. (2KIE)
Positive affect	And I feel a lot of er, I meet a lot of worried people [...] people very worried about what the Rector and his vice-rectors are planning to do and er, yeah, how that will affect the people that are working in their team. (2KIA)
Resistance to change	Yeah, and you feel resistance to change all the, all the time,... I don't think it's negative, I think it's reality, and so em, that's the, that's the point that you start digging with people that, to see what can facilitate them. (2KIB) I'm, for the moment, I'm surrounded with resistance to change! (laughter). Em, it's of course because of that concept, Leuven Learning Lab, and the focus on collaboration and on em, er, thinking on an organisation level, when we talk about for, for example educational technology. (1KIA)

The LEARNINGFUL Leadership Literacy

The Leader as Learningful Self (LEARN-LC). All KIs had engaged in various forms of LD, with the majority of references concerning informal learning as shown in Table 27. There was a high level of interest in LD and recognition of its importance and usefulness.

Well,... it was proposed to me to follow a kind of training at the Fontainebleau business school, er for instance, to get in touch with leaders from other types of organisations, to see how I could improve my er, my global skills. And that would interest me quite a lot, be it, Fontainebleau or another organisation, but an international leading

organisation eh, in er, in leadership training. That would be quite, quite interesting for me. Yep! I'm looking forward to that. (2KID)

But now I see better how I can explain *my* vision on leadership better, and also explain what we are trying to do with *our* team, and er, so it becomes more em... I see now that you can also influence other people with your own er, vision of leadership. (2KIA)

Table 27: Forms of LD engaged in by CS2 KIs according to level

Form of LD	GOV	SM	MM
FORMAL			
360° review			
Formal LD training (External)	1		
Formal LD training (Internal)	1	3	1
Formal training (not LD but related)			1
NON-FORMAL			
Bootcamps			
Coaching	1		
Discussion groups	1		
Leadership circle			
Mentoring			
MOOCs			1
Workshops	1		1
INFORMAL			
Conferences			
Conversations with line manager			
Feedback from peers	1	1	
Learning by doing	1		
Learning by example	1		
Learning from non-university organisations	3		1
Learning through teamwork	1		
Networking	2	3	1
Reading on leadership for LD	1	1	1
Self-reflection on development as a leader		5	

Supporting the development of a Learningful Community (LEARN-

LC). Turning now to leaders' attitudes and behaviour in supporting the

development of a learningful community, there were also numerous examples of how these were enacted.

Promoting a culture of organisational learning and innovation.

There were frequent mentions of this, with the majority referring explicitly to the Leuven Learning Lab as a vehicle for organisational learning “where we try to motivate people to co-create and reflect upon education” (2KIB); “To learn also from each other, so it's a learning network throughout the university” (2KID); “to make a network to support the teachers better, close to their home, er so close within the faculties” (2KIE); “I think the technology gives us the opportunity to become em, a learning organisation” (2KIA).

Mobilising digital technology for Continuing Professional

Development (CPD). Opportunities were also provided to support staff development, in the form of online modules or a help platform “where, where they can er, er, go to and they get a lot of information, a lot of video clips and so on, in how to work with this stuff, or how to do this kind of things” (2KIF).

CPD for everyone involved in education. From a strategic point of view, it was mentioned that CPD was a goal for all staff involved in education. “And so, er, em, as a unit we are responsible for er, em, training em, continuous development of er, professors, teaching assistants but also educational support staff. So everyone who has duties in education within our university” (2KIA).

Personal investment in staff development. Two KIs explained why participating personally in certain staff development actions was important.

Absolutely, so er, first of all I have to motivate them, so I'm taking part in, quite regularly, in events, em, in training sessions, in coaching sessions, so for er our staff, especially in the beginning now of my mandate, to make them clear that *they* make the difference, and that it's through this kind of training sessions that we want to make things happen. So I do regularly take part in this kind of initiatives, clearly.

(2KID)

I went also, I also, in the beginning, yeah, of course because we, we had to explain it, [...] of course I went to the, to the trainings myself, I think you need it because otherwise you cannot explain it to the others. (2KIC)

A further interesting action at team level involved the leader engaging their team in collective reflection around Digital Education. “We also read a lot of articles together (*smiling voice*) we discussed about it” (2KIA).

Coaching others was also mentioned, and there was an example of one team being an exemplar in bringing about a change in the way of working.

And we also now doing it, and the nice thing is, so we started with the whole transition three years ago and now a lot of other departments at the university are coming to us and to to look at us, how we're doing and we talk about what we faced in this change em, in these years, so so just to explain it, explain, tell them, tell them our story is very important, to, to other leaders in the university. (2KIC)

Research. Generating research-based evidence internally was mentioned as a goal. However, there were no explicit mentions of Digital Scholarship.

Tensions and counter examples

As for the previous case study, the tensions and counter examples surfaced during the interviews are classified into the categories of systemic, organisational and individual. They are grouped in Table 28, followed by examples from the data.

Table 28: Tensions and counter examples at KUL

	SYSTEMIC	ORGANISATIONAL	INDIVIDUAL
WORLDLY	Challenge of changing mindsets	Speed of change	Doubts about legitimacy in role
SUSTAINING	Human impact of organisational change	Distribution of resources	Lack of awareness of environmental issues
LEADINGFUL		Lack of Digital Education leadership at faculty management level	No mention of using digital technology for leadership presence
RELATIONAL		Tensions within and between departments e-portfolio project as a source of tension	
LEARNINGFUL			No LD for one GOV member

Systemic. The main systemic barrier was noted as being the challenge of changing mindsets:

That, that's what we try to change in the, in our organisation. But it's a difficult part, because you, some people really believe it and feel very

comfortable and good in this kind of workplace, and others have more problems with it. (2KIC)

And it's a constant search, er, in how to approach them, to er, try and look, er... look at the things that they are creating from another point of view. I try to do that or I... by talking a lot to them, em, but I find it difficult to, at the moment, to, em... get really through to them. (2KIF)

Organisational. The majority of the tensions identified were at organisational level. One KI noted a lack of Digital Education leadership at faculty management level: “I do not find that openness and that readiness to em, to talk about ambitions, to talk about the way we can reach those ambitions together, em, yeah, I do not notice that yet” (2KIA). Other tensions concerned the distribution of resources.

For me the, the important is that you have to make choices. Technology is expensive and the university is big, and we want to em, be able to, to put technology in place that can be used by a lot of er, professors, even everybody who wants to use it, but then you have to make choices. (2KIC)

The human impact of organisational change was noted, alongside a recognition that the change was perceived by some to be too fast.

And I feel a lot of er, I meet a lot of worried people. Er, like for example one of the em, managers in the IT department that comes to me and says ‘X, can we not slow down a bit and can you, can you take it a bit easy, yeah, go a bit, er, slower?’ (2KIA)

Tensions were noted both within and between departments, again as a consequence of the new strategy in terms of requiring in changes to established ways of working: “So we have this kind of constraints, and it's very difficult for them to accept these kind of constraints” (2KIF).

At project level, the e-portfolio project was singled out as a particular source of tension: “Maybe the, the, the, the project where we struggled most was the, er, we have now [our] own system for eportfolio” (2KIC).

Individual. There were very few tensions or counter examples noted at individual level. These concerned:

- A lack of awareness of environmental implications (one KI).
- A lack of formal training in leadership and management (one GOV member).
- Doubts about legitimacy in role (one KI).
- No mention of using digital technology for communication and leadership presence by any of the KIs.

Conclusions and recommendations

Table 29 highlights the strengths perceived during CS2 and suggests areas that could be developed. Some of the areas for attention are already accounted for within the extremely detailed strategic plan, for example the development of research activity.

Table 29: KU Leuven – strengths and areas for attention

	STRENGTHS	AREAS FOR ATTENTION
WORLDLY	Vision and overarching strategy.	Beware of being over-ambitious.
SUST	Awareness of human implications of technology choices for staff and students. Sustainability and UNESCO Strategic Development Goals a key focus of overall strategic plan.	Further integration of environmental implications with specific reference to technology choices. Ensure the development of a shared vision for the transformation of learning spaces is transferred from strategy to practice.
LEAD	Clearly defined tandem at GOV level. Decision not to restructure operational departments. ICTS engaged in change management and seen as an exemplar within the organisation. Going Digital and Future-Focused Education as key, interlinked strategic areas contribute to TEL as a key element of the brand identity.	Continue developing change management. Continue efforts to engage faculty management in TEL leadership. Learn from the challenges of a previous complex multi-stakeholder project (e-portfolio) when embarking on new ambitious projects such as digital exams.
RELA	Paying attention to the creation of shared meaning and purpose.	Build on the shared vision to give inspiration and meaning to work. Address tensions resulting from the fast pace of change. Be aware that some staff members may be at risk due to the new strategic direction and may need additional support.
LEARN-LS	Maturity of attitudes to LD at all levels (GOV, SM, MM).	Develop mentoring for LD at all levels. Continue LD efforts for professional staff increasingly taking on more leadership responsibilities in line with the shift to a self-steering organisation.
LEARN-LC	Leuven Learning Lab- overarching strategic vision and networked concept to support the emergence of a learning organisation.	Develop digital scholarship. Develop the research activity of LIFUS.

In terms of the research questions addressed in this part of the study, an initial response is proposed here, with respect to CS2.

RQ2a) How are DELLHE experienced by key informants?

This question is answered in terms of DELLHE maturity, a qualitative interpretation based on the descriptive Case Study findings, the balance between the tensions and counter examples (Table 28), and the strengths and areas for attention (Table 29). Overall, DELLHE maturity at KUL is medium to high, as can be deduced from the following synthesis (Figure 7), with a high rating in three of the five dimensions (although not always across all subdimensions) and medium-high in the remaining two.

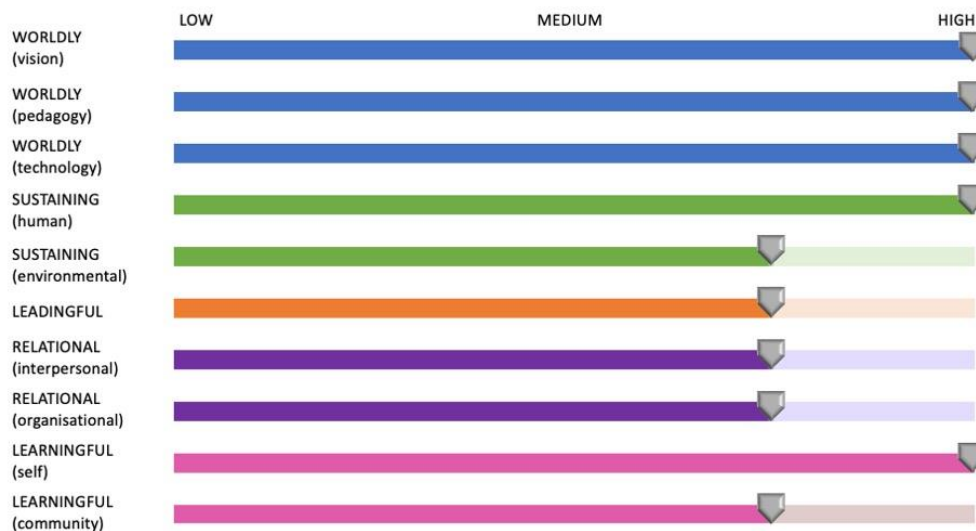


Figure 7: DELLHE maturity – KUL

Of particular interest here is the high level of DELLHE maturity across all areas of the WORLDLY Leadership Literacy. The areas which are rated slightly lower are still in the Medium-High range, and mainly concern further

developing DELLHE which are already present, such as change management (LEADINGFUL) and improving shared understanding (RELATIONAL). The two areas which require particular attention are getting faculty management on board (LEADINGFUL) and developing the LEARNINGFUL community through a greater emphasis on generating internal evidence through research.

2b) How do key informants develop (i.e. “learn”) DELLHE?

KIs across the board showed a very high awareness of LD, and all had participated in some form of LD whether formal, non-formal or informal. The most frequency-cited forms of LD consisted of informal learning, primarily networking and learning from non-university organisations. The Senior Manager demonstrated a particularly notable self-awareness of development as leader.

2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

The KUL strategic plan, and the section on Going Digital in particular, is extremely rich in its reflection of DELLHE. Not only is there a clear vision for Digital Education (WORLDLY), but this vision is backed up by evidence from research and international examples, and arguments are put forward with a view to convincing staff (LEADINGFUL). In the SUSTAINING dimension, ethical considerations are given considerable attention, and wider sustainability concerns form a strategic project in their own right.

Concerning the organisational structure, the most notable finding is the conceptualisation and materialisation of *third space* (Whitchurch, 2008, 2018) in the form of the Leuven Learning Lab, a networked structure designed to overcome institutional silos (RELATIONAL / LEARNINGFUL). The WORLDLY dimension is reflected in the fact that Digital Education comes under the responsibility of the educational development unit, located within the strategic Educational Policy directorate. The head of educational development is also the coordinator of the LLL, and the two Vice-Rectors for educational technology and educational policy work in a close, explicit tandem (LEADINGFUL / RELATIONAL).

Case Study Report: University of Northampton (England, UK)

The third Case Study (CS3) was conducted at the University of Northampton (UoN) in England between April 2019 and March 2020.

Context

The English Higher Education System

In relation to the following account of the evolution of the HE system in the UK, the painstaking curation and commentary by Derek Gillard (2018) of the English education system since its beginnings in Roman times represents an invaluable source of information. All relevant primary sources listed by Gillard (white papers, green papers, reports and education acts) have been consulted by the researcher. The picture is completed by reference to scholarly work, in particular that of Lowe (1982) for the late 19th and early 20th century.

Higher Education in England dates back to the 12th century, with the establishment of the University of Oxford, followed by Cambridge in the 13th century. Despite the development of universities in post-Renaissance Europe (15th-17th century), and even in Scotland (18th century), Oxford and Cambridge remained the only two universities in England for six centuries, until the establishment of University College London in 1828.

The Industrial Revolution saw the development of further universities in the second half of 19th century (Lowe, 1982), in particular in the ‘industrial north’ (Manchester, Newcastle, Leeds, Sheffield...). This period was also that of the emergence of Polytechnics, following the creation of the City and Gilds of London Institute in 1880 as a response to the need to develop technical education.

Expansion of higher education continued in the early years of the 20th century, with the creation of the ‘Redbrick’ universities (for example, Birmingham, 1900, Liverpool, 1903). Despite little evolution in the years between the First and Second World Wars, Northampton Technical College, a Polytechnic (and the ‘ancestor’ of the University of Northampton) was founded in 1924. In 1972, the White paper ‘Education: a framework for expansion¹⁷’ was published. Despite never actually becoming a bill, this white paper paved the way for the expansion of Polytechnics and in 1974, Northampton Technical College became Nene College.

The major impact of the 1992 Further and Higher Education Act¹⁸ was to abolish the divide between universities and Polytechnics, allowing the latter to use the word ‘university’ in their name (and as a consequence the creation in

¹⁷ <http://www.educationengland.org.uk/documents/wp1972/framework-for-expansion.html>

¹⁸ <https://www.legislation.gov.uk/ukpga/1992/13/contents>

1994 of the Russell Group¹⁹, a self-selected association of public research-intensive universities, to distinguish themselves from the former Polytechnics). However, Nene College continued under its existing name for a few more years, becoming University College Northampton in 1999 and finally formally established as the University of Northampton in 2005. Other relevant policy developments concern the evolution of the funding model for universities in England, with the introduction of tuition fees at £1000 per year in 1998, increased to £3000 under the 2004 Higher Education Act and raised further to £9000 in 2012 following the 2010 Browne review (Browne, 2010).

With respect to Digital Education policy, the Dearing Report (Dearing, 1997), devotes a whole chapter (Ch.13) to Communication and Information Technologies, as illustrated by this extract: “C&IT will overcome barriers to higher education, providing improved access and increased effectiveness, particularly in terms of lifelong learning. Physical and temporal obstacles to access for students will be overcome with the help of technology” (Dearing, 1997)²⁰.

The Mandelson Report ‘Higher Ambitions: The Future of Universities in a Knowledge Economy’ (BIS, 2009) addressed the questions of widening access,

¹⁹ <https://russellgroup.ac.uk/>

²⁰ From the accompanying website to the report <http://www.leeds.ac.uk/educol/ncihe/>

fees structure, quality assurance, leadership and governance, and introduced the Research Excellence Framework (REF), the first results of which were published in 2014.²¹ The idea of a parallel Teaching Excellence Framework (TEF) was launched a year later (BIS, 2015), and formally introduced via the Higher Education and Research Act (UK Government, 2017). The significance of the TEF for this study on Digital Education Leadership is that it could be seen to dictate to a large extent the focus of institutional policy and strategy with respect to learning and teaching (Hodson, 2018), in that English universities are more likely to implement those measures which are rewarded in terms of the TEF. However, as one KI at UoN said:

If there is one thing we need to do well, that's teaching. If we don't do that well, we are in trouble. Not just because of TEF, but that's because our USP of, of making changes, positive changes to society, has to materialise, has to be articulated through excellent teaching practice.
(3KID)

The main specificities of the English HE system, in comparison with the French and Flemish systems already described, can be summarised as follows:

- High level of tuition fees
- Selection at entry to HE

²¹ <https://www.ref.ac.uk/2014/>

- Russell Group (research-intensive universities) vs post-92 universities
- REF and TEF
- High level of autonomy.

Concerning this last point, the European Universities Autonomy Scorecard (European University Association, 2016c) indicates that UK HEIs score high for autonomy in all of the four categories:

- Organisational autonomy: high (ranked 1st out of 29)
- Financial autonomy: high (ranked 3rd out of 29)
- Academic autonomy: high (ranked 3rd out of 29)
- Staffing autonomy: high (ranked 3rd out of 29).

UoN within the English Higher Education System

As explained above, UoN, established with full university status in 2005, is one of the post-1992 universities with a background in practical, technical education, but focussing progressively more and more on higher education and granted undergraduate degree awarding powers as of 1992 (*History of the University of Northampton*, 2019).

UoN is organised around four faculties: Business and Law, Arts, Science and Technology, Health and Society, and Education and Humanities. It also has seven research centres in the fields of education, management, health science

and history, in addition to an interdisciplinary platform, the China and Emerging Economies Centre. At the time of the Case Study interviews (Spring 2019), UoN had recently relocated to the new, purpose-built Waterside campus. As shall be seen in the presentation of the results hereafter, this is of particular relevance for the study of Digital Education Leadership.

In 2017-2018, the key figures for UoN were as follows:

- 11 970 students (9 695 undergraduate, 2310 postgraduate, of which 225 are research postgraduate students)²²
- 825 academic staff²³
- 595 non-academic staff²⁴
- Budget (expenditure 2016-2017: £123,78 million)²⁵

Organisation of UoN around Digital Education

At UoN, Digital Education lies within the joint remit of Library and Learning Services and the Institute of Learning and Teaching. Library and Learning Services consists of five teams: Academic services, Service Development, Learning Development, Learning Technology, and Research

²² <https://www.hesa.ac.uk/data-and-analysis/students/where-study> (consulted 30/12/2019)

²³ <https://www.hesa.ac.uk/data-and-analysis/staff/table-7> (consulted 26/02/2020)

²⁴ <https://www.hesa.ac.uk/data-and-analysis/staff/table-1> (consulted 26/02/2020)

²⁵ https://www.northampton.ac.uk/wp-content/uploads/2018/02/UON_Annual-Report-and-Financial-Accounts-year-ending-31-July-2017.pdf (p.56, consulted 26/02/2020)

Support²⁶. The Learning Technology team consists of 14 people, and the Learning Development team of 12 people.

The remit of the Institute of Learning and Teaching (ILT) is to “support, promote and research effective and innovative learning and teaching practices”

²⁷. ILT consists of four staff members, who work closely with the Learning Technology and Learning Development teams in Library and Learning Services.

When talking about the organisation, several KIs mentioned the non-hierarchical structure, using terms such as “flat structure” and “dotted line”.

...directly I would report to the head of student and academic services but I also have like a dotted line if you like to the executive dean for student experience as well, so it's quite a flat structure here at Northampton. (3KIF)

So we have a dotted line, if you like, because the Institute of Learning and Teaching involves both em academic members of staff, ... so there's a sort of, even though it's a professional services, there's a lot of academic members of staff there,... (3KIC)

Governance bodies and commissions. The main committee relevant for Digital Education mentioned was the Student Experience committee,

²⁶ <https://libguides.northampton.ac.uk/aboutLLS> (consulted 26/02/2020)

²⁷ <https://www.northampton.ac.uk/ilt/about-ilt/> (consulted 26/02/2020)

covering policies relating to students, including those relevant to teaching and learning. Another is a sub-committee on enhancing student success, which

looks at how learning and teaching and indeed, digital ways of engagement, em, can support students in terms of er, continuation, retention, completion, can support them actually in their achievement levels, em, and support them in terms of post-study progression, where they go to next. (3KIC)

The different roles and remits of key informants at governance and management level. Digital Education comes under the joint remit of two GOV members: the Executive Dean for Student Experience and the Dean of Learning and Teaching, a senior management member who sits on the governance team. The term ‘governance team’ is used here in the sense of top-level executive team (‘bureau’ would be the equivalent for a French university) and is thus not to be confused with the Board of Governors, which has a status similar to that of the Conseil d’Administration of French universities.

At SM and MM level, the key informants and their remits reflect the organisational structure: the Head of Library and Learning Services, the Head of Learning Technology, the Learning Technology Manager and the Head of Learning and Teaching Development: Policy and Practice.

The WORLDLY Leadership Literacy

Vision for Digital Education. At UoN, this is strongly linked with an overarching pedagogical vision, embodied in the design of the new campus itself. Technology is seen as a key component of the campus design and is connected to societal needs: “we built this place on the basis of high dependency on a technology-rich environment. We built this place on the basis of what the graduates of the 21st century need, which includes, significantly, the digital” (3KID). Having said this, the driving factor is not the technology, but its full integration in support of the overall pedagogical vision, that of Active Blended Learning (Armellini, 2018).

Table 30 summarises the WORLDLY sub-themes and data snapshots.

Table 30: WORLDLY sub-themes and data snapshots – UoN

WORLDLY sub-themes	Data snapshots
Vision for Digital Education	We shaped the new campus on the basis of a, of a pedagogic view. We shaped the campus on the basis of personalisation, smaller groups, er, the opposite of massing, what the literature refers to as massing. In other words, not building lecture theatres... We built this campus on the basis of the view of what higher education should look like. (3KID)
Strategy	This is because we have a single strategy at Northampton, called Transforming Lives, Inspiring Change, anything that hangs from it is a plan. So we have the research plan, we have the estates plan, the IT plan, the learning and teaching plan, and various other plans. (3KID)
Big-picture thinking	In so far as these digital landscapes, these digital ecosystems enable us to gain, to further our meta-cognitive skills, then there always will be, in my view, a very significant place for them, in society at large. Whether it is to, to fulfil a particular purpose or whether it's to shape the purpose that we don't know about, yet. (3KID) do you know of Hitchcock? em,... and Hitchcock in all his, a lot of his films has, has the MacGuffin, it, doesn't really mean anything, but it's the one thing that everything fits around em, and, and, you know, the MacGuffin for us was Waterside. (3KIC)

WORLDLY sub-themes		Data snapshots
	Technology supporting different forms of learning and teaching	So we want to do active blended learning, well, you know, to do that we need to be digitally rich, we need to be, you know, fluid in, in sort of, you know, being able to connectivise this shift from room to room seamlessly, switch devices seamlessly, get the students online, you know, sharing stuff, seamlessly. (3KIF)
	Awareness of relevant pedagogical theory	So, my view of what learning and teaching would look like started off from the notion that, er, as I said before, personalisation, teaching in smaller groups, applying sense-making making scaffolds that would enable people to appropriate know, knowledge and accommodate that within existing constructs, build new constructs to accommodate new knowledge. (3KID)
W-PEDA	Characteristics of current and future learners	So they expect a certain way of being taught. Maybe this is, it's the students here, and not, not elsewhere. But they expect a particular way, and that way is quite traditional. (3KIE) But, so we teach you, and we want you to use technology, under ABL we also want you to be using technology, we're providing you with, you know, our benefit package includes the option of a computer if you want one, em we expect you to be engaging in the online world, we expect you to be engaging physically, we want you to blend those seamlessly. (3KIF)
	How teachers approach transformation of practice	In an academic environment, you could argue that er, for any academic particularly member of staff to remotely consider making changes to their practice, er you need three things. You need this, evidence, you need support, and you need agency. (3KID)
	Affordances of technology	And from the outset, what we said we wanted to do, er, was we wanted to use a, er, a VLE as a learning platform. So not just as a communications, not just as a repository, er, but as a way of, of, of actually, em, generating knowledge and understanding, and indeed assessment. (3KIC) So I can bring my own tech into this room, em, I can project to any of the screens, in any combination, I can decide where those screens are, I can decide where I am, I can change that from time to time, and anyone who's also in this room, with, me, I can also get them involved in either viewing in what I'm presenting to the screen. (3KIB)
W-TECH	Critical appreciation of educational technology	I suppose you know the technology is, er, can be viewed as agnostic, or sort of you know neither good nor bad, or neutral, but, in a lot of ways that's a... its a sort of problematic thing to think, it's a little bit naive, because, you know, whatever technology you have comes loaded with certain, em, you know, biases, and preferences and, you know, kind of supporting ideologies. (3KIA)

The majority of KIs demonstrated ownership of the institutional mission. However, there was evidence of some reservation: “I think institutionally there is an expectation that academics ought to be doing something with the technology in the classroom, em, and I not sure I particularly agree with that” (3KIA). Big-picture thinking was evident, in particular at GOV level, and linked to a capacity for abstraction.

In the W-PEDA subdimension, frequent reference was made to teaching and learning theory, and to the socio-cultural aspects of teaching and learning. A student-centred focus was clear from remarks made by different KIs, whether in terms of awareness of learners’ attitudes to HE or expectations about their use of technology. This focus on students was mirrored by a similar level of awareness of the ways in which teachers approach the transformation of their practice.

In the W-TECH subdimension there was a good balance between knowledge of basic and advanced educational technology, as well as a balance between awareness of the affordances and risks of such technology. With respect to the VLE, there was a clear goal to use it in more ambitious ways. The majority of references to more advanced uses of educational technology were centred around classroom technology. Critical awareness of (educational) technology was expressed in different ways, from the need to be wary of the hype “I’m no fan of the flavour of the month” (3KID), to the recognition of

underlying ideologies. Physical space and its relationship to learning, and to university life in general, was very much at the forefront: “So you've got teaching rooms opening out on to, on to er, what looks like library space, you've got the academics all hot desking in mixed areas, with professional services doing the same” (3KIE).

The place of Digital Education within the institutional strategy.

The overall UoN strategic plan (University of Northampton, 2015) consists of a 12-page document organised around three key aims: Social Impact, Future Focused and Super Supportive. Digital Education sits at the heart of the Future Focused aim, with UoN stating its ambition “To be the digital leader in UK Higher Education” (p. 6). This is grounded in both the Active Blended Learning (ABL) model developed specifically for UoN (Armellini, 2018) and in the technological infrastructure built into the new Waterside campus. The strategic plan also features a key behaviours framework, in which ‘enabling digital transformation’ is highlighted as the main contributor to the Future Focused aim.

Implementation of the vision for Digital Education. Decisions about educational technology are very much aligned with the institutional vision and strategy. Moreover, one KI made an important distinction between strategy and plans:

This is because we have a single strategy at Northampton, called Transforming Lives, Inspiring Change, anything that hangs from it is a plan. So we have the research plan, we have the estates plan, the IT plan, the learning and teaching plan, and various other plans. (3KID)

In support of the implementation of the vision and strategy, the following actions and behaviours were noted: supporting others to experiment, accompanying teachers in the transformation of practice and providing support for the integration of educational technology, encouraging educational awareness of digital developments, and mobilising design thinking approaches for pedagogy.

And,... so, so the notion of em... integrating digital as and when appropriate, as a great tool for learning, when you design the whole programme, or when you design the whole module, or when you design the whole sequence of learning, I, I think that's become the fundamental way of working. (3KIC)

The SUSTAINING Leadership Literacy

A summary of the sub-themes in the SUSTAINING dimension together with data snapshots can be found in Table 31.

The four main **environmental concerns** expressed by KIs were energy consumption, the carbon footprint of travel, reducing the use of paper and the recycling of equipment.

Table 31: SUSTAINING sub-themes and data snapshots – UoN

SUSTAINING sub-themes	Data snapshots	
Energy consumption	As you walked in you would have seen a sort of a silver building to your left. That's the energy centre... the overall concept is to as self-sustainable as we can, so we generate er, our own energy, insofar as we can. (3KID)	
Environmental	Carbon footprint of travel	And you know, I've been at conferences before where, er, you know, they er, well actually we've been stuck at conferences before, because there's been transport problems and types of things. So there's lots of issues around, so environmental, from that perspective (3KIB)
	Reducing the use of paper	So... it wasn't a big bang, it was about change over the period, so that when we came, paperless for example, you know you didn't do handouts, paperless was a way that you worked anyway, em. (3KIE)
	Recycling equipment	Em, I think there's a lot of dud equipment lurking around (laughs). So recycling, re-using, you know, data protection, is I think part of that if you're recycling and re-using stuff. (3KIF)
Inclusiveness	There's also the background that students come with, if they haven't been automatic users of, or if they haven't come from households where they've had the ability to buy them a, high-end Mac, or they come from schools where there isn't that, then there is a greater need for us to, to prepare students for that, to give them that necessary, em, backing and support to get them back up, to get them up to speed. (3KIE)	
Human	Impact on self-organisation	I think you know there's always a negative aspect of technology, you know,.. or sometimes that it encourages people to leave things a bit to the last minute, em, certainly the er... there's a lot more... I don't know, last-minute-ism with technology. (3KIA)
	Ethical issues	Well there's the, there's the management of information, we've just done a JISC, em, tracker that em, showed that 42%, I think I'm right saying, of students had absolutely no idea how their personal data was being stored, em, within the, the learning and teaching environment. Ei.. ei... either didn't know, or more likely didn't care. (3KIE)
Financial	Cost (estates)	How many times would someone be in a position to shape a new campus, from scratch, at huge cost to the taxpayer...? [...] Obtaining the funding, the, the er, the underwriting by the treasury, that in its own right was a massive project. (3KID)
	Cost (staffing)	Em, but we made a decision to, to, to move to smaller units. That has staffing implications, because it means you have to increase your staffing. (3KIC)

Human Aspects. The human aspects were inclusiveness, an impact on students' ability to self-organise, and ethical issues around the use of data.

Inclusiveness is also a key element in the strategic plan under the Super Supportive aim, whereby UoN endeavours “to promote inclusivity for all staff and the opportunity to develop and make valuable, socially impactful contributions that transform lives and inspire change” (p. 9).

Financial Aspects. The financial aspects related mainly to the cost of building the new campus. One KI also expressed concern about the capacity of the learning technology team to support all the different technologies being used, which relates indirectly to financial aspects in terms of staffing levels.

I think, on (*sighs*) on a very practical level, we, you know, we are very, as a learning technology team we are very mindful of what we can actually support. Em, you know, if we, if we introduce a new technology, or if we integrate a new technology, em, again what, what support er requirements does that come with, you know, can we effectively train everybody to use it, do we need to train everyone to use it? (3KIA)

The LEADINGFUL Leadership Literacy

LEADINGFUL mindsets, attitudes and behaviours, summarised together with data snapshots in Table 32, were particularly well-represented at UoN. The full table can be found in Appendix L.

Table 32: LEADINGFUL sub-themes and data snapshots – UoN

LEADINGFUL sub-themes	Data snapshots
Top-down leadership	And er... the VC said "This is your, this is the time to think about this, guys. You either jump on the bus, or you get out of the way. It's perfectly fine to do either. But this is the time to make a decision. (3KID)
Giving due credit to the leadership of others	So vision-wise, people like the VC, the Chief Operating Officer, and er, [X], the, the head of student academic services, their work was outstanding in, in, in er, in inspiring themselves and in inspiring others, er, to begin to entertain the idea that this was a goer. (3KID)
Self-awareness as leader	I think em, if you consider a manager and a leader, I'm people's manager, but I'm not necessarily a great leader, depending on how they see me. (3KIB)
Empowerment and agency	In an academic environment, you could argue that er, for any academic particularly member of staff to remotely consider making changes to their practice, er you need three things. You need this, evidence, you need support, and you need agency. (3KID)
Change Management	So I put the things, I put the mechanisms in place, the change management, the pedagogic views, the evidence, the support and the agency, er, in place, for making change at P&A campus. (3KID)
Advocacy	So it helps enormously that we've got a Vice-Chancellor who's very keen on roadshows, and he'll go round and he'll take presentations about vision and missions and he's very comfortable with anybody asking questions. (3KIC).
Risk-taking	You've got to be able to, to take risks. You've got to be able to, em, do what others haven't done. And be prepared to get your fingers burned, and be prepared to learn from the experience. (3KID)
Quality	Em, I, I have worked hard so that all the KPIs are translated into module level targets and thresholds, programme level targets and thresholds, faculty level targets and thresholds. (3KIC)
Working across institutional silos	Em, physically we sit very close to the Institute of Learning and Teaching, which is a different line management structure, but because we're so physically co-located, em, it's really helpful with regards to communication and, you know we, we actually communicate across those boundaries. (3KIB)
Leading by example	Em, we consistently were doing things that none of the rest of the university were doing. And we were held up, again consistently, as exemplars for that. (3KIE)
Using data and evidence to defend vision	So we generated evidence through them and we began to show that what they were doing, largely because they were good teachers, er, and they would have been doing that anyway, er, we managed to be infectious about that evidence and, and bring others into the process of change. (3KID)

Despite references to collegial decision-making, there was also recognition of decision-making in the absence of consensus and awareness of the consequences of this.

If anything, senior management were the proponents of most of the changes, if not all of them. If anything, they could be accused of being too top-down, but they are also, they were putting their wallet where their mouth was. (3KID)

There were several examples of giving due credit to the leadership of others, with frequent but not exclusive reference to the Vice-Chancellor. The head of Library Learning Services received considerable attention for his leadership, both in terms of vision and actual leadership behaviour. Among the KIs interviewed, humility and a lack of personal ego were also noted, alongside self-awareness as leader.

Giving teachers agency was considered a key factor by one KI. At operational team level, empowerment was also considered important. “And again I try and allow the, the learning technology team to have a sort of, a reasonable degree of autonomy, so they don't feel they have to sort of run everything by me” (3KIA).

Much attention was paid to creating the conditions for change and innovation and this had already been started before the move to the new campus.

We were fortunate, I repeat, in that the campus gave us a unique opportunity to inject pace and inject enthusiasm into the change. But those ideas were already in place before I knew about this. (3KID)

A further facilitator of change was the formalisation of new practices in policy. However, there were few explicit references to actual change management practices such as identifying and mobilising change agents, with the exception of the following:

So where there are particularly inspirational people then what we'll try to do is actually see if we can get a case study out from them, about what it is that they're doing that is actually so inspirational and good, moving forward. (3KIB)

There were frequent mentions of advocacy at different levels: governance, staff and students, informal and external, the latter consisting of presenting the strategy at conferences or being invited to talk at other universities. Awareness raising across all internal stakeholders took the form of roadshows in which the Vice-Chancellor was particularly active. One KI mentioned informal advocacy: “And then informally, it was a case of during your normal interactions, with them, over whatever you were, we were doing with them, you would be weaving in... the ways of working in the, in the new world” (3KIE). However, this advocacy was not always successful, with some staff, and particularly faculty management, not getting the message.

You know, I think along the way we went through a lot of confusions, and there's still, there's still, a, a, a nub of staff who, who appear to think that em, we are somehow moving into distance learning, and it is absolutely not that. (3KIC)

And that went right down from, from some of the deans through the programme leaders and, and elsewhere, where they were claiming they didn't know something, and they did. I'd been, I'd sat in a meeting where we'd all been told. And they were claiming that that wasn't, they didn't know, and they were doing it to avoid, you know, to avoid conflict. (3KIE)

References to working across institutional silos reflected the organisational structure, and the physical space of the new campus was seen as facilitating this.

You know, we go to the office they work in, em, we work in academic offices as well, sometimes, so it's one of the big things that can do at Waterside, is that we can spend a bit of time just being in the academic offices, so they get to know us. (3KIA)

Several of the other LEADINGFUL Leadership Literacies were particularly present at UoN. These included 'Encouraging risk-taking with a view to learning from mistakes', and 'Leading by example' (both as an individual and a department). The focus on quality was also a significant concern, embedded in policy and practice. 'Using data and evidence to defend vision' took the form of generating evidence through research into internal

practice. As this was clearly embedded in the work of the ILT and considered a key aspect of the approach to convincing teachers to transform their practice, it is further developed in the section addressing support for the development of a LEARNINGFUL community.

Finally, in relation to ‘Using digital technology for communication and leadership presence’, one KI mentioned the use and benefits of videoconferencing for team meetings in terms of providing more flexibility and saving time. Another talked about a colleague’s use of Twitter.

I think if you look at someone like (X), I sit and watch him at conferences, and he, he crafts his Tweets, they are a work of art. [...] But that is just an extension of, of him, he just happens to be using technology to reach his audience, if you see what I mean. (3KIF)

There were also references to producing a promotional video for ABL and to the use of digital display screens around the campus, which although not directly related to individual leadership presence, are examples of how digital technology is being used to communicate key messages.

The RELATIONAL Leadership Literacy

The RELATIONAL literacies were well-represented at UoN, and particularly noticeable within LLS, the department which houses the learning technology unit. Table 33 provides data snapshots for each of the individual sub-themes, which are then explored further.

Table 33: RELATIONAL sub-themes and data snapshots – UoN

RELATIONAL sub-themes	Data snapshots
Shared meaning and purpose	That meant I was one of the faces of the new campus, and I was put up... at faculty meetings or in, in other fora to explain, to enthuse and em, help people to, to come to... a ... at worst acceptance of it and at best enthusiasm for all of these changes together, because they all work together, they don't work in, in separation. (3KIE)
Relationship-building	And just trying to emphasize to the team that it's all about, you know, developing good relationships with people. You know, the tech is just... you know that's just a baseline, or that's just a sort of a given, you know, we know how the tech works, what we, what we need to do is build relationships with people. (3KIA) So it's, it's the work in committees, and more importantly outside committees it's the personal relationships you have with other senior managers and em, academics, it's relationships you have with, with other professional services, that create that environment for them to be able to work in. (3KIE)
Positive affect	So I think it, that was just a concrete example, taking a group of people who were floundering, and anxious, and saying, 'What are you anxious about, what are the issues?'" (3KIC) ... an arm round the shoulder sometimes. (3KIE)
Trust	Em, that was generally, I think, supported, I mean we had to work obviously hard to build up a lot of trust with the faculties, em, and we had to reassure them that we weren't doing anything like a takeover, or empire building, or any of the other terms that people tend to, to talk about now, er, and it was actually about just providing a better service across the board. (3KIB)
Awareness of resistance to change	People. No question about that. That was the challenge. Em, er, entrenched views, putting my head in the sand will mean that all this noise about active blended learning, and technology-rich environments and teaching without lecture theatres, all of that will go away if I put my head in the sand for long enough. Er, it wasn't going to go away. And it didn't go away. (3KID)
Constructive conflict management	You can't avoid conflict if you, if you are, if you are pushing through change, particularly of this magnitude, there is going to be conflict. You don't address it in a, in an aggressive way, you don't go, you don't go back in the same way, but you address it with arguments and, and, em examples and, and... an arm round the shoulder sometimes. It's not... you don't avoid it. (3KIE)

Several examples of creating shared meaning and purpose were provided, with one KI noting the challenges and limitations. KIs at all levels showed recognition of the importance of building relationships and talked

about how they achieved this. Of particular interest is the practice of building relationships between the learning technology team and academics, where each academic has a named learning technologist they can turn to for support.

Trust-building was mentioned frequently at MM-level and examples of positive affect were noted at all levels, although not for all of the KIs. KIs were highly aware of resistance to change, the reasons for this and the way in which this resistance manifested itself. “And, er, so I think, I think em,... there's that fear of change, there's a, there's that fear of, of actually, I think, losing some of the ownership... because this forces you to work more in a team way” (3KIC). There was also a keen understanding of the impact of change, heightened by the recent move to the new campus.

Because there were so many changes that were actually going on simultaneously, I mean academics went to hot-desking, away from personal offices, em, they to personal devices, no lectern devices, they moved to a lot more digital than they were used to previously, they moved to smaller classrooms, em, the change was massive actually. (3KIB)

The LEARNINGFUL Leadership Literacy

The leader as Learningful Self (LEARN-LS). As shown in Table 34, KIs at all levels reported having engaged in LD. Formal LD training was mentioned at all levels, with several references to internal provision, although this was generic LD and not specific to Digital Education. Non-formal solutions

concerned mainly coaching and mentoring, with one KI mentioning participation in a leadership circle. Informal learning involved conferences, conversations with one's line manager, learning by doing and learning by example, networking and self-reflection on development as a leader.

Supporting the development of a Learningful Community (LEARN-LC). The design of the new campus was considered key for facilitating a culture of organisational learning and innovation.

Em, I really like the way this particular campus has been built so that *the* most important building of all is the learning hub, it's, it's got teaching rooms, it's got all of the staff spaces, it's got all of the student support services there, but it's got all of the student study areas there as well. So we're all in this one big building together and we can bump into each other, and that's where all the coffee rooms are there as well, the food is. All those things I think are really important to, constructing a, er, a space that is really lively for learning. (3KIC)

Fostering a culture of inquiry and innovation was also present in the approach adopted by the learning technology team.

I think one of the things I try to encourage my staff to do, em, and, as my staff are working with academics a lot, as well, to pass that on, is to take risks, to be innovative, to try things, em... and if they don't work, understand why they don't work, but try something else. (3KIE)

Table 34: Forms of LD engaged in by CS3 KIs according to level

Form of LD	GOV	SM	MM
FORMAL			
360° review			1
Formal LD training (External)	1	1	
Formal LD training (Internal)	1	1	4
Formal training (not LD but related)			4
NON-FORMAL			
Bootcamps			
Coaching	1		1
Discussion groups			
Leadership circle			2
Mentoring	3		4
MOOCs			
Workshops			
INFORMAL			
Conferences	1		
Conversations with line manager			2
Feedback from peers			
Learning by doing	1		
Learning by example		1	1
Learning from non-university organisations			
Learning through teamwork			
Networking	2		2
Reading on leadership for LD			
Self-reflection on development as a leader		3	1

Bringing together all relevant stakeholders in staff development workshops to redesign modules and courses was noted as a valuable contribution. “But I think what *has* worked well, is, is the CAIeRO experience, which is basically saying you bring together staff, you bring together students, you bring together learning designers, learning technologists, and you storyboard, you storyboard your whole module” (3KIC). In addition to this, the

team responsible for educational technology support and training applied UoN's ABL model in their own sessions.

Mentoring and coaching. One KI mentioned mentoring others, and mentoring was also described in terms of developing the posture of the learning technology team.

We've sessions in the past on mentoring, em, because we wanted to, er, I think improve the way that we worked with academics generally, and we saw our role not as a teaching process but actually as working alongside academics, er, and that actually more closely aligns to mentoring than to teaching. So we wanted to... get some more experience in that particular area, so again we've set up that particular type of training. (3KIB)

Mobilising digital technology for CPD. The main example was in the integration of external resources, in particular LinkedIn for Learning. There was also reference to the development of OERs which, although not explicitly designed for CPD, clearly form part of the digital ecosystem.

So, the library, learning development, come together with learning technology to produce something called the skills hub, which is a set of OERs em, that academics can use within their own resources or it, it works as a standalone em, website for student development of digital information and academic skills. (3KIE)

Networks. Staff were encouraged to participate in professional networks. "So I encourage all staff to become professionally engaged, to, to

develop those networks within the profession, as well as becoming fellows, or qualifications or whatever else is in that” (3KIE).

Supporting a Learningful Community beyond the institution. The CAIeRO programme referred to earlier was mentioned as being deployed internationally. One KI was also involved in external LD facilitation.

Research. Generating internal evidence through research was considered a key focus of the ILT.

So one of the things that I did at that point was, em, I said we need an Institute for Learning and Teaching, that Institute needed to do two things, it needed to be responsible for driving good practice and, em, enhancement, generally, in relation to learning and teaching and assessment, em, but secondly it needed to have a, a, em, a research arm, an evaluative development research arm. (3KIC)

Furthermore, professional staff were encouraged and supported to engage in research or research-related initiatives.

There’s an active, em engagement with research in this department, that is not, not required by the university, but it’s part of the university business to be involved in research so, if you, if you do something that em we’ve supported, and we support you know we give you time, and money and support to explore things that are... often in the digital arena, em, the only proviso is you tell people about it, and that often means a conference, or a workshop, professional workshop, em and we will support that.... Wherever it is. If you get a paper accepted, I will pay for you to go. (3KIE)

Tensions and counter examples

As for the previous two case studies, the tensions and counter examples surfaced during the interviews are classified into the categories of systemic, organisational and individual. They are grouped in Table 35, followed by examples from the data. None of the tensions or counter examples noted were classified under ‘Systemic’.

Table 35: Tensions and counter examples at UoN

	ORGANISATIONAL	INDIVIDUAL
WORLDLY	Resistance to / fear of change at faculty management level Technology not working as it should	Own beliefs not aligned with institutional vision
SUSTAINING		Lack of awareness of environmental issues
LEADINGFUL	Lack of Digital Education leadership at faculty management level	
RELATIONAL	Tensions between departments Digital exams and Learning Analytics projects as a source of tension	Tensions between individuals Disparaging or antagonistic remarks / attitude
LEARNINGFUL		No LD for one GOV member Confusion between LD and management training Poor experience of formal LD

Organisational. In the WORLDLY dimension, resistance to, or fear of, change was noted at faculty management level. “But where it, where it was unnecessarily difficult was some of the academic leadership. So within the faculties” (3KIE).

Em, for some reason that information did not go heads of faculty, and you know deputies, and through the sort of, I mean we have a fairly flat

structure here anyway, but that information wasn't getting down, people weren't, weren't addressing those, em... you know, and, and to be honest the sort of, the central parts of the university probably did as much as they could, but that information wasn't... just wasn't coming down to a lot of academics em, so they didn't really know what was going on.

(3KIA)

It should be noted that the interviews at UoN took place less than six months after the move to the brand-new campus, and that teething problems with technology were mentioned frequently.

And we've found that quite a lot here, with the move to new campus. I assume you know all about the, the move to the, to new campus, the IT initially was not great. Em, it is now, but it wasn't at the time, we probably moved in slightly too early. (3KIE)

Having said this, there was keen awareness of the issue, the implications and the need to rebuild confidence. "It means that they're less likely again to, or some of them are less likely to want to risk things, in future. If the software, or the hardware doesn't work" (3KIE).

RELATIONAL tensions between different departments were mentioned by three of the six KIs, between the learning technology team and the IT department, between the learning technology team and another (not specified), or with the quality unit. "They, they interfered and made things difficult, and antagonistic, er, really with no evidence, and providing no support for their

views, and giving no-one any agency” (3KID); “You know they, they put our noses out of joint a bit just for sort of bad project management, and planning, and general sort of arrogant behaviour” (3KIA).

It's such a *ridiculous* thing to say, it meant they didn't want to support it, it's not banning it, but they used that word, ban. Em, [Y] wouldn't have any of that, and neither would I, but [Y] was in the position to, to act, you know, in the trenches to fight against that nonsense.” (3KIE)

At project level, digital exams and learning analytics projects were identified as a source of tension, primarily as a result of different expectations on the part of the multiple stakeholders involved, but also for the reasons related to territory as suggested by the aforementioned extracts.

Individual. In the WORLDLY dimension, one KI expressed tensions with the institutional vision not aligning with their own beliefs: “I'm, I'm still sceptical around the value of technology *in the classroom*” (3KIA).

In the SUSTAINING dimension, two KIs admitted a lack of awareness of environmental issues. “Em, ... do you know it's not something I, I hugely think about in that sense, em, yeah, maybe it's something we should...” (3KIF); “I'm not, I'm sure actually, how to answer that. Impact of... it means... (*sighs*). No, I'm not sure at all. It's, I don't think there are massive environmental impacts” (3KIE).

In RELATIONAL terms, one KI talked about a difficult relationship with another individual, linking this to their relative hierarchical positions within the organisation.

I think it's, quite, again it's, you know, it's always a bit of petty politics involved but partly this is well, you don't have the authority to make us do anything because you are not above us in the structure. Em, you may be being paid more, and on a higher grade but actually if you look at the structure.. we're not under you, em, and... you know, you can, you can talk to us as if, as if you can make us do this thing, but actually you can't, you should actually be a little more polite er, about it, er. (3KIA)

With respect to LD within the LEARNINGFUL dimension, one KI confused this with management training, and another talked about past difficulties with formal LD.

I don't respond well to that sort of thing, I, I don't think. I find it quite difficult to, em, when I've been on, on some leadership courses, not all, I'm not refusing them, but, one sticks in my mind here where we er, at one point we had a wall full of pictures of leaders put on a wall, and we had to say who we were closest to. And they were people like Hitler, and and Gandhi and so on. I'm not Gandhi! And I hope to God I'm not Hitler! You know, what, what, do you know, I tend respond to that sort of thing by, through flippancy. And... so, that sort of formal stuff I find quite difficult. (3KIE)

Synthesis and recommendations

Table 36 highlights the strengths perceived during the Case Study and suggests areas that could be developed.

Table 36: University of Northampton – strengths and areas for attention

	STRENGTHS	AREAS FOR ATTENTION
WORLDLY	Vision and overarching strategy Unique opportunity for change	Address the differing visions with respect to Digital Education (among MM and academic staff)
SUST	On-campus energy centre with an ambition to become more self-sustaining Social responsibility	Develop a finer understanding of the environmental impact of technology choices and build into policy
LEAD	Flat organisation Recruitment of key people	Continue developing change management Continue to address issue of Digital Education leadership at faculty management level
RELA	Recognition of the importance of relationship-building.	Pay particular attention to complex multi-stakeholder projects that can be sources of tension and conflict
LEARN-LS	Investment in high-quality LDP for one GOV member Coaching and mentoring Internal provision of LD	Ensure key personnel do not miss out on LD Consider further LD at MM level and ensure this is actually mobilised in practice Address the confusion between management training and LD
LEARN-LC	Generating internal evidence through research Embedding curriculum redesign into professional development activities Encouraging professional staff to engage in research and gain recognition through fellowship of professional bodies	Develop digital scholarship

In terms of the research questions addressed in this part of the study, an initial response is proposed here with respect to CS3.

RQ2a) How are DELLHE experienced by key informants?

This question is answered in terms of DELLHE maturity, a qualitative interpretation based on the descriptive Case Study findings, the balance between the tensions and counter examples (Table 35), and the strengths and areas for attention (Table 36). Overall, DELLHE maturity at UoN is high, as can be deduced from the following synthesis (Figure 8).

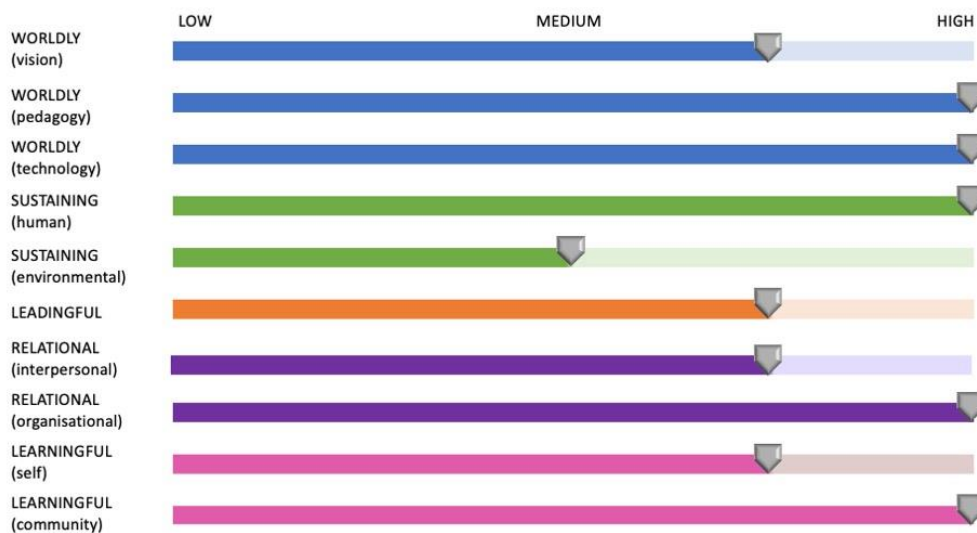


Figure 8: DELLHE maturity – UoN

DELLHE maturity was high in four of the five main dimensions of the DELLHE framework, and particularly high in the pedagogy and technology subdimensions of the WORLDLY Leadership Literacy. The lower appreciation of the LEADINGFUL dimension is grounded in the finding that change management and getting faculty management on board both needed further

attention. In the RELATIONAL dimension, interpersonal relationships were a key consideration within Library Learning Services and in terms of relation-building with academics, although relational tensions with individuals in other units were noted, suggesting the need to focus more explicitly on conflict management.

2b) How do key informants develop (i.e. “learn”) DELLHE?

KIs at all levels, and at MM-level in particular, engaged in LD although there was some confusion between management training and LD. Formal, non-formal and informal learning were all mentioned. One KI mentioned numerous examples of LD, yet surprisingly did not demonstrate DELLHE to same extent as other colleagues (even in the more generic LEADINGFUL and RELATIONAL dimensions), suggesting that transfer of learning to practice had not been fully achieved. Interestingly, the CAIeRO curriculum-design workshops for staff development were not mentioned as contributing to KIs own LD.

2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

The UoN strategic plan draws together the three elements of the WORLDLY Leadership Literacy (vision, pedagogy and technology) in an exemplary fashion, through its grounding in the concept of Active Blended Learning and the ambition to be the leading UK HEI in terms of Digital

Education. The SUSTAINING dimension is well-represented in terms of the focus on social responsibility.

The organisational structure reflects the LEARNINGFUL community dimension, with Digital Education being led by the Institute for Learning and Teaching, which addresses both research and practice, and which works in close collaboration with the educational technology team housed with Library Learning Services. Several KIs highlighted the ‘flat structure’ as supporting such collaboration, although tensions were noted in terms of conflicting approaches to managing large strategic Digital Education projects.

Over and above the organisational structure itself, the physical design of the campus around the Learning Hub stands out as a concrete manifestation of *third space* to facilitate interactions between academic and professional staff as well as with students.

Cross-case analysis

The national HE systems in France and Belgium (Flanders) are relatively similar, characterised by a low level of admission fees, no selection at entry to Bachelor level and the fact that universities are considered part of the public sector. This is compared to a much more highly market-oriented system in the UK (England), with fees standing at £9,500 per year and a selection process at entry. It would therefore be expected to find more similarities between the French and Flemish case studies than with the English one. However, analysis of the QUAL data from the first two Case Studies shows considerable differences in DELLHE maturity, understood as a high level of occurrence of DELLHE across all five dimensions of the framework: WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL and LEARNINGFUL.

DELLHE maturity was considered medium-low at UL (FR) – see Figure 6, and medium-high at KUL (BE) – see Figure 7. The main reasons for the low maturity at UL were the difficulties noted with the notion of leadership itself, the lack of strategic vision for Digital Education, numerous tensions related to the organisational structure (not addressed through the mobilisation of RELATIONAL Leadership Literacies) and the absence of a desire for or practice of LD.

These unexpected differences led to an update of the theoretical background to integrate more explicit reference to contextual factors, before

conducting the third Case Study at UoN (EN). The QUAL analysis of data from this case study painted a similar picture to that of KUL, with a high level of DELLHE maturity (see Figure 8) despite some tensions.

Strategy, structure and context

The study examined strategy, governance and organisational structure before integrating these with two main facets of context selected for analysis, namely autonomy and organisational culture. The presentation of DELLHE maturity for each of the CSIs associated with institutional culture and autonomy can be found in Table 37 later in this chapter.

Strategy

All three HEIs had a strategic plan which included Digital Education. For KUL this took the form of a dedicated, detailed Digital Education strategy; for UL the Digital Education aspects were included in the Digital section of the overall strategic plan, and in the Digital Roadmap; for UoN these were embedded in the overall strategy accompanied by a specific learning and teaching plan, which included Digital Education projects within wider objectives. As one UoN KI said:

Em, the job encompasses the, what others call the learning and teaching strategy, we call the learning and teaching plan, this is because we have a single strategy at Northampton, called Transforming Lives, Inspiring Change, anything that hangs from it is a plan. (3KID)

The main differences were in the level of detail and in the way in which Digital Education was conceived. For UL, the goals were mainly operational, for example: making its digital resources (MOOCs and serious games) more visible, developing learning analytics, and accompanying teachers in the use and production of digital resources. For KUL, the development of Digital Education was a strategic goal in itself, embodied in the ‘Going Digital’ plan, one of five axes of the overall strategy. At UoN, Digital Education was embedded within the overarching vision and core objectives of enhancing student success, supporting staff to deliver high quality teaching in line with ABL, pedagogic innovation and raising profile and revenue generation.

Governance

All three CSIs had a governance (GOV) member with a primary remit for Teaching and Learning. UL had another GOV member for Digital Affairs, which included IT as well as learning technology. The focus was slightly different at KUL where the remit of the second GOV member was explicitly for Digital Education. At UoN, the GOV member with direct responsibility for Digital Education was also an academic dean, in charge of the Institute for Learning and Teaching, and there was no elected GOV member for Digital Affairs.

At all three universities, GOV members mentioned working in tandem with each other on issues relating to Digital Education. This was particularly explicit at KUL:

The rector decided to, em, attach tasks, to, to, to put tasks on each of us in a kind of team way, which is very interesting as a matter of fact, so we have a conventional task, we always have several vice-rectors in the board, we have the conventional tasks divided, it, but he always gave us a second eh, task, which makes the group as a team working together so, er, for the educational technology, my colleague is in the lead, but of course it can only be incorporated in let's say educational policy when we collaborate together, and that's what we do, we team up em, on that topic. (KUL)²⁸

At KUL and at UoN, the governance members interviewed also mentioned working closely with the President or Vice-Chancellor on issues pertaining to Digital Education. However, at no point in the interviews was the President of UL mentioned.

So these kinds of things, like I said the rector put forward the strategic plan, but we, we created it together, with discussions, and so on, and the way of implementation em, is the result of, of our perspectives and our point of views. (KUL)

²⁸ In order to preserve anonymity, the individual identification of the KI is not reproduced here or in the following data excerpts.

But but, er, when the new VC came in, em, we had, we had lost a learning and teaching unit em, and so I, I developed the original proposal for what an Institute for Learning and Teaching should be like. (UoN)

Organisational structure around Digital Education

At UL, the educational technology unit sits within the Directorate for Digital Affairs, which resulted from merging the individual Information Systems, learning technology and audiovisual production departments of the original four HEIs which make up UL, created in January 2012. The educational development unit is part of a separate directorate.

At KUL, Digital Education is shared between the educational development unit, whose Director reports directly to governance, the educational technology unit, within the overall IT department, and the audiovisual production department, independent but with close ties to educational development.

As one KI explained, the decision not to restructure the professional side of house was a conscious one:

Em, for the how, we have decided first of all to put in place what we Leuven Learning Lab. And Leuven Learning Lab is eh, a networked structure, it's not a service, we decided not to change any structures or em organigrams, I mean we only have four years so changing services, structures of the university would take us at least already those four

years, and I couldn't care less about structures, what is most important is we have leverage possibility throughout the organisation. (KUL)

At UoN, the learning technology unit sits within Library and Learning Services, and the overall learning and teaching plan comes under the responsibility of the Institute for Learning and Teaching, which also has a research arm. The historical evolution described by one of the UoN KIs is of particular interest when comparing with UL, as it represents a very different organisational choice.

Let's see, a little history. 2006 Library and IT converged, em I became at that point Deputy Director Information Services and X's team came under me. In 2011 we de-converged, and IT went a separate way, but learning technology stayed with the new department of library and learning services which I became head of. So X's team could have gone back there, they could have been scattered into the various faculties, because all of them are roughly allocated faculty to faculties, not completely, they mix, but roughly they are. Em, but the decision was made to keep them with er, what is effectively an academic department. IT isn't. And doesn't claim to be, it, it, it runs the networks and such, whereas X's team was, it, is clearly academic in the way that learning development is, and the way some of the library staff are, they, they deliver to students and staff. So they were kept with us. So we haven't been in IT since a long time, over 10 years really. (UoN)

As can be seen from the above, the three CSIs had three very different organisational structures, each of which reflected the overall vision of the role

of Digital Education: for UL this again is a more centralised, operational and techno-centric approach; for KUL it is part of a wider drive towards a networked structure within a large multidisciplinary and multi-campus university; for UoN, a reflection of the vision that learning technology is firmly embedded in the academic side.

Autonomy

One distinguishing factor among European HEIs is the level of autonomy (Enders et al., 2013; Moscati, 2012; Musselin, 2009). The conceptual framework applied here is the University Autonomy Tool (European University Association, 2016d) which classifies HEIs in 29 European countries in 4 dimensions: Organisational, Financial, Staffing, and Academic.

According to the University Autonomy Tool, and as presented in the individual Case Study reports, French HEIs are classified as having a relatively low level of autonomy in each of the four categories, Flemish public HEIs score medium high for autonomy in three of the four categories (organisational, financial and staffing), and English HEIs score high for autonomy in all of the four categories (see also Table 37).

Organisational culture

In order to compare the three CSIs in terms of organisational culture, a combination of two conceptual frameworks was mobilised (Bergquist & Pawlak,

2007; McNay, 1995). While this was not the primary purpose of the study, the QUAL data from the interviews and strategy documents enabled each HEI to be situated in terms of the dominant cultures.

The UL culture can be described as predominantly collegial in Bergquist and Pawlak's (2007) terms. According to the authors, a collegial culture is one that "finds meaning primarily in the disciplines represented by the faculty in the institution; that values faculty research and scholarship and the quasi-political processes of the faculty" (p. 15).

The frequent mentions of the influence of faculty management, of the collegial decision-making processes, and the focus on research in the overall strategic plan come together to situate UL within this overall culture.

D'ailleurs le comité euh... le SU2IP est piloté par un comité stratégique, qui est composé de représentants des différents collegiums... représentants... donc c'est pas... donc ils sont proposés par les coll.. les conseils de collegium, dans un côté collégial, avec des représentations des sous-directions et notamment direction du numérique et la sous-direction des usages du numérique. (IKIE)

In McNay's (1995) terms, UL can be considered a bureaucracy, characterised by a loose definition of policy combined with a tight control of implementation. Furthermore, "Central features of a bureaucracy include: a hierarchical structure of formal chains of command; carefully defined roles and responsibilities; circumscribed functional groupings (departments, units); and

systematic rules and procedures based on clear policies and agreed goals” (Middlehurst, 1995, p. 81). This is typical of French public HEIs in general, which are part of the French civil service.

The loose definition of policy is related to the low level of autonomy of French HEIs, in that their strategic plans reflect government injunctions rather than their own individual strategies. “Donc le Ministère a des objectifs par rapport à l'enseignement et à la transformation, qui sont parfois contraires à des objectifs qui sont portés à des niveaux plus bas” (IKID).

With respect to Digital Education, the hierarchical structure and carefully defined roles and responsibilities is evident in the organisational structure of UL, with the learning technology unit being located with a ‘sub-direction for digital usage’, itself situated within the wider ‘Direction du Numérique’ which comprises over 200 staff and whose remit covers IT, information systems, infrastructure and learning technology.

Turning now to KUL, the much tighter definition of policy, combined with a loose control of implementation, characterised by the Leuven Learning Lab networked structure for implementing the Digital Education strategy, suggests a more ‘enterprise’ culture, as defined by McNay (1995). Similarly to UL, the KUL culture showed elements of the collegial, but there were also clear signs of the developmental, with a focus on professional and personal growth.

And so, er, em, as a unit we are responsible for er, em, training em, continuous development of er, professors, teaching assistants but also educational support staff. So everyone who has duties in education within our university. (2KIA)

In addition to this, the governance level also embraced the virtual culture which Bergquist and Pawlak (2007) define as:

A culture that finds meaning by answering the knowledge generation and dissemination capacity of the postmodern world; that values the global perspective of open, shared, responsive educational systems; that holds assumptions about its ability to make sense of the fragmentation and ambiguity that exists in the postmodern world; and that conceives of the institution's expertise as linking its educational resources to global and technological resources, thus broadening the global learning network. (p. 147)

While this was also clearly reflected in the Going Digital strategic plan, further research is needed to determine the extent to which this virtual culture permeates across the institution, particularly since there was a strong attachment to the tangible culture noted among some of the KIs.

I think especially for younger students, and I mean students between 18 and 22 or 23, I think, em, er, I believe, and that's my personal belief (laughs) that em, that also living together in a university context, or in a context where you see all the other people, is very, very important. (2KIC)

For students as well, ..., it's also very important that there is an on campus er, part... Only digital, I don't believe in only digital, er, not for, not for universities... Em, so if you, if you want to come to university, and ... there is no personal contact and there is no on-campus part, then that's for me not really a good er, it has to be a mix of things. (2KIE)

The UoN culture showed a high degree of emphasis on the developmental, in particular in the framing of the strategic plan as “Transforming Lives and Inspiring Change” (University of Northampton, 2015). There was also an interesting balance between embracing both the virtual and tangible cultures. This was exemplified by the new campus being built around a seamless integration of technology, within the overarching pedagogical principle of ABL. As already stated, further research is required in order to establish the extent to which these virtual and tangible cultures permeate beyond the KIs interviewed.

Elements of the managerial culture were also noted, with references to the “evaluation of work that is directed toward specified goals and purposes” and to “assumptions about the capacity of the institution to define and measure its goals and objectives clearly” (Bergquist & Pawlak, 2007, p. 43).

So one of the things that I've been really keen on is, if there is something in our strategic plan, then there is an absolute line of sight, em, right the way through all our resources, er, through all our processes rather, so if you look at the performance objectives for our Vice-Chancellor, right the

way down to, em, a lecturer, or somebody that in a professional services, there should be a line of sight for the key performance indicators. (3KIC)

Looking at UoN from the perspective of McNay's (1995) classification, this tight control of implementation, combined with a tight policy definition, situates the university within the Corporation model, where the executive asserts authority, with the vice-chancellor as chief executive. The following quote exemplifies this perfectly:

The VC said 'This is your, this is the time to think about this, guys. You either jump on the bus, or you get out of the way. It's perfectly fine to do either. But this is the time to make a decision. Because if you disagree, with what we're doing...' (3KID)

Combining both autonomy and organisational culture with the level of DELLHE maturity established through the QUAL analysis, the following picture can be drawn (see Table 37). However, this apparent correlation between autonomy and DELLHE maturity requires further research, in particular regarding the question of whether a lack of autonomy is indeed a barrier to Digital Education Leadership as understood in this study. Furthermore, the desirability of autonomy needs to be questioned in terms of whether the increased marketisation of HE is compatible with the notion of HE as a public good (Johnston et al., 2018).

Table 37: Comparison of UoN, KUL and UL in terms of DELLHE maturity, culture and autonomy

		UoN UK (England)	KUL Belgium (Flanders)	UL France
DELLHE maturity		HIGH	MEDIUM-HIGH	MEDIUM-LOW
Culture		Managerial Virtual+Tangible Developmental ^B Corporation ^M	Collegial Virtual<->Tangible Developmental ^B Enterprise ^M	Collegial ^B Bureaucracy ^M
AUTONOMY	Organisational	High	Medium high	Medium low
	Financial	High	Medium high	Medium low
	Academic	High	Low	Medium low
	Staffing	High	Medium high	Low

Key: B = Bergquist & Pawlak (2007), M = McNay (1995)

Virtual+Tangible is taken to mean that that the two co-exist harmoniously, whereas Virtual<->Tangible implies tensions.

Comparative analysis in terms of DELLHE

The three Case Studies are now compared in terms of the five dimensions of the DELLHE framework. Similarities, differences and points of particular interest are highlighted, followed by recommendations whereby one or other of the CSIs could learn from the strengths of others.

WORLDLY

Similarities. Making informed decisions about Digital Education according to context was common across all CSIs. In particular, the impact of physical space was considered in relation to context, with UL and KUL as large multicampus universities and UoN having recently undertaken the design of a

whole new campus. For both UoN and KUL, Digital Education was placed clearly within the overall vision and strategy, which focused on teaching excellence and better learning. This was present, but to a lesser strategic extent at UL. Awareness of different visions and of how teachers approach the transformation of teaching and learning was common to all, as was supporting teachers to integrate digital technology in their practice.

Differences. UL stood out in terms of a lack of strategic thinking and for the systemic barriers to this. UL also stood out for the differences in big picture thinking, much more prevalent and sophisticated at MM than at GOV or SM level. Multidisciplinary teams were only mentioned explicitly at KUL, and design thinking for pedagogy only at UoN. There was much greater ownership of institutional vision noted at UoN, particularly at GOV level, followed by KUL and to a much lesser extent at UL. Similarly, seeing and building on opportunities was more prevalent at KUL, followed by UoN, but absent at UL, and pedagogical considerations for Digital Education were also much more present at KUL and UoN.

Points of interest. Among the points of interest within the WORLDLY dimension are the systemic barriers to strategy and strategic thinking in French HE. WORLDLY Leadership Literacies, which were present in the DELLHE framework but which were not noted in any of the CSIs, include ‘Encouraging personal awareness of digital developments and of their social adoption and

impact’, as well as ‘Fostering critical attitudes to educational technology’ and ‘Encouraging future vision’. However, UoN could be considered already to be in their envisioned future, and the KUL ‘Going Digital’ arm of the overall strategy is firmly anchored in a vision of the future. What is lacking in all three CSIs is an explicit reference to practices which actively engage the community in the collective definition of a future vision.

Differences were also noted in relation to time: UL was engaged in and defended a more incremental process of change; at KUL there were references to change being very, or even too fast; at UoN the deadline of the move to new campus was used as an impetus for accelerating change.

But the other thing that you need to do is, is you need to have, er,... an end point, you need to have something that, that says to every member of staff, em, ‘and where we are going needs to be finished by this time because...’ And, and so we had that, that, that really critical driver, for all staff to say, we’ve got a three-year programme, we’re going to, em, support you, redesign the curriculum, get you retrained, but here’s the deadline. (3KIC)

SUSTAINING

Similarities. In terms of the human implications of technology choices, inclusiveness and access was mentioned at all CSIs, however Open Education was not put forward as a strategic objective beyond the creation and use of OERs, and MOOCs (mentioned only at UL and KUL) were presented as offering

opportunities for promoting the universities' scientific expertise (UL) or recruiting foreign students (KUL) rather than in terms of widening access. The awareness of environmental aspects was also similar across all, but higher at UL and mentioned here at all levels, from GOV to MM. Policies for safe legal and ethical use, and environmental policy were mentioned at least once in each CSI.

Differences. The impact of the university on the wider local community was mentioned at KUL and UoN but not UL. Similarly, the financial implications of educational technology choices were mentioned at KUL and UoN, but not UL. At KUL the main concern was avoiding investment in solutions which would not be scalable. At UoN the primary financial concern was the massive investment in the new campus and the social responsibility associated with this being tax-payers money. Awareness of the human and ethical implications of educational technology was more developed at KUL and UoN than UL, and the fostering of open debate about wider sustainability issues was only mentioned at KUL.

Points of interest. Developing organisational agility was mentioned as a strategic aim at KUL and was highlighted as being core to the way in which UoN was organised. At UL, one GOV member did say that the organisation should certainly be more agile and one MM raised this as a challenge for HE. Scalability was an issue for both UL and KUL, but not for UoN. This reflects the

differences in size and nature of the organisations, with both UL and KUL being large, multi-campus universities.

LEADINGFUL

Similarities. The notion of leading from behind the scenes was mentioned by MM at all institutions. Mobilising teachers as advocates to others was also mentioned in different ways across all CSIs, this practice being particularly formalised by the network of academic developers at UL but not mobilised explicitly for Digital Education. Giving due credit to the leadership of others was particularly notable at UoN, and apparent at KUL and UL. Finally, one similarity in terms of the absence rather than the presence of a particular DELLHE was that there were very few examples given of actual e-leadership in terms of using digital technologies in day-to-day management or leadership presence.

Differences. Collegial decision-making was mentioned frequently at UL and KUL compared to a more top-down leadership approach at UoN, despite frequent mentions of a ‘flat’ organisational structure. There was a clear drive towards developing distributed leadership at KUL, with the notion of becoming a ‘self-steering organisation’ having made its way from being an organisational goal expressed by the governance down to a concept and way of working understood and embraced by middle management. Advocacy for Digital

Education (or for the transformation of teaching and learning) aimed at faculty management level was explicitly mentioned at both UoN and UL, however at UoN this was recognised as not having been successful. At KUL, there was a feeling expressed by one KI that heads of faculty were not fully on board with respect to the need for change. Creating a culture of shared responsibility to personally invest in the process of change was only mentioned explicitly at KUL. Awareness raising of the need for change within one's own team was mentioned at UL and KUL but not at UoN, perhaps because the transformation here had already happened with the shift to ABL and the move to the new campus. Empowering professional staff was a much lesser concern at UL than at the other two CSIs, although here the notion of empowering teaching staff was a priority with respect to academic development, if not mirrored to the same extent with respect to the use of educational technology.

Points of interest. Developing students' role as key partners was mentioned by two KIs at UoN. Further points of interest from this CSI include mirroring central committees within the department (LLS) which houses the learning technology team; mobilising impartial project management techniques to identify resistance to change, resolve conflict or overcome anxiety; informal advocacy.

RELATIONAL

Similarities. Paying attention to the creation of shared meaning and purpose could be noted in all three CSIs. Conflict management was also mentioned in all three, but unresolved tensions remained.

Differences. The RELATIONAL Leadership Literacy was unevenly represented, both within and across the CSIs. Positive affect was not noted at either GOV or SM level at UL, despite numerous references at MM level. At KUL, the only instances of positive affect were noted at SM level, whereas at UoN these were identified at all levels. Furthermore, the importance of building relationships was mentioned so frequently at UoN, by different KIs within LLS, that it could be considered part of the culture at UoN, at least within this particular department. This was also considered important at KUL, however the question of building a culture of trust, whether between staff members or in terms of teachers' attitudes to educational technology, was surprisingly not mentioned.

Points of interest. There was a keen awareness of the reasons for resistance for change across all CSIs. The reasons given by KIs for the resistance they met among academics are classified here according to Kotter and Schlesinger (1979) together with the identification of the CSI in which they were noted. As can be seen from this analysis, the majority of occurrences feature in the 'low tolerance for change' categorisation.

Parochial self-interest

- Entrenched views (UoN)
- Workload calculation (UL, UoN)

Misunderstanding and lack of trust

- Perceived lack of information (UoN). KIs said the information was there, but that academics (and heads of faculty in particular) refused to see it, using the term ‘head in the sand’.
- Not understanding the benefits of pedagogical transformation (UL, UoN)

Different assessments

- Why change something which works? (UL, KUL, UoN)

Low tolerance for change

- Many changes happening at once (KUL, UoN)
- Fear of losing of professional identity – for professional and academic staff (UL, UoN)
- Fear of losing ownership (UoN)
- Fear of losing control (KUL: planning; UoN: being replaced by technology)
- Lack of confidence in digital skills (UoN).

LEARNINGFUL

Similarities. With respect to the LEARNINGFUL Leadership Literacy, the main similarity between the three CSIs is in the even spread of references to promoting a culture of organisational learning, even if this was slightly more frequent at KUL. However, a further similarity resides in the lack of reference to one particular practice across all CSIs, that of digital scholarship.

Differences. The main difference concerns the absence of LD at UL compared to the other two CSIs, for whom this was considered of significant importance and reflected in actual practice. Accepting and learning from past mistakes was mentioned more frequently at UoN and, unlike at the other two CSIs, by GOV members. Digital technology was mobilised for staff development at KUL and UoN, but not mentioned at UL. More advanced staff development, in terms of ensuring people have the competencies for change, was mentioned by several KIs at KUL, with numerous examples of internal training on change management. This approach was noted less at UoN, particularly with respect to Senior and Middle Management, and was not mentioned at UL.

Points of interest. Among the notable elements identified within the LEARNINGFUL dimension was the very high level of informal LD at KUL GOV level. The practice of generating research-based evidence internally, mainly at UoN and to some extent at KUL is also of considerable interest. Although very specific to UoN, which benefitted from a purpose-built campus, the fact of

designing physical space with the specific intention of facilitating contact and collaboration between professional staff, academic staff and students is worth highlighting as a means to support the development of a learning organisation. The KUL choice to develop a networked structure known as the Leuven Learning Lab is also of interest, and relevant to the organisation as a multi-campus university. This compares to UL's more operational approach of transforming learning spaces across the different campuses, albeit within the framework of an overarching strategic project.

Strengths and recommendations

While each CSI operates within a specific national context and institutional culture, there are exemplary mindsets, attitudes, practices and behaviours observed in each and from which the others could learn.

WORLDLY: The KUL strategy, integrating evidence and arguments for change.

SUSTAINING: The open debate about wider sustainability issues at KUL.

LEADINGFUL: Engaging heads of faculty at UL.

RELATIONAL: The focus on building relationships at UoN.

LEARNINGFUL:

- The UL network of academic developers who are HE teachers themselves, considered change agents within the faculties and trained in both pedagogy and coaching.

- Physical space designed to facilitate interactions between academics, professional staff and students (UoN).
- The Leuven Learning Lab as an overarching concept framed as support for the development of a learning organisation (KUL).
- UoN’s approach to research in Digital Education, generating internal evidence to convince teachers and support decision-making.

In terms of organisational structure, UL would benefit from studying the synergies created between learning technology, audiovisual production and educational development at KUL. As UL and KUL are comparable in terms of size, with geographically distant campuses, the networked structure developed by KUL might provide UL with valuable insights to overcome some of the tensions and silos reported by KIs, and to bring Digital Education closer to academic preoccupations.

Evolution of the DELLHE framework

Beyond the results of each of the individual Case Studies and the comparative analysis detailed above, the open coding also resulted in an evolution of the DELLHE framework itself (see Table 38). The following items were added to the framework in each of the following dimensions. The CSI in which they were first noted is indicated in brackets in bold, followed by the identification of other CSIs in which they were noted.

To determine whether these new DELLHE should be included in the final framework, they were integrated in the iterative coding process by returning to the interview data from each of the Case Studies in turn. Some were merged with existing items (such as ‘Framing Digital Education as supporting institutional vision and strategy’ which was included in the existing item ‘Having a vision, mission and strategy for Digital Education’). Others became DELLHE in their own right, such as ‘Putting pedagogy before technology’, ‘Putting people before technology’ and ‘Generating research-based evidence internally’. Even though some of these were only coded in one CSI, they were considered sufficiently consistent with the theoretical background to be included as exemplary examples of DELLHE in their respective dimensions.

Interestingly, ‘Using data and evidence to convince others’ had been proposed in the preliminary framework (v.0) but excluded from v.1 as it did not meet the >80% consensus threshold. As a result of the Case Study analysis, it was reintegrated in v.2 of the framework and considered separately from ‘Generating research-based evidence internally’ as the way in which this latter was implemented at UoN was more in support of the development of a Learningful Community. Student success and better learning can be considered similar in that they both take a student-centred approach. However, the former was often framed as ‘getting students through the system’ in terms of success rates, whereas the latter focused much more deeply on the way in which digital

technology supports the learning process itself. Appendix C shows version 2 of the DELLHE framework, before the integration of elements resulting from the analysis of selected LDPs, as described in Chapter 7.

Table 38: Evolution of the DELLHE framework following analysis of the Case Study data

Dimension	Additional DELLHE items	Coded at
WORLDLY	Focussing on educational technology as a means to support student success	UL, KUL
	Focussing on better learning	UoN
	Making transformations step by step	UL
	Focussing on pedagogy first, rather than technology	UL, KUL, UoN
	Putting people before technology	UoN
	Understanding and accepting differences in how teachers transform their practice	UL, UoN
	Awareness of how Digital Education is being implemented successfully beyond the institution	KUL
	Seeing and building on opportunities	KUL, UoN
	Framing Digital Education as supporting institutional vision and strategy	UoN, KUL
SUSTAINING	Demonstrating a sense of social responsibility	UL, KUL, UoN
	Considering educational technology initiatives with a view to scaling up to full integration across the institution	UL, KUL
	Awareness of need for sustainable and robust technology solutions	KUL, UoN
	Supporting open debate about wider sustainability issues	KUL
	Supporting sustainability through actual course content	KUL
	Devoting the necessary resources in line with the strategic aims	KUL
LEADINGFUL	Using data and evidence to convince others	UL, KUL, UoN
RELATIONAL	Giving due credit to the leadership of others	KUL, UL, UoN
	Giving others agency	KUL, UL, UoN
	Fostering democratic debate	KUL
	Showing a sense of pride in one's team	KUL, UoN
LEARNINGFUL	The ability to accept and learn from past mistakes	KUL, UoN
	Learning from management and leadership experience on private company boards	KUL
	Generating research-based evidence internally	UoN

Key findings from the Case Studies

This chapter has presented the results of the three Case Studies both as individual reports and a cross-case analysis, in answer to the following research questions:

2a) How are DELLHE experienced by key informants in selected European universities?

2b) How do key informants in European universities develop (i.e. “learn”) DELLHE?

2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

The three Case Studies differed in their level of DELLHE maturity:

CS1 – Université de Lorraine (France): Medium-Low

CS2 – Katholieke Universiteit Leuven (Flanders, Belgium): Medium-High

CS3 – University of Northampton (England, UK): High

Organisational culture and autonomy are complementary lenses through which to consider the differences observed, although further research is required.

The LEADINGFUL and RELATIONAL dimensions need to be developed to address tensions, resulting in particular from large multi-stakeholder projects.

Three promising Digital Education Leadership approaches are:

- developing Digital Education Leadership at the level of heads of faculty,
- mobilising academics as internal change agents in a networked structure,
- generating internal evidence through research.

Finally, Chapter 4 has shown how the results influenced the development of version 2 of the DELLHE framework, with new items in all five dimensions.

Chapter 6: Academics' perceptions of DELLHE

Introduction

Within the context of the overall MMR research design, this part of the study is framed as exploratory quantitative (QUAN) research, concentrating on statistical descriptions of data collected via a survey (see Appendix M) conducted among academics in European universities during the period October to February 2021. For the purposes of this survey, Europe is considered as a geographical rather than a political region: the United Kingdom and other countries within this region are therefore included, irrespective of European Union membership. The aim of the survey was to gather QUAN data about academics' perceptions of Digital Education Leadership Literacies (DELLHE) to complement the QUAL data from the case studies, which focused on the Digital Education leaders themselves. The analysis of the survey data contributes to answering *RQ2a) How are DELLHE experienced by key informants in European universities*, as well as to *RQ3b) What changes should be proposed to integrate de the development of DELLHE in LDPs?* It does so through the four specific questions addressed in relation to the survey data:

- Which DELLHE are the most demonstrated by Digital Education Leaders identified by the survey respondents?

- Which DELLHE are the least demonstrated by Digital Education Leaders identified by the survey respondents?
- Which DELLHE have the greatest positive influence on the respondents' attitude to towards Digital Education?
- How is support for the development of a LEARNINGFUL community reflected in the DELLHE demonstrated by individual Digital Education leaders, and in institutional culture and practice.

The survey respondents were asked questions about institutional strategy and practice with respect to Digital Education, about the DELLHE demonstrated by a Digital Education leader they identified by role, about their own attitude towards Digital Education, and about the influence that these DELLHE had on their attitude. Given that the survey was conducted in the first semester of the academic year 2020-2021, survey respondents were also asked about how their perception had evolved as a result of the way in which Digital Education Leadership in their institution addressed the challenges resulting from the coronavirus pandemic.

While this survey formed part of Phase 3, the results are reported here as they are to be considered in continuity from the results of the Case Studies. It should be pointed out that no direct comparisons can be made, as the population of survey respondents was broader than the CSIs and indeed the Case Study countries. Furthermore, the nature and the quantity of the data do

not enable any wider generalisations to be made from the relatively small sample (n=102). It is also important to note the high level of abandon: from a total of 236 responses, only 119 complete responses, just over half the total, were collected. From these 119, 17 responses were excluded: 12 from outside Europe, and a further five from respondents who stated that they did not teach in HE. A close examination of the point at which respondents abandoned the survey provides some insights as to the possible reasons. Almost half the abandons (56) occurred on or before the first page. As the survey was distributed via social media, in addition to targeted relaying by key contacts, a possible explanation is that the survey attracted a number of people who were simply curious and clicked on the survey link before deciding that it was not relevant or interesting for them. In this number could also be first attempts, with some returning to the survey to complete it later. As the survey did not track IP addresses for reasons of privacy, it is not possible to determine this with certainty. A further 44 respondents abandoned in section C, a complex question addressing both perceptions and influence of DELLHE. There were very few abandons (6) in the last two sections of the survey, suggesting that once section C had been completed, respondents were sufficiently motivated to complete the whole survey. As this question of motivation for the topic of Digital Education Leadership, and Digital Education itself, represents a possible bias, it will be taken into account when interpreting the results. Finally, the

general issue of survey fatigue among the population of academics is not to be ignored, given the considerable number of studies conducted during the coronavirus pandemic.

Given the size and nature of the dataset, the results reported in this chapter are in the form of rich descriptive statistics, generated using the open-source software JASP²⁹. As the majority of questions were formulated as a five-point Likert scale, or as other Likert-type scales (Uebersax, 2006) the Median and interquartile range (IQR) were chosen as strong indicators (Jamieson, 2004), using boxplots to visualise and compare the distribution of the data. Frequency tables are also presented where relevant.

The following section in Chapter 6 presents the results in terms of contextual and demographic data about the institutions to which the survey respondents belong, the survey respondents themselves and the roles held by the Digital Education leaders identified by these respondents. This is followed by detailed descriptive statistics of respondents’ perceptions of DELLHE, before addressing the implications of the results in terms of any required adjustments to the DELLHE framework in the final section of this chapter.

²⁹ <https://jasp-stats.org/about/>

Contextual data

To avoid overloading this section, all tables can be found in Appendix N.

Geographical context

There were major disparities in the number of respondents across countries (Table 1, appendix N) which prevents any detailed analysis from this perspective. However, as the main aim of the survey was to gain general insights into academics' perceptions of Digital Education Leadership, rather than to draw any conclusions based on geographical location, this does not represent a barrier to further analysis.

One possible explanation for these disparities is the way in which the survey was distributed, with some of the key contact relays (notably in Croatia, France and Spain) evidently being more influential in terms of obtaining survey respondents via their own networks. This limitation could be overcome by the support of high-level organisations such as the European Universities Association or similar transnational bodies, which were not accessible to the researcher at the time of conducting the survey.

Institutional context

Type of HEI

The vast majority (93.14%) of survey respondents stated that their university defined itself as campus-based or dual-mode. The reason for

combining these two typologies into one is that in the context of the shift to emergency remote teaching during the coronavirus pandemic, the boundary between campus-based and dual mode has become blurred. Only 6.86% of respondents identified their institution as a distance or open university, reflecting the fact that the survey was presented explicitly as addressing primarily Digital Education Leadership in campus-based universities.

Digital Education strategies

Among the campus-based or dual-mode HEIs, just over half the respondents (51.58%) stated that their university had a Digital Education strategy. The remaining 48.42% responded either No, or Don't know. For the Distance HEIs, all except one respondent out of the seven in total responded Yes, which is to be expected for this type of institution.

The survey respondents

As summarised in Table 39, the survey respondents were mainly experienced HE teachers, with the disciplines of Education and Business and Law being the most represented. Almost a third of respondents had previous Digital Education Leadership experience. Over two fifths (42.42%) had spent more than five years in such a role, a third (33.33%) had two to five years' experience, and just under a quarter (24.24%) had been in the role less than two years.

The gender distribution of survey respondents was skewed slightly towards Female (51.96%), with 45.10% Male and 2.94% who preferred not to say. This contrasts with Eurostat data where “almost three fifths (57.2%) of the EU-27’s teaching staff in tertiary education in 2018 were men”³⁰. Given the wide disparity in the number of respondents per country (see Appendix N) and the fact that this analysis does not intend to draw conclusions or inferences based on gender, it is not useful in the context of this particular study to go further than this general picture.

Table 39: Overview of survey respondents

Age	Gender	Discipline	Experience teaching in HE	Digital Education Leadership experience
< 30: 2.94% 30-45: 41.18% 45-60: 50% > 60: 5.88%	Female: 51.96% Male: 45.10% PNS: 2.94%	Education: 29.41% Humanities: 4.90% Soc science: 4.90% Bus / law: 21.57% Nat science: 6.86% ICT: 12.75% Engineer: 12.75% Agri / vet: 2.94% Health: 3.92%	< 5 years: 11.76% 5-10 years: 16.67% 11-20 years: 43.14% > 20 years: 28.43%	YES: 32.35% NO: 67.65%

Note: PNS = Prefer not to say. Disciplines according to ISCED-F³¹

³⁰ https://ec.europa.eu/eurostat/statistics-explained/index.php/Tertiary_education_statistics#Teaching_staff_and_student_academic_staff_ratios

³¹ <http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf>

Attitudes towards Digital Education

Respondents were asked to describe their approach to using digital technologies for teaching and learning in the following terms, aligned with the items used in the Digital Competences for Educators framework (Kampylis et al., 2015):

- I tend to use digital technologies after the majority of my colleagues
- I tend to use digital technologies at the pace of the majority of my colleagues
- I tend to be an early adopter, but only where I see clear benefits
- I am usually among the innovators who do not hesitate to try out new technologies.

Here it is useful to refer to the frequency table itself (Table 40), where the different response options are converted to a scale of 1 to 4, with 1 representing ‘after the majority of my colleagues’ and 4 ‘among the innovators’.

Table 40: Frequencies for attitude towards educational technology

ATTITUDE	Frequency	Percent	Cumulative Percent
1	4	3.92	3.92
2	13	12.75	16.67
3	42	41.18	57.84
4	43	42.16	100.00
Total	102	100.00	

Attitudes towards educational technology are frequently represented by Rogers’ (2003) technology adoption curve, which shows a normal distribution ranging from laggard through late majority, early majority and early adopter to

innovator. This is clearly not the case here, with very high proportions of self-declared early adopters and innovators. This alerts to two possible biases in the survey data: firstly, that respondents may have shown a tendency to overestimate their own practice, and secondly, that the survey attracted these profiles in particular due to the topic. Any conclusions derived from the analysis of the data must thus be considered with this in mind.

Sources of inspiration

When asked “Who or what do you turn to when you want inspiration about how to use technology for teaching and learning, the responses were edifying with respect to Digital Education Leadership (Figure 9). Only four out of the 102 respondents (3.92%) cited formal leadership at governance level. Educational technology units were also surprisingly low as a source of inspiration (17.65%), with educational development units scoring slightly better (29.41%). The main sources of inspiration were to be found via resources on the web (76.47%), followed by academics' networks, whether colleagues within their department, within their university, or within their wider network. However, none of these scored higher than 50%. These findings have implications for the development of a LEARNINGFUL community and will be discussed later in the thesis.

These statistical descriptions have provided an overview of the survey respondents in terms of gender, age, experience teaching in HE, prior experience in a Digital Education leadership role, and with respect to practice with respect to Digital Education, both in terms of attitude and in sources of inspiration. While any generalisation is necessarily perilous, it can be said that this sample is largely composed of experienced HE teachers with a positive attitude towards using technology for teaching and learning, and who look first and foremost to the web for inspiration.

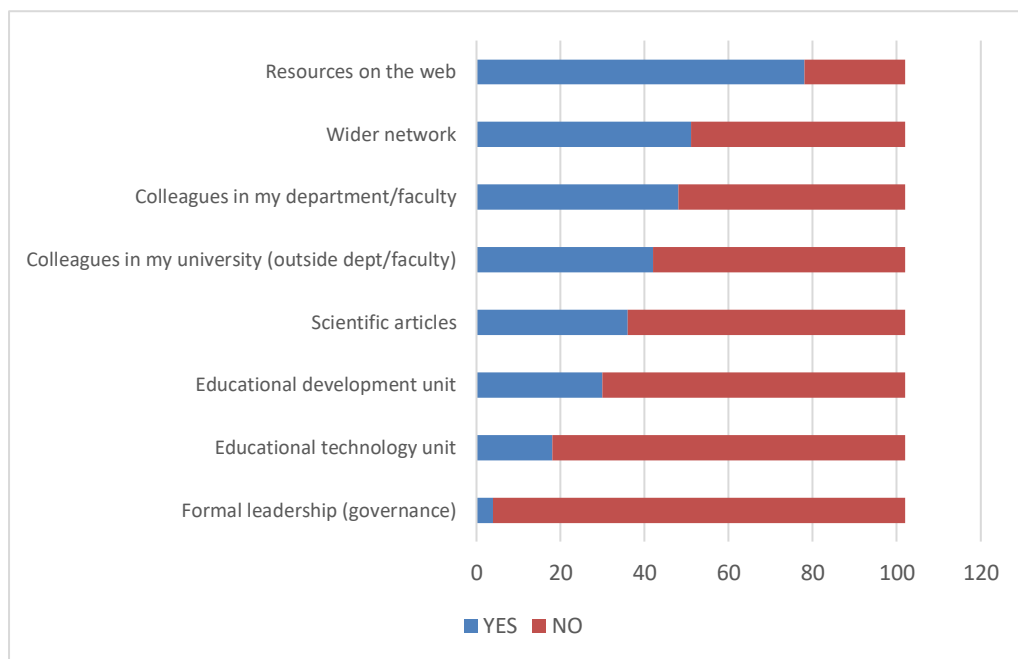


Figure 9: Sources of inspiration for Digital Education

The Digital Education leaders identified by survey respondents

We now turn to the question of who the survey respondents identified as their Digital Education leader (Table 41). The results are presented here in terms of level, split by the focus of the role, whether pedagogical or technical. This categorisation was conducted by analysing the titles of the roles, from both the closed and open text responses. In certain cases, this was not possible, where respondents gave incomplete or imprecise information. Examples of these were 'Faculty-level team', 'Head of...', 'No-one to my knowledge'. A single respondent identified the Rector.

Table 41 shows that Governance members were more frequently cited as Digital Education leaders when the role had a pedagogical focus (for example Vice-Rectors with a remit for teaching and learning). In contrast to this, professional staff were more frequently cited when the role had a technical focus (for example Directors of Educational technology units). These results need to be considered in the light of the fact that not all HEIs have a governance member with a remit for Digital per se and would need to be explored in the context of further research into governance structures. However, the results do enable comparisons to be made in terms of the DELLHE perceived to be demonstrated by those in different roles, according to the level of the role and its focus. In the sections that follow, the results are

presented first in their consolidated form, irrespective of role and focus, before a finer analysis considering these different parameters.

Table 41: Frequencies for Digital Education Leader in terms of role and focus

DIGED-LEADER (focus)	DIGED-LEADER (role)	Frequency	Percent
PED	Academic (non-gov)	7	12.50
	Governance	32	57.14
	Operational	17	30.36
	Total	56	100.00
TECH	Academic (non-gov)	0	0.00
	Governance	13	35.14
	Operational	24	64.86
	Total	37	100.00

Note. Excluded 9 rows from the analysis that correspond to the missing values of the split by variable DIGED-LEADER (focus)

Perceptions and influence of DELLHE

In order to distinguish between the five dimensions of the DELLHE framework, a colour code was attributed to each. Table 42 also identifies each of the individual DELLHE items by a concise label, with the full DELLHE statement provided. The table reports the Median (Med.), lower quartile (Q1) and upper quartile (Q3) for both ‘Demonstrated’ and ‘Influence’.

Table 42: Median, Q1 and Q3 for DELLHE demonstrated and DELLHE influence

Variable	Label	Demonstrated			Influence			DELLHE statement
		Med	Q1	Q3	Med	Q1	Q3	
WVISION 01	Big-picture thinking	3.00	2.00	4.00	2.00	2.00	3.00	<p>Takes a holistic approach to Digital Education, considering technological, human, environmental and societal factors.</p> <p>Brings people together to imagine future scenarios for the way we use educational technology.</p> <p>Supports teachers to experiment with new teaching and learning approaches using technology.</p> <p>Acts mindfully in critiquing inappropriate or harmful uses of technology.</p> <p>Encourages staff to question their assumptions about educational technology.</p> <p>Encourages educational awareness of new digital developments.</p>
WVISION 02	Future visioning	3.00	2.00	4.00	2.00	2.00	3.00	
WPEDA 01	Support for experimentation	4.00	3.00	5.00	3.00	2.00	3.00	
WTECH 01	Critical digital literacy-self	3.00	2.00	4.00	2.00	2.00	3.00	
WTECH 02	Critical digital literacy-others	3.00	2.00	4.00	2.00	2.00	3.00	
WTECH 03	Affordances of digital developments	4.00	3.00	4.00	3.00	2.00	3.00	
SUST01	Promoting OERs	3.00	2.00	4.00	2.00	2.00	3.00	Promotes both the creation and the use of Open Educational Resources (OER).
LEAD01	e-leadership	3.50	3.00	4.00	2.00	2.00	3.00	Uses digital technologies in day-to-day management practices.
LEAD02	Catalyst for change	3.00	2.00	4.00	2.00	2.00	3.00	Acts as a catalyst for change.
LEAD03	Distributed Leadership	3.00	2.00	4.00	3.00	2.00	3.00	Facilitates distributed leadership for Digital Education throughout the institution.
LEAD04	Agency	4.00	2.25	5.00	3.00	2.00	3.00	Empowers teaching staff to make their own decisions about how they use educational technology with their students.
LEAD05	Diverse visions	4.00	2.00	4.00	2.50	2.00	3.00	Encourages the expression of diverse visions for teaching and learning with technology.

Variable	Label	Demonstrated			Influence			DELLHE statement
		Med	Q1	Q3	Med	Q1	Q3	
LEAD06	Risk-taking	3.00	2.00	4.00	2.00	2.00	3.00	Encourages risk-taking and accepts failure with a view to learning from mistakes. Leads in a manner that engages everyone as change agents. Recognises that the priority is managing change rather than technology.
LEAD07	Change agents	3.00	2.00	4.00	2.00	2.00	3.00	
LEAD08	Change management	3.00	2.00	4.00	2.00	2.00	3.00	
RELA01	Conflict management	3.00	2.00	4.00	2.00	2.00	3.00	Is adept at conflict management.
RELA02	Managing relationships	3.50	2.25	4.75	2.00	2.00	3.00	Invests time and energy in managing relationships.
RELA03	Empathy	3.00	2.00	4.00	2.00	2.00	3.00	Demonstrates care through sincere, practical deeds.
RELA04	Trust	3.00	2.00	4.00	2.00	2.00	3.00	Fosters a culture of trust.
LEARNLC01	Culture of innovation	3.00	2.00	4.00	2.00	2.00	3.00	Fosters a culture of innovation for Digital Education at all levels of the institution.

Note. Demonstrated was a five-point Likert scale. Influence was a three-point Likert-type scale where 1 = negative influence, 2 = no influence and 3 = positive influence.

Perceptions of DELLHE – leadership behaviours demonstrated

The analysis of how the survey respondents perceived DELLHE is centred on the following two questions:

- Which DELLHE are the most demonstrated by Digital Education Leaders identified by the survey respondents?
- Which DELLHE are the least demonstrated by Digital Education Leaders identified by the survey respondents?

From Table 42, it can be seen that the following DELLHE with a Median of 4.00 were identified as being the most demonstrated:

- **WPEDA01**: Supports teachers to experiment with new teaching and learning approaches using technology.
- **WTECH03**: Encourages educational awareness of new digital developments.
- **LEAD04**: Empowers teaching staff to make their own decisions about how they use educational technology with their students.
- **LEAD05**: Encourages the expression of diverse visions for teaching and learning with technology.

These were followed by two other DELLHE which had a Median of 3.50:

- **LEAD01**: Uses digital technologies in day-to-day management practices.
- **RELA02**: Invests time and energy in managing relationships.

The following radar chart (Figure 10) shows the pattern across the different dimensions of the DELLHE framework. All DELLHE items had a Median of at least 3 (corresponding to ‘Neither agree nor disagree’). The most striking results here are the very high Q3 values of 5 (corresponding to Totally agree on the Likert scale) for **WPEDA01** Support for Innovation, and **LEAD04** Agency, followed closely by **RELA02** Managing relationships at 4.75.

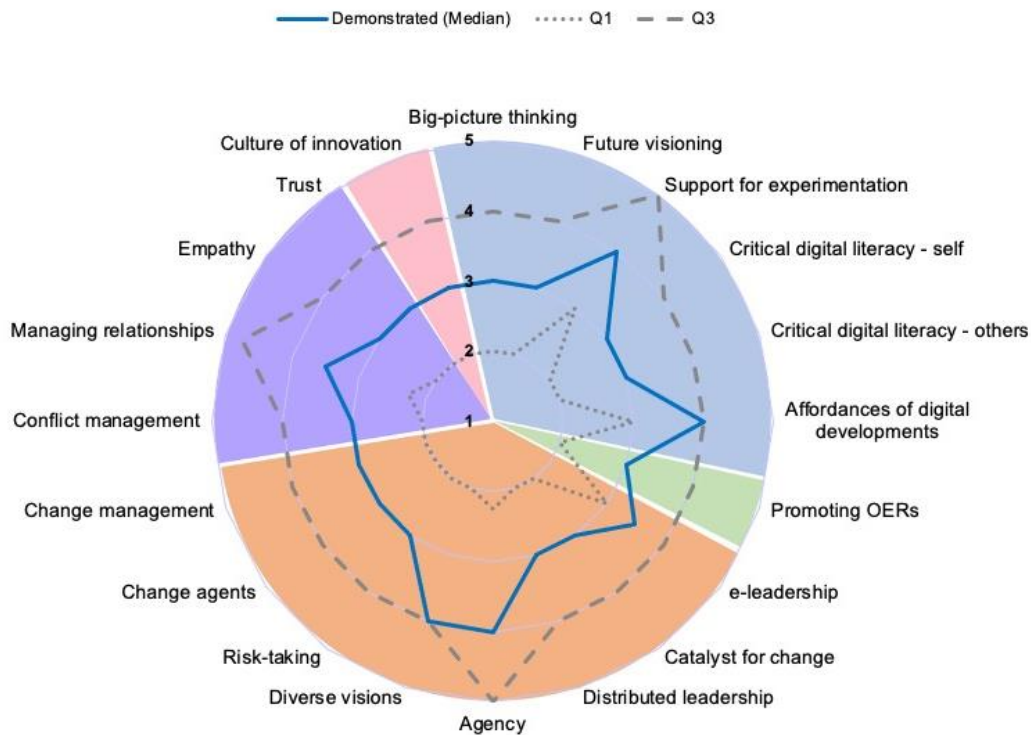


Figure 10: Median, Q1 and Q3 for DELLHE as perceived by academics to be demonstrated by their Digital Education leader

Focusing now on the five DELLHE with Medians of 3.50 or above, an even more detailed picture can be gained through the comparison of the boxplots (Figure 11). In the WORLDLY dimension, both **WPEDA01** (Support for experimentation) and **WTECH03** (Encourages educational awareness of new digital developments) had a Median of 4.00, but the distribution shown by the boxplots is very different. In particular, **WTECH03** showed 14 outliers, five of which were also identified as outliers in the only other variable which had outliers (LEAD01 – e-leadership). **Supporting teachers to experiment with new teaching and learning approaches using technology** can thus be more

confidently ascertained as being demonstrated by the Digital Education leaders identified by survey respondents.

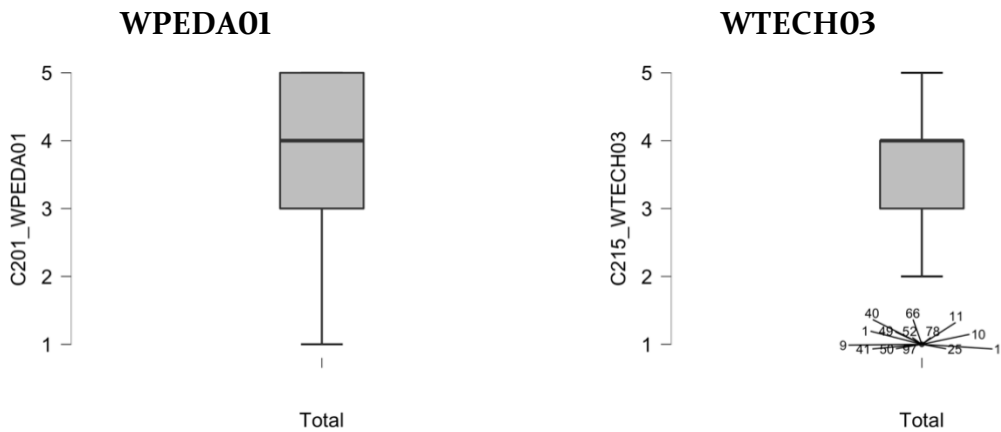


Figure II: Boxplots for WPEDA01 and WTECH03

A closer examination of the outliers shows that out of these 14 outliers, six were respondents who had not defined a Digital Education leader with sufficient precision, a further six had defined a Digital Education leader with a technical focus (Governance = 3; Operational = 3), and the remaining two had identified a Digital Education leader with a pedagogical focus. As four of the six who did not define the role of the Digital Education leader were also among the outliers for LEAD01 this may provide a partial explanation.

In the LEADINGFUL dimension, two variables had a Median of 4.00: **LEAD04** (Empowers teaching staff to make their own decisions about how they use educational technology with their students) and **LEAD05** (Encourages the expression of diverse visions for teaching and learning with technology). Again,

the boxplots in Figure 12 show differences, with **LEAD04** being more clearly distributed towards the higher score of ‘Totally agree’.

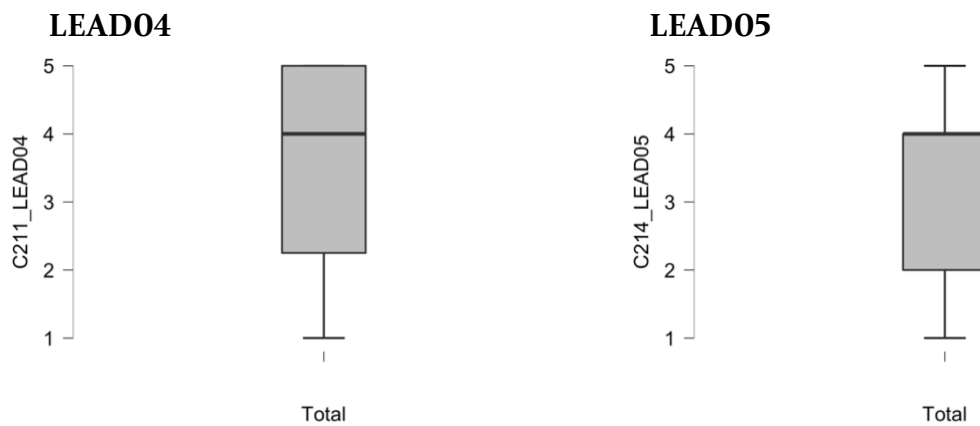


Figure 12: Boxplots for LEAD04 and LEAD05

Two further variables had a Median of 3.50: **LEAD01** (Uses digital technologies in day-to-day management practices) and **RELA02** (Invests time and energy in managing relationships). As shown in Figure 13, the concentration of Q1 and Q3 between the values of 3 and 4 combined with the numerous outliers (nine in total) leads to a less confident assertion of demonstration of DELLHE for LEAD01 than for RELA02.

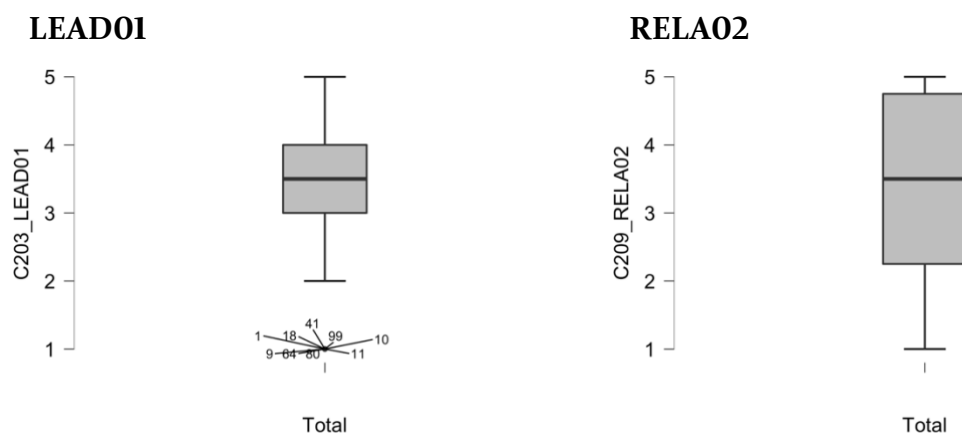


Figure 13: Boxplots for LEAD01 and RELA02

The issue relating to outliers was addressed earlier when examining variable WTECH03. Five of the outliers for **LEAD01** were also outliers for WTECH03, four of which concerned respondents who had not given a precise indication of the Digital Education leader they were referring to when answering the questions. This was also the case for one further respondent in relation to the LEAD01 question about the use of digital technology for day-to-day management. As these particular outliers are already excluded from the following analysis, due to the impossibility of identifying the Digital Education leader by either focus or role, and as parametric tests (sensitive to outliers) are not used in this study, it was decided not to take any further action regarding outliers.

For the Digital Education leaders who were defined according to both role and the focus of that role, comparisons can be made in order to establish more precisely by whom the different DELLHE are perceived as being demonstrated. For reasons of clarity, only the Medians are reported in the two figures that follow.

Figure 14 shows the Median for each of the DELLHE variables according to whether the Digital Education leader held an Operational or a Governance-level role. Operational is defined as Director for Educational Technology, Educational Development or similar; Governance is defined as Vice-rector for Digital, Learning and Teaching or similar.

The radar chart shows an interesting pattern across the items within the WORLDLY dimension, whereby for three of the six items, the Median for Operational leaders was higher than that for Governance leaders. The most striking of these concerns **Future visioning**, which is something expected more of Governance-level leaders. Similarly, in the LEADINGFUL dimension, Operational leaders had a higher Median than Governance for **Catalyst for change** and for **Distributed Leadership**, with the same result noted for **Culture of innovation** in the LEARNINGFUL dimension.

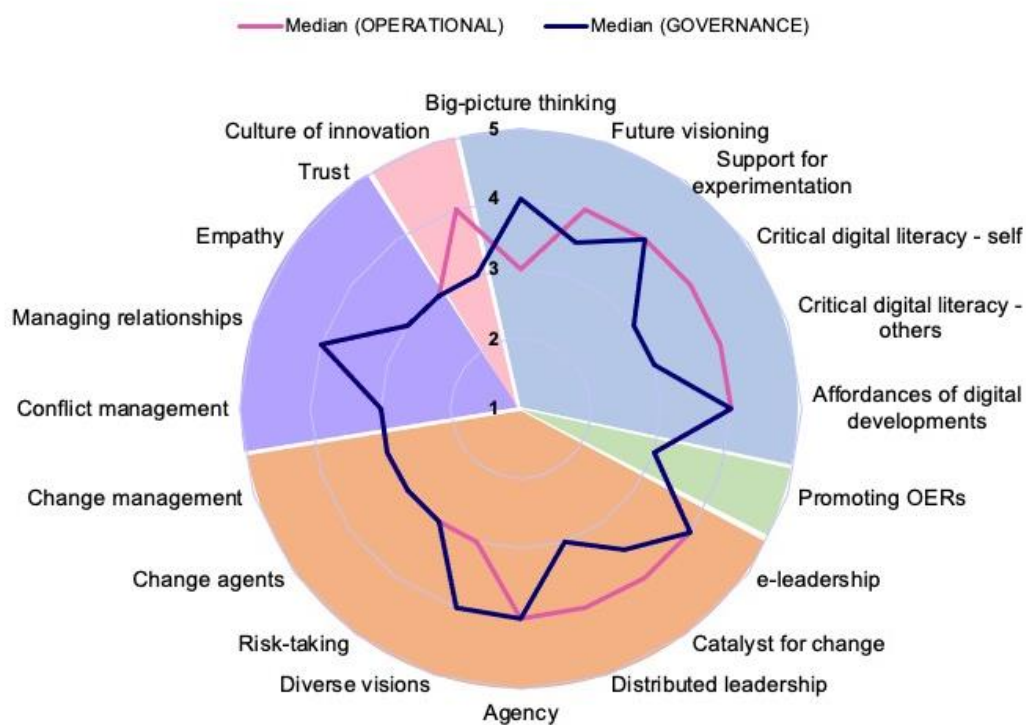


Figure 14: Comparison of the Median for leaders holding governance or operational roles

A parallel analysis was conducted after splitting the results according to the focus of the Digital Education leader’s role, in terms of Pedagogy or Technology (Figure 15). In the WORLDLY dimension, the two DELLHE items associated with VISION (**Big-picture thinking** and **Future visioning**) were associated more with pedagogically focused leaders, as were the majority of the items within the LEADINGFUL dimension as well as the RELATIONAL item **Managing relationships**.

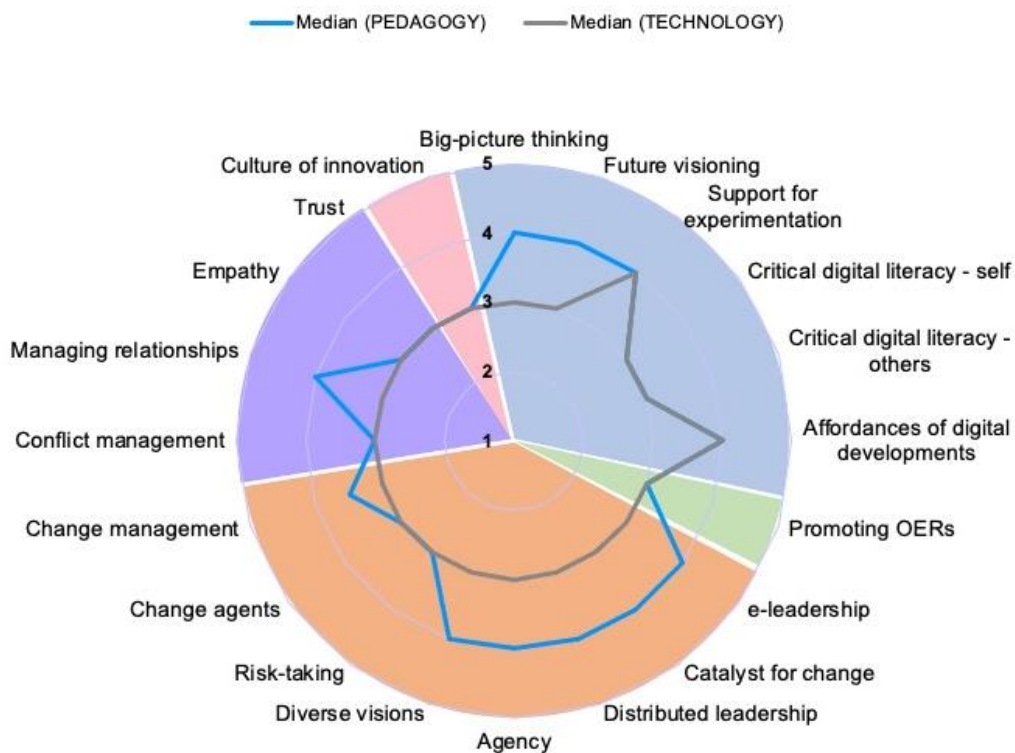


Figure 15: Comparison of the Median according to the pedagogical or technical focus of the leadership role

Taken together, these findings have implications for LD in terms of differentiating such programmes and interventions according to the role and focus of those participating. However, as generalisation is not possible from this particular study given the size and nature of the dataset, the recommendation is limited to that of paying attention to possible differences in DELLHE maturity according to role and focus.

Influence of DELLHE – leadership behaviours

The question “Which DELLHE have the greatest positive influence on the respondents’ attitude to towards Digital Education?” is intended to contribute to determining which DELLHE should be given special attention when designing and implementing Digital Education LD. The following radar chart shows the distribution of Median, Q1 and Q3 across the DELLHE dimensions derived from Table 42. The possible responses for the question about influence were ‘positive influence’, ‘no influence’, ‘negative influence’. As these options are symmetrical around a neutral central point, they were treated as a Likert-type scale and converted to an ordinal scale of 1 (negative influence), 2 (no influence) and 3 (positive influence).

Figure 16 clearly shows the four DELLHE that have the greatest positive influence on respondents’ attitudes towards Digital Education, namely:

WPEDA01: Supports teachers to experiment with new teaching and learning

approaches using technology; **WTECH03**: Encourages educational awareness of new digital developments; **LEAD03**: Facilitates distributed leadership for Digital Education throughout the institution; **LEAD04**: Empowers teaching staff to make their own decisions about how they use educational technology with their students. With a Median of 2.5, **LEAD05** (Encourages the expression of diverse visions for teaching and learning with technology) is also to be retained for consideration.

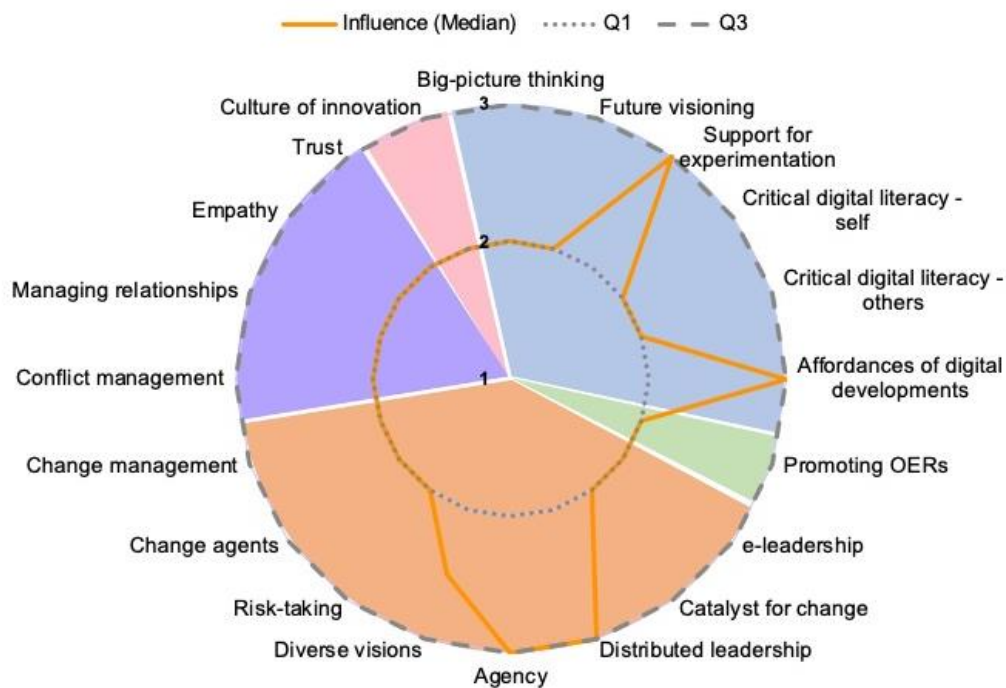


Figure 16: Median, Q1 and Q3 for academics’ perceptions of the influence of DELLHE on their attitude to Digital Education

First of all, with the exception of **LEAD03** (Support for distributed leadership), these variables correspond to those DELLHE identified as being

demonstrated by the Digital Education Leaders. This is a signal for interpreting the results with caution as the close correlation between Demonstrated and Influence could be a result of bias due to the survey design itself, where the fact that a respondent answered Agree or Totally Agree to ‘Demonstrated’ also resulted in that same respondent answering ‘Positive Influence’ for the same item. Further research, with a refined survey design, is required in order to determine whether this is indeed the case.

However, where the results do differ between Demonstrated and Influence are in the case of **LEAD03** (Support for distributed leadership) which was clearly identified as having a positive influence, but was not perceived as being demonstrated, as shown in Figure 17.

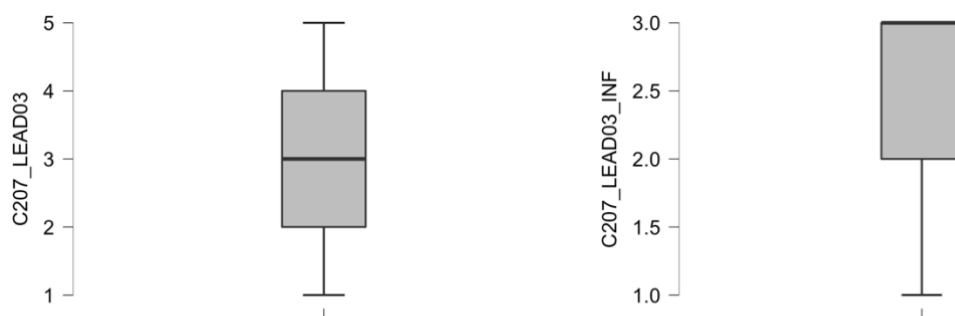


Figure 17: Comparison of the boxplots for 'demonstrated' and 'influence' (LEAD03)

Contrary to this, the RELATIONAL item **RELA02** (Relationship building) had a Median of 3.5 for Demonstrated, but the Median for Influence situated it within the neutral central tendency. In fact, one of the remarkable

findings from this analysis is the absence of any of the RELATIONAL variables being identified as having a positive influence, something that will be developed further in the Discussion chapter.

Finally, a detailed analysis of the results for all the 'Influence' variables shows that the first quartile was never lower than the neutral 2 (no influence), supporting the conclusion that none of the DELLHE included in the survey were considered to have a significantly negative influence. However, an examination of the frequency tables shows that some respondents did feel that such behaviour had a negative influence. The highest were **LEAD06** (Encourages risk-taking and accepts failure with a view to learning from mistakes) and **RELA04** (Fosters a culture of trust) which were both considered to have negative influence by 14.71% of respondents. Again, these results will be further examined in the Discussion chapter.

Perceptions of DELLHE – institutional practice

The survey also identified those DELLHE that were reflected in institutional culture and practice, while not being associated directly with the behaviour of individual leaders. The specific question asked of these data is: "How is support for the development of a LEARNINGFUL community reflected in institutional culture and practice?"

In addition to variable **LEARNLC01** (Fosters a culture of innovation for Digital Education at all levels of the institution), which was included under individual behaviour, the institutional practice section contains three further variables relating directly to development of a **LEARNINGFUL** community, together with one **RELATIONAL** and three **WORLDLY** variables considered to support this (Table 43). As the questions contained a ‘Don’t know’ option, the number of such responses is also reported in the table.

Table 43: Institutional practices supporting a LEARNINGFUL community

Variable	Label	Median	Q1	Q3	Don't know	DELLHE statement
WPEDA02	Open discussion	3.00	2.00	4.00	1	There is an open and respectful environment for discussion and debate around educational and pedagogical issues.
WPEDA02	Multi-disciplinary teams	3.00	2.00	4.00	7	Multi-disciplinary teams work together to integrate digital technology in teaching and learning practice.
WPEDA04	Design thinking	3.00	2.00	4.00	13	Design-thinking approaches are used when integrating the use of digital technology in courses or curricula.
RELA05	Third space	3.00	1.00	4.00	12	Academics and professional staff work together across traditional institutional boundaries.
LEARNLC02	Internal research	3.00	1.00	4.00	11	My institution generates scientific evidence through research into internal Digital Education practices.
LEARNLC03	Leadership Development	3.00	2.00	4.00	2	Academic staff have professional development opportunities to develop as Digital Education leaders.
LEARNLC04	SoTL	3.00	1.50	4.00	7	Academic staff are encouraged to engage in the Scholarship of Teaching and Learning with a focus on Digital Education.

The boxplots for the three WPEDA variables as well as for LD are identical, with a perfectly symmetrical distribution around the Median. However, it should be pointed out that there were 13 'Don't knows' for Design thinking, representing 12.75% of the total number of respondents (n=102).

The three variables highlighted for attention are RELA05 (Third space), LEARNLC02 (Internal research) and LEARNLC04 (SoTL). Despite a neutral Median of 3, the boxplots (Figure 18) for **RELA05** (Academics and professional staff work together across traditional institutional boundaries) and **LEARNLC02** (My institution generates scientific evidence through research into internal Digital Education practices) are bottom-heavy, showing a greater proportion of responses in the first two quartiles, with Q1 also corresponding to the minimum.

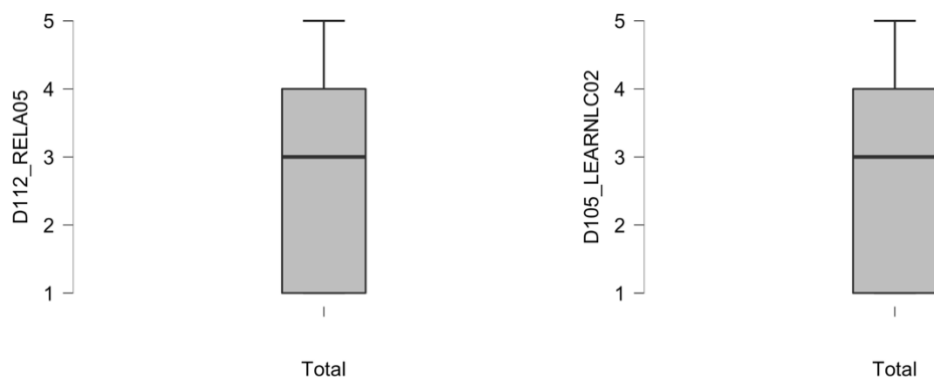


Figure 18: Boxplots for RELA05 and LEARNLC02

For **RELA05** there were also 12 'Don't knows', corresponding to 11.76% of the total number of respondents, and 11 'Don't knows' (10.78%) for

LEARNLC02. The conclusion to be drawn from this is that is that these two practices were much more absent than they were present.

With respect to **LEARNLC04** (SoTL), the picture is slightly different (Figure 19), with a QI of 1.50 and 7 (6.86%) 'Don't knows'. However, despite this small difference, the conclusion of 'more absent than present' is the same.

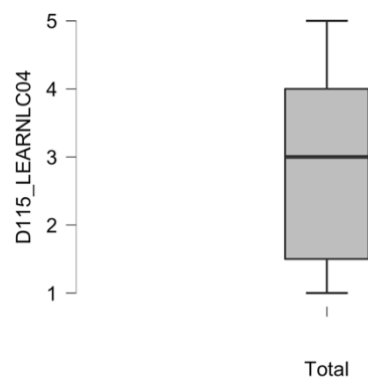


Figure 19: Boxplot for LEARNLC04

A final LEARNINGFUL item, **LEARNLC05** (Academic staff are encouraged to use social media as means for stimulating conversations around their research into Digital Education) was only displayed to respondents who had answered 'Somewhat agree' or 'Totally agree' to the question about Scholarship of Teaching and Learning, in order to place this concept of Digital Scholarship firmly within the realm of SoTL. The number of responses meeting this criterion was only 33. Looking then at the boxplot in Figure 20 for **LEARNLC05** (Digital Scholarship), while there is a Median of 4, 50% of the responses fall below this and there is one outlier. In terms of actual numbers, eleven (10.78% of the total number of respondents) answered 'Somewhat agree'

and seven (6.86%) ‘Totally agree’. Overall, therefore, less than one in five respondents considered that Digital Scholarship was practised in this particular form.

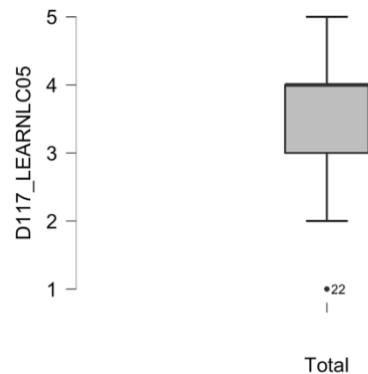


Figure 20: Boxplot for LEARNLC05

Evolution of attitudes to Digital Education leadership during the coronavirus pandemic

Although this was not the main purpose of the study, the research would not be complete without examining the impact of the way in which Digital Education leaders addressed the challenges brought about by the coronavirus pandemic. The question put to survey respondents was “To what extent would you say that your perception of Digital Education Leadership has been influenced by your experience during the Covid-19 pandemic?” with the answer options in the following five-point Likert scale:

5. Significantly more positive view of the leadership
4. Slightly more positive view
3. No change in perception of leadership
- 2 Slightly more negative view
1. Significantly more negative view of the leadership

The boxplot for this item (Figure 21) shows a Median of 4 and a Q3 of 5, meaning that the academics who responded to the survey generally had a more positive view of the leadership.

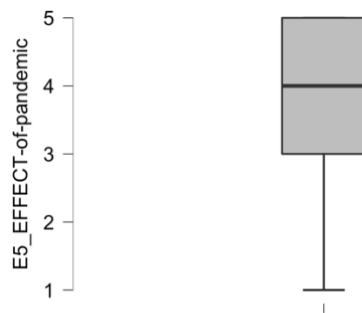


Figure 21: Boxplot: change in perception of Digital Education Leadership as a result of experience during the Covid-19 pandemic

A more nuanced appreciation of this result is introduced by TA of the free text responses which followed this question. From these comments, five dominant themes can be identified. The respondents are identified by the line number in the dataset, followed by the Likert rating, so, for the first quote, (53; 4) refers to line 53, with a response of ‘4. Slightly more positive view’.

We had no choice! Expressed by respondents with either a positive change or no change in attitude towards Digital Education Leadership, illustrated by the following: “Covid-19 pandemic put us in position where applying digital technology into learning process was not by personal choice, it was a must!” (53; 4). “We all HAD to do it, so we did” (11; 5).

We need you! A recognition of the need for Digital Education leadership regardless of whether the respondents had a more positive, negative or neutral opinion. Quotes which illustrate this are “I feel the leadership is crucial at this moment, while I didn't even think about it before the pandemic” (30; 5). “When digital technology is all you can rely on in order to complete the job, you realize the importance of DEL” (23; 5). “In fact the level of leadership is the same, but now it is more expected and more needed” (49; 1).

There was no digital education policy, no technical solutions were presented, no training was provided, no guidelines were presented. Everyone was allow (*sic*) to do whatever they wanted. A lack of leadership was indeed what was established, the only thing done was data collection. (78; 1)

Let us in! Academics wanting to be heard and to participate in decision-making: “It's extremely centralized, with little possibility to discuss or share vision, pedagogies, directions to take” (7; 2). “Cooperation between teaching staff encouraged and coordinated by DE leader led to a relatively successful implementation of teaching procedures new for most of the teachers” (13; 5). “Notre VP a une confiance absolue dans le personnel technique et administratif alors que ces personnes n'ont jamais enseigné, et n'écoute ni ne soutient les enseignants qui, eux, utilisent le numérique depuis plus de 20 ans” (101; 2).

Pedagogy first! This is linked to the former theme, in that through seeking to be heard, the academics wanted teaching and learning to be taken into account.

I can't have an opinion on the leadership of digital education because it doesn't exist, in fact, those individuals who advocate "digitalization" by posting pdf documents on the web, were extremely loud and we who prepared exams and different ways of examining mastered learning outcomes in digital environment - called out, questioning such a way of grading. (10; 3)

Support is vital! Whether from formal leadership, support services or peers, the latter often compensating for a lack of top-level leadership.

“Leadership facilitated various methods of introducing digital education and other digital means of work” (16; 4). “They reacted very quickly creating tutorials and adapting our virtual platform. They constantly supported academic staff's needs in terms of digital adaption of didactic materials” (43; 5).
Again, where leadership from the top was absent:

Staff were desperate for guidance, what we have had from leaders is a lack of communication, unclear positions, sometimes directives that are impractical, really demonstrating a lack of empathy and awareness for what academic staff are experiencing. However, this has created a big bottom up community of peer support which is a very positive outcome! (57; 2)

Main findings from the survey with academics

The results of the survey with academics (n=102) extend the scope of RQ2a) *How are DELLHE experienced by key informants in selected European universities?* They do this by addressing academics' perceptions of DELLHE among a population beyond that of the three Case Studies, a choice imposed by the impact of the Coronavirus pandemic and justified in Chapter 3.

The respondents, who were for the most part self-defined innovators and early adopters, do not generally look to formal governance members for inspiration as to their use of technology for teaching and learning.

The most influential Digital Education Leadership Literacies were:

- **Support for experimentation,**
- **Encouraging educational awareness of new digital developments,**
- **Facilitating distributed leadership throughout the institution,**
- **Empowering teaching staff.**

RELATIONAL Leadership Literacies were surprisingly not considered influential.

There is progress to be made in supporting the development of a LEARNINGFUL community through **working across traditional boundaries, developing design thinking** and **fostering digital scholarship**.

The respondents generally had a more positive view of their Digital Education leaders following their experience during the Covid-19 pandemic, but want to be **included in decision-making**, for **pedagogy** to be taken more into account when these decisions are made, and for the leadership to provide **sufficient and timely support**.

Chapter 7: LDP analysis and recommendations

Analysis of Leadership Development Programmes

In Phase 2 of the study, a complementary analysis of selected Digital Education LDPs from around the world was conducted, in order to establish the extent to which they reflect the DELLHE framework. This selection was made on the basis of the following criteria: relevance to Digital Education leaders at different levels of responsibility in HEIs, coverage of different modalities (residential, blended, online), availability of detailed programme in English. As indicated in Chapter 3: Research design and methodology, the selection was limited to five for reasons of time limitations. The selection consisted of the following:

- Two face-to-face residential courses: EDUCAUSE, JISC
- One blended course: IELOL
- One online course: C-DELTA
- One Massive Open Online Course (MOOC): D-TRANSFORM

First of all, the principal characteristics and background to the organisation offering the programme are presented, followed by TA of the programme content itself according to the five dimensions of the DELLHE framework.

EDUCAUSE: Learning Technology Leadership Program

Background

EDUCAUSE is a non-profit association based in the United States of America, founded in 1998. The primary mission of EDUCAUSE is to “advance higher education through the use of information technology.” (EDUCAUSE, n.d.). More precisely, the organisation aims to:

- “offer a coherent, coordinated set of programs to serve all dimensions of campus IT functions;
- develop comprehensive, timely services to support the professionals within the membership community; and
- provide unified leadership on key policy issues affecting higher education.” (EDUCAUSE, n.d.)

The EDUCAUSE Learning Technology Leadership (LTL) Program³² is a 4-day face-to-face event. The 2018 event was organised in Minneapolis, Minnesota; the 2020 event was announced in Colorado Springs. The programme analysed here is the 2018 edition as, at the time of conducting this research, the detailed 2020 programme was not yet published. The 2018

³² EDUCAUSE Institute Learning Technology Leadership Program
<https://events.educause.edu/educause-institute/learning-technology-leadership-institute>

programme was downloaded from the EDUCAUSE website on April 20th 2018 but is no longer available online.

The objective of the EDUCAUSE Learning Technology Leadership Program is to

provide a solid foundation for professionals in their current (and future) roles by focusing on critical areas of learning success, academic communication, data-driven solutions, digital leadership and transformation, and technology initiatives. Throughout the program, participants are immersed in a case-based leadership experience while engaged in applied, active learning in small teams. (EDUCAUSE 2018 programme)

Target audience: Middle management/future leaders.

Certification: Attendance certificate. Digital micro-credential (introduced in the 2020 edition).

An 11-week online programme was introduced in 2021, consisting of “live learning sessions with faculty, hands-on applied learning, small problem-based learning.”³³

³³ <https://events.educause.edu/educause-institute/learning-technology-leadership-institute> (consulted 24/04/2021).

DELLHE Coverage of the EDUCAUSE LTL Program

The notable feature of this programme is that it covers all five of the DELLHE dimensions, and also introduces new items within these (see Table 44).

The WORLDLY Leadership Literacy is well-represented from the point of view of vision, big-picture thinking and ethical issues with respect to educational technology. Of particular interest are the new aspects of strategic communication within the institution, developing narratives to tell the story of a learning technology team, as well as developing cultural and political capital. However, the pedagogical focus of the DELLHE framework is absent, with no reference to understanding different learning theories and approaches, the socio-cultural aspects of teaching and learning, the characteristics of current and future learners, awareness of how teachers approach the transformation of practice, nor of how physical and virtual spaces influence teaching and learning.

The SUSTAINING Leadership Literacy is covered from the angles of access, equity and inclusion, and in terms of the human implications, with a focus on mindfulness, emotional and physical health. However, the environmental impact of technology choices is not covered.

In comparison with the DELLHE framework, The EDUCAUSE LDP takes a complementary approach to the LEADINGFUL Leadership Literacy. In

addition to the use of data to defend one's vision, it also focuses on dealing constructively with challenges, urgencies and tensions, as well as identifying influence strategies.

The RELATIONAL dimension of the EDUCAUSE LDP aligns well with several of the individual items in the DELLHE framework, namely the importance of investing time and energy in managing relationships, creating shared meaning and purpose, the question of trust and constructive conflict management. An additional aspect covered in the programme is that of understanding team dynamics and developing strategies for working in teams.

Finally, the LEARNINGFUL Leadership Literacy is covered both from the point of view of the leader as learningful self, with great emphasis on self-reflection, and from that of supporting the development of a learningful community, through building a culture of coaching. Given the target audience of middle managers and future leaders, the focus on building social and political capital and of developing strategic communication can be considered particularly appropriate. Educational technology challenges are placed in context, with real-world cases and the mobilisation of design thinking and systems thinking. It is therefore regrettable that the focus on pedagogy is absent, as the risk here is to confine these educational technologists within their technical role, despite other parts of the programme addressing strategies for reaching out across the organisation.

Table 44: Analysis of EDUCAUSE 2018 Learning Technology Leadership program

DELLHE dimension	LDP content expressed as DELLHE
WORLDLY	<p>VISION</p> <p>Making informed decisions appropriate to context</p> <p>Having a clear vision of the mission of one’s institution</p> <p>Big picture thinking</p> <p>Developing narratives</p> <p>Developing a strategic approach to communication</p> <p>Developing cultural and political capital</p> <p>PEDAGOGY</p> <p>No explicit coverage</p> <p>TECHNOLOGY</p> <p>Solving challenging educational technology problems that draw on real-world issues</p>
SUSTAINING	<p>Diversity and inclusiveness</p> <p>Understanding ethical issues et developing approaches for resolving ethically challenging situations</p> <p>Developing mindful leadership</p> <p>Physical and mental health issues</p>
LEADINGFUL	<p>Constructively taking on board tensions for strategic innovation</p> <p>Dealing with challenges</p> <p>Dealing with urgencies</p> <p>Identifying influence strategies</p> <p>Using data to defend vision</p>
RELATIONAL	<p>Investing time and energy in managing relationships</p> <p>Paying attention to the creation of shared meaning</p> <p>Fostering a culture of trust</p> <p>Dealing constructively with conflict</p> <p>Understanding team dynamics</p> <p>Developing strategies for working in teams</p>
LEARNINGFUL	<p>Learningful self:</p> <p>Self-reflection on development as leader</p> <p>Learning by example</p> <p>Mentoring</p> <p>Learning through teamwork</p> <p>Project-based learning</p> <p>Learningful community:</p> <p>Building a culture of coaching</p>

JISC Digital Leaders Programme

Background

JISC is the “UK higher, further education and skills sectors’ not-for-profit organisation for digital services and solutions” (Jisc, n.d.). The JISC Digital

Leaders programme is a four-day face to face event organised over two sessions of two days each. Due to the Covid-19 pandemic, the 2020 edition scheduled for May 2020 was cancelled. The detailed programme of the 2019 edition was downloaded from the JISC website on March 15th 2019 – it is this version which is the subject of the TA presented below.

Target audience: current and future organisational leaders, in particular those who don't perform a directly technical role. Certification: Not mentioned.

DELLHE Coverage of the JISC Digital Leaders Programme

The results for the JISC Digital Leaders LDP are presented in Table 45. This programme focuses particularly on mapping both the institution's digital environment and participants' own digital practice, with the aims of designing a digital change roadmap. Design-thinking and making sense through narratives are mobilised to support this (Phipps & Lanclos, 2017).

This approach resonates well with the VISION subdimension of the WORLDLY Leadership Literacy in terms of big-picture thinking and being able to interpret and construct dynamic models of real-world processes. The TECHNOLOGY subdimension is covered in terms of digital perceptions and building digital capability. However, the pedagogical themes present in the DELLHE framework are absent, with no reference to aspects such as understanding different learning theories and approaches, the socio-cultural

aspects of teaching and learning, the characteristics of current and future learners, awareness of how teachers approach the transformation of practice, nor of how physical and virtual spaces influence teaching and learning.

The SUSTAINING Leadership Literacy is also absent, with no explicit reference to issues of access, equity and inclusion, or to the human and environmental impact of technology choices.

Concerning the LEADINGFUL Leadership Literacy, the JISC LDP puts the emphasis on both change management and data-informed decision-making, but does not explicitly address participants' perceptions of leadership, whether it be their own or as exercised by others.

The RELATIONAL dimension of the JISC LDP is mainly concerned with creating shared meaning and pooling notes with others. However, other relational literacies from the DELLHE framework are not explicitly covered, namely the importance of investing time and energy in managing relationships, and the question of trust and empathy.

Finally, the LEARNINGFUL Leadership Literacy is covered in terms of considering strategies for developing one's skills and effectiveness as a digital leader (learningful self), but no explicit mention is made of supporting the development of a learningful community.

Table 45: Analysis of JISC 2019 Digital Leaders programme

DELLHE dimension	LDP content expressed as DELLHE
WORLDLY	<p>VISION</p> <p>Making informed decisions appropriate to context</p> <p>Understanding organisational issues</p> <p>Big picture thinking</p> <p>Developing narratives</p> <p>Design thinking</p> <p>Being able to interpret and construct dynamic models of real-world processes</p> <p>PEDAGOGY</p> <p>No explicit coverage</p> <p>TECHNOLOGY</p> <p>Healthy embracing of digital technologies</p> <p>Encouraging personal and educational awareness of digital developments and of their social adoption and impact</p>
SUSTAINING	No explicit coverage
LEADINGFUL	<p>Being able to create conditions for innovation and change</p> <p>Recognising that the priority is managing change rather than technology</p> <p>Valuing and engaging in networking, sharing ideas, strategies and resources</p> <p>Using data to defend vision</p>
RELATIONAL	<p>Paying attention to the creation of shared meaning and purpose</p> <p>Pooling knowledge and comparing notes with others toward a common goal</p>
LEARNINGFUL	<p>Learningful self:</p> <p>Self-reflection on development as leader</p>

Online Learning Consortium: Institute for Emerging Leadership in Online Learning (IELOL)

Background

IELOL is an initiative of the Online Learning Consortium (OLC). Created in 2014 as a rebranding of the Sloan consortium, OLC describes its mission as “Creating community and knowledge around quality online, blended and digital learning while driving innovation” (Online Learning Consortium, n.d.-b). According to information correct as of March 2020, the IELOL is a

programme rather than an institute per se (Online Learning Consortium, n.d.-a). The 2020 IELOL programme³⁴ is a blended programme with a two-week online pre-immersion course, a four-day on-site immersion experience at the University of Central Florida Campus, followed by a two-week post-immersion project (online).

The programme objectives are stated as:

- Self-awareness
- Adaptability
- Learning agility
- Entrepreneurial Leadership
- Collaboration
- Network Thinking

Target audience: emerging digital education leaders in HE.

Certification: not mentioned explicitly.

³⁴ Overview Agenda for IELOL Immersion 2020
<https://onlinelearningconsortium.org/learn/ielol-agenda/>

DELLHE Coverage of the IELOL Programme

The results for the 2020 IELOL programme are presented in Table 46. The outstanding contribution of this programme is its focus on six main competences as its overarching objectives, stated as being based on work published by the Center for Creative Leadership³⁵. These are self-awareness, adaptability, learning agility, entrepreneurial leadership, collaboration and network thinking. With the exception of entrepreneurial leadership, these resonate well with the DELLHE framework across several of the dimensions.

The VISION subdimension of the WORLDLY Leadership Literacy is covered in terms of understanding the complex external and internal institutional environment. However, the TECHNOLOGY and PEDAGOGY subdimensions are not covered explicitly.

The SUSTAINING Leadership Literacy is covered in terms of organisational agility, and inclusivity is mentioned as a key activity component. However, there is no explicit reference to the human and environmental impact of technology choices.

³⁵ Center for Creative leadership <https://www.ccl.org>

Table 46: Analysis of IELOL 2020 programme

DELLHE dimension	LDP content expressed as DELLHE
WORLDLY	VISION Understanding the role of digital technology in a complex and rapidly changing HE environment Seeing and building on opportunities Addressing institutional challenges Communicating within, throughout and beyond the organisation Staying abreast of key external forces Big-picture thinking PEDAGOGY No explicit coverage TECHNOLOGY No explicit coverage
SUSTAINING	Organisational agility Inclusivity
LEADINGFUL	Entrepreneurial leadership Leading change and transformative initiatives Evidence-based decision making Collaborative approach Valuing and engaging in networking, sharing ideas, strategies and resources
RELATIONAL	Change management
LEARNINGFUL	Learningful self: Self-reflection as leader Learningful community: No explicit coverage

Concerning the LEADINGFUL Leadership Literacy, the IELOL LDP puts the emphasis on team and leadership building, on communicating internal brand and leading change, and also explicitly addresses participants' perceptions of leadership, in terms of self-reflection and unbundling what it means to be an online learning leader. The notable additional focus here is on entrepreneurial leadership, which was not present in the DELLHE framework.

The RELATIONAL dimension of the IELOL LDP overlaps with the LEADINGFUL dimension with the focus on team-building and change

management. However, other relational literacies from the DELLHE framework are not explicitly covered, namely the importance of investing time and energy in managing relationships, and the question of trust and empathy.

Finally, the LEARNINGFUL Leadership Literacy is covered in terms of self-reflection as a leader, but no explicit mention is made of supporting the development of a learningful community.

Commonwealth of Learning C-DELTA Programme

Background

Created in 1987 by Commonwealth Heads of Government, the Commonwealth of Learning (COL) is an intergovernmental organisation. Its mission is “to promote the development and sharing of open learning and distance education knowledge, resources and technologies” (Commonwealth of Learning, n.d.). C-DELTA (Commonwealth Digital Education Leadership Training in Action) was a project supported by COL to “develop digital education leaders who demonstrate effective use of information and communication technologies (ICT) in their respective social contexts and who can advocate, influence and foster such capabilities amongst others in their communities of practice” (Brown, Czerniewicz, Huang, et al., 2016, pp. 1–2).

The C-DELTA programme is offered on a dedicated learning and assessment platform³⁶ which also serves as community of practice. Target audience: governments, educational institutions, civil society organisations, teachers. Certification: digital badges and certificates.

DELLHE Coverage of the C-DELTA Programme

The results for the C-DELTA LDP are presented in Table 47. The main aspect to highlight in this programme is its focus on all three subdimensions of the WORLDLY Leadership Literacy (vision, pedagogy and technology) together with a significant contribution to the SUSTAINING literacy through its focus on OER and capacity building.

WORLDLY-VISION is covered by challenging participants' assumptions about the digital world and by engaging them in big-picture thinking about global priorities and challenges, including power dynamics. The TECHNOLOGY and PEDAGOGY subdimensions are brought together in addressing the complex relationship between technology, education and change, enabling participants to ask critical questions to make informed decisions. Managing one's own digital identity covers both the healthy embracing of digital technology and the development of critical digital literacy.

³⁶ C-DELTA Platform <https://cdelta.col.org/>

Furthermore, the programme explicitly addresses the question of knowing who the learners are and in what environment they are learning and working, as well as supporting teachers in mobilising resources.

The SUSTAINING Leadership Literacy is addressed in terms of the human impact (digital wellbeing), the development of open and freely accessible resources and capacity building through engagement with networks. However, the wider environmental impact of technology choices is not explicitly covered.

Concerning the LEADINGFUL Leadership Literacy, the C-DELTA LDP puts the emphasis on both change management and cultivating innovation. ‘Interacting with networks to share information, knowledge and resources’ bridges both the LEADINGFUL and the RELATIONAL dimensions, though other relational literacies from the DELLHE framework are not explicitly covered, namely the importance of investing time and energy in managing relationships, and the question of trust and empathy.

Finally, the LEARNINGFUL Leadership Literacy is covered in terms of reflecting on one’s digital practices as a community leader and building a personal learning network (learningful self). Although no explicit mention is made of supporting the development of a learningful community in the available programme content itself, this does feature in the aims of the programme (Brown et al., 2016), and the reference to understanding the social

media ecosystem with a view to interacting with people across different networks represents a step towards this, as does the framing of the C-DELTA platform as a community of practice.

Table 47: Analysis of C-DELTA programme

DELLHE dimension	Programme content expressed as DELLHE
WORLDLY	VISION Making informed decisions according to context Big picture thinking PEDAGOGY Knowing the (learning) characteristics of current and future learners TECHNOLOGY Developing and demonstrating critical digital literacy Healthy embracing of digital technologies Encouraging personal and educational awareness of digital developments
SUSTAINING	Promoting the use of digital technology and TEL for social good and digital citizenship Engaging in developing and acquiring open and freely accessible resources Capacity building
LEADINGFUL	Acting as a catalyst for change an innovation for digital transformation Recognising that the priority is managing change rather than technology Valuing and engaging in networking, sharing ideas, strategies and resources
RELATIONAL	Pooling knowledge and comparing notes with others toward a common goal
LEARNINGFUL	Learningful self: Self-reflection as leader Personal learning networks Learningful community: No explicit coverage in content, present in aims and via the platform

D-TRANSFORM MOOC: University Strategies in a Digital Age

Background

D-TRANSFORM³⁷ was a project funded under the European Union Erasmus+ programme and ran from September 2014 to September 2017. The project was coordinated by Fondation Maison des Sciences de l’Homme (France), and the partnership included Université de Lorraine (France), Sero Consulting Ltd. (UK), Fundacio per a la Universitat Oberta de Catalunya (Spain), Politecnico di Milano (Italy), European Distance and E-learning Network (UK) and Budapest University of Technology and Economics (Hungary).

Among the outputs of the project were two face-to-face leadership schools and a MOOC. As the objectives and content of the leadership schools and MOOC are closely related, the programme selected for analysis here is that of the first edition of the MOOC³⁸, which ran from May to September 2017.

The D-TRANSFORM University Strategies in a Digital Age programme is a 7-week MOOC hosted on the POK (Polimi Open Knowledge) platform. The main objective of the MOOC is that of “raising awareness of digital resources,

³⁷ D-TRANSFORM - Transforming Universities in the Digital Age <https://www.dtransform.eu/>

³⁸ D-TRANSFORM: University Strategies in the Digital Age
https://www.pok.polimi.it/courses/course-v1:Polimi+DTransform101+2017_M5/about

and especially OER and MOOCs, as a strategic factor for university transformation, with a special focus on teaching and learning processes... promot[ing] executive reflection on hands-on challenges and offer[ing] networking opportunities in a non-formal context” (Polimi Open Knowledge, n.d.). Target audience: Primarily governance level leaders and senior management. Certification: Statement of participation.

DELLHE Coverage of the D-TRANSFORM MOOC

The results for the 2017 D-TRANSFORM MOOC are presented in Table 48. The notable feature of this programme is its wide coverage of all three subdimensions of the WORLDLY Leadership Literacy (vision, pedagogy and technology) as well as a significant contribution to the LEARNINGFUL Leadership Literacy in terms of learning from the experience of other institutions.

WORLDLY-VISION is covered by engaging participants in big-picture thinking about the future of higher education with a focus on addressing disruptions such as the “disaggregation of delivery and credentialing” or the development of new private-sector ‘competitors’. There is also a focus on benchmarking and business models. The TECHNOLOGY and PEDAGOGY subdimensions are addressed with a specific focus on personalised assessment and Learning Analytics, encouraging a critical approach, and by exploring the

research on student use of media with a view to identifying strategies appropriate for today's learners.

The SUSTAINING Leadership Literacy is addressed in terms of the relation between access, cost and quality, the transformation of learning spaces and awareness raising of the potential of MOOCs and OERs to spread teaching innovation. However, the wider environmental impact of technology choices is not explicitly covered.

Table 48: Analysis of D-TRANSFORM 2017 MOOC programme

DELLHE dimension	Programme content expressed as DELLHE
WORLDLY	VISION Making informed decisions appropriate to context Understanding university mission and strategy Understanding educational policy-making Big-picture thinking Interpreting and constructing dynamic models of real-world processes PEDAGOGY Understanding affordances and risks of technology for teaching and learning Knowing the (learning) characteristics of current and future leaders TECHNOLOGY Understanding applications of state-of-the-art technologies in education Awareness of research on student use of media Personal and educational awareness of digital developments
SUSTAINING	Access, equity and inclusion Developing a shared vision for learning spaces Developing and acquiring open and freely accessible resources
LEADINGFUL	Valuing and engaging in networking Being quality focused
RELATIONAL	Overcoming academic resistance
LEARNINGFUL	Learningful self: Learning from the experience of other institutions Learningful community: No explicit coverage

Concerning the LEADINGFUL Leadership Literacy, the D-TRANSFORM LDP concentrates on the mobilisation of networking, with “executive reflection on hands-on challenges”.

The RELATIONAL dimension is only covered by the reference to “overcoming academic resistance to ICT-enhanced teaching”.

Finally, the LEARNINGFUL Leadership Literacy is covered by a series of case studies from around Europe, through which participants can learn from the experience of other institutions. However, no explicit mention is made of supporting the development of a learningful community.

Comparison of the Five LDPs

Before comparing the five selected LDPs in terms of their coverage of the DELLHE framework, it is important to consider their distinguishing features (see Table 49). The target audience is particularly relevant here, as it will influence the programme content. By way of example, governance and senior management level participants should need less focus on aspects such as building social and cultural capital than emerging leaders. However, they may need to develop a more sophisticated understanding of digital technology, and of the affordances of educational technology in particular.

Furthermore, the focus of the programmes will be ‘coloured’ by the political, economic and cultural environment in which these leaders operate,

which might explain the greater focus on entrepreneurial leadership in a highly competitive US HE sector (IELOL) and more attention to sustainable development, capacity building and digital citizenship in the Commonwealth of Learning C-DELTA programme.

Table 49: Comparison of the five LDPs (modality, target audience and geographical scope)

FEATURES	LDP				
	EDUCAUSE	JISC	IELOL	C-DELTA	D-TRANSFORM
Modality	Face-to-face	Face-to-face	Blended	Online	Online
Target audience	Middle Management /Future leaders	Current and future leaders	Emerging leaders	Governments, Institutions, Civil society, Teachers	Governance, Senior Management
Geographical scope	USA	UK	USA	International (Commonwealth)	Europe

In terms of DELLHE, there were considerable differences in coverage (Table 50). The well-addressed dimensions were WORLDLY (vision and technology) and LEADINGFUL. The RELATIONAL dimension was covered to some extent, particularly in the EDUCAUSE LDP, but significantly less so in the other four. Four dimensions or sub-dimensions were insufficiently covered across the five LDPs.

Table 50: Comparison of the five LDPs in terms of DELLHE coverage

DELLHE DIMENSION		LDP				
		EDUCAUSE	JISC	IELOL	C-DELTA	D-TRANSFORM
	VISION					
	PEDAGOGY					
	TECHNOLOGY					
SUSTAINING	HUMAN					
	ENVIRONMENTAL					
LEADINGFUL						
RELATIONAL						
LEARNINGFUL	SELF					
	COMMUNITY					

Key:

No coverage
Weak coverage (1-2 literacies)
Good coverage (3 or more literacies)

WORLDLY: pedagogical considerations

If technology is to be used in a way which supports innovative and effective teaching and learning, leaders and emerging leaders need to develop a much finer understanding of teaching and learning theory and practice, and of the pedagogical implications of technology choices.

WORLDLY: technology considerations

Given the target audiences, especially of the EDUCAUSE, JISC and IELOL programmes, there may well be an assumption that participants already have sufficient knowledge of educational technology. However, Digital Education LD would be incomplete without addressing both the societal impact of digitalisation and the affordances and risks of educational technology.

SUSTAINING: environmental impact of technology choices

As the world faces increasing challenges in terms of climate change, the consideration of the environmental (and human) impact of technology choices is of pressing concern for Digital Education strategy, decision-making, attitudes and behaviours. As such, this dimension requires much more attention in Digital Education LD.

LEARNINGFUL Community

LD in the sense of developing the leadership capacity of an organisation (Spendlove, 2007) concerns the development of not just individual leaders but the fostering of a culture of organisational learning (Senge, 2006), in reference to Day's (2000) distinction between leader development and leadership development. All five LDPs are aimed at individual leader development, though several of them do place the leader in the context of their organisation. The only LDPs which explicitly consider the development of others than those directly participating in the LDP are the EDUCAUSE programme, with its focus on developing a culture of coaching, and C-DELTA in terms of capacity building.

Recommendations for Digital Education LD

Based on this analysis, combined with key findings from the literature review, a series of recommendations for Digital Education LD were formulated

and validated by an online focus group of 11 experts (Appendix Q). These recommendations are grouped according to design and content as a reflection of the clusters defined by Dopson et al. (2019).

Recommendations for Digital Education LD design

Recommendation 1

Digital Education LD should be designed as LD interventions, and not simply focus on individual leaders.

This recommendation, validated unanimously by the focus group, draws on the differentiation between leader development and leadership development (Day, 2000). Given that the five selected LDPs paid little or no attention to the development of a LEARNINGFUL community around Digital Education (see Table 50), the recommended improvement is to prioritise LD interventions over one-off workshops or isolated programmes disconnected from the reality of the university.

This entails taking a whole-institution approach to Digital Education LD through the professional development of formal and informal leaders at all levels, and which takes place over time. In concrete terms, it involves bringing academics and professionals together in a *third space* (Whitchurch, 2008, 2018), whether this space is virtual, physical or even conceptual, as for example the Leuven Learning Lab at KUL. LD techniques such as coaching and

mentoring, as well as 360° feedback, can integrate this design, with regular moments for appraisal and adjustment.

Recommendation 2

Digital Education LD interventions should be designed around the following principles:

- (a) Unlearning preconceptions about Digital Education / educational technology.
- (b) Defining the purpose and values of a particular HEI, through a digital lens.
- (c) Ensuring alignment with regional, national and EU level policy with respect to Digital Education.
- (d) Addressing the five dimensions of the DELLHE framework, in particular:
The affordances of technology (WORLDLY),
Ethical and environmental issues (SUSTAINING),
Determining the model(s) of leadership most appropriate for the purpose (LEADINGFUL)
Creating policies and an institutional environment for Digital Education around the chosen leadership model (WORLDLY / RELATIONAL / LEADINGFUL).
- (e) Designing and embedding LD which supports the development of leadership capacity for Digital Education over time.
- (f) Evaluating the effectiveness of LD according to the identified purpose.

The initial recommendation was validated by a clear majority of the focus group members (nine out of eleven). It draws on the recommendations formulated by Dopson et al. (2019) and integrates the notion of unlearning and relearning (Becker, 2005; Davis, 2012; Morgan, 2016) with respect to Digital Education and educational technology. There was some debate in the focus group about the question of unlearning, where one participant considered that

it was not enough, and another shared prior experience of a negative impact of ‘debunking’ which resulted in entrenchment in preconceptions. Those designing and/or running Digital Education LD should be aware of this risk and ensure there is a sufficient balance between unlearning and relearning, with a focus on the affordances of technology for learning and teaching. This is covered in more detail in the content-related recommendations which follow.

Recommendations for Digital Education LD content

Recommendation 3

Digital Education LD should incorporate the SUSTAINING dimension through a focus on developing a vision and policies for Digital Education which address environmental and ethical issues as well as wider sustainability goals of (Digital) Education for social good and digital citizenship.

As shown in Table 50, there was no coverage of the environmental aspect of the SUSTAINING dimension in any of the five LDPs analysed. Furthermore, in the Case Studies, although KIs in all three CSIs showed a good awareness of the environmental and ethical issues relating to Digital Education, there was still progress to be made in translating this awareness into vision and policy. The questions of Digital Education for social good and digital citizenship were unevenly addressed across the CSIs and LDPs, hence their inclusion in this recommendation, which was also validated unanimously.

SUSTAINING questions to be addressed in Digital Education LD programmes or interventions include:

- What are the ethical implications of educational technology (privacy, inclusiveness, wellbeing)?
- What is the environmental impact?
- What policies do we have / need?
- How do we see DigEd in terms of our social responsibility as a university?
- Where does Open Education fit within our vision and strategy?
- Do we need to scale our DigEd initiatives and if so how?
- How equipped are we to react quickly and effectively to changes in our external environment?

Recommendation 4

Digital Education leaders embarking on large multi-stakeholder projects such as e-portfolios or digital exams should integrate explicit LD for all staff involved, irrespective of their status or level within the institution. This LD should put particular emphasis on the creation of shared meaning, change management, distributed leadership, and conflict management.

Validated unanimously in the focus group, this recommendation stems from one of the main conclusions of the Case Studies, where such large multi-stakeholder projects were identified as sources of tension in all three, and linked in Chapter 5 to the reasons for resistance to change, in particular misunderstanding, different assessments of the reason for change and low tolerance for change (Kotter & Schlesinger, 1979). Change management approaches could draw on the techniques set out by Kotter and Schlesinger, for

example surfacing and clarifying the reasons for change, and supporting and reassuring those affected. Over and above this, as recommended by Gill (2003), a shift in focus from change management to change leadership should be considered, approaching change through the multiple lenses of vision, values and culture, strategy, empowerment, motivation and inspiration. An Appreciative Leadership approach (Orr & Cleveland-Innes, 2015) would also enable a move away from the deficit model often associated with addressing resistance to change, emphasising positive potential (Cooperrider & Whitney, 2005).

Recommendation 5

Digital Education LD at all levels should focus on both aspects of the RELATIONAL Leadership Literacy, namely organisational dynamics and building interpersonal relationships.

Grounded in the two orientations of Relational Leadership theory (Uhl-Bien, 2006), this recommendation (validated unanimously) stems from the weak coverage of the RELATIONAL dimension in four of the five selected LDPs (see Table 50), together with the results of the three Case Studies, where DELLHE maturity in this dimension was a facilitator of Digital Education Leadership (UoN, KUL), and where its absence was identified as a source of tension (UL).

RELATIONAL questions which should be addressed in LD programmes or interventions include:

- How do we build and maintain relationships around Digital Education?
- How do we foster a climate of trust?
- How can we improve shared understanding of Digital Education?
- How can we work better across traditional boundaries?

Recommendations for Digital Education LD differentiation

Recommendation 6

The focus of Digital Education LD should be adapted for different target groups, according to their status and level within the organisation and their previous knowledge and experience.

Validated by a clear majority of the focus group members (ten out of eleven), this overarching principle is grounded in the recommendation formulated by Ardichvili et al. (2016). Such differentiation was noted in some of the LDPs analysed, for example EDUCAUSE, which focused on Middle Managers, or D-TRANSFORM, which was designed for Senior Management and Governance members. However, while differentiation addresses the needs of different target groups, if LD is organised in such a way as to keep these groups separate, it will not contribute to improving shared understanding. Such differentiation should thus be considered as part of a wider approach, combined with Digital Education LD interventions bringing together different

profiles with different perspectives, while recognising the reality in some countries and contexts, in particular those defined by rigid hierarchical structures in HE, whereby such mixing of profiles is challenging. As one focus group member said, “The leadership ecosystem of HEIs is complex, and in digital leadership, the relational politics of digital need to be negotiated carefully” (Participant A).

Recommendation 7

Efforts should be made to support faculty management (deans, programme directors) in developing Leadership Literacies across all five dimensions of the DELLHE framework.

Validated unanimously by the focus group, this recommendation is grounded in the results of the Case Studies. Clear leadership on the part of faculty deans (including vision and understanding of the affordances of technology) was considered key to the success of Digital Education initiatives (UL). However, a lack of such leadership was identified as a source of tension (KUL, UoN). Embedding Digital Education LD within the scope of Academic LD opens up the opportunity for a pedagogy-centred approach to technology, for example when redesigning curricula. Central to this is the fostering of a culture which values teaching, and in which SoTL and Digital Scholarship are both recognised and rewarded.

Recommendation 8

Digital Education LD for governance members with little direct experience of Digital Education should focus on the WORLDLY Leadership Literacies “self-relationship with technology” and “self-relationship with teaching and learning”.

Validated by a clear majority of eight out of the eleven focus group members, this recommendation is also grounded in the results of the Case Studies. Where such direct experience was lacking (one GOV member, UL), the vision for Digital Education was largely centred on the use of technology to support business as usual, and the approach to pedagogical transformation neglected deep reflection around the role of digital. Where this experience was present (KUL, UoN), the level of DELLHE maturity in the WORLDLY dimension was much greater and reflected in the overall vision and strategy. Insights from the recent ALT survey (Association for Learning Technology, 2021) were also introduced by two focus group members who highlighted the fact that, in the UK at least, there is a trend for junior learning technologists to take on more senior leadership roles, and these profiles already possess the keen understanding of Digital Education required.

Recommendation 9

Digital Education LD for Governance Members and Senior Management (whether professional staff or heads of faculty) should focus on the following DELLHE in particular:

- Big-picture thinking,
- Encouraging risk-taking and accepting failure with a view to learning from mistakes,
- *Facilitating and committing to distributed, collaborative leadership for Digital Education throughout the organisation,
- Encouraging academic and professional staff to work together across traditional institutional boundaries
- Leading in a manner that engages everyone as change agents
- *Empowering teaching staff to make their own decisions about how they use educational technology with their students
- *Supporting teachers to experiment with new teaching and learning approaches using technology
- *Encouraging educational awareness of new digital developments
- *Encouraging the expression of diverse visions for teaching and learning with technology
- Demonstrating leadership presence through the judicious use of digital communication technologies (e-leadership)
- Generating scientific evidence through research into internal Digital Education practices
- Developing Digital Scholarship, for example by encouraging staff to use social media as means for stimulating conversations around their research into Digital Education.

These DELLHE were identified either as exemplary practice in one or more of the case studies or, where they were lacking, it was found that they were frequently associated with tensions. DELLHE which were perceived to have the greatest positive influence on academics' attitudes to Digital Education among the survey respondents (n=102) are indicated by *. Figure 22 shows the responses of the online focus group with respect to each individual element.

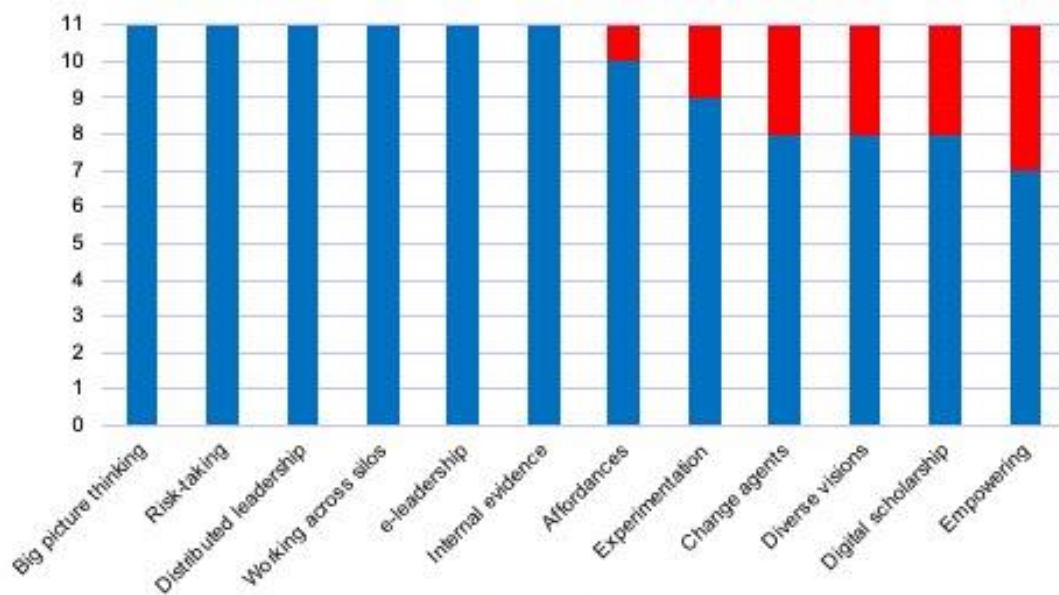


Figure 22: Online focus group responses – Digital Education LD Recommendation 9

One reason for disagreement with some of the statements was that DELLHE such as ‘Empowering teaching staff’, ‘Supporting teachers to experiment’ and ‘Fostering diverse visions’ should be covered at middle management level. The synchronous focus group session provided clarification in that the recommendation does not exclude these elements from Digital

Education LD for middle management, but highlights the results of the Case Studies and survey with academics which show that these are DELLHE that also need to be developed among senior management and governance members.

With respect to digital scholarship, privacy concerns were raised with respect to academics using commercial social media platforms. This thus entails taking a critical digital literacy perspective (Belshaw, 2014) when considering digital scholarship, which in itself can contribute to developing academics' own WORLDLY literacies in terms of how they perceive, understand, and act within, the digital world.

Recommendation 10

Digital Education LD for Middle Managers should focus on building cultural and political capital within the institution, and on identifying and mobilising influence strategies.

As seen in CSI (UL) in particular, the Middle Managers (heads of learning technology and academic development units) possessed a fine understanding of the technological, pedagogical and societal aspects of Digital Education in terms of the WORLDLY dimension. To enable this knowledge and expertise to find its way into the vision, strategy and overall institutional culture, Middle Managers need to be supported in developing the more transversal LEADINGFUL and RELATIONAL literacies addressed in this recommendation. Only one of the five selected LDPs (EDUCAUSE) took this

approach, hence this recommendation for improving existing and future programmes and interventions, which was validated unanimously by the focus group.

Key insights for Digital Education LD

Through Thematic Analysis of five selected Leadership Development Programmes, three of the DELLHE dimensions were found to have weak coverage across the five LDPs: WORLDLY (pedagogy / technology), SUSTAINING (environmental issues), LEARNINGFUL (community).

Combining this analysis with the results of the Case Studies (Chapter 5), ten recommendations were formulated and validated by an online focus group.

DESIGN

Recommendation 1. Digital Education LD should address the development of organisational learning through LD interventions.

Recommendation 2. Digital Education LD interventions should be designed around the DELLHE framework, addressing preconceptions about educational technology; purpose, values and policy; appropriate model(s) of leadership; the development of leadership capacity over time. The effectiveness of these LD interventions should be evaluated.

CONTENT

Recommendation 3. Digital Education LD should incorporate the SUSTAINING dimension through a focus on developing a vision and policies for Digital Education which address environmental and ethical issues as well as wider sustainability goals of (Digital) Education for social good and digital citizenship.

Recommendation 4. Digital Education leaders embarking on large multi-stakeholder projects such as e-portfolios or digital exams should integrate explicit LD for all staff involved, irrespective of their status or level within the institution. This LD should put particular emphasis on the creation of shared meaning, change management, distributed leadership, and conflict management.

Recommendation 5. Digital Education LD at all levels should focus on both aspects of the RELATIONAL Leadership Literacy, namely organisational dynamics and building interpersonal relationships.

DIFFERENTIATION

Recommendation 6. Digital Education LD should be adapted for different target groups, according to status and level, and previous knowledge and experience.

Recommendation 7. Faculty management should be supported in developing Leadership Literacies across all five dimensions of the DELLHE framework.

Recommendation 8. Digital Education LD for governance members with little direct experience of Digital Education should focus on the WORLDLY Leadership Literacies “self-relationship with technology” and “self-relationship with teaching and learning”.

Recommendation 9. Digital Education LD for Governance Members and Senior Management should focus on the following DELLHE in particular:

- WORLDLY: big-picture thinking, affordances, diverse visions
- LEADINGFUL: risk-taking and experimentation, distributed leadership, e-leadership, supporting change agents, empowering academic staff
- RELATIONAL: working across silos
- LEARNINGFUL: generating internal evidence through research, digital scholarship.

Recommendation 10. Digital Education LD for Middle Managers should focus on building cultural and political capital within the institution, and on identifying and mobilising influence strategies.

Chapter 8: MMR integration and final DELLHE framework

MMR integration

The LDP analysis described in Chapter 7 forms one of the QUAL components of the overall MMR study, alongside the three QUAL Case Studies (Chapter 5). The survey on academics' perceptions of Digital Education Leadership (Chapter 6) forms the QUAN component. In order to support the integration of the different data, the following joint display (Table 51) shows the main conclusions of each component organised according to the five dimensions of the DELLHE framework.

For the Case Studies, the classification of DELLHE maturity is taken from the individual DELLHE maturity analysis in Chapter 5 (Figures 6, 7 and 8). Concerning the results of the QUAN survey, as already highlighted in Chapter 6, the small dataset and the fact that the majority of respondents were already self-declared innovators or early adopters mean that no generalisations can be made. The four DELLHE practices identified by respondents as having a positive influence on their attitude towards Digital Education thus need to be considered in the light of this caveat. With respect to the LDP analysis, the level of DELLHE coverage is derived from Table 50 which can be found in Chapter 7.

Table 51: Joint display of QUAL and QUAN results

DELLHE dimension	DELLHE maturity: Case Studies (QUAL)	Influence of DELLHE on academics' attitudes towards Digital Education (QUAN: Survey n=102)	DELLHE coverage of LDPs (QUAL)
WORLDLY (vision)	CSI: Medium-Low CS2: High CS3: Medium-High	No declared influence	Medium-high
WORLDLY (pedagogy)	CSI: Medium CS2: High CS3: High	Positive influence: Supporting teachers to experiment	Medium-low
WORLDLY (technology)	CSI: Medium-High CS2: High CS3: High	Positive influence: Raising educational awareness of digital developments	Medium-high
SUSTAINING (human)	CSI: Medium-low CS2: High CS3: High	No declared influence	Medium-high
SUSTAINING (environmental)	CSI: Medium-High CS2: Medium-High CS3: Medium	No declared influence	No coverage
LEADINGFUL	CSI: Medium CS2: Medium-High CS3: Medium-High	Positive influence: Distributed leadership Agency Diverse visions	High
RELATIONAL (interpersonal)	CSI: Medium-Low CS2: Medium-High CS3: Medium-High	No declared influence	Medium-high
RELATIONAL (organisational)	CSI: Medium-Low CS2: Medium-High CS3: High	N/A	Medium
LEARNINGFUL (self)	CSI: Low CS2: High CS3: Medium-High	N/A	Medium
LEARNINGFUL (community)	CSI: Medium CS2: Medium-High CS3: High	No declared influence	Very weak

Final DELLHE framework

The DELLHE framework resulted from the integration of the results of the Delphi study with those of the three Case Studies, the findings from the survey on academics' perceptions of Digital Education Leadership and the

analysis of the five selected LDPs. In addition to the validation of the recommendations for LD outlined in Chapter 7, the online focus group was also invited to provide feedback on the DELLHE framework.

The main outcome of the focus group was the decision to embrace the interconnections and even entangled nature of the different elements within the framework, in recognition of the iterative nature of leadership and LD itself. The end result is the presentation of the framework in different forms to meet the needs of different contexts of application. The original form of v.3 (Appendix D) is intended to support future related research, in particular as a codebook. For communication purposes, the flower diagram (Figure 23) summarises the framework in a single image, which is then developed via a series of tables for the full framework for use in Digital Education LD (Table 52, Table 53,

Table 54, Table 55, Table 56). Finally, the ‘DELLHE journey’ illustrated in Figure 24 represents a proposal for operationalising the framework, as a conversational tool to be applied in LD programmes and interventions.

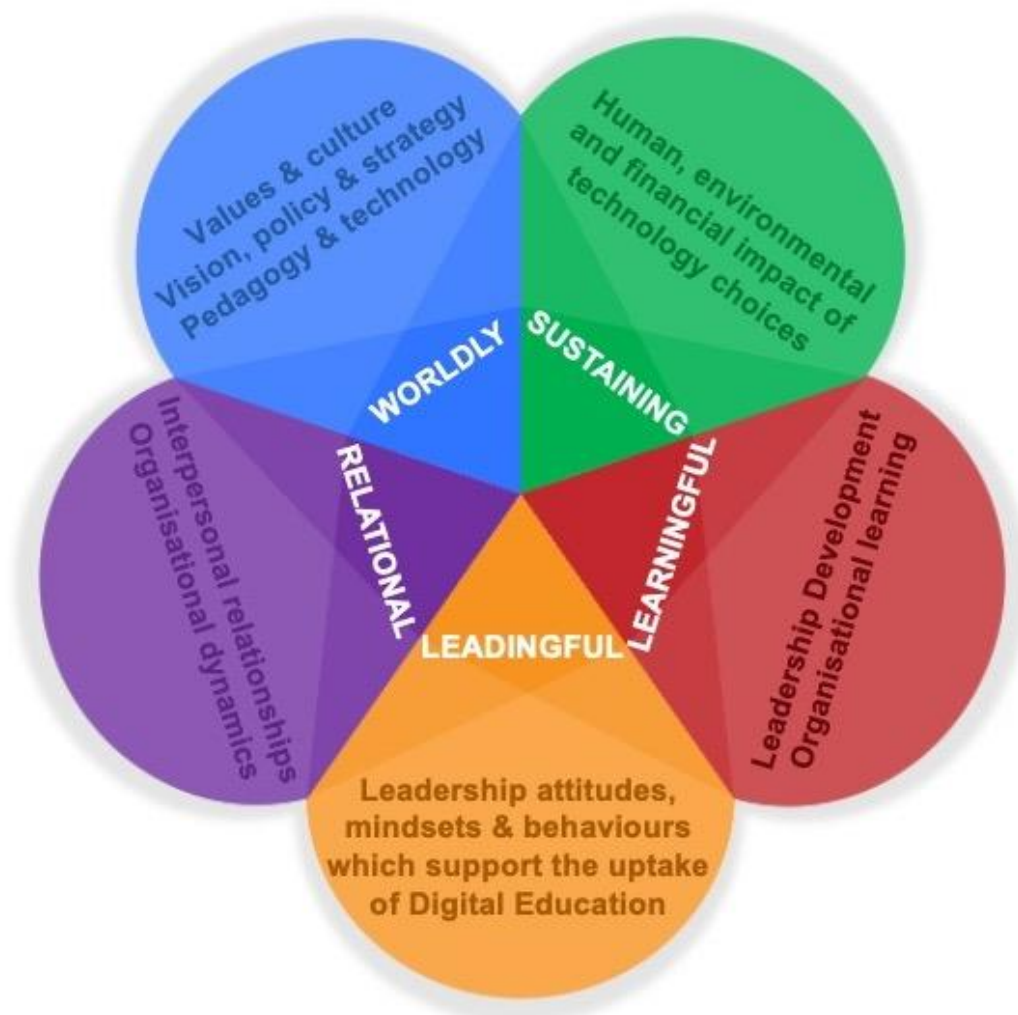


Figure 23: The final DELLHE framework (concise version)

This representation of the DELLHE framework as a five-petaled flower was chosen to represent growth, both personal and organisational, integral to the framing of Leadership Development for Digital Education in the current study. The overlapping petals symbolise the interconnected nature of the five dimensions.

Table 52: Final DELLHE framework - WORLDLY


<div style="background-color: #0056b3; color: white; padding: 5px; text-align: center; font-weight: bold;">WORLDLY</div>  <p>Digital Education Leaders' understanding of the role of HE in the digital world, and translation into vision and strategy.</p>	<i>REPRESENTATION (attitudes & mindsets)</i>		
	Context, vision & strategy	Pedagogy	Technology
	Understanding the institutional culture(s) Impact of economic and political context on the development of DigEd Place of DigEd in vision and strategy Big picture thinking, abstraction, modelling Ownership of institutional vision for DigEd Identifying opportunities to bring about transformation	Awareness of teaching and learning theories Awareness of learners' practices Awareness of teachers' practices	Understanding the societal impact of digital technology Understanding the digital world(s) of leaders, staff and students Understanding educational technology Critical attitude to educational technology
	<i>COMMUNICATION (behaviours & actions)</i>		
	Context, vision & strategy	Pedagogy	Technology
<p><i>NB. Digital Education abbreviated to DigEd for concision</i></p>	Encouraging future vision Aligning decisions about DigEd with context, vision & strategy Communicating the institutional vision in clear, simple terms Appointing key leadership and management team who 'fit' the vision for DigEd Mobilising internal / external expertise Making iterative transformations Collective decision-making processes	Putting pedagogy before technology Building multi-disciplinary teams Engaging in teaching and learning leadership Focusing on design thinking for pedagogy Supporting staff to experiment	Fostering critical attitudes to educational technology Putting people before technology Ensuring technology integration is 'fit for purpose'

Table 53: Final DELLHE framework – SUSTAINING


<p>SUSTAINING</p>  <p>Human, environmental and financial impact of technology choices.</p>	<i>REPRESENTATION (attitudes & mindsets)</i>		
	Environmental concerns	Human concerns	Financial concerns
	<p>Weighing up the positive and negative impacts of technology choices on the natural environment</p>	<p>Awareness of the human implications of technology choices for staff and students</p> <p>Framing the institutional mission in terms of social responsibility</p> <p>Ethical implications of educational technology</p>	<p>Willingness to invest in both appropriate technological solutions and the professional development of staff</p>
	<p>Being alert to changes in the external environment (and even weak signals) which may impact the institution’s approach to DigEd</p>		
	<i>COMMUNICATION (behaviours & actions)</i>		
	Environmental concerns	Human concerns	Financial concerns
	<p>Embedding environmental concerns in vision and policy</p>	<p>Developing a vision and policy for digital education around access, equity and inclusion</p> <p>Developing policies for safe, legal and ethical use of educational technology</p> <p>Promoting DigEd for social good and digital citizenship</p> <p>Developing and/or acquiring Open Educational Resources</p>	<p>Supporting scalable initiatives</p>
	<p>Facilitating organisational agility in order to react quickly and effectively to changes in the external environment</p>		

Table 54: Final DELLHE framework – LEADINGFUL


<div style="background-color: #e67e22; color: white; padding: 5px; text-align: center; font-weight: bold;">LEADINGFUL</div>  <p>The leadership attitudes, behaviours and actions which support the uptake of Digital Education throughout the institution.</p>	<i>REPRESENTATION (attitudes & mindsets)</i>		
	Purposes	People	Processes & systems
	Understanding the form(s) of leadership appropriate to the institutional context and goals	Self-awareness as leader Recognising that the priority is managing change rather than technology	Awareness of the need to provide explicit support for distributed leadership Being quality-focused
	<i>COMMUNICATION (behaviours & actions)</i>		
Purposes	People	Processes & systems	
Implementing and supporting appropriate models of leadership (distributed leadership, e-leadership, etc.) Acting as a catalyst for change and innovation with a view to digital transformation	Fostering collegiality and collaboration Leading by example Encouraging risk-taking and accepting failure with a view to learning from mistakes Being able to find incentives and create time for supporting change management Leading in a manner that engages everyone as change agents Giving agency to academic staff Giving agency to professional staff	Facilitating and committing to distributed, collaborative leadership for digital education throughout the organisation Ensuring that reward mechanisms in the institution foster innovation and change Encouraging active and open monitoring of results Using data to defend vision and convince others Mobilising digital technology in support of leadership presence	

Table 55: Final DELLHE framework – RELATIONAL



RELATIONAL	<i>REPRESENTATION (attitudes & mindsets)</i>	
	Interpersonal relationships	Organisational dynamics
	Enabling literacies in both areas of Relational Leadership theory:	Understanding the importance of interpersonal relationships Awareness of reasons for resistance to change Humility and lack of personal ego
Leadership theory: <ul style="list-style-type: none"> - Interpersonal relationships - Organisational dynamics. 	<i>COMMUNICATION (behaviours & actions)</i>	
	Interpersonal relationships	Organisational dynamics
	Investing time and energy in managing relationships Fostering a culture of trust Demonstrating positive affect and caring	Fostering a culture of inquiry, innovation and collaboration Implementing mechanisms to facilitate the creation of shared meaning Reaching across institutional silos Taking a constructive approach to conflict management

Table 56: Final DELLHE framework – LEARNINGFUL

 LEARNINGFUL	REPRESENTATION (<i>attitudes & mindsets</i>)	
	Learningful self	Learningful community
Leaders' own development of DELLHE. Support for the development of a learningful community for Digital Education.	Knowing the difference between leader and leadership development Recognising the importance of Leadership Development Accepting and learning from past mistakes	Knowing the characteristics of a learning organisation, and how this can support the development of DigEd Consideration of privacy concerns with respect to digital scholarship
	COMMUNICATION (<i>behaviours & actions</i>)	
	Learningful self	Learningful community
	Engaging in formal, non-formal and informal learning to develop Digital Education Leadership Literacies	Promoting a culture of organisational learning and innovation Designing physical and virtual spaces to support organisational learning Ensuring staff have opportunities (and time) for professional development Supporting staff and students to develop as DigEd leaders Integrating DigEd research and scholarship into professional development for both academic and professional staff

The DELLHE journey

The DELLHE journey (Figure 24) is a schematic proposal for representing the DELLHE framework through questions to be asked of participants during LD, whether this is in the form of a programme or course, or as part of a LD intervention.

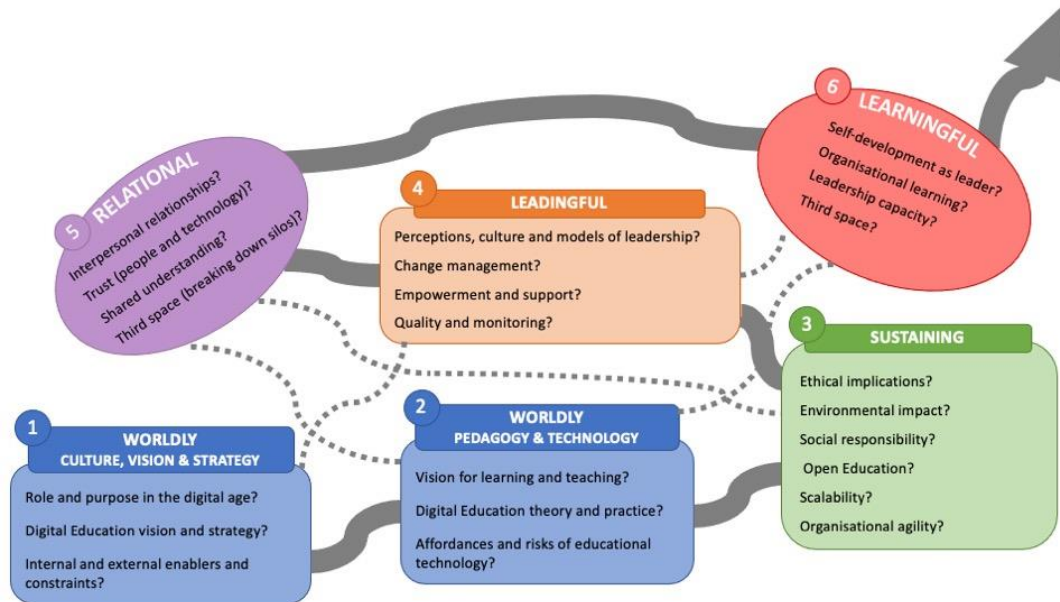


Figure 24: the DELLHE journey

As previously stated, leadership and LD are not linear processes. The recommended routes are shown as thick grey lines. The dotted lines represent alternative paths, enabling a return to previously-considered dimensions in order to revisit, review and revise perceptions and decisions made. The recommended route commences with the WORLDLY dimension, first looking at culture, vision and strategy, and then pedagogy and technology. This is followed by a focus on the SUSTAINING dimension before addressing the LEADINGFUL Leadership Literacies, and then visiting both the RELATIONAL and LEARNINGFUL dimensions. At each stage in the journey, elements from the detailed DELLHE framework can and should be brought in for discussion.

In concrete terms, participants in Digital Education LD programmes and interventions could be invited to trace their own journey on a version of the diagram which does not show these itineraries. Inspired by activities conducted in existing LDPs such as the JISC Digital Leaders Programme (Phipps & Lanclos, 2017) and D-TRANSFORM (D-TRANSFORM, n.d.), participants could also complete the diagram by illustrating the goal on the horizon, the rocky terrain in terms of barriers and challenges to overcome, and identify the drivers and enablers to be mobilised (Laurillard, 2014).

Overview of key findings and final outcomes

MMR integration through joint display (Table 51) summarises the main results of the different components of the study in a single table.

The three Case Studies differed in their level of DELLHE maturity:

CS1 – Université de Lorraine (France): Medium-Low

CS2 – Katholieke Universiteit Leuven (Flanders, Belgium): Medium-High

CS3 – University of Northampton (England, UK): High

The survey with academics found that innovators and early adopters wanted agency, distributed leadership and support for experimentation, to be made aware of new digital developments, and for diverse visions of Digital Education to be recognised.

The analysis of five Digital Education LDPs found that three areas of the DELLHE framework required more thorough treatment: WORLDLY (pedagogy & technology), SUSTAINING (environmental issues) and LEARNINGFUL (community).

The final DELLHE framework consists of a concise conceptual diagram (Figure 23) and a detailed framework containing all the individual DELLHE items for each of the five dimensions (Tables 52-56).

The concrete application of the DELLHE framework in Digital Education LD programmes and interventions is presented in the form of a conversational tool, taking participants on a journey through the five dimensions to ask and answer key questions (Figure 24).

PART III

Chapter 9: Discussion

“...ideas are similar to jokes that become better as each person tells them.”

— *Umberto Eco, How to write a thesis (1985)*

Introduction

This chapter discusses the results presented in Part II with respect to the research questions (RQ), the theoretical background and the methodological approaches mobilised. Each section also discusses the validity of the methods used, highlighting strengths and weaknesses. The chapter covers the DELLHE concept and framework (RQ1), the Case Studies and the survey (RQ2a and 2c) and implications for Digital Education LD. For reasons of thematic consistency, RQ2b (How do key informants develop DELLHE?) is grouped with RQ3a and 3b in this third section. Finally, the chapter concludes with a discussion of how the study evolved in order to take into account changes in the external environment, in particular the coronavirus pandemic.

The DELLHE framework

The final DELLHE framework (Appendix E) was developed iteratively through the Delphi study, the three Case Studies, the survey with academics,

the analysis of selected Digital Education LDPs and the final online focus group. This rigorous process validates the combination of existing frameworks, notably Jameson (2013) and Davis (2012), into a single overarching framework of Digital Education Leadership Literacies for Higher Education (DELLHE) in answer to RQ1.

RQ1) How can existing frameworks and concepts be combined into a single framework of Digital Education Leadership Literacies (DELLHE)?

In this section we situate the concept of DELLHE with respect to the leadership theories presented in the theoretical background, before examining the framework in more detail.

The DELLHE concept

Defined as a set of attitudes, mindsets and behaviours which enable HE leaders to address complex problems relating to the integration of Digital Education (Arnold & Sangrà, 2018b), the DELLHE concept is grounded in a contextualised understanding of leadership as a social influence process (Northouse, 2015). The theoretical background presented in Chapter 2 outlined the numerous and sometimes competing understandings of leadership theory, as well as the limitations of adhering to one particular theory such as Distributed Leadership (Jones, 2014), or the challenges in addressing both the individual and collective aspects (Gronn, 2009). Both Relational and

Complexity Leadership (Uhl-Bien, 2006; Uhl-Bien et al., 2007) contribute to understanding the interactions at play with respect to leadership in HE, and Digital Education Leadership in particular. Although at the outset the study was framed in terms of e-leadership (Avolio et al., 2001), this particular theory was finally considered to be more relevant when restricted to its initial framing of leadership mediated by technology rather than in the wider sense relating to technology integration in organisations proposed by certain scholars (Salmon & Angood, 2013; Van Wart et al., 2017).

In the light of these considerations, the DELLHE concept does not purport to be yet another theory of leadership and as such should be viewed as agnostic in this respect. Instead, it is best considered as a new lens through which to consider Digital Education Leadership. It certainly privileges the newer-genre theories of contextualised leadership, and references to such theories can be found in the appropriate dimensions (Distributed Leadership and e-leadership under LEADINGFUL, Relational Leadership under RELATIONAL and Complexity Leadership under SUSTAINING and LEARNINGFUL). Perhaps the most useful framing comes from the consideration of leadership as practice (Youngs, 2017) for its contextualisation with respect to HE, in particular the focus on “bring[ing] to the surface sometimes unquestioned norms that can prevent alternative ways of understanding and learning about practice” (p. 146). Leadership as practice also

smoothly integrates the model of academic leadership which is mobilised as one of the conceptual frameworks in the current study (Bolden et al., 2008a) as well as the concept of *third space* in academia (Whitchurch, 2008).

The overall framework

The research conducted throughout this doctoral study confirms Davis' (2012) concept of Leadership Literacies, with its five dimensions of WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL and LEARNINGFUL, as a relevant lens through which to frame and study Digital Education Leadership.

Furthermore, the introduction in the current study of the notion of literacies as both mindsets (*representation*) and behaviours (*communication*) from work on Multiliteracies (Cope et al., 2017) is a major contribution to reinforcing the concept of DELLHE.

One of the challenges encountered during this process was in addressing Davis' positioning of the RELATIONAL and LEARNINGFUL dimensions as enablers once cognitive shifts have taken place. The mindsets approach (Kennedy et al., 2013) suggests that the LEARNINGFUL dimension in particular, with its focus on learning, unlearning and relearning, might in fact be a prerequisite for the cognitive shifts to take place. Fullan and Scott (2009) purport that behaviours need to change first, then mindsets follow, but do not

provide any theoretical evidence for this claim. It is useful here to return to Musselin's (2005) observation that

there is no perfect connection [...] between practices and ideas or representations. Or to put it differently, actors may change their practices (as a result of the introduction of new instruments, rules, settings) but nevertheless still adhere to the same norms, values and identities." (p. 77)

The RELATIONAL dimension, with its dual focus on both interpersonal relationships and organisational dynamics clearly plays a supporting role, in particular with respect to the LEADINGFUL and WORLDLY dimensions. Taking this into account, and in the light of the aforementioned ambiguity, it was thus decided to attenuate Davis' approach by framing both the RELATIONAL and LEARNINGFUL as supporting Leadership Literacies within the DELLHE framework.

Jameson's (2013) *purposes* and *people* fit well with the DELLHE approach, where vision, strategy, culture and context are clear priorities within the WORLDLY, SUSTAINING and LEADINGFUL dimensions and where a people-centred approach is present across all dimensions. As can be seen from v.3 of the framework (Appendix D), *structures and social systems* are harder to integrate in terms of *representations*, as they are largely descriptive rather than literacies themselves. However, the 'organisational dynamics' aspect of Relational Leadership theory (Uhl-Bien, 2006) can contribute here, in

encouraging Digital Education leaders to reflect on their representations of such processes, structures and social systems, and on how they mobilise and even modify these through their enaction of leadership (Latchem & Hanna, 2002). Jameson's three categories of *purposes*, *people* and *structures and social systems* are therefore considered transversal concepts within the overall DELLHE framework and feature explicitly in the version of the framework (v.3) used for coding. However, for reasons of concision and simplicity, they are integrated implicitly in the version of the framework designed for public uptake in support of the design of Digital Education LD (Appendix E and Tables 52 to 56 in Chapter 8), where four of the five dimensions already have other thematic subdimensions, while still featuring explicitly as subdimensions under LEADINGFUL where they make the most meaningful contribution as a categorisation of the specific Leadership Literacies within this dimension.

Turning now to the secondary Digital Education Leadership frameworks mobilised to develop the DELLHE framework (Ahlquist, 2014; Beaudoin, 2016; Belshaw, 2014; Brown, Czerniewicz, Mayiesela, et al., 2016; Sheninger, 2014) the current study has harmonised their formulation in terms of Digital Education Leadership Literacies, validated and enriched them with input from the Delphi study, the Case Studies and the analysis of the five selected LDPs, classified them according to the notions of *representation* and *communication* and organised them within the five overarching dimensions of the DELLHE

framework. Throughout this process, it became evident that the five dimensions were not watertight, with natural overlaps, for example between the RELATIONAL and LEADINGFUL dimensions with respect to organisational change and its human impact. The choice was thus made to follow the recommendation of one of the focus group members in embracing these interconnections, which again are reflected in the final graphical representation of the DELLHE framework (Figure 23) and the DELLHE journey (Figure 24).

Over and above the framework itself, one significant contribution to the field of Digital Education Leadership is the development of the SUSTAINING dimension, which was rarely covered in the literature and was weakly represented in the LDPs analysed, in particular with respect to the impact of technology on the natural environment. This dimension can be expected to take on ever-increasing importance in the coming years and decades (Selwyn et al., 2020) and as Selwyn (2021) puts it so clearly:

On one hand, depletion of natural resources and energy curtailments might put paid to established 'abundant' forms of digital technology use. On the other hand, more frequent climate-related disasters might necessitate emergency forms of education for displaced and unsettled populations. (p.1)

Not only is the policy environment evolving to address environmental challenges, for example the European Digital Education Plan (European Commission, 2020), but the educational community is also becoming more

and more aware of ethical issues such as privacy, equity and access, which, although pre-existent, have been brought into sharp relief throughout the coronavirus pandemic (Czerniewicz et al., 2020; Hudson et al., 2020; Komljenovic, 2020).

Finally, in line with the limitations of leadership competency frameworks as highlighted by numerous scholars (Bolden et al., 2003; Bolden & Gosling, 2006; Bryman, 2007) the DELLHE framework should not be seen as prescriptive. In this way it differentiates itself from existing frameworks and standards such as ISTE (International Society for Technology in Education, 2018), the previous (2009) version of which was studied by Hayashi and Fisher-Adams (2015), or the e-learning maturity model (Marshall, 2010, 2013) which positions itself as a benchmarking tool. A useful distinction is inspired by the differentiation in French between “référentiel”, a comprehensive (competency) framework against which individuals and organisations are evaluated, and “cadre de reference” a concept that supports the understanding of relational issues with respect to our cultural background, our lived experiences and our way of seeing the world (de Miribel, 2013). The DELLHE framework could be said to occupy the middle ground between these two, with multiple applications. It functions equally as a lens through which to envisage and study Digital Education Leadership, as a conceptual framework in its concise form, as an instrument for QUAL data analysis, as a framework to guide the design of

LD programmes and interventions (including as a diagnostic tool) and as a conversational tool which can be applied during these same LD programmes and interventions. These concrete applications are developed further in Chapter 10 (Conclusion).

The five dimensions of the DELLHE framework

Taking each of the DELLHE dimensions in turn, the major themes in the framework are discussed below in relation to the literature.

WORLDLY

The *WORLDLY* dimension concerns representations with respect to institutional culture and the wider (digital) world in which HE operates. These representations have implications for vision and strategy, both on the part of individual leaders and the institution as a whole. The *WORLDLY* dimension also covers attitudes and practice with respect to teaching and learning in general, as well as of technology and Digital Education in particular.

Context, vision and strategy

This subdimension of the DELLHE framework concerns the articulation of a vision for Digital Education around institutional values, mission and purpose (Jameson, 2013), while recognising not only the external economic and policy environment in which a particular HEI develops Digital Education, but also the internal cultures at play (Czerniewicz & Brown, 2009). In particular,

HEIs will be influenced in the development of a vision and strategy for Digital Education according to the demands of external funding and accreditation schemes. For example in the context of the United Kingdom (UK), De Freitas and Oliver (2005) considered that the development of e-learning would be government-led due to the initial costs involved, and there is a long history of government policies for Digital Education in France (Thibault, 2007; Viera & Mocquet, 2018). The level of autonomy of HEIs in different countries also comes into play here (European University Association, 2016d), and while a high level of autonomy may, on the surface, provide universities with the opportunity to develop their own strategy, they will still need to meet the requirements of accreditation and ranking assessments such as the Research Excellence Framework (REF) and the Teaching Excellence Framework (TEF) in the UK. Intertwined with this policy context are external drivers (or barriers) related to student expectations in terms of both technology (King & Boyatt, 2015) and the wider question of employability (Flavin & Quintero, 2018).

This brings us back to the question of the purpose of HE and how this is framed in terms of the vision for Digital Education. Johnston et al. (2018) consider that the current neoliberal climate results in “individual universities creating strategic visions to align with the dominant political economy rather than engaging in more fundamental appraisals of their situation” (p. 11), leading to a techno-centric, market-oriented approach to (digital) education. The

authors propose an alternative framing of the Digital University grounded in critical pedagogy (Freire, 1974) as a prerequisite for a pedagogically and ethically sound vision for Digital Education. This precept is reflected across the five dimensions of the DELLHE framework, while recognising, as Johnston and colleagues do, that there will necessarily be a diversity of often conflicting values reflected in the institutional cultures at play (Bergquist & Pawlak, 2007).

Pedagogy and technology

This principle of a pedagogy-first approach to Digital Education is central to the DELLHE concept and associated framework. In addition to a keen understanding of the affordances of technology for teaching and learning it also requires addressing the attitudes and practices of both teachers and learners (Bates, 2015; Conole, 2013; Laurillard et al., 2018; Stoddart, 2015; Veletsianos, 2016). As highlighted by Pei and Paiw (2018), it is not enough just to focus on skills and knowledge: Digital Education Leadership must also address beliefs and attitudes. Morgan (2016) goes as far as to propose that the starting point is actually to forget all prior assumptions about educational technology in order to begin with a clean slate, and indeed this would enable the conversation to develop from the perspective of the overarching vision for teaching and learning. In this respect, the holistic approach taken by the Commonwealth of Learning C-DELTA curriculum for Digital Education Leadership (Brown, Czerniewicz, Huang, et al., 2016) is of particular interest,

considering as it does the relationship between digital education, digital literacy and digital education leadership (Brown, Czerniewicz, Mayiesela, et al., 2016).

SUSTAINING

The Sustaining Leadership Literacy covers the environmental, human and financial implications of educational technology choices, as well as wider sustainable development issues such as access, equity and inclusion, together with the question of organisational agility in responding to challenges, which is situated within the realm of Complexity Leadership theory (Uhl-Bien & Arena, 2017).

Environmental concerns

As noted in the theoretical background (Chapter 2), there was little extant literature to draw on with specific reference to Digital Education Leadership, although Selwyn et al. (2020) highlight the need “to develop radically leaner and ecologically- mindful approaches to rethinking how digital technologies might be best deployed (or not deployed) in education” (p. 4) in a world of finite resources. Allen et al. (2019) argue that considering humans to be embedded in nature, rather than separate from it, enables existing assumptions about sustainability to be challenged. The authors recommend the integration of this *ecocentric* approach in management education and with this

in mind, we argue that it also represents a highly appropriate contribution to the framing of the SUSTAINING Leadership Literacy.

Human concerns

The human impact of Digital Education takes on many forms, from the ethical and privacy issues inherent in the use of technologies such as Learning Analytics (Prinsloo & Slade, 2017) to wider concerns about Artificial Intelligence and equity (Selwyn et al., 2020). Furthermore, ethical leadership itself is seen as being an integral aspect of the newer-genre leadership theories (Angawi, 2012; Hannah et al., 2014). In this respect, the ethical framework for learning technology currently being designed by the Association for Learning Technology³⁹ is a positive development which should be followed closely.

Financial concerns

Strategic development of Digital Education cannot happen without the necessary investment. In their study of over 30 HE colleges and universities, Bates and Sangrà (2011) found that there was frequently a disconnect between strategic goals and financial planning, and recommend integrating learning technology with academic planning to drive technology investment from a teaching and learning perspective. The sustainability of Digital Education

³⁹ <https://www.alt.ac.uk/about-alt/what-we-do/alts-ethical-framework-learning-technology>

initiatives can also come from a more entrepreneurial approach, as described by Trevitt et al. (2017) where the law faculty within a research-led university took a business-model perspective to developing e-learning. However, as the authors themselves point out, while this initiative was successful, it had little impact on the organisation as a whole.

With respect to funding Digital Education within public HE, the most significant impact will come from government policy priorities, and it is here that the WORLDLY Leadership Literacies of big-picture thinking and knowledge of policy-making also need to be mobilised. As Bates and Sangrà (2011) point out, it is not just a question of investing in technology, but also of factoring in time for staff development as well as the impact on workload calculations of new teaching and learning models. This of course assumes that the teaching mission of universities is given due priority, which is often not the case in a sector driven by global rankings based on research output (Carpentier, 2021).

Organisational agility

The agility of HEIs (or the lack of it) in terms of universities' ability to react to changes in the external environment has been brought into the spotlight during the coronavirus pandemic (Bozkurt et al., 2020; Fernandez & Shaw, 2020). Even before the pandemic, Hemsall (2014) linked the notion of agility to Johansen's (2009) framing of the VUCA world, in which leaders need

to deal with volatility, uncertainty, complexity and ambiguity, and Mukerjee (2014) considered agility to be crucial in enabling universities not only to face government funding cuts (which links naturally to the previous point on financial concerns) but also to keep up with the fast pace of change in an increasingly digitised world. However, Mukerjee promotes a highly business-oriented approach to HE, which may be at odds with core cultures and values. This brings us back to the conundrum addressed by Johnston et al. (2018) in terms of the value-pluralism that needs to be fully recognised.

If we are to resist the neoliberal discourse around organisational agility, and to drive forward Digital Education based on sound pedagogical and ethical principles as is the premise of the current study, then a promising framing is offered by Marshall (2018) who considers agility to be “an ongoing process of sense making—a deeper understanding of the nature of a particular organisation’s context and challenges” (p. vii). This sits well with the **WORLDLY** and **RELATIONAL** dimensions of the **DELLHE** framework, as well as with the mindsets approach to LD (Kennedy et al., 2013).

LEADINGFUL

Following Dopson et al.’s (2019) recommendation that LD in HE should focus on identifying the forms of leadership appropriate to context and purpose, the **LEADINGFUL** dimension interacts with the **WORLDLY** dimension

in terms of addressing the institutional culture, in particular with respect to representations of leadership. It is here that the diverse leadership theories outlined in Chapter 2 come into play, and where governance level leaders in particular need to be aware of their different implications. For example, despite the numerous studies to this effect (e.g. Brown, 2013; Cifuentes & Vanderlinde, 2015; Singh & Hardaker, 2017) it is not enough to say that Distributed Leadership is advisable for the development of Digital Education unless the top management makes an explicit commitment to this (Garrison & Vaughan, 2013; Jones, 2014).

Alternative approaches such as Leadership Configurations (Gronn, 2009) and Complexity Leadership (Uhl-Bien et al., 2007) can be mobilised in order to understand the dynamics at play, however, they may be beyond the capacity of universities to actually implement. It is here that the framing of leadership as practice (Youngs, 2017) is helpful in shifting the conversation away from the traditionally held representations of leader-centric approaches to begin to address the situated, relational and complex reality of leadership. Once this has been achieved, the more operational approaches of e-leadership, considered here as the use of digital technology to affirm leadership presence (Avolio et al., 2014) and data-informed decision-making (Beaudoin, 2016) can be mobilised.

RELATIONAL

In order to explore the RELATIONAL dimension of the DELLHE framework, it is important to consider the two orientations of Relational Leadership Theory identified by Uhl-Bien (2006), namely the entity perspective (framed in this study as ‘interpersonal relationships’) and organisational dynamics, the latter with specific reference to collective sense-making.

Interpersonal relationships

Within this orientation can be found notions such as trust, respect, consideration, empathy, social skills, altruistic and ethical behaviour, building relationships, and emotional intelligence (Angawi, 2012; Bilhuber Galli & Müller-Stewens, 2012) with a view to team-building. Parrish (2015) frames emotional intelligence as traits (empathy, inspiring and guiding others, responsibly managing oneself), but also refers to these as competencies and abilities, linking these to effective leadership behaviours and practices. Again, given the move from trait-based leadership theory towards the newer-genre relational and complexity theories, it appears more relevant to frame emotional intelligence in terms of Leadership Literacies, where the *representation* aspect refers to individual and collective mindsets and attitudes, and the actual behaviours and practices which instantiate this representation come under the umbrella of *communication*.

Trust-building is considered a key aspect of Digital Education Leadership (Jisc & EDUCAUSE, 2015; Pei & Paiw, 2018). Over and above developing trust in people, it is also important to address the question of trust in technology itself, which relates back to ethical considerations. The RELATIONAL Leadership Literacy will arguably become more and more important in future, bringing a human touch to mitigate decisions made by Artificial Intelligence (Selwyn et al., 2020), where trust is fostered through transparency and the development of a critical culture and mindset with respect to educational uses of technology.

Organisational dynamics

Developing shared understanding is framed as motivating disparate staff around a common sense of purpose (Quinsee & Parker, 2017). McCauley-Smith et al. (2012) talk of building relationships, as well as an integrated culture and language. Clarke (2013) considers that breaking down silos can contribute to creating the conditions for a self-sustaining learning network, which resonates with the notion of *third space* in academia (Whitchurch, 2008, 2018). This entails not only creating spaces, whether physical, virtual or both, in which academics and professional staff come together to collaborate on Digital Education initiatives and develop a shared understanding, but also fostering a culture in which such cross-boundary collaboration is valued and recognised. Moreover, this entails strategic integration of the leadership potential of Digital

Education specialists among professional staff (Burnette, 2015; Shurville et al., 2009; Watson & Watson, 2013) while ensuring that academic staff themselves develop their own DELLHE in order for Digital Education to be fully embedded in practice.

LEARNINGFUL

LD is as much about the individual leader as it is about developing leadership capacity throughout an organisation (Day, 2000; Day et al., 2014; Dopson et al., 2019; Spendlove, 2007). As highlighted in the theoretical background (Chapter 2) there is a distinct paucity of literature with respect to Digital Education Leader(ship) Development to provide input for discussion. We therefore focus here on selected key concepts which feature in the LEARNINGFUL community dimension of the DELLHE framework and cover individual LD practices in the specific section on LD later in this chapter.

The main theoretical framing of the LEARNINGFUL community is situated within the concept of organisational learning (Senge, 2006). Hannah and Lester (2009) consider the role of the leader as a facilitator in creating an environment conducive to organisational learning where this then happens organically with little further intervention. Gentle and Clifton (2017) ask the specific question of how LD can help universities become learning organisations, from the perspectives of learning climate, in which learning is

natural, experimentation possible and mistakes tolerated, and learning structure, which, in a fully developed learning organisation, takes the form of a highly flexible self-steering and informal structure.

This is framed as a response to prior criticism of the relevance of the learning organisation idea for HE, in which Örténblad and Koris (2014) argue against HEIs attempting to adopt a fully organic learning structure, and conclude that a “questioning-listening-encouraging-learning bureaucracy (QLELB)” form is more capable, in particular, of guaranteeing fairness and equity than a truly organic, informal structure.

It can be seen from the discussion above that the novel DELLHE concept is grounded in the literature, both from the perspective of its definition as “a set of attitudes, understandings and mindsets which enable HE leaders to address complex problems relating to the integration of Digital Education” and from that of the five dimensions and the specific elements they contain. We now turn to a discussion of the methodology itself that was mobilised to create the DELLHE framework.

Methodological considerations

While the DELLHE framework was developed iteratively throughout the whole study, this section concentrates on the Delphi study which was the methodological approach designed and implemented to answer RQ1. The

Delphi study met the conditions for selection of experts (Hsu & Sandford, 2007), with 31 participants possessing the required knowledge and expertise in the field of Digital Education Leadership. It enabled consensus to be reached on 69 individual Digital Education Leadership literacy items, however its restriction to three rounds for reasons of time could be considered a limitation in that certain items, in particular those reformulated by the experts, were not able to be given full consideration. This was mitigated by the iterative process, during which items discarded at the end of the Delphi study for not reaching >80% consensus were reintroduced through TA (Braun & Clarke, 2006) of the Case Study and LDP data.

The one outcome of the Delphi study which deserves attention is the lack of overall consensus on the definition itself. As a reminder, the definition retained was that of “a set of attitudes, understandings and mindsets which enable HE leaders to address complex problems relating to the integration of Digital Education”, which only achieved a consensus score of 41.9%. The definition which arrived in second place (32.3% consensus) included the additional concepts of solving these problems “in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”

Designed as an asynchronous activity through a series of online questionnaires, the Delphi study did not enable the reasons for such a lack of consensus to be addressed, and even a fourth round might not have produced a satisfactory explanation. This contrasts with the online focus group which concluded the overall study, where a synchronous online session provided the opportunity for in-depth discussion on key issues, but which was not anonymous. One possible explanation for the lack of consensus on the definition can be found in referring back to the presence of value-pluralism (Johnston et al., 2018) across the diverse group of experts, and/or that a high proportion of these simply preferred a more concise definition.

This section has shown how the implementation of a Delphi study with initial proposals grounded in the literature enabled a series of existing frameworks to be combined into a single framework of Digital Education Leadership Literacies for Higher Education, and as such provides the answer to RQ1. It should also be pointed out that this resulted in the first version (v.1 Appendix B) of the framework, which was progressively refined through an iterative process consisting primarily of integrating the results of the TA (Braun & Clarke, 2006) of the Case Study data followed by that of the five selected LDPs. The methodological considerations relating to this TA are addressed in the following section, which addresses the implementation of the DELLHE

framework in exploring lived experiences and perceptions of Digital Education Leadership in the context of the Case Studies and the survey.

Experiences and perceptions of Digital Education Leadership

As reported in Chapter 5, three Case Studies were conducted at campus-based universities in France (Université de Lorraine - UL), Belgium (Katholieke Universiteit Leuven – KUL) and the United Kingdom (University of Northampton – UoN). Further insights into the perceptions of DELLHE were provided by statistical descriptions of the results of a survey among academics in Europe, reported in Chapter 6. Taken together, these findings address RQs 2a and 2c.

RQ2a) How are DELLHE experienced by key informants in selected European universities?

RQ2c) How are DELLHE reflected in the institutional strategic plans and in the organisational structure?

The Case Studies

As DELLHE is a novel concept developed in the frame of this research, there are no prior studies on the topic with which the results of the three Case Studies can be directly compared. However, insights can be drawn from case studies on closely-related topics, such as those reported by Bates and Sangrà (2011) as well as the nine results from the literature review (Arnold & Sangrà,

2018a) which deployed a case study methodology. Consistent with the formulation of RQ2a), the different dimensions of the DELLHE framework are discussed in turn, with the exception of the LEARNINGFUL dimension which is covered in the later section devoted to LD (RQ2b).

WORLDLY

Vision and strategy

This aspect of the WORLDLY dimension was more developed among KIs in the KUL and UoN Case Studies than at UL, partly explained by the context of French HE. Among the other case studies identified in the literature review (Arnold & Sangrà, 2018a), a clear vision for Digital Education was identified as a need alongside specific action plans (Garrison & Vaughan, 2013) and developing a common vision considered to be a key success factor by Tay and Low (2017).

With respect to the strategic plans themselves, again the vision for Digital Education was much more explicit in those for KUL and UoN, with the former in particular complemented by a richly informed specific plan for Going Digital. The UoN strategic plan aligned Digital Education with the core value of ‘future-focused’ and its principle of ABL, reflecting the findings of Breznik and Law (2019) who identified educational philosophy as one of the four most common values associated with university missions statements.

Bates and Sangrà (2011) found that several of the campus-based universities covered in their study were weak on strategic rationale for the development of Digital Education, particularly where the vision was led by a single person or where there was no operational plan or insufficient funding to implement it. A decade on, there does appear to have been progress made, at least in the case of the three HEIs studied as part of the current research project. However, we need to recognise that having such a strategy was a condition for selection as Case Study in the first place and that the main purpose of the study was not to provide a comprehensive account of the place of Digital Education in university strategies and mission statements in general. In this respect, the work of Flavin and Quintero (2018) concerning UK universities would be worth extending in the context of further research.

Pedagogy and technology

An approach to educational technology grounded in solid pedagogical principles was again more noticeable in the BE and UK case studies. While in the FR university there was a well-developed approach to the transformation of teaching and learning, Digital Education itself rarely came into the picture from this perspective.

KIs in all CSIs reported differences in attitudes towards Digital Education and the maturity of initiatives across different disciplines, a finding reflected in a case study of the introduction of TEL in one HEI in Sweden,

where Bälter (2017) noted the existence of divides between academic subjects and competences, as well as divides in attitudes towards teaching. Singh and Hardaker (2017) also noted the need to recognise cultural differences between faculties and departments. Other case studies in Guyana (Livingstone, 2015) and Australia (Stoddart, 2015) identified a lack of attention to educational practices themselves and the need to address the affordances of technology in order to have a sufficient impact on teaching and learning.

SUSTAINING

There was a generally high level of awareness of ethical issues relating to technology across the three CSIs, with some evidence of this being translated into policy and practice. However, the environmental impact of technology, while largely recognised as a major concern, did not receive the same level of attention in terms of explicit policy.

Apart from the entrepreneurial approach to developing a sustainable e-learning initiative on the part of one department in an Australian HEI reported by Trevitt et al. (2017), wider sustainability concerns were not explicit in other case studies identified in the literature. Beyond these specific studies, however, other scholars highlight the need to consider Digital Education in the light of such challenges, including, but not limited to, climate change, ethics and privacy (Jameson, 2019; Selwyn, 2021; Selwyn et al., 2020).

LEADINGFUL

As identified in the theoretical background (Chapter 2), Distributed Leadership (Spillane, 2006) is a popular approach to Digital Education Leadership in HE, and the three Case Studies were no exception in terms of mentions of the concept, though its actual implemented differed considerably.

Looking at other case studies, Brown (2013) analysed curriculum redesign projects at five UK HEIs in the light of top-down, bottom-up and Distributed Leadership, arguing the greater effectiveness of collaborative approaches over top-down or bottom-up approaches. Similarly, in their multiple case study in Columbia, Cifuentes and Vanderlinde (2015) concluded the need for Distributed Leadership. Singh and Hardaker (2017) identified a collaborative, participatory approach as a change lever to be mobilised, however Garrison and Vaughan (2013) highlight the fact that such distributed or collaborative leadership requires a firm commitment engaging all levels of the institution, a position echoed by Jones (2014).

RELATIONAL

As reported in Chapter 5, KIs across all CSIs demonstrated a high level of awareness of the reasons for resistance for change, which were classified according to Kotter and Schlesinger (1979). However, with the exception of UoN, explicit approaches to change management were not mentioned, and even at UoN such resistance still prevailed. This is mitigated to some extent by

the later study conducted by UoN (Antunes et al., 2021) which explored academics' attitudes towards pedagogical change and the strategies to address such resistance, demonstrating that in this university at least, the transition has been made from being aware of the reasons to actually doing something to address them. The authors identified four main categories of 'active innovators', 'lagging innovators', 'sceptical but obliging' and 'sceptical and resistant'. Two approaches for bringing about sustainable change are put forward: "(1) a pragmatic route, focused on promoting change in practice (i.e. practice generates subsequent changes to beliefs); and (2) an epistemic route, aimed at promoting changes to beliefs (i.e. beliefs change first, practices follow)" (p. 1). This brings us to reconsider Fullan and Scott's (2009) assertion that behaviours drive a change in mindsets, and which would thus align with the pragmatic route. However, as Antunes and colleagues point out, further research is required in order to establish which of the two routes is the most effective in a given context.

In another case study, Bälter (2017) identified mistrust of support staff due to divides relating to academic level as well as divides in attitudes towards teaching as among the barriers for change, and highlights Appreciative Inquiry (Cooperrider & Whitney, 2005) as a promising alternative to deficit-focused approaches to change management, resonating with Appreciative Leadership (Orr & Cleveland-Innes, 2015) as well as being one of the approaches identified

by Pawlak and Bergquist (2007) as a way to deal with the challenges arising from different institutional cultures.

The question of trust, in both people and in technology, received no mentions at KUL and very few at UL, however it was very present among the Middle Managers interviewed at UoN. This needs to be considered in the light of the work of other scholars who highlight trust as a key concern for Digital Education Leadership (Jameson, 2014; Martins & Baptista Nunes, 2016).

The RELATIONAL dimension also considers leadership from the perspective of organisational dynamics. The key findings selected for attention from the Case Studies concern the notion of *third space* (Whitchurch, 2008, 2018) and how the three universities supported (or not) academic and professional staff to work across traditional institutional boundaries. The approaches were very different, with a notable divide between the educational development and the learning technology units at UL, a networked structure coordinated by the head of the academic development unit at KUL and a flat structure at UoN, where *third space* was actually embodied by the physical environment of the Learning Hub.

The positioning of students as partners in the process of developing Digital Education was also highlighted at UoN and reflects the findings of an action-research study in another UK HEI (Roushan et al., 2016) where a

partnership approach to working with students featured among the success factors identified.

Digital Education Leadership Literacies as seen by academics: the survey

One of the remarkable findings from the analysis of the survey data was the absence of any of the RELATIONAL variables being identified as having a positive influence on the respondents' attitude towards Digital Education. These results appear to contradict both the Case Studies conducted in this research and the wider literature, where attitudes and behaviours relating to empathy, trust and relationship building are associated with support for the uptake of digital technologies for learning and teaching (Holland & Piper, 2016; Jameson, 2014; Martins & Baptista Nunes, 2016). One possible explanation for this is the high proportion of self-declared innovators and early adopters among the survey respondents, who were already convinced of the affordances of technology and for whom support for experimentation, raising awareness of new digital developments, facilitating distributed leadership and empowering teachers to make their own decisions about how to use technology with their students were more important.

Although the survey itself did not enable any generalisations to be made for the reasons outlined in the methodological considerations below, it is of interest here to discuss the results of other surveys addressing Digital

Education Leadership, both from the initial literature review (Arnold & Sangrà, 2018a) and beyond.

In a QUAN survey of 487 HE educators in Malaysia, Sheiladevi and Rahman (2016) found that the variables of change management (“stakeholders involvement”, “system view”, “evolving mindset”, “understanding transition”, “system design” and “system evaluation”) influenced three aspects of e-learning implementation: “ownership and control”, “academic transformation”, and “service and satisfaction”. The authors concluded with the need to construct a vision and a mission that resonate with teachers, relating it to teaching and learning, a position reflected in the WORLDLY dimension of the DELLHE framework and also in the free-text responses to the DELLHE survey.

These respondents also expressed a call to be more involved in decision-making and strategy definition, which reflects the findings of another survey conducted with 259 educators and non-academics across 22 South African HEIs (Ng’ambi & Bozalek, 2013) recommending that formal leaders work with opinion leaders and change agents. This recommendation would go some way towards addressing the findings of Cifuentes and Vanderlinde (2015) who, in their survey of 348 academics across three Columbian HEIs noted a low level of support for the Digital Education policies implemented by the leadership, with some staff “perceiv[ing] the policy-making as «top-down» and «informative»

(in a prescriptive sense), despite interviews with leaders mentioning a participatory process” (p. 138).

Another angle of interest for the current study, which has identified the need for Digital Education LD at the level of faculty management, comes from a study of the perceptions of this particular population on matters related to online and blended learning (Ciabocchi et al., 2016). The insights provided by this survey of 129 faculty governance leaders in the USA highlight the need to focus on teaching (WORLDLY), quality and approval (LEADINGFUL) and staff development (LEARNINGFUL).

Methodological considerations

As outlined in Chapter 3, the Case Studies followed the rigorous approach defined by Yin (2018). Selection of the case studies was conditioned by the criterion of gaining access to Key Informants, especially at governance level, and for purposes of comparison the final Case Study (UK) would have been more consistent if it had been in a large multi-site university like the French and Belgian institutions. Several attempts were in fact made to gain such access within such universities but were not fruitful. Having said this, the UoN case is extremely insightful in its own right, and the fact that there were more similarities with the KUL (BE) case than between KUL and UL (FR) is a significant finding in itself. Furthermore, other multi-institution studies cover a

range of university types, with Bates and Sangrà (2011) including both distance and campus-based universities, whereas Cifuentes and Vanderlinde (2015) focus only on ICT units without providing contextual information as to the nature of the universities included in their study.

Turning now to the use of TA (Braun & Clarke, 2006), although the principal techniques of TA were implemented, specialists in this approach might argue that the current study does not go the full way in identifying a small number of concise themes. This was conditioned by the use of Davis' (2012) five pre-existing dimensions together with v.1 of the DELLHE framework, and indeed these dimensions could be considered themes in themselves. Furthermore, TA was rigorously applied following the hybrid approach of deductive (closed, or theory-driven) and inductive (open, or data-driven) coding described by Fereday and Muir-Cochrane (2006) with the detailed framework serving as a coding manual for the theory-driven coding. The iterative process, whereby new codes identified in the open coding served to enrich the framework, did not result in the identification of themes beyond the five dimensions, with the exception of tensions and counter examples which find their place in the framework as issues and challenges to be addressed.

A further methodological consideration lies with the survey of academics' perceptions of Digital Education Leadership. Initially planned to be

implemented within the three CSIs themselves, the survey had to be abandoned due to a combination of factors reported in Chapter 6. This decision meant that the initial plan to compare academics' perceptions of DELLHE with what was noted as being enacted by the Digital Education Leaders themselves was not possible. The consequent redesign of the study, with a new survey implemented among a wider population of academics across Europe has been explained in Chapter 3. However, the limitations of this part of the study also need to be recognised, in that a certain bias is evident from the fact that the vast majority of respondents were self-declared innovators and early adopters of educational technology. This, combined with the uneven distribution of respondents across countries and the relatively low number of exploitable responses (n=102) excluded the use of more sophisticated statistical approaches such as Factor Analysis or Structural Equation Modelling (SEM) to draw inferences from the data. Taking all these issues into account, it is recommended that future studies endeavour to replicate the initial Case Study Mixed-Methods design (Guetterman & Fetters, 2018), in which the Case Studies themselves have both a QUAL and a QUAN component, with efforts to reach a sample size of 200 in each case, considered the minimum for SEM (Lei & Wu, 2007).

Digital Education Leadership Development

This section looks first at the findings from the three Case Studies in terms of RQ2b before turning to the wider context of Digital Education LDPs in answer to RQs 3a and 3b.

RQ2b) How do key informants in European universities develop (i.e. “learn”) DELLHE?

This research question focuses on the actions of individual Digital Education leaders to develop their leadership, as seen through the lens of the five DELLHE dimensions. In the FR and UK Case Studies there was some confusion between management and leadership training (Hamlin & Patel, 2017). Furthermore, in the FR Case Study there was little or no mention of Digital Education LD, and perhaps more worryingly, no expression of need or interest.

On the other hand, KIs at KUL (BE) and UoN (UK) alluded to many ways in which they developed their own leadership, with reference to the majority of the approaches described by Day (2000), whether through formal training or non-formal and informal approaches such as experiential learning, learning by example, peer-feedback, coaching and mentoring. What was lacking was a more explicit application of these practices within an overarching LD

intervention approach, in particular with respect to the definition of purposes and subsequent evaluation (Dopson et al., 2019).

The KIs talked more about the forms of LD they engaged in or wished to follow than about the actual DELLHE they developed, although there was mention of conflict management and supporting agile teams. In order to develop leaders' self-awareness, considered vital by Solansky (2010) for bringing about a change in behaviour, one potential way forward would be to introduce the concept of learning ecologies (Sangrà et al., 2019) as recommended by Arnold and Sangrà (2020).

In terms of the WORLDLY and LEADINGFUL Leadership Literacies, the inspiration provided by former managers, or even former PhD supervisors, received special attention as having been instrumental in forging certain KIs visions of Digital Education and of how leadership should be enacted. One of the KIs made reference to an explicit mentoring relationship, while others expressed a desire for more feedback and exchange with peers or experts beyond their immediate environment. This reinforces the potential of mentoring as an effective form of LD, as confirmed by Solansky (2010) who notes, however, the need for mentors to be trained and to commit sufficient time to the mentoring relationship. Coaching and mentoring are useful techniques for academic development itself (Guccione & Hutchinson, 2021) which, when applied to the development of leadership capacity for Digital

Education throughout an organisation, brings us to the question of the LEARNINGFUL community.

In the FR case study (UL), a voluntary system was set up to train academics in coaching techniques in order to equip them to support their peers. This was seen as identifying and mobilising teachers as change agents and fits with Senge's (2000) notion of internal networkers or community builders. However, the primary focus of their role was on the transformation of teaching and learning with no specific reference to Digital Education.

In the BE case study (KUL), the concept of a learning organisation was central to the overall strategy in the form of a networked structure known as the Learning Lab. Rather than being a physical space, this was conceived as a way of working across boundaries, bringing together academics from all disciplines and support staff around key strategic projects, where they themselves decided on the strategic priorities they wished to address. As such, this is an excellent example of the concrete implementation of *third space* (Whitchurch, 2008, 2018),

In the UK case study (UoN), the learning organisation concept was taken even further, with *third space* embodied in the actual physical environment of a recently-built campus. Known as the Learning Hub, this included the library (with both physical books and digital resources), teaching rooms and coworking spaces where academic and professional staff alike work in hot-

desking mode, as well as social and eating spaces open to both staff and students. Several of the participants in the case study mentioned the increased opportunities for interaction and the breaking down of traditional boundaries relating to status. While this reliance on physical space might be considered a barrier in particular in the context of the coronavirus pandemic which enforced remote teaching and working, the fact that UoN had embedded its concept of ABL throughout the university meant that it was in a good position to face the challenge (Jisc, 2020b).

A further aspect of organisational learning in relation to Digital Education Leadership particularly relevant to higher education is the mobilisation of research to drive and inform practice, which has its roots in SoTL (Simmons & Taylor, 2019). At UL, the reference to research was mainly framed in theoretical terms as a reference for designing academic development activities and was much less present on the educational technology side, except on a project basis. At KUL, the plans to integrate a research dimension in the Learning Lab had not yet been implemented at the time of the Case Study. Again, it was the UK university (UoN) that showed the greatest maturity in this respect, in that research into teaching and learning was strategically integrated as a way of generating internal evidence to inform practice before being formalised in policy. Furthermore, professional staff were encouraged to engage in scholarship, publishing and obtaining recognition from national professional

bodies, thus furthering their own professional development (Shurville et al., 2009).

The one LEARNINGFUL Leadership Literacy absent from all three was that of explicitly promoting and supporting digital scholarship (Pearce et al., 2011; Raffaghelli, 2017; Raffaghelli et al., 2016), or Networked Participatory Scholarship, defined as “scholars’ participation in online social networks to share, reflect upon, critique, improve, validate, and otherwise develop their scholarship” (Veletsianos & Kimmons, 2012, p. 766). The fact that a small proportion (17.65%) of the respondents to the wider DELLHE survey indicated that they did in fact engage in Digital Scholarship suggests that this may exist under the radar as the practice of individual academics, and that it is not (yet) embedded in overall institutional strategy with respect to professional development and LD. However further research evidence is obviously required in order to support this assertion.

Having discussed the way in which the KIs developed their own Digital Education Leadership and how the universities supported the development of a LEARNINGFUL community around Digital Education, we now turn to the question of LDPs themselves, seen through the lens of DELLHE.

RQ3a) How are DELLHE reflected in existing LDPs?

RQ3b) What changes should be proposed to reinforce the development of DELLHE?

The current study included the TA (Braun & Clarke, 2006) of five selected LDPs. As reported in Chapter 7 (see Table 50), the most widely represented dimension of the DELLHE framework was that of LEADINGFUL, followed by WORLDLY, primarily in terms of vision. The areas which were identified as requiring a greater focus for future LDPs were of integrating pedagogical and technological considerations more explicitly, of engaging current and future Digital Education leaders in conversations centring on the SUSTAINING dimension and in developing a LEARNINGFUL community. These findings led to the formulation of a series of recommendations validated by an online focus group, the results of which are reported in Chapter 7. The discussion in this section focuses on these recommendations in the light of the theoretical background and the few related studies identified.

As confirmed by the focus group, the DELLHE framework is a useful tool to serve as a frame of reference to guide LD design, and provides a lens through which to engage participants in thinking more deeply about their perceptions of the digital world, how these relate to teaching and learning, and the leadership required to bring about the desired change. In reflecting on five years of the JISC digital leaders course, Phipps and Lanclos (2017) note that “even conversations that start grounded in lists of tools and skills swiftly develop into discussions of organisational culture and practice, history, and the occasionally difficult process of working with people” (p.9). This reinforces the

importance of the RELATIONAL dimension within the overall DELLHE framework.

In a keynote at the International Conference on Information Communication Technologies in Education, Morgan (2016) addressed considerations for creating a culture of innovation around educational technology. According to Morgan, an initial exercise in unlearning (Becker, 2005, 2010) is vital in order to set aside previous assumptions about educational technology. Morgan's unlearn-relearn approach sits perfectly within the LEARNINGFUL dimension of the DELLHE framework as defined by Davis (2012), and as such was integrated into the general recommendations for LD based on Dopson et al. (2019).

However, as reported in Chapter 7 this question of unlearning was challenged by two of the eleven DELLHE focus group members. The reasons given, and discussed in the synchronous session, were that from the experience of those members with Digital Education LD, unlearning preconceptions about Digital Education or educational technology needs to be treated with caution as debunking can lead to more entrenchment. With this in mind, it should be taken as an 'unwritten recommendation' and combined with developing knowledge about the reality and potential of Digital Education, where necessary.

Complementary to this is a call for teachers to review their conceptual model of leadership to integrate the question of technology (Phelps, 2014). However, this is leadership education, in a formal learning context for students as future educational leaders. LD as defined by the current study is different in that it concerns supporting the development of DELLHE among existing leaders, whether this falls under academic LD, professional development or is explicitly framed as Digital Education LD. Having said this, the development of students as future Digital Education leaders is certainly an area of great importance, though beyond the scope of the current study.

Given the aforementioned paucity of literature relating specifically to Digital Education LD, valuable insights can be drawn from looking more widely at considerations for academic LD, which, in an ideal world, should overlap to bring in considerations of the digital. Marshall et al. (2011) explore different facets of leading and managing teaching and learning in HE, recommending purpose-built LD programmes and alignment of Human Resources Management policies to recognise these responsibilities, combined with a cultural shift towards valuing them. Moreover, if teaching and learning are not given due consideration in the first place, it is difficult to see how Digital Education Leadership itself can be developed and recognised.

The departmental level of teaching and learning leadership is addressed by Gibbs et al. (2009) who note the setting of teaching expectations as a

leadership activity. In terms of LD, the authors recommend what they call ‘resources’, including activities aimed at surfacing mindsets and attitudes. When bringing Digital Education Leadership into the picture (which is not addressed in this report, apart from a cursory mention of technology as a lever for change), surfacing attitudes to technology for teaching and learning within the department would be a logical extension.

At the level of the institution, the recommendations for Digital Education LD include a focus on identifying the forms of leadership most appropriate to the context (Dopson et al, 2019) which entails asking the following questions:

- What is the strategic aim with respect to Digital Education?
- What is the culture with respect to leadership (how is leadership perceived, what is the cultural representation of leadership)?
- How is the university currently organised around Digital Education?
- How do the current structure and representations of leadership facilitate or hinder the implementation of the strategy?

In theoretical terms, such questioning could be seen to be grounded in the notion of Leadership Configurations (Gronn, 2009, 2011), where vision, strategy and organisation are considered together in order to define the most appropriate form(s) of leadership. It is interesting here to look back at the KUL Case Study. As a large multi-campus university with a collegial culture, the

decision was made to put mechanisms in place in order to develop as a self-steering organisation (Gentle & Clifton, 2017), and not to engage in a restructuring of units and departments. This decision was clearly driven by a commitment to both Distributed Leadership (Spillane, 2006) and a vision of the university as a learning organisation (Senge, 2000). However, while the KIs themselves engaged in Digital Education LD, it was not clear whether this was more widely practised, and indeed one of the KIs noted a lack of engagement with the strategy on the part of heads of faculty.

This brings us back to the question of the distinction between leader and leadership development (Day, 2000), and the related notion of LD interventions which take place over time (Dopson et al, 2019). Developing leadership capacity for Digital Education requires a whole-institution approach if the university is to function fully as a learning organisation, while recognising the caveats expressed by Örténblad and Koris (2014) in terms of the risks to fairness and equity in a truly organic, informal learning organisation.

We argue that Digital Education LD programmes and interventions should fully integrate conversations about the role of the digital, from a pedagogical perspective rather than a purely technical one, and should draw on the wide base of research into Digital Education itself (Bates, 2015; Laurillard et al., 2018). Such programmes should address the wider institutional culture with respect to leadership itself as well as how teaching is valued. The growing

concerns around the ethical and environmental implications of technology should be integrated, as should both the interpersonal and organisational dynamics aspects of RELATIONAL leadership. Finally, more attention should be given to considering Digital Education LD in terms of LD interventions and evaluated over time, something which is yet to be addressed in terms of empirical research.

Methodological considerations

Digital Education LD was studied using a combination of approaches: addressing Digital Education LD practices during the semi-structured interviews as part of the Case Studies, applying TA (Braun & Clarke, 2006) to the five selected LDPs using the DELLHE framework as the theoretical basis, and concluding the study with an online focus group to validate the recommendations. Although the sample of LDPs was limited to five for reasons of time (already anticipated in the research plan), this combined approach was particularly successful in generating rich results, with a high potential for both future research and concrete application in Digital Education LD.

Evolution of the study

Over and above the redesign of the study described in Chapter 3 and discussed earlier in this chapter, the framing of the DELLHE concept itself also evolved as result of the researcher's own growing understanding of the field and

of the issues at stake. Initially imagined as a more or less prescriptive framework, identifying the Digital Education Leadership Literacies that HE leaders 'ought to possess', the DELLHE framework rapidly took on a different guise. In full recognition of the limitations of competency-based frameworks for leadership in not sufficiently taking into account the question of context (Bolden et al., 2003; Bryman, 2007; Kennedy et al., 2013), the DELLHE concept was progressively reframed as a new lens through which to consider Digital Education Leadership, while still enabling the detailed framework to provide a valuable analytical tool.

Further evolutions came from the need to constantly update the literature review throughout the study, bringing new insights to refine understanding. Both Digital Education and Leadership are fast-moving fields, and the coronavirus pandemic drew into even sharper relief the need for a pedagogically and ethically sound approach to Digital Education Leadership. This was far from a linear study, going through multiple iterations to integrate new concepts, while remaining in line with the overall research aim and questions. To this end, the five dimensions of WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL, LEARNINGFUL provided a stable frame of reference within which these evolutions could be integrated. Further studies involving the concrete application of the DELLHE framework will confirm whether or not this is the case over time. Again, the advantage of the DELLHE

concept itself is that it proposes a new lens through which to consider Digital Education Leadership, rather than attempting to position itself as a competing theory in the already complex landscape of leadership studies (Alvesson, 2017).

Transferability

The DELLHE concept and framework are easily transferable to other studies. The Appendices provide other researchers with all the tools required for such replication or extension of the current study, in the form of the framework itself, background documentation, the questionnaires used for the Delphi study, the survey with academics and the final online focus group, and samples of memos and coding from the Case Studies. Not only is the DELLHE framework transferable to further research, but it also has the potential for concrete application in the design of LD programmes and interventions as described in Chapter 8.

Chapter 10: Conclusion

The research described in this thesis dissertation has demonstrated how a framework of Digital Education Leadership Literacies in Higher Education (DELLHE) has been developed and applied as a novel lens through which to study the leadership attitudes, mindsets and behaviours of those in charge of developing the integration of technology for teaching and learning. In this chapter we summarise the main findings, address the contribution of this research to the field of Digital Education Leadership studies, outline potential concrete applications of the DELLHE framework and provide recommendations for future research in the light of the limitations of the current study.

Main findings

Overall, the study confirms Davis' (2012) concept of Leadership Literacies as an appropriate lens for studying Digital Education Leadership, enriching it with reference to the multiliteracies notions of *representation* and *communication*, addressing mindsets and attitudes on the one hand, and concrete behaviours and actions on the other (Cope et al., 2017).

The iterative development of the DELLHE framework provides both a theoretical and an empirical grounding for the five dimensions of WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL and LEARNINGFUL. This was

achieved by the mobilisation of Mixed Methods Research (Creswell & Plano Clark, 2011), moving sequentially through the QUAL approaches applied in the Delphi study, the three Case Studies and the analysis of five LDPs, followed by the QUAN analysis of the survey among academics in Europe. Integration (Fetters et al., 2013) of the QUAL and QUAN components resulted in the final version of the DELLHE framework (Appendix E) together with recommendations for Digital Education LD which were validated by an online focus group.

In theoretical terms, the study is clearly grounded in the newer-genre leadership theories which frame leadership as a complex interplay between the individual and the collective, with full consideration of the context in which this leadership operates. In particular, the Case Studies confirmed the need to take into account context and culture when addressing the question of Digital Education Leadership, and suggested autonomy as a possible lens through which to explore this question further. In addition to this, the application of the framework as a tool for designing semi-structured interviews enabled the surfacing of both exemplary practices to inspire others and of tensions and counter-examples as areas for attention. Over and above the systemic tensions, which were most notable in the French Case Study (UL), the main areas for attention identified were to address the reasons for resistance to change more explicitly, as is already being done at UoN (Antunes et al., 2021), and to pay

attention to the creation of shared meaning and purpose in the case of large multi-stakeholder projects such as Learning Analytics and digital exams. Here, insights from Relational and Complexity Leadership theory (Uhl-Bien, 2006; Uhl-Bien et al., 2007) make a significant contribution, as does the concept of *third space* (Whitchurch, 2008, 2018) in encouraging academics and professionals to work across traditional boundaries, supporting the development of the university as a learning organisation (Senge, 2000).

Although the five selected LDPs reflected the WORLDLY, LEADINGFUL and RELATIONAL dimensions to a satisfactory degree, there was a distinct lack of attention to pedagogical considerations. The SUSTAINING dimension was also weakly represented. If technology is to be used in an ethically and pedagogically sound way to support innovative and effective teaching and learning, leaders and emerging leaders need to develop a much finer understanding of teaching and learning theory and practice, and of the pedagogical, human and environmental implications of technology choices.

These findings were translated into recommendations for the content of future Digital Education LDPs. Further recommendations focused on the form such LD should take. First and foremost, the study identified the mindsets approach (Kennedy et al., 2013) as being preferable to a competency-based one although the question of whether mindsets drive behaviour or the reverse is still open for debate. Secondly, the study recommends framing LD in its true

sense of leadership development as opposed to leader development (Day, 2000; Dopson et al., 2019), which entails developing leadership capacity over time, looking ahead to those who will become future Digital Education leaders such as teachers who will take on responsibility as heads of department and work their way up to governance positions. LD should therefore be embedded as an integral part of the staff development policy and integrate SoTL as a way of generating internal research-based evidence to drive policy. Furthermore, the leadership role of students as full participants in decision-making about the use of educational technology should also be addressed. Project-based learning is one way of mobilising all stakeholders, providing that there is willingness to engage in reflection on leadership behaviour and attitudes across boundaries, irrespective of status or hierarchy. For this to be successful, a prerequisite would be building a culture of trust and collaboration, together with a conscious commitment to supporting distributed leadership (Jones, 2014).

The use of digital technology and social networks as the means through which to reflect on practice and engage with the wider scholarly community is vital if today's and tomorrow's leaders are to develop a heightened awareness of both the digital self and of living in an increasingly digitally-mediated world. Surfacing and embedding Digital Scholarship is one way of doing this, while recognising the legitimate privacy concerns with respect to commercial platforms. Taking a learning ecologies perspective (Sangrà et al., 2019) can also

support Digital Education leaders, both present and future, in understanding the numerous ways in which they develop DELLHE, and in mobilising those tools, environments and approaches which they may currently neglect.

Contribution of the study to Digital Education Leadership research

As a novel lens through which to study Digital Education Leadership, the DELLHE concept developed and validated throughout this study makes a significant contribution to the field.

The DELLHE framework has been shown to provide valuable insights into the mindsets, attitudes and behaviours of university leaders with respect to Digital Education and helps to surface the institutional and political environment in which this leadership operates, supporting the narrative description of HEIs in terms of vision, strategy and leadership. Furthermore, it enables the researcher to identify tensions and ‘missing’ Leadership Literacies, to highlight strengths and recommend areas for attention, to make comparisons between different HEIs, and to analyse and design Leadership Development Programmes and interventions.

If there is one single contribution of this research to be highlighted as a major contribution, it is the inclusion of the SUSTAINING dimension in terms of addressing the environmental and ethical implications of Digital Education. As the world faces increasing challenges in terms of climate change, the

development of Artificial Intelligence and a growing divide between the haves and the have-nots in terms of access to both technology and education (Selwyn et al., 2020) the consideration of the environmental and human impact of technology choices needs to be fully integrated in Digital Education strategy, decision-making, attitudes and behaviours.

Concrete applications

The DELLHE framework has potential for use as a conceptual lens through which to study Digital Education Leadership, to design research instruments such as interview guides and surveys, and to serve as a basis for coding QUAL data and analysing QUAN data. Over and above this, it also forms the basis for concrete application in the design of Digital Education LD programmes and interventions. For example, the DELLHE framework can be used to develop a simple interview guide to identify LD needs at different levels in the organisation, or as a tool for self-reflection. It can also be used, as we have done in this research, to analyse available LDPs and compare with the needs of the individual or team in question. Finally, the framework itself can be directly applied in Digital Education LD workshops or other forms of intervention, using the DELLHE journey (Figure 24) to stimulate reflexion, conversation and decision-making.

The DELLHE framework is not yet another competency framework. It is designed to take leaders on such a journey, grounded in the theoretical model developed throughout this research. In this way, it supports HEIs in asking ‘the right questions’ with respect to Digital Education, and in developing responses appropriate to the context in which they operate. This entails taking into account the external political and economic environment (including the degree of autonomy they have with respect to funding and accreditation imperatives), as well as the internal institutional culture(s) and ethos.

Some HEIs will have an explicit strategy for Digital Education, others will have embedded this in an overarching strategy, and still others may need to develop such a strategy. The DELLHE journey will thus differ according to the maturity of the vision for Digital Education. The way the DELLHE framework is operationalised will also depend on the profile of those participating in LD, for example developing a keener understanding of the digital world and its implications for Digital Education among governance members, introducing a ‘pedagogy first’ perspective, especially where Digital Education Leaders have a more technical background, and supporting Middle Managers in developing generic leadership literacies.

Limitations of the study and proposals for further research

The main limitations of the current study have been outlined in the methodological considerations included in Chapter 9. Concerning the Case Studies, it should be recognised that only three were conducted for reasons of time and feasibility. As this was an exploratory study, this should not be considered a weakness of the research itself. However, in order to confirm the findings and provide a wider basis on which to formulate generalisations, further case studies should be carried out in other HEIs in the same countries, as well as in other countries. Here, the focus on the context could be further reinforced to confirm or refute the apparent correlation of DELLHE maturity with the level of autonomy, in addition to further enriching the understanding of Digital Education LD through the lens of learning ecologies (Esposito et al., 2015; Sangrà et al., 2019).

A second limitation concerns the insufficient QUAN data collected via the survey. While this survey provided insights into academics' perceptions of DELLHE, no generalisations could be inferred from the data. Further research should focus on redesigning the survey to support the application of advanced statistical approaches such as Factor Analysis and Structural Equation Modelling as a means to determine the influence of DELLHE on the attitudes and practices of academics with respect to Digital Education. In order to ensure

a sufficient sample size, it will be vital to obtain the support of international and national organisations in distributing the survey, although the question of respondent self-selection, where the topic of Digital Education Leadership attracts those academics already convinced by the question of Digital Education still represents a significant risk of bias. Addressing the complexity of such perceptions of DELLHE might best be approached through QUAL research in the form of rich case studies as Alvesson (2017) states in relation to the problematic reification of leadership:

Various elements of leadership as ambitions, cognitions, behaviours, perceptions or interactions may be seen as converging to an “it” – a style, an integrated set of values, a root metaphor or something integrated and coherent – but an alternative idea of divergence, paradox, fragmentation, attributions, ambiguity, etc. must be part of how we relate to leadership issues. (p. 12)

QUAN analysis could then be reserved for more quantifiable data such as tracking the environmental and financial impact of technology choices.

This question of impact was not among the aims of the current study, which was designed to surface attitudes, behaviours and perceptions with respect to DELLHE. To build on this exploratory research, we align with Dopson et al. (2019) in recommending longitudinal studies to measure the impact of both Digital Education Leadership and LD. Such studies might take the form of ethnographic approaches such as observation (Conger, 1998),

action-research (Stringer, 2008) or Appreciative Inquiry (Cooperrider & Whitney, 2005). Obtaining authorisation for observation is difficult and as such was beyond the capacity of the present study, where even interviewing KIs and gaining access to strategy documents was challenging for the doctoral researcher. However, both action-research and Appreciative Inquiry are perfectly suited to the study of Digital Education LD as not only do these approaches enable the consideration of LD interventions over time from multiple perspectives, but the participating individuals and organisations actually benefit from such interventions.

Closing remarks

On a personal level, this doctoral journey has been a rich and rewarding experience. I have grown as a researcher and have learnt a great deal about different research methods, not least in knowing when a particular method is appropriate, and when it is not. Applying a scientific approach to Digital Education Leadership has enabled me to take a step back from problems I had observed and experienced first-hand, where such leadership was lacking. This research has also had a direct impact on my own practice in my various roles as project coordinator, board member of different organisations and team member, all in the field of Digital Education. I have developed my own DELLHE throughout this process and am now in a better position to make

strategic recommendations thanks to an increased awareness of the wider picture, am quicker to identify tensions and better equipped to address them, and keep a constant focus on pedagogical, ethical and environmental concerns.

Understanding the digital world in which we live, study and work should no longer be the prerogative of the informed few, the geeks and the early adopters. The principles embodied by DELLHE anchor Digital Education Leadership in an ethically and pedagogically sound approach, serving as an effective counter to overly technocentric understandings and practices. In the middle ground between techno-solutionism and techno-scepticism, DELLHE promote a more techno-cautious mindset informed by research, driven by purpose, vision and strategy, and by a respect for both human beings and the natural environment.

Synthèse en français

Titre de la thèse :

Supporting Leadership Development in European universities: a Mixed Methods study of Digital Education Leadership Literacies for Higher Education

Soutenir le Développement du Leadership dans les Universités européennes : une Étude à Méthodes Mixtes sur les Littéracies de Leadership pour la Pédagogie Numérique dans l'Enseignement Supérieur

Introduction

Contenu de la synthèse

Cette synthèse en français justifie la recherche conduite dans le cadre de l'étude doctorale en réponse au problème identifié, aborde les principaux éléments théoriques, résume la méthodologie déployée pour répondre aux questions de recherche et présente les principaux résultats. Pour plus de détails il est recommandé de se reporter à la thèse complète en anglais. Enfin, la conclusion de la thèse est traduite entièrement pour clore cette synthèse.

Justification de la recherche

Le numérique est utilisé pour soutenir l'apprentissage et l'enseignement dans l'enseignement supérieur depuis plus de deux décennies (Weller, 2020a). Mais les technologies sont-elles intégrées de manière stratégique, innovante et

pédagogiquement fondée, ou sont-elles simplement plaquées sur des pratiques existantes ? Depuis le début du siècle, le tableau peint par les chercheurs est celui du statu quo, ou au mieux une mise en œuvre prudente, avec un déficit de vision et de réflexion stratégiques particulièrement notable dans des universités organisées autour de campus physiques, contrairement aux universités à distance (Bates & Sangrà, 2011; Cuban, 2001; Orr et al., 2018). La nécessité de développer davantage le leadership et la vision afin d'ancrer le numérique au cœur de la culture universitaire (Maguire et al., 2020) est devenue encore plus pressante dans le contexte de la pandémie Covid-19, marqué par le passage d'urgence à l'enseignement en ligne (Bozkurt et al., 2020; Jisc, 2020a).

Fondements théoriques

Cette recherche porte sur le développement d'un cadre de **Littéracies de Leadership pour la Pédagogie Numérique**, définies comme « un ensemble d'attitudes, mentalités, comportements et actions qui permettent aux responsables dans l'enseignement supérieur de résoudre des problèmes complexes liés à l'intégration du numérique au service de la transformation des pratiques pédagogiques. » Le choix du terme « littéracies » peut surprendre, mais il est volontairement utilisé en référence aux travaux de Davis (2012) et pour mettre l'accent sur l'association d'attitudes et mentalités – création de

sens pour soi – et de comportements et actions – faire sens pour autrui (Cope et al., 2017).

Nous commençons par une définition des concepts clés, ancrés dans la littérature. Pour la revue détaillée de cette littérature, il est conseillé de se reporter au Chapitre 2 de la thèse en anglais.

Digital Education / La pédagogie numérique

La *Digital Education* est comprise comme la mobilisation de la technologie pour soutenir l'enseignement et l'apprentissage à l'ère du numérique. Ce terme utilisé dans la version anglaise a été choisi avec soin pour prioriser à la fois l'humain et la pédagogie, dans une démarche qui vise consciemment à s'éloigner d'autres formulations tels que e-learning ou technologies éducatives, qui mettent l'accent sur la technologie elle-même, ou encore l'anglais TEL (*Technology-Enhanced Learning* ou apprentissage amélioré par la technologie), qui est souvent employé indistinctement pour faire référence à la gestion de l'apprentissage ou à la pédagogie, ou qui implique que la technologie seule est suffisante pour améliorer l'apprentissage (Bayne, 2015; Fawns, 2019; Kirkwood & Price, 2014; Passey, 2019).

En français, l'acronyme TICE (Technologies de l'Information et de la Communication pour l'Enseignement) est communément utilisé pour parler des technologies éducatives, à la différence des formulations analogues en

anglais, qui incluent plutôt le mot *learning* (apprentissage). En effet, en français, l'utilisation des mots « enseignement » ou « apprentissage » a des implications importantes sur la façon dont les enseignants, les politiques, et même les étudiants, conçoivent réellement la relation enseignement-apprentissage (Lebrun & Lecoq, 2015).

Le terme *e-learning* est également utilisé en France, où il est apparu à l'époque de l'initiative e-learning de la Commission européenne (2000) et du programme 2004-2006 qui a suivi (Thibault, 2007). Toutefois, il a fini par être principalement associé aux prestataires du secteur privé. Dans la seconde moitié des années 2000, le terme *pédagogie numérique* est apparu (MESR, 2012; Valluy, 2013), qui n'est pas sans poser problème, comme l'illustre cet extrait du livre blanc du ministère français de l'Éducation nationale de 2012 :

Parler de pédagogie à l'université peut encore aujourd'hui être qualifié de phénomène nouveau - voire étrange, voire étranger - en France. Dans le rapport rédigé pour l'Agence pour la Mutualisation des Universités (AMUE), Albero et Charignon (2008) rappelaient que dans l'habitus universitaire, la pédagogie est généralement donnée comme un allant de soi rarement questionnée dans ses principes, ses modalités ou ses instruments. La question pédagogique est donc laissée aux initiatives individuelles et n'est que très rarement débattue dans la globalité et la cohérence du projet d'établissement. (MESR, 2012, p. 12)

Poteaux (2013) va jusqu'à considérer que le terme *pédagogie* a une connotation négative dans l'enseignement supérieur français, générant

également des controverses qui opposent les contenus à enseigner et la manière de le faire. Compte tenu des difficultés rapportées pour faire accepter la notion même de pédagogie, l'ajout du qualificatif *numérique* aggrave encore le problème. Cela n'est pas aidé par l'organisation même du soutien à la pédagogie numérique dans l'enseignement supérieur français, où souvent, encore aujourd'hui, des unités distinctes s'occupent de l'innovation pédagogique et des TICE (ANSTIA, 2009), malgré des préconisations de rapprochement (Isaac, 2008).

Par ailleurs, l'*éducation* se rapporte le plus souvent au système scolaire, comme illustré par les intitulés des deux Ministères distincts à l'heure actuelle : le Ministère d'Éducation nationale et le Ministère de l'Enseignement Supérieur, de la Recherche et de l'Innovation. Parler d'éducation numérique a donc encore moins de chances de résonner avec les acteurs de l'enseignement supérieur. En toute reconnaissance de ces difficultés, et en l'absence de vocable français suffisamment proche du terme anglais *Digital Education* tel que nous le comprenons dans le cadre de cette étude, c'est bien celui de *pédagogie numérique* qui est retenu.

Le leadership

Le leadership est compris comme un processus d'influence sociale afin d'amener un collectif vers l'atteinte d'un objectif partagé (Northouse, 2015),

également défini par Locke (2003) comme un processus consistant à inciter les autres à agir en vue d'un objectif commun. Cette conception du leadership s'inscrit clairement dans le passage des théories centrées sur les traits des individus vers une approche plus contextualisée et systémique (Bolden et al., 2003; Chelf, 2018; Gronn, 2002), sous la forme d'un leadership pluriel qui mobilise les compétences de chacun au sein d'une organisation (Vernazobres, 2016).

Toutefois, il est important de noter qu'il n'existe pas de mot en français pour désigner le *leadership*. Le terme anglais est utilisé, souvent de manière interchangeable pour désigner le leader (une personne) ou le processus de leadership (Pelletier, 2011). À cela s'ajoutent les tentatives de rendre le concept en français avec des termes tels que *direction ou dirigeant*, qui véhiculent une vision autoritaire, managériale et hiérarchique.

La question du leadership dans l'enseignement supérieur au sens où l'entend la présente étude a reçu peu d'attention de la part des chercheurs en France. La perspective sociologique de Musselin (2005, 2009, 2017) sur la gouvernance universitaire fournit des éclairages contextuels très utiles en ce qui concerne l'environnement politique, mais n'aborde pas le leadership en tant que tel, et la seule étude identifiée relative au leadership en pédagogie numérique dans un établissement d'enseignement supérieur (EES) français, en

fait une école de commerce, prétend qu'il n'y a pas de différence entre le management et le leadership (Hamlin & Patel, 2017).

La littérature relative au leadership du secteur public en France révèle le défi de la délégation des responsabilités, et par extension du leadership, au sein d'une telle structure, la difficulté de reconnaître le leadership fondé sur l'expertise par opposition au leadership politique, ainsi qu'une certaine méfiance à l'égard de ceux qui gouvernent (Bories-Azeau et al., 2016; Brest, 2011; Deneire, 2010).

Le leadership en contexte

Comme indiqué précédemment, les théories de leadership « nouveau-genre » mettent l'accent sur le leadership pluriel et contextualisé. Parmi ces théories se trouve le leadership distribué (*Distributed Leadership* (Spillane, 2006)), aussi appelé leadership partagé ou collectif. Cette théorie du leadership distribué est très fréquemment mobilisé pour l'étude du leadership dans l'enseignement supérieur (Bolden et al., 2009; Gronn, 2016; Gumus et al., 2018) et aussi dans la littérature spécifique au leadership en pédagogie numérique (Arnold & Sangrà, 2018a; Jameson, 2013).

Insatisfait de cette théorie pour expliquer la dynamique complexe entre l'individu et le collectif, Gronn (2016) a proposé une nouvelle approche, celle de la *configuration du leadership* qui prend en compte les deux aspects, et propose

justement que ces configurations soient considérées comme hybrides.

Cependant, alors que cette approche peut servir à expliquer les processus de leadership en jeu dans une organisation donnée, la base de recherche empirique est encore insuffisante pour éclairer la façon dont elle pourrait aider les EES à instaurer le changement nécessaire pour améliorer l'usage pédagogique du numérique.

Une autre approche très pertinente pour l'enseignement supérieur est celle du *leadership comme pratique*. Youngs (2017) situe sa critique du leadership distribué dans le contexte de la montée en puissance du nouveau management public dans l'enseignement supérieur, qui a encore accentué une dualité existante entre le personnel académique (les enseignants-chercheurs) et professionnel (les personnels techniques et administratifs), où le premier s'engage traditionnellement dans une approche collégiale de la prise de décision alors que le second est plus lié par une approche managériale descendante. Étant donné que le leadership en matière de pédagogie numérique concerne, par sa nature même, ces deux corps de personnels, il est important d'explorer ce concept plus en profondeur.

Selon Youngs, le leadership distribué pourrait en fait renforcer cette dualité, en réaffirmant subtilement les intérêts et les structures en place. Il cite plusieurs études dans lesquelles le leadership distribué donne l'illusion d'une participation à la prise de décision (Bolden et al., 2009) ; où, malgré la

délégation des responsabilités, un leader ou un groupe formel garde la mainmise sur le pouvoir (Davis, 2014) ou encore où les silos et les structures hiérarchiques constituent des obstacles au leadership distribué (Kezar, 2006). Surmonter ces tensions est abordé dans le concept de *third space* ou tiers lieu universitaire (Whitchurch, 2008, 2018) où le personnel professionnel s'engage dans une activité de leadership basée sur son expertise, en particulier dans les domaines de soutien à l'apprentissage et à l'enseignement (Bolden et al., 2015) et qui voit les professionnels et les universitaires collaborer autour des questions de qualité de l'enseignement et de la recherche en lien avec les objectifs stratégiques (Jones et al., 2014).

Une autre façon d'appréhender les interactions entre les aspects individuels et collectifs du leadership est par le biais de la théorie du leadership relationnel. Uhl-Bien (2006) identifie deux orientations : la première étant une perspective *d'entité*, qui aborde le leadership en se concentrant sur les individus (par ex, leaders et suiveurs) et leurs perceptions, intentions, comportements, personnalités, attentes et évaluations relatives à leurs relations mutuelles ; la seconde, *une orientation relationnelle* qui laisse de côté l'identification des attributs des individus impliqués dans les comportements ou les échanges de leadership, pour se focaliser plutôt sur les processus de construction sociale par lesquels certaines conceptions du leadership apparaissent et se voient attribuer une ontologie privilégiée.

La théorie du leadership de la complexité (Uhl-Bien et al., 2007) va encore plus loin, en s'appuyant sur la compréhension du leadership comme une dynamique interactive complexe d'où émergent des résultats adaptatifs (par exemple, l'apprentissage, l'innovation et l'adaptabilité). Dans le modèle conceptuel développé par Uhl-Bien et ses collègues, les différents rôles de leadership (adaptatif, administratif et habilitant) sont eux-mêmes enchevêtrés lorsqu'ils sont considérés à la lumière d'une relation dynamique entre les fonctions bureaucratiques et administratives de l'organisation d'une part, et la dynamique émergente et informelle des systèmes adaptatifs complexes d'autre part. Les universités elles-mêmes ont été présentées comme de tels systèmes adaptatifs complexes (Rouse, 2016) et le leadership de la complexité peut être considéré comme un moyen d'aider les organisations à passer d'une focalisation sur la résolution de problèmes techniques, caractéristique de l'ère industrielle, à la résolution des défis de l'ère du numérique (Baltaci & Balci, 2017).

Oc (2018) affirme que le leadership ne se produit pas dans le vide et Alvesson (2017) reproche à la recherche en leadership de négliger souvent les forces internes et externes qui influencent la vie organisationnelle et de ne pas reconnaître que la réalité organisationnelle est souvent désordonnée, politique et axée sur les résultats à court terme. La culture organisationnelle est l'une des façons d'appréhender cette réalité. En se référant spécifiquement à l'enseignement supérieur, Bergquist et Pawlak (2007) actualisent les travaux

antérieurs de Bergquist (1992) en identifiant six ensembles de valeurs culturelles de l'université. Ces valeurs sont définies et expliquées ci-dessous.

Collégiale : une culture qui trouve son sens principalement dans les disciplines représentées par le corps professoral de l'institution et qui se caractérise par un attachement à la production et à la diffusion des connaissances et à la prise de décision collégiale.

Managériale : une culture qui trouve son sens principalement dans l'organisation, la mise en œuvre et l'évaluation d'un travail orienté vers des buts et des objectifs spécifiques.

Développementale : une culture qui trouve son sens principalement dans la création de programmes et d'activités favorisant la croissance personnelle et professionnelle de tous les membres de la communauté de l'enseignement supérieur.

Advocacy (Défense des intérêts) : une culture qui trouve son sens principalement dans l'établissement de politiques équitables et égalitaires caractérisée par des tensions en termes d'équilibre des pouvoirs entre la direction et le corps enseignant et le recours à la négociation et au marchandage.

Virtuelle : introduite par Bergquist et Pawlak dans l'édition révisée, la culture virtuelle trouve son sens en répondant à la capacité de génération et de diffusion des connaissances du monde postmoderne. Elle embrasse la

complexité et l'ambiguïté du monde numérique et est attachée aux principes de l'éducation ouverte.

Tangible : également introduite dans l'édition révisée afin de contrebalancer la culture virtuelle, la culture tangible valorise la prévisibilité d'une éducation en face à face, basée sur des valeurs, dans un lieu physique propre.

La culture virtuelle présente naturellement un intérêt pour cette étude sur le leadership pour la pédagogie numérique. Cependant, en interprétant les six cultures décrites ci-dessus, il est important de résister à la tentation d'aligner un établissement sur une seule culture dominante. Il s'agit plutôt de comprendre l'interaction complexe de cultures multiples au sein de l'organisation, de la placer dans le contexte économique et politique plus large dans lequel l'université opère, et de tirer parti du potentiel de changement. Bergquist et Pawlak proposent deux manières possibles d'y parvenir. La première est *Appreciative Inquiry* ou enquête appréciative (Cooperrider & Whitney, 2005), une exploration collaborative axée sur les forces, les espoirs et la vision de l'avenir plutôt que sur les déficits et les obstacles au changement. La deuxième approche consiste à adopter une perspective ironique (Rorty, 1989) par laquelle les dirigeants acquièrent une meilleure compréhension des tensions et des polarités en jeu au sein des six cultures et entre elles, ce qui les

met dans une meilleure position pour identifier et traiter l'opposition, et pour anticiper les conséquences de toute tentative de changement.

Une typologie complémentaire est celle proposée par McNay (1995). Ici, le *Collegium* se caractérise par la liberté institutionnelle vis-à-vis des contrôles externes et par l'autonomie académique, et se manifeste en tant que tel dans la culture collégiale telle que définie par Bergquist et Pawlak (2007). Cependant, McNay note le risque de partialité dû à l'influence des perspectives individuelles ou disciplinaires. La *Bureaucratie* est définie par la réglementation, la cohérence, la qualité et l'efficacité, ce qui se reflète dans la culture managériale de Bergquist et Pawlak. Dans ce cas, le risque est de ne pas être en mesure de faire face à des changements rapides. Dans la culture de la *Corporation* l'exécutif affirme son autorité, et où le Président endosse le rôle chef de cet exécutif, avec le risque de générer du ressentiment chez les autres. L'on peut retrouver des aspects de cette culture à la fois dans la culture managériale et dans celle de défense des intérêts. Enfin, la culture d'*Entreprise* embrasse la notion de client où les connaissances et les compétences des experts, ainsi que les besoins et les souhaits de ceux qui recherchent leurs services, se rencontrent. Si l'on se réfère aux six cultures définies par Bergquist et Pawlak, il n'est pas immédiatement évident de savoir où situer la culture d'entreprise de McNay. En y regardant de plus près, l'on pourrait dire que McNay aborde la culture institutionnelle du point de vue de la stratégie et des opérations, alors

que Bergquist et Pawlak s'intéressent davantage aux valeurs, y compris celles qui restent tacites. Il y a donc un argument clair pour considérer ces différentes approches complémentaires de la culture institutionnelle dans la présente étude.

Lorsque l'on aborde la culture institutionnelle, il est important d'éviter les généralisations abusives et de se rappeler que cette culture est également le résultat de développements historiques et politiques. Comme la présente étude se concentre sur les universités européennes, les spécificités nationales doivent être prises en compte. Paradeise et al. (2009) comparent la gouvernance des universités en Europe occidentale, identifiant un paradoxe dans le fait que les réformes de l'enseignement supérieur dans les pays d'Europe occidentale ont beaucoup en commun et pourtant chacune d'entre elles est « *path dependent* » (p. 227), autrement dit, que ces réformes suivent une trajectoire propre à chaque pays. Une approche pour fournir plus de détails en ce qui concerne ces différents chemins consiste à examiner les différents niveaux d'autonomie des EES (Enders et al., 2013). La seule caractéristique notée par Paradeise et al. (2009) comme montrant peu de différence se situe dans le modèle de forte turbulence organisationnelle des systèmes d'enseignement supérieur entre les pays connus pour être enclins à la réforme, comme ceux d'Europe du Nord, et les sociétés supposées rigides comme la France. Cependant, Musselin (2005) soutient la nécessité d'examiner à la fois le niveau politique et le niveau

individuel, en notant que si les réformes nationales ont profondément affecté la gouvernance des systèmes d'enseignement supérieur au sein des pays européens, elles ont à leur tour obligé les universitaires à développer de nouvelles pratiques, tout en impactant à peine leurs identités et leurs croyances. Dans une note de bas de page de cette déclaration, Musselin soulève des questions qui sont particulièrement pertinentes pour la présente étude (traduction personnelle) :

Cela signifie qu'il n'y a pas ici de lien parfait entre les pratiques et les idées ou représentations. Ou, pour le dire autrement, les acteurs peuvent changer leurs pratiques (à la suite de l'introduction de nouveaux instruments, de nouvelles règles, de nouveaux cadres) mais néanmoins continuer à adhérer aux mêmes normes, valeurs et identités. (p. 77)

Alors que Musselin parle de l'influence des réformes politiques sur les pratiques et les représentations, la présente étude explore le rôle du leadership, et des littéracies de leadership en pédagogie numérique en particulier, dans l'amélioration de la façon dont la technologie est utilisée pour l'enseignement et l'apprentissage, et à ce titre, elle aborde pleinement la question des représentations et des attitudes ainsi que celle des pratiques.

Littéracies de leadership

Les littéracies de leadership sont comprises comme un ensemble d'attitudes, de compréhensions et d'états d'esprit qui permettent aux leaders

d'aborder des problèmes complexes et de les résoudre dans le respect des personnes et de l'environnement (Davis, 2012, 2014). Le concept de littéracies de leadership s'appuie également sur la compréhension des littéracies en tant que *représentation* (attitudes, compréhensions et mentalités) et *communication* (comment ces représentations sont communiquées aux autres par le biais de comportements et d'actions), telle que développée par Cope et al. (2017).

Davis a étudié les littéracies de leadership pour le personnel professionnel de l'enseignement supérieur, sans aucune référence à l'enseignement numérique. L'étude actuelle implique donc le développement d'un concept véritablement nouveau, celui des littéracies de leadership pour la pédagogie numérique dans l'enseignement supérieur (DELLHE). Nous résumons ici les cinq « littéracies » telles que formulées par Davis (2012, pp. 99 – 101), définitions qui guident l'ensemble de cette étude.

WORLDLY (MONDAINE⁴⁰) : compréhension de soi en tant que leader, et de sa place dans les nombreux mondes intérieurs et extérieurs interdépendants que l'on occupe.

SUSTAINING (DURABLE) : le développement durable et l'écologie en tant que considérations clés pour la conduite du leadership au XXI^e siècle.

⁴⁰ Au sens 'rapport au monde' <https://www.cnrtl.fr/lexicographie/mondain>

LEADINGFUL (LEADERSHIP) : les attitudes et comportements génériques de leadership, fondés sur une approche post-héroïque.

RELATIONAL (RELATIONNELLE) : les relations avec soi-même et avec les autres, y compris en termes de dynamique organisationnelle.

LEARNINGFUL (APPRENANTE) : le développement du leader et du leadership, par le désapprentissage et le réapprentissage.

Développement du leadership

Conformément à la compréhension du leadership en tant que processus social, le développement du leadership consiste à accroître la capacité collective des membres d'une organisation à s'engager efficacement dans les rôles et les processus de leadership (Spendlove, 2007). Cette approche se distingue de celle de développement du leader qui est basé sur une conceptualisation traditionnelle et individualiste du leadership (Day, 2000). Cependant, comme Day l'affirme, le développement du leader et le développement du leadership doivent être considérés ensemble plutôt que séparément. Cette étude se penche donc à la fois sur la manière dont les leaders de l'enseignement supérieur développent leurs propres littéracies en matière de leadership pour la pédagogie numérique et sur la manière dont ils soutiennent le développement de la capacité de leadership en pédagogie numérique à l'échelle de l'établissement. Dans la suite du document, l'abréviation DL est utilisée pour

désigner à la fois le développement du leader et le développement du leadership, sauf lorsque la distinction entre les deux est nécessaire.

Le recours à des référentiels de compétences ou à des approches centrées sur les styles de leadership a été largement critiqué par des chercheurs en DL (Bolden et al., 2003; Bolden & Gosling, 2006; Bryman, 2007), qui soulignent parmi les limitations l'image fragmentée offerte par ces approches, l'hypothèse selon laquelle un ensemble donné de compétences est universel et indépendant du contexte, le fait qu'elles soient axées sur le présent et le passé plutôt que sur l'avenir, et que l'approche cherche à identifier des comportements mesurables plutôt qu'à saisir les subtilités des interactions et du contexte du leadership. C'est pour cette raison que la présente étude situe le DL dans le cadre de l'approche des mentalités ou *mindsets approach* (Kennedy et al., 2013). Celle-ci concerne le développement des états d'esprit qui permettent aux leaders de faire face à la complexité, en distinguant le comportement de la personne, et en examinant les structures profondes, l'identité, les valeurs et les perspectives.

Avant de passer à une présentation de la méthodologie déployée dans le cadre de cette recherche, il est important de préciser ce que nous entendons par 'leader' dans le contexte précis de la pédagogie numérique dans l'enseignement supérieur. Tout en reconnaissant le leadership comme processus, nous nous intéressons tout particulièrement aux individus qui interviennent dans des rôles formels à différents niveaux de responsabilité pour

porter l'avancement de la pédagogie numérique : membres de la gouvernance en charge du numérique et/ou de la transformation pédagogique ; responsables des directions du numérique ; responsables TICE et/ou de services universitaires de pédagogie. Au-delà, bien évidemment, tout enseignant-chercheur contribuant à ce développement de la pédagogie numérique peut aussi être considéré comme leader, soit dans un rôle formel de responsabilité au niveau d'une faculté, d'un département, ou d'un programme de formation, soit dans un rôle informel au sein d'un projet ou d'un groupe de pairs.

Méthodologie

Cette étude exploratoire a mobilisé les Méthodes Mixtes (Creswell & Plano Clark, 2007) en associant approches qualitatives (QUAL) et quantitatives (QUAN) afin d'arriver à une compréhension fine du phénomène complexe du leadership, comme recommandé par des chercheurs de référence (Alvesson, 2017; Stentz et al., 2012).

Les questions de recherche (RQ) qui ont guidé l'étude étaient les suivantes :

- RQ1 : Comment des référentiels et concepts existants peuvent-ils être combinés en un cadre unique de *Digital Education Leadership Literacies* (DELLHE) ?
- (RQ2a) Comment les informateurs clés dans les universités européennes sélectionnées vivent-ils les DELLHE ?

- (RQ2b) Comment les informateurs clés des universités européennes développent-ils les DELLHE ?
- (RQ2c) Comment les DELLHE se reflètent-elles dans les plans stratégiques institutionnels et dans la structure organisationnelle ?
- (RQ3a) Comment les DELLHE se reflètent-elles dans des programmes de développement du leadership existants ?
- (RQ3b) Quels changements devraient être proposés pour renforcer le développement de DELLHE ?

Ces questions de recherche permettent d'atteindre l'objectif global de l'étude : déterminer comment un cadre de Littéracies de Leadership pour la Pédagogie Numérique (DELLHE) peut soutenir les universités européennes à développer le leadership pour la pédagogie numérique.

Le plan de recherche global suit une conception dite de Méthodes Mixtes-Étude de Cas (Guetterman & Fetters, 2018) où les données QUAL sont intégrées aux données QUAN recueillis en dehors des études de cas. Dans un souci de consistance, l'Analyse Thématique (Braun & Clarke, 2006) a été appliquée à l'étude de l'ensemble des données QUAL. Les résultats QUAL et QUAN ont été intégrés en utilisant les techniques de *building* (construction d'instruments QUAN à partir de résultats QUAL) et de *merging* (fusion ou association de données QUAL et QUAN) selon les approches préconisées par Fetters et al. (2013).

Les étapes conduites aux cours de ces travaux doctoraux sont résumées ci-après.

- Revue de littérature ;
- Une étude Delphi menée avec 31 experts internationaux ;
- Trois études de cas dans des universités en France, en Belgique (Flandres) et au Royaume-Uni (Angleterre) ;
- L’analyse de cinq programmes de développement du leadership pour la pédagogie numérique ;
- Une enquête auprès d’enseignants-chercheurs en Europe (n = 102) pour recueillir leurs perceptions du leadership pour la pédagogie numérique ;
- La formulation de recommandations pour le développement du leadership en pédagogie numérique, validées par une focus group en ligne composé d’une dizaine de membres, associant chercheurs, cadres de l’enseignement supérieur, Vice-Présidents et spécialistes du développement du leadership.

Résultats

Dans cette partie, nous présentons de manière synthétique les résultats issus de chaque étape. Pour le compte rendu détaillé de la méthodologie qui a permis de les obtenir, il est conseillé de se reporter au Chapitre 3 de la thèse en anglais. Le lecteur est également invité à approfondir son appréciation de ces résultats à travers les Chapitres 4 à 8.

Le cadre DELLHE

Le cadre DELLHE a été développé de manière itérative tout au long de ces travaux doctoraux. Nous présentons ici les différentes étapes qui ont conduit à son évolution.

Premièrement, une étude Delphi a été menée entre janvier et mars 2018 à travers trois cycles successifs de recherche de consensus au sein d'un groupe diversifié de 31 experts en pédagogie numérique, principalement basés en Europe. La méthode Delphi trouve ses origines dans les années 1950 (Dalkey & Helmer, 1963) comme moyen de trouver un consensus parmi un groupe d'experts, permettant l'anonymat des réponses individuelles et une évaluation de l'opinion du groupe (Linstone & Turoff, 1975; Pawlowski & Okoli, 2004). La méthode Delphi est particulièrement intéressante pour la recherche dans des contextes où le jugement est indispensable (Pawlowski & Okoli, 2004). C'est précisément le cas dans la présente étude, où la fusion proposée des référentiels de littéracies de leadership (Davis, 2012) et e-leadership pour la pédagogie numérique (Jameson, 2013) nécessite une validation avant son exploitation dans les phases ultérieures de la recherche. Par ailleurs, la mobilisation d'experts externes contribue à réduire le biais chercheur (Lincoln & Guba, 1985).

Une proposition du cadre DELLHE (v.0 – Annexe A) a été développée en référence à la littérature, associant aux travaux précédemment cités (Davis, 2012; Jameson, 2013) d'autres référentiels (Ahlquist, 2014; Beaudoin, 2016; C.

Brown, Czerniewicz, Huang, et al., 2016; Johansen, 2012; Sheninger, 2014).

Cette proposition a pris la forme d'une définition provisoire de DELLHE ainsi qu'une liste de 68 items détaillés, organisés selon les cinq dimensions de Davis (2012) : WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL, LEARNINGFUL.

A l'issue des trois cycles de recherche de consensus, deux résultats concrets ont été obtenus :

- a) La définition du concept de DELLHE,
- b) La première version (v.1 – Annexe B) du cadre DELLHE.

La définition retenue a été celle de DELLHE comme :

Un ensemble d'attitudes, mentalités, comportements et actions qui permettent aux responsables dans l'enseignement supérieur de résoudre des problèmes complexes liés à l'intégration du numérique au service de la transformation des pratiques pédagogiques.

Concernant le cadre détaillé, après la recherche de consensus sur les items initiaux, les reformulations et les ajouts proposées par les experts, l'étude Delphi a abouti à un référentiel comprenant 69 items DELLHE individuels (voir Annexe B). Ce cadre DELLHE a connu plusieurs évolutions à travers le développement itératif : une deuxième version (Annexe C) enrichie des résultats des études de cas, une troisième (Annexe D) résultant de l'intégration

de l'analyse des programmes de développement du leadership et enfin une quatrième (Annexe E) affinée suite à l'analyse des résultats de l'enquête QUAN et le focus group final. Cette version définitive a également été résumée sous la forme d'un cadre conceptuel, présenté ci-après (Figure (FR) 1) suivi d'une synthèse en français du cadre complet (Figure (FR) 2).

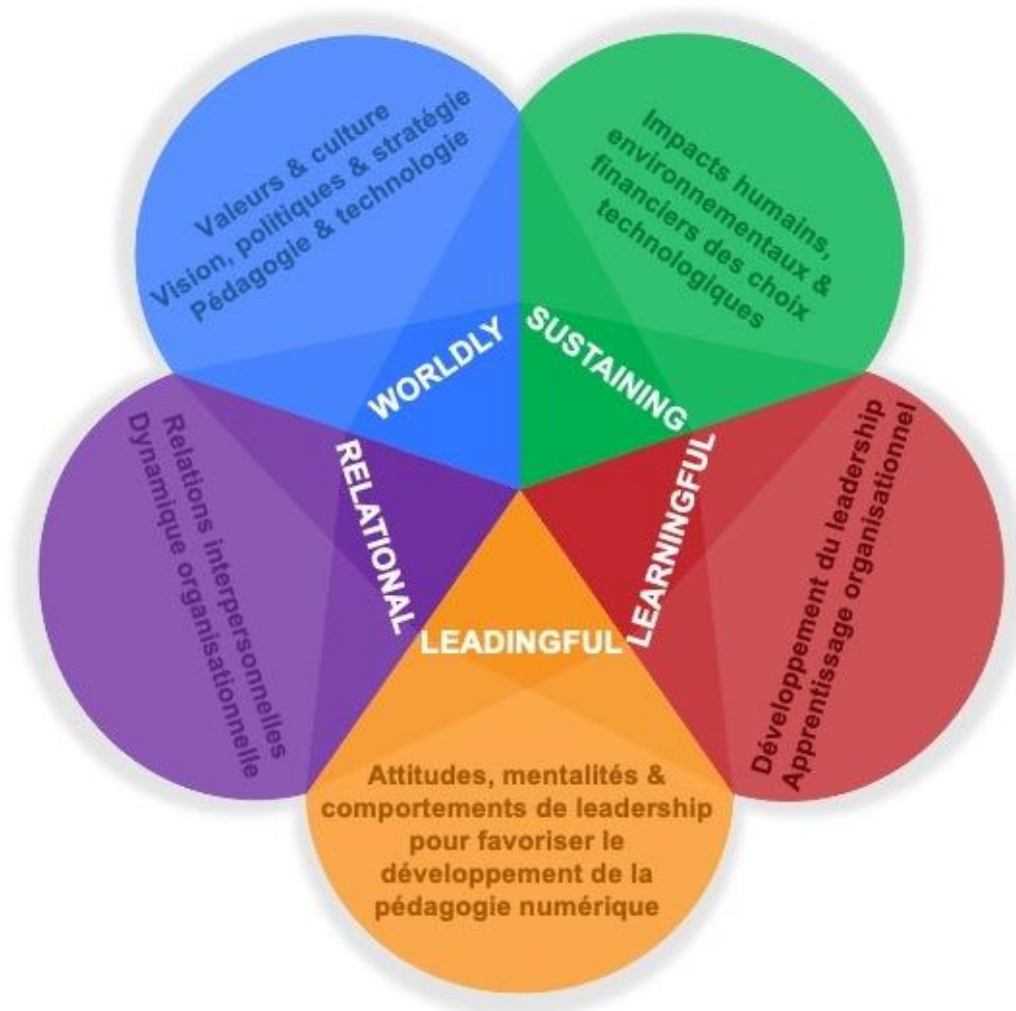


Figure (FR) 1 : Le cadre DELLHE

WORLDLY (vision et place dans le monde)	SUSTAINING (développement durable)	LEADINGFUL (attitude & comportement de leadership)
<p>Vision Valeurs, raison d'être et stratégie vis à vis de la pédagogie numérique Culture organisationnelle</p> <p>Pédagogie Théorie Pratiques des enseignants et des étudiants Soutien à l'expérimentation</p> <p>Technologie Représentations du monde numérique Potentiel et risques du numérique</p>	<p>Impact écologique du numérique Impact financier</p> <p>Impact humain du numérique - Éthique et protection des données - Bien-être</p> <p>Responsabilité sociale (équité, accès et inclusion) Développement de l'éducation ouverte</p> <p>Agilité organisationnelle</p>	<p>Représentations de la notion de leadership Formes de leadership adaptées au contexte (par ex. leadership distribué, e-leadership) Prise de risque, tolérance de l'erreur Conduite du changement Gestion stratégique des ressources humaines Reconnaissance Autonomie (soi et autrui)</p> <p>Qualité et suivi Convaincre par les données et les preuves</p>
RELATIONAL (le relationnel)		LEARNINGFUL (apprendre, désapprendre, réapprendre)
<p>Interpersonnel Temps et énergie consacrés au relationnel Compréhension de la résistance au changement Climat de confiance Empathie Résolution de conflits</p> <p>Organisationnel Création de sens partagé Dépassement des silos institutionnels</p>		<p>Le leader en tant qu'apprenant Volonté à se développer, apprendre des erreurs Développement personnel et professionnel (formel, non-formel, informel)</p> <p>Communauté apprenante Développement de la capacité de leadership de l'organisation L'université comme organisation apprenante Recherche en pédagogie numérique et valorisation par le numérique</p>

Figure (FR) 2 : Synthèse du cadre DELLHE

Les trois études de cas

Trois études de cas ont été menées entre avril 2018 et mars 2020 dans des universités situées dans la zone géographique de l'Europe.

- France : Université de Lorraine (UL),
- Belgique : Katholieke Universiteit Leuven (KUL),
- Royaume-Uni : University of Northampton (UoN).

Chaque étude de cas a consisté en un compte rendu détaillé du contexte, de la stratégie et de l'organisation de l'université en matière de pédagogie numérique et de l'exploration de DELLHE telle que vécues par les informateurs clés au niveau de la gouvernance (GOV), de la direction (Senior Management – SM) et de l'encadrement intermédiaire (Middle Management – MM). Le détail est reporté en anglais dans le Chapitre 5. Les principales conclusions peuvent être résumées comme suit :

Les littéracies de leadership WORLDLY étaient très développées parmi les membres de la gouvernance dans les deux universités ayant la vision stratégique la plus sophistiquée pour l'enseignement numérique (KUL et UoN).

Les dimensions LEADINGFUL et RELATIONAL doivent être développées afin de faire face aux tensions, résultant en particulier des grands projets multi-acteurs.

Le développement du leadership en matière de pédagogie numérique au niveau de la direction des facultés, la mobilisation des universitaires en tant qu'agents de changement internes dans une structure en réseau et la production de preuves internes par la recherche sont des approches prometteuses.

L'analyse comparative a fait apparaître la culture organisationnelle et la question de l'autonomie comme des prismes complémentaires permettant de considérer les différences observées, bien que des recherches supplémentaires soient nécessaires.

Nous présentons ici les points forts et recommandations de points d'attention pour chacun des établissements (Tableaux 1, 2 et 3) avant d'aborder l'analyse comparative.

Tableau 1 : Université de Lorraine

	POINTS FORTS	POINTS D'ATTENTION
WORLDLY	Bien développé au niveau GOV, SM et, de façon notable, au niveau MM. La stratégie tient compte des défis spécifiques d'une grande université multi-site, notamment en ce qui concerne la transformation des espaces d'apprentissage.	Aborder les questions systémiques et culturelles pour développer une compréhension commune du leadership. Intégrer l'enseignement ouvert et à distance dans le débat plus large sur la transformation pédagogique : mentionné dans le plan stratégique comme un domaine à développer, mais pas dans la feuille de route numérique ni dans les entretiens.
SUSTAINING	Les considérations environnementales sont bien développées, intégrées dans le plan stratégique et la feuille de route numérique et exprimées en accord avec les valeurs institutionnelles.	Prendre en compte les implications humaines des choix technologiques pour le personnel et les étudiants. Continuer à développer et à renforcer les politiques pour une utilisation sûre, légale et éthique du numérique.

	POINTS FORTS	POINTS D'ATTENTION
LEADINGFUL	Les efforts déployés pour obtenir l'adhésion de la direction du corps enseignant semblent porter leurs fruits, les grands domaines disciplinaires (santé et droit) étant mentionnés comme des moteurs de l'éducation numérique.	Chercher des moyens de reconnaître le potentiel de leadership des MM, en particulier pour bénéficier de leurs littéracies de leadership WORLDLY. Aborder la perception, au niveau du MM, d'un manque de réflexion stratégique sur la pédagogie numérique. Au niveau GOV : envisager de développer la gestion du changement et de diriger d'une manière qui engage tout le monde en tant qu'agent de changement. Considérer les implications stratégiques et humaines de la structure organisationnelle actuelle avec des départements séparés pour l'innovation pédagogique et les TICE, et le positionnement des TICE au sein d'une direction du numérique.
RELATIONAL	La création d'un sens et d'un objectif communs a été mentionnée à tous les niveaux. Affect positif au niveau du MM.	Envisager de développer davantage les littéracies relationnelles à tous les niveaux.
LEARN-LS	GOV : l'association nationale des Vice-Présidents Numériques représente une opportunité intéressante pour le développement du leadership entre pairs.	Envisager de s'attaquer à l'absence de DL, ainsi qu'au manque d'intérêt, tout en tenant compte des limites systémiques à la culture du leadership, et par conséquent au DL.
LEARN-LC	Le réseau des accompagnateurs pédagogiques, qui sont eux-mêmes des enseignants, considérés comme des agents de changement au sein des facultés, et formés à la fois à la pédagogie et au coaching.	Développer le Digital Scholarship (mobilisation des réseaux et médias sociaux au soutien d'une démarche réflexive en pédagogie numérique) . Poursuivre le développement du réseau d'accompagnants pédagogiques, qui a le potentiel pour devenir une véritable communauté de pratique.(Laurillard, 2014; Wenger, 2011) et intégrer pleinement le personnel TICE dans cette communauté.

Tableau 2 : KU Leuven

	POINTS FORTS	POINTS D'ATTENTION
WORLDLY	Vision et stratégie globales. Going Digital et Future-Focused Education en tant que domaines stratégiques clés et interconnectés contribuent à faire de la pédagogie numérique un élément clé de l'identité de marque.	Veiller à ne pas être trop ambitieux.
SUSTAINING	Sensibilisation aux implications humaines des choix technologiques pour le personnel et les étudiants. Le développement durable et les objectifs stratégiques de l'UNESCO au cœur du plan stratégique global.	Poursuivre l'intégration des implications environnementales avec une référence spécifique aux choix technologiques. S'assurer du transfert d'une vision partagée pour la transformation des espaces d'apprentissage de la stratégie à la pratique.
LEADINGFUL	Tandem clairement défini au niveau GOV. Décision de ne pas restructurer les départements opérationnels. ICTS engagé dans la gestion du changement et considéré comme un exemple au sein de l'organisation.	Continuer à développer la gestion du changement. Poursuivre les efforts visant à impliquer la direction des facultés et groupes dans le leadership pour la pédagogie numérique. Tirer les leçons des difficultés rencontrées lors d'un précédent projet complexe impliquant plusieurs parties prenantes (e-portfolio) lorsque l'on se lance dans de nouveaux projets ambitieux tels que les examens numériques.
RELATIONAL	L'attention prêtée à la création d'un sens et d'un objectif communs.	S'appuyer sur la vision commune pour donner de l'inspiration et du sens au travail. Traiter les tensions résultant du rythme rapide du changement. Soyez conscient des risques psychosociaux de la nouvelle orientation stratégique et soutenir les personnels impactés.
LEARN-LS	La maturité des attitudes vis à vis du DL à tous les niveaux (GOV, SM, MM).	Développer le mentorat pour le DL à tous les niveaux. Poursuivre les efforts en matière de DL pour le personnel professionnel qui assume de plus en plus de responsabilités de direction, conformément au passage à une organisation qui se dirige d'elle-même (<i>self-steering</i>).
LEARN-LC	Leuven Learning Lab - une vision stratégique globale et un concept en réseau pour soutenir l'émergence d'une organisation apprenante.	Développer le <i>Digital Scholarship</i> . Développer l'activité de recherche de l'institut LIFUS.

Tableau 3 : University of Northampton

	POINTS FORTS	POINTS D'ATTENTION
WORDLY	Vision et stratégie globales. Opportunité unique pour opérer un changement.	Aborder les visions divergentes en matière de pédagogie numérique (parmi les MM et les enseignants).
SUSTAINING	Un centre énergétique sur le campus avec l'ambition de devenir plus autonome Responsabilité sociale	Développer une compréhension plus fine de l'impact environnemental des choix technologiques et l'intégrer dans les politiques.
LEADINGFUL	Organisation « plate » Recrutement de personnels clé.	Continuer à développer la gestion du changement. Continuer à aborder la question du leadership au niveau de la direction des facultés.
RELATIONAL	Recognition of the importance of relationship-building.	Accorder une attention particulière aux projets complexes impliquant plusieurs parties prenantes, qui peuvent être sources de tensions et de conflits.
LEARN-LS	Investissement dans du DL de haute qualité pour un membre du GOV. Coaching et mentorat Opportunités internes de DL.	S'assurer que le personnel clé n'est pas exclu du DL. Envisager une poursuite du DL au niveau des MM et s'assurer que ceci est effectivement mobilisé dans la pratique. Aborder la confusion entre la formation au management et le DL.
LEARN-LC	Génération de preuves internes par la recherche Intégration de la refonte des programmes dans les activités de développement professionnel. Encouragement du personnel de soutien à s'engager dans la recherche et à obtenir une reconnaissance en devenant membre d'associations professionnelles.	Développer le <i>Digital Scholarship</i> .

Analyse comparative

En combinant l'autonomie et la culture organisationnelle avec le niveau de maturité DELLHE établi par l'analyse des données provenant des entretiens semi-dirigés et des documents stratégiques, l'on peut noter un lien entre l'autonomie et la maturité DELLHE (Tableau 4).

Tableau 4 : Comparaison d'UoN, KUL et UL en termes d'autonomie, culture et maturité DELLHE

	UoN UK (Angleterre)	KUL Belgique (Flandres)	UL France	
Maturité DELLHE	ÉLEVÉE	MOYENNE-ÉLEVÉE	MOYENNE-FAIBLE	
Culture	Managerial Virtual+Tangible Developmental ^B Corporation ^M	Collegial Virtual<->Tangible Developmental ^B Enterprise ^M	Collegial ^B Bureaucracy ^M	
AUTONOMIE	Organisationnelle	Élevée	Moyenne à élevée	Moyenne à faible
	Financière	Élevée	Moyenne à élevée	Moyenne à faible
	Académique	Élevée	Faible	Moyenne à faible
	Recrutement	Élevée	Moyenne à élevée	Faible

Légende : B = Bergquist & Pawlak (2007), M = McNay (1995)

Virtual+Tangible signifie que les deux cultures coexistent de manière harmonieuse ;
Virtual<->Tangible implique des tensions.

Cependant, cette corrélation apparente nécessite des recherches plus approfondies, en particulier en ce qui concerne la question de savoir si un manque d'autonomie est effectivement un obstacle au *Digital Education Leadership* tel que compris dans cette étude. En outre, il convient de questionner le caractère souhaitable de l'autonomie si celle-ci s'associe à une quasi-privatisation de l'enseignement supérieur, comme c'est le cas par exemple

au Royaume-Uni, ce qui rentre en contradiction avec la conceptualisation de l'enseignement supérieur en tant que bien public (Johnston et al., 2018).

Les perceptions des enseignants-chercheurs : l'enquête

Bien qu'il soit pleinement reconnu que les 102 répondants à l'enquête ne constituent pas un échantillon suffisant pour généraliser, les conclusions suivantes peuvent être tirées dans les limites de cette étude. Les personnes interrogées, qui se définissent pour la plupart comme des innovateurs et des pionniers (*early adopters*), ne cherchent généralement pas à s'inspirer des membres de la gouvernance officielle pour utiliser la technologie dans l'enseignement et l'apprentissage. Les DELLHE les plus influentes étaient les suivantes :

- Soutenir l'expérimentation
- Encourager la sensibilisation de l'enseignement aux nouveaux développements numériques.
- Faciliter le leadership distribué dans l'ensemble de l'établissement.
- Responsabiliser le personnel enseignant.

Les littéracies relationnelles n'ont étonnamment pas été considérées comme influentes. Par ailleurs, il y a des progrès à faire pour soutenir le développement d'une communauté apprenante en termes de travail au-delà des frontières traditionnelles, de développement de l'esprit critique, et du *Digital Scholarship*.

Les répondants à l'enquête avaient généralement une opinion plus positive des leaders en pédagogie numérique à la suite de leur expérience lors de la pandémie de Covid-19, mais ils souhaitent être inclus dans les prises de décision, que la pédagogie soit davantage prise en compte lors de ces prises de décision et que le leadership fournisse un soutien suffisant et opportun.

Le développement du leadership pour la pédagogie numérique

Analyse de programmes de formation

Dans la phase 2 de l'étude, une analyse complémentaire d'une sélection de Programmes de Développement du Leadership (PDL) pour la pédagogie numérique a été réalisée, afin d'établir dans quelle mesure ceux-ci reflètent le cadre DELLHE. Cette sélection a été faite sur la base des critères suivants : pertinence pour le leadership en pédagogie numérique à différents niveaux de responsabilité dans les EES, couverture de différentes modalités (présentielle, hybride, en ligne), disponibilité du programme détaillé en anglais. Comme indiqué au Chapitre 3, la sélection a été limitée à cinq pour des raisons de temps. Les PDL retenus (voir aussi en Tableau 5) étaient les suivants :

- Deux programmes en présentiel : EDUCAUSE, JISC
- Un programme hybride : IELOL
- Un programme en ligne : C-DELTA
- Un cours en ligne ouvert et massif (MOOC) : D-TRANSFORM

Le compte rendu détaillé de cette analyse se trouve dans le Chapitre 7 de la thèse en anglais, et a été publié sous forme de chapitre d'ouvrage (Arnold & Sangrà, 2020).

Tableau 5 : Comparaison des cinq programmes en termes de modalité, public cible et périmètre géographique

Caractéristiques	PDL				
	EDUCAUSE	JISC	IELOL	C-DELTA	D-TRANSFORM
Modalité	Présentiel	Présentiel	Hybride	En ligne	En ligne
Public cible	MM /Futurs leaders	Leaders actuels et futurs	Leaders émergents	Gouvernements, Institutions, Société civile Enseignants	GOV SM
Couverture géographique	USA	UK	USA	Internationale (Common-wealth)	Europe

Couverture DELLHE

En ce qui concerne le cadre DELLHE, il existe des différences considérables dans la couverture des cinq PDL (Tableau 6). Les plus présentes étaient la dimension WORLDLY (vision et technologie) et la dimension LEADINGFUL. La dimension RELATIONAL a été couverte dans une certaine mesure, en particulier dans le programme EDUCAUSE, mais beaucoup moins dans les quatre autres.

Tableau 6 : Couverture DELLHE des cinq PDL

DIMENSION DELLHE	PDL				
	EDUCAUSE	JISC	IELOL	C-DELTA	D-TRANSFORM
VISION					
PEDAGOGIE					
TECHNOLOGIE					
SUSTAINING					
HUMAIN					
ENVIRONNEMENT					
LEADINGFUL					
RELATIONAL					
LEARNINGFUL					
SOI					
COMMUNAUTÉ					

Légende :

Aucune couverture
Faible couverture (1-2 littéracies)
Bonne couverture (3 littéracies ou plus)

Les aspects suivants étaient insuffisamment représentés :

WORLDLY : Considérations pédagogiques. Pour que la technologie soit utilisée de manière à soutenir un enseignement et un apprentissage innovants et efficaces, les leaders et les leaders émergents doivent acquérir une compréhension beaucoup plus fine de la théorie et de la pratique de l'enseignement et de l'apprentissage, ainsi que des implications pédagogiques des choix technologiques.

WORLDLY : Aspects technologiques. Compte tenu des publics cibles, notamment des programmes EDUCAUSE, JISC et IELOL, l'on peut supposer que les participants ont déjà une connaissance suffisante des TICE. Cependant, le DL pour la pédagogie numérique serait incomplet s'il n'abordait pas à la fois

l'impact sociétal du numérique et les possibilités et risques des technologies éducatives.

SUSTAINING : Impact environnemental des choix technologiques.

Alors que le monde est confronté à des défis croissants en termes de changement climatique, la prise en compte de l'impact environnemental et humain des choix technologiques deviendra un facteur vital dans la stratégie, la prise de décision, les attitudes et les comportements vis à vis de la pédagogie numérique. En tant que telle, cette dimension requiert beaucoup plus d'attention dans le DL pour la pédagogie numérique.

LEARNINGFUL (Communauté apprenante) : Le DL, dans le sens du développement de la capacité de leadership (Spendlove, 2007), nécessite non seulement le développement de leaders individuels mais aussi la promotion d'une culture d'apprentissage organisationnel (Senge, 2006). Cela nous incite à revenir sur la distinction faite par Day (2000) entre le développement du leader et du leadership, présentée précédemment. Les cinq PDL visent tous le développement individuel des leaders, bien que plusieurs d'entre eux placent l'apprenant dans le contexte de son organisation. Les seuls PDL qui considèrent explicitement le développement d'autres personnes que celles qui participent directement au PDL sont le programme EDUCAUSE, qui met l'accent sur le développement d'une culture du coaching, et C-DELTA en termes de renforcement des capacités.

Intégration des résultats QUAL et QUAN

L'analyse des PDL décrite ci-dessus constitue l'une des composantes QUAL de l'étude globale en Méthodes Mixtes, aux côtés des trois études de cas QUAL et des résultats de l'enquête QUAN sur les perceptions des universitaires en matière de leadership pour la pédagogie numérique. Afin de soutenir l'intégration des différentes données, l'affichage conjoint suivant (Tableau 7) montre les principales conclusions de chaque composante, organisé selon les cinq dimensions du cadre DELLHE.

Pour les études de cas, la classification de la maturité DELLHE est une interprétation qualitative basée sur l'équilibre entre la maturité DELLHE (Figures 6, 7 et 8 du Chapitre 5 en anglais), les points forts et les points d'attention identifiés pour chaque établissement (Tableaux 1, 2 et 3), combinée à une appréciation des tensions qui n'étaient pas suffisamment prises en compte à l'époque (Tableaux 21, 28 et 35 du Chapitre 5). En ce qui concerne les résultats de l'enquête QUAN, comme nous l'avons déjà souligné, le volume insuffisant de données et le fait que la majorité des répondants se déclaraient déjà innovateurs ou pionniers (*early adopters*) signifient qu'aucune généralisation ne peut être faite. Les quatre pratiques DELLHE identifiées par les répondants comme ayant une influence positive sur leur attitude envers la pédagogie numérique doivent donc être considérées à la lumière de cette mise

en garde. Pour les PDL, la couverture DELLHE est dérivé du Tableau 6 de cette synthèse.

Tableau 7 : Affichage conjoint des résultats QUAL et QUAN

Dimension DELLHE	Maturité DELLHE (<i>QUAL : études de cas</i>)	Influence sur les attitudes des enseignants-chercheurs (<i>QUAN : enquête n=102</i>)	Couverture DELLHE des PDL (<i>QUAL</i>)
WORLDLY (vision)	CSI : Moy.-Faible CS2 : Élevée CS3 : Moy.-Élevée	Aucune influence déclarée	Moy.-Élevée
WORLDLY (pédagogie)	CSI : Moyenne CS2 : Élevée CS3 : Élevée	Influence positive : Soutenir les enseignants pour expérimenter	Moy. -Faible
WORLDLY (technologie)	CSI : Moy.-Élevée CS2 : Élevée CS3 : Élevée	Influence positive : Sensibiliser aux usages pédagogiques de développements numériques	Moy.-Élevée
SUSTAINING (humain)	CSI : Moy.-Faible CS2 : Élevée CS3 : Élevée	Aucune influence déclarée	Moy.-Élevée
SUSTAINING (environnemental)	CSI : Moy.-Élevée CS2 : Moy.-Élevée CS3 : Moyenne	Aucune influence déclarée	Pas de couverture
LEADINGFUL	CSI : Moyenne CS2 : Moy.-Élevée CS3 : Moy.-Élevée	Influence positive : Soutien au leadership distribué Encourager l'expression de visions diverses Permettre aux enseignants de décider par eux-mêmes	Élevée
RELATIONAL (interpersonnelle)	CSI : Moy.-Faible CS2 : Moy.-Élevée CS3 : Moy.-Élevée	Aucune influence déclarée	Moy.-Élevée
RELATIONAL (organisationnelle)	CSI : Moy.-Faible CS2 : Moy.-Élevée CS3: Élevée	Sans objet	Moyenne
LEARNINGFUL (soi)	CSI : Faible CS2 : Élevée CS3 : Moy.-Élevée	Sans objet	Moyenne
LEARNINGFUL (communauté)	CSI : Moyenne CS2 : Moy.-Élevée CS3 : Élevée	Aucune influence déclarée	Très faible

Note : Moy. = Moyenne

Recommandations pour le développement du leadership en pédagogie numérique

Sur la base de cette intégration, combinée aux principales conclusions de la littérature, notamment Dopson et al. (2019), une série de recommandations pour le développement du leadership en pédagogie numérique a été formulée. Celles-ci ont ensuite été soumises à un focus groupe en ligne composé de 12 experts (Annexe Q) sous la forme d'un questionnaire asynchrone suivi d'une réunion synchrone pour discuter des résultats du questionnaire.

Les dix recommandations, classées en trois catégories (conception, contenu et différenciation) sont résumées comme suit :

CONCEPTION

Recommandation 1. Le DL en pédagogie numérique devrait aborder le développement de l'apprentissage organisationnel par des *interventions* qui se déroulent dans le temps, et non seulement par des ateliers ou programmes de formation isolés.

Recommandation 2. Les interventions de DL en pédagogie numérique devraient être conçues autour du cadre DELLHE, en abordant les idées préconçues sur la technologie éducative ; l'objectif, les valeurs et la politique de l'établissement ; le(s) modèle(s) de leadership approprié(s) ; le développement de la capacité de leadership au fil du temps. L'impact de ces interventions de DL devrait être évaluée.

CONTENU

Recommandation 3. Le DL en pédagogie numérique devrait intégrer la dimension SUSTAINING (durable) en abordant le développement d'une vision et de politiques pour l'enseignement numérique qui prennent en compte les questions environnementales et éthiques, ainsi que des objectifs plus larges tels que la responsabilité sociale de l'enseignement (numérique) et la citoyenneté numérique.

Recommandation 4. Les établissements qui se lancent dans de grands projets multipartites tels que les e-portfolios ou les examens numériques devraient intégrer explicitement du DL pour tout le personnel impliqué, quel que soit son statut ou son niveau au sein de l'institution. Ce DL devrait mettre l'accent sur la création d'un sens partagé, la gestion du changement, le leadership distribué et la gestion des conflits.

Recommandation 5. A tous les niveaux hiérarchiques, le DL pour la pédagogie numérique devrait aborder les deux aspects de la littéracie relationnelle, à savoir la dynamique organisationnelle et les relations interpersonnelles.

DIFFÉRENTIATION

Recommandation 6. Le DL pour la pédagogie numérique devrait être adapté à différents groupes cibles, en fonction de leur statut et de leur niveau, ainsi que de leurs connaissances et expériences antérieures.

Recommandation 7. Les directeurs.trices d'UFR et responsables de programme devraient être soutenus dans le développement des littéracies en leadership à travers les cinq dimensions du cadre DELLHE.

Recommandation 8. Le DL pour les membres de la gouvernance ayant peu d'expérience directe en pédagogie numérique devrait se concentrer sur les littéracies en leadership MONDAINES (WORLDLY) « rapport à la technologie » et « rapport à l'enseignement et à l'apprentissage ».

Recommandation 9. Le DL en la pédagogie numérique pour les membres de la gouvernance et des cadres supérieurs devrait se concentrer sur les littéracies DELLHE suivantes en particulier :

- WORLDLY : pensée globale, possibilités, visions diverses.
- LEADINGFUL : prise de risque et expérimentation, leadership distribué, e-leadership, soutien aux agents de changement, autonomisation des enseignants.
- RELATIONAL : dépasser les silos institutionnels (*third space*)
- LEARNINGFUL : générer des preuves internes par la recherche, *digital scholarship* (approche réflexive sur les pratiques et usage de réseaux sociaux).

Recommandation 10. Le DL en la pédagogie numérique pour les cadres intermédiaires devrait se concentrer sur la constitution d'un capital culturel et politique au sein de l'établissement, ainsi que sur l'identification et la mobilisation de stratégies d'influence.

Conclusion

Cette partie reproduit en français l'intégralité de la conclusion de la version anglaise de la thèse.

La recherche décrite dans ce mémoire de thèse a démontré comment un cadre de *Digital Education Leadership Literacies in Higher Education* (DELLHE) a été développé et appliqué comme un nouveau prisme à travers lequel étudier les attitudes, les mentalités et les comportements de leadership de ceux qui sont chargés de faire avancer les usages pédagogiques du numérique. Dans cette partie, nous résumons les principaux résultats, abordons la contribution de cette recherche au domaine des études sur le leadership pour la pédagogie numérique, soulignons les applications concrètes potentielles du cadre DELLHE et fournissons des recommandations pour les recherches futures à la lumière des limites de l'étude actuelle.

Principaux résultats

Dans l'ensemble, l'étude confirme le concept de *Leadership Literacies* de Davis (2012) comme un prisme approprié pour étudier le *Digital Education Leadership*, et l'enrichit par l'intégration du concept de multi-littéracies en tant que représentation et communication pour aborder les mentalités et les attitudes d'une part, et les comportements et actions d'autre part (Cope et al., 2017).

Le développement itératif du cadre DELLHE fournit un fondement à la fois théorique et empirique pour l'application des cinq dimensions WORLDLY, SUSTAINING, LEADINGFUL, RELATIONAL et LEARNINGFUL au leadership pour la pédagogie numérique. Ceci a été réalisé par la mobilisation de la recherche par Méthodes Mixtes (Creswell & Plano Clark, 2011), en passant séquentiellement par les approches QUAL appliquées dans l'étude Delphi, les trois études de cas et l'analyse de cinq PDL, suivie par l'analyse QUAN de l'enquête auprès des universitaires en Europe. L'intégration (Fetters et al., 2013) des résultats QUAL et QUAN a abouti à la version finale du cadre DELLHE (Annexe E) ainsi qu'à des recommandations pour le développement du leadership en pédagogie numérique qui ont été validées par un focus group en ligne.

En termes théoriques, l'étude est clairement ancrée dans les théories de leadership « nouveau-genre » qui considèrent le leadership comme une interaction complexe entre l'individu et le collectif, avec une pleine considération du contexte dans lequel ce leadership opère. En particulier, les études de cas ont confirmé la nécessité de prendre en compte le contexte et la culture lorsqu'on aborde la question du leadership pour la pédagogie numérique, et ont suggéré l'autonomie des établissements d'enseignement supérieur comme une piste possible pour explorer cette question plus en profondeur.

En outre, l'application du cadre DELLHE comme outil de conception d'entretiens semi-directifs a permis de mettre en évidence des pratiques exemplaires pour inspirer les autres, ainsi que des tensions et des contre-exemples qui doivent faire l'objet d'une attention particulière. Au-delà des tensions systémiques, qui étaient les plus notables dans l'étude de cas française (UL), les principaux points d'attention identifiés étaient d'aborder les raisons de la résistance au changement de manière plus explicite, comme les travaux en cours à l'UoN (Antunes et al., 2021), et de veiller à la création d'un sens et d'un objectif partagés dans le cas de grands projets multipartites tels que les e-portfolios, les *Learning Analytics* et les examens en ligne. Ici, l'éclairage des théories du leadership relationnel et complexe (Uhl-Bien, 2006; Uhl-Bien et al., 2007) apporte une contribution significative, tout comme le concept de *third space* (Whitchurch, 2008, 2018) en encourageant les enseignants-chercheurs et les personnels de soutien à collaborer au-delà des silos traditionnels, et en soutenant le développement de l'université en tant qu'organisation apprenante (Senge, 2000).

Bien que les cinq PDL sélectionnés reflètent les dimensions WORLDLY, LEADINGFUL et RELATIONAL de manière satisfaisante, l'on constate un manque d'attention aux considérations pédagogiques, et la dimension SUSTAINING est également faiblement représentée. Si nous voulons que le numérique soit utilisé de manière éthique et pédagogique pour soutenir un

enseignement et un apprentissage innovants et efficaces, les leaders actuels et futurs doivent développer une compréhension beaucoup plus fine de la théorie et de la pratique de l'enseignement et de l'apprentissage, ainsi que des implications pédagogiques, humaines et environnementales des choix technologiques.

Ces résultats ont été traduits en recommandations pour le contenu des futurs PDL pour la pédagogie numérique. D'autres recommandations portent sur la forme que devrait prendre ces PDL. Tout d'abord, l'étude a identifié l'approche des mentalités ou *mindsets approach* (Kennedy et al., 2013) comme étant préférable à une approche basée sur les compétences, bien que la question de savoir si les mentalités conduisent au comportement ou l'inverse reste ouverte au débat. Deuxièmement, l'étude recommande d'encadrer le DL dans son véritable sens de développement du leadership, par opposition au développement individuel des leaders (Day, 2000; Dopson et al., 2019). Ceci implique de développer la capacité de leadership au fil du temps, en se tournant vers ceux qui deviendront les futurs leaders en pédagogie numérique, tels que les enseignants qui prendront des responsabilités en tant que chefs de département avant d'accéder à des rôles de gouvernance. Le DL devrait donc faire partie intégrante de la politique de développement du personnel et intégrer les pratiques réflexives telles que le *Scholarship of Teaching and Learning* (SoTL) comme un moyen de générer des preuves internes fondées sur

la recherche pour guider la politique. En outre, le rôle de leadership des étudiants en tant que participants à part entière à la prise de décision concernant l'utilisation des technologies éducatives devrait également être abordé. L'apprentissage par projet est un moyen de mobiliser toutes les parties prenantes, à condition qu'il y ait une volonté d'engager une réflexion sur le comportement et les attitudes de leadership au-delà des silos traditionnels, indépendamment du statut ou de la hiérarchie. Pour que cette démarche soit couronnée de succès, il faudrait au préalable instaurer une culture de confiance et de collaboration, ainsi qu'un engagement conscient à soutenir le leadership distribué (Garrison & Vaughan, 2013; Jones, 2014).

L'utilisation du numérique et des réseaux sociaux comme moyen de réfléchir à la pratique et de s'engager dans la communauté scientifique au sens large est essentielle pour que les leaders d'aujourd'hui et de demain développent une conscience accrue du « soi numérique » et de la vie dans un monde où le numérique pénètre de plus en plus notre façon de vivre. La mise en évidence et l'intégration de ce *Digital Scholarship* est un moyen d'y parvenir, tout en reconnaissant les préoccupations légitimes en matière de respect de la vie privée par rapport aux plateformes commerciales. L'adoption d'une perspective d'écologies d'apprentissage (Sangrà et al., 2019) peut également aider les leaders en pédagogie numérique, actuels et futurs, à comprendre les

nombreuses façons dont ils développent leurs DELLHE, et à mobiliser les outils, les environnements et les approches qu'ils pourraient actuellement négliger.

Contribution de l'étude à la recherche sur le leadership en pédagogie numérique

Le concept DELLHE, développé et validé tout au long de cette étude, apporte une contribution significative à la recherche sur le leadership en pédagogie numérique. Il a été démontré que le cadre DELLHE fournit des informations précieuses sur les mentalités, les attitudes et les comportements des leaders universitaires en matière de pédagogie numérique et aide à faire apparaître l'environnement institutionnel et politique dans lequel ce leadership opère, soutenant la description narrative des EES en termes de vision, de stratégie et de leadership. En outre, il permet au chercheur d'identifier les tensions et les littéracies du leadership « manquantes », de mettre en évidence les points forts et de recommander des points d'attention, de faire des comparaisons entre différents EES, et d'analyser et de concevoir des programmes et des interventions de développement du leadership.

Si l'on devait retenir un seul résultat de cette recherche comme une contribution majeure, ce serait l'inclusion de la dimension SUSTAINING pour les implications environnementales et éthiques de la pédagogie numérique. Alors que le monde est confronté à des défis croissants de changement climatique, de développement de l'Intelligence Artificielle et de fossé

grandissant entre les nantis et les démunis en termes d'accès à la technologie et à l'éducation (Selwyn et al., 2020), la prise en compte de l'impact environnemental et humain des choix technologiques doit être pleinement intégrée dans la stratégie, la prise de décision, les attitudes et les comportements en matière de pédagogie numérique.

Applications concrètes

Le cadre DELLHE peut être utilisé comme un prisme conceptuel pour étudier le leadership pour la pédagogie numérique, pour concevoir des instruments de recherche tels que des guides d'entretien et des enquêtes, et pour servir de base au codage des données QUAL et à l'analyse des données QUAN. Au-delà de cela, il constitue également la base d'une application concrète dans la conception de programmes et d'interventions de développement du leadership en pédagogie numérique. Par exemple, le cadre DELLHE peut être utilisé pour développer un guide d'entretien simple afin d'identifier les besoins en matière de DL à différents niveaux de l'organisation, ou encore comme outil d'autoréflexion. Il peut également être utilisé, comme nous l'avons fait dans cette recherche, pour analyser les PDL disponibles et les comparer aux besoins des individus ou des équipes. Enfin, le cadre lui-même peut être directement appliqué dans des ateliers de DL ou d'autres formes d'intervention, à l'aide de l'approche de questionnement intégrée dans le

« voyage DELLHE » (Figure 24) pour stimuler la réflexion, les conversations et la prise de décision.

Certains EES auront une stratégie explicite pour la pédagogie numérique, d'autres l'auront intégrée dans une stratégie globale, et d'autres encore devront développer une telle stratégie. Le parcours DELLHE sera donc différent en fonction de la maturité de la vision pour la pédagogie numérique. La manière dont le cadre DELLHE est opérationnalisé dépendra également du profil des personnes participant au DL, par exemple, en développant une meilleure compréhension du monde numérique et de ses implications pour la pédagogie numérique parmi les membres de la gouvernance, en introduisant une perspective de « pédagogie d'abord », en particulier lorsque les leaders ont une formation plus technique, et en aidant les cadres intermédiaires à développer des compétences génériques de leadership.

Le cadre DELLHE n'est pas un énième référentiel de compétences. Il est conçu pour accompagner les leaders dans un voyage, fondé sur le modèle théorique développé tout au long de cette recherche. De cette façon, il aide les EES à se poser les « bonnes questions » concernant la pédagogie numérique et à développer des réponses adaptées au contexte dans lequel ils opèrent. Cela implique de prendre en compte l'environnement politique et économique externe (y compris le degré d'autonomie dont ils disposent par rapport aux

impératifs de financement et d'accréditation), ainsi que la ou les cultures et éthiques institutionnelles internes.

Limites de l'étude et propositions de recherche

Les principales limites de l'étude actuelle ont été décrites dans les considérations méthodologiques incluses dans le Chapitre 9. En ce qui concerne les études de cas, il faut reconnaître que seules trois d'entre elles ont été réalisées pour des raisons de temps et de faisabilité. Comme il s'agissait d'une étude exploratoire, cela ne doit pas être considéré comme une faiblesse de la recherche elle-même. Cependant, afin de confirmer les résultats et de fournir une base plus large sur laquelle formuler des généralisations, d'autres études de cas devraient être menées dans d'autres EES dans les mêmes pays, ainsi que dans d'autres pays. Ici, l'accent mis sur le contexte pourrait être encore renforcé pour confirmer ou réfuter la corrélation apparente de la maturité DELLHE avec le niveau d'autonomie, en plus d'enrichir davantage la compréhension du DL pour la pédagogie numérique à travers le prisme des écologies d'apprentissage (Esposito et al., 2015; Sangrà et al., 2019).

Une deuxième limitation concerne l'insuffisance des données QUAN collectées via l'enquête. Bien que cette enquête ait donné un aperçu des perceptions des universitaires sur DELLHE, aucune généralisation n'a pu être déduite des données. Les recherches futures devraient se concentrer sur la

refonte de l'enquête afin de soutenir l'application d'approches statistiques avancées telles que l'analyse factorielle et la modélisation par équations structurelles, pour déterminer l'influence de DELLHE sur les attitudes et les pratiques des universitaires en matière de pédagogie numérique. Afin d'assurer une taille d'échantillon suffisante, il sera vital d'obtenir le soutien d'organisations internationales et nationales pour la distribution de l'enquête, bien que la question de l'auto-sélection des répondants, où le sujet du leadership pour la pédagogie numérique attire les universitaires déjà convaincus, représente toujours un risque significatif de biais. La complexité de ces perceptions de DELLHE pourrait être mieux abordée par la recherche QUAL sous la forme d'études de cas riches, comme l'indique Alvesson (2017) en relation avec la réification problématique du leadership (traduction personnelle) :

Divers éléments du leadership en tant qu'ambitions, cognitions, comportements, perceptions ou interactions peuvent être considérés comme convergeant vers un "ça" - un style, un ensemble intégré de valeurs, une métaphore racine ou quelque chose d'intégré et de cohérent - mais une idée alternative de divergence, de paradoxe, de fragmentation, d'attributions, d'ambiguïté, etc. doit faire partie de la façon dont nous nous rapportons aux questions de leadership. (p. 12)

L'analyse QUAN pourrait alors être réservée à des données plus quantifiables, comme le suivi de l'impact environnemental et financier des

choix technologiques. Il est à noter que cette question de l'impact ne faisait pas partie des objectifs de l'étude actuelle, qui a été conçue pour aborder les attitudes, les comportements et les perceptions à l'égard de DELLHE. Pour bâtir sur cette recherche exploratoire, nous nous alignons sur Dopson et al. (2019) en recommandant des études longitudinales pour mesurer l'impact à la fois du *Digital Education Leadership* et du DL. Ces études pourraient prendre la forme d'approches ethnographiques telles que l'observation (Conger, 1998), la recherche-action (Stringer, 2008) ou l'enquête appréciative (Cooperrider & Whitney, 2005). L'obtention d'une autorisation d'observation est difficile et, en tant que telle, dépassait les capacités de la présente étude, où même l'accès à des entretiens avec les informateurs clés et aux documents stratégiques a été un défi pour la doctorante. Cependant, la recherche-action et l'enquête appréciative sont parfaitement adaptées à l'étude du DL pour la pédagogie numérique, car non seulement ces approches permettent d'examiner les interventions de DL dans le temps à partir de perspectives multiples, mais les participants bénéficient réellement de ces interventions.

Remarques finales

Sur le plan personnel, ce parcours de doctorat a été une expérience fort enrichissante. J'ai grandi en tant que chercheuse, apprenant beaucoup sur les différentes méthodes de recherche, notamment pour savoir quand une

méthode particulière est appropriée et quand elle ne l'est pas. L'application d'une approche scientifique au leadership en pédagogie numérique m'a permis de prendre du recul par rapport aux problèmes que j'avais observés et vécus directement, là où ce leadership faisait défaut. Cette recherche a également eu un impact direct sur ma propre pratique dans mes différents rôles en tant que coordinatrice de projet, membre du conseil d'administration de différentes organisations et membre d'équipe, tous dans le domaine de la pédagogie numérique. J'ai développé mes propres DELLHE tout au long de ce processus et suis désormais mieux à même de formuler des recommandations stratégiques grâce à une conscience accrue du contexte, et suis plus rapide pour identifier les tensions, et mieux équipée pour y faire face, tout en gardant constamment à l'esprit les préoccupations pédagogiques, éthiques et environnementales.

La compréhension du monde numérique dans lequel nous vivons, étudions et travaillons ne devrait plus être l'apanage de quelques personnes informées, des geeks et des adeptes précoces. Les principes incarnés par DELLHE ancrent le *Digital Education Leadership* dans une approche éthiquement et pédagogiquement saine, servant de contrepoids efficace aux conceptions et pratiques trop techno-centriques. À mi-chemin entre le techno-solutionnisme et le techno-scepticisme, l'approche DELLHE promeut un état d'esprit techno-prudent, fondé sur la recherche, guidé par une vision et une stratégie, et par le respect des êtres humains et de l'environnement naturel.

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Appendix A: Framework v.0

WORLDLY (24)
e-leadership visioning (W-VISION) (15)
Understanding the impact of digital technology on society and education (Jameson, 2013; Johansen, 2012)
Demonstrating an understanding of the complex nature of HE organisations (Jameson, 2013)
Knowing and understanding the organisation as an ever-changing human construction (Orr & Cleveland-Innes, 2015)
Articulating a vision for TEL around institutional values, mission and purpose (Jameson, 2013)
Encouraging collective positive inquiry and an imagery which leads to new, even multiple, future realities (Orr & Cleveland-Innes, 2015)
Engaging in teaching and learning leadership (Jameson, 2013)
Making informed decisions about TEL appropriate to context (Sheninger, 2014)
Being able to distinguish between and utilise both strategic and tactical planning (Beaudoin, 2016)
Applying diagnostic skills to assess situations before acting (Beaudoin, 2016)
Focusing on both the micro and macro perspectives (Beaudoin, 2016)
Being able to operationalise one's vision, not just espouse it (Beaudoin, 2016)
Being an articulate and informed advocate of distance/digital education (Beaudoin, 2016)
Being enterprising, but resisting early adoption of what is currently in vogue (Beaudoin, 2016)
Deciding and acting as a learner-centred educator (Beaudoin, 2016)
Utilising data for decision making (Beaudoin, 2016)
Self-relationship with technology (W-TECH) (5)
Knowing and articulating one's own vision of the role and impact of digital technology on society (Ahlquist, 2014; Brown, Czerniewicz, Huang, et al., 2016; Jameson, 2013; Johansen, 2012)
Knowing and articulating one's own vision of the role and impact of digital technology on education
Developing and demonstrating critical digital literacy (Belshaw, 2014)
Developing online self-awareness (Ahlquist, 2014; Brown, Czerniewicz, Huang, et al., 2016)
Establishing personal virtual boundaries (privacy, time-management, wellness) (Ahlquist, 2014)
Self-relationship with teaching and learning (W-PEDA) (4)
Understanding a variety of different learning theories and approaches (Jameson, 2013)
Understanding the affordances and potential risks of technology for teaching, learning and assessment (Brown, Czerniewicz, Huang, et al., 2016)
Possessing sound knowledge of (distance/digital) education theory and practice (Beaudoin, 2016)
Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities (Ahlquist, 2014; Brown, Czerniewicz, Huang, et al., 2016; Sheninger, 2014)

SUSTAINING (SUST) (8)

Awareness of the environmental implications of technology choices for teaching and learning (Jameson, 2013)

Awareness of the human implications of technology choices for staff and students (Jameson, 2013)

Developing a vision and policy for TEL which includes issues of access, equity and inclusion (Brown, Czerniewicz, Huang, et al., 2016; Jameson, 2013)

Developing policies for safe, legal and ethical use of TEL (Jameson, 2013)

Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges (Jameson, 2013; Johansen, 2012)

Developing a shared vision for the transformation of learning spaces (Sheninger, 2014)

Awareness of the potential of developing shared assets to benefit all players, in the form of digital commons (Belshaw, 2014; Johansen, 2012)

Promoting the use of digital technology and TEL for social good and digital citizenship (Ahlquist, 2014; Belshaw, 2014)

LEADINGFUL (LEAD) (15)**Leadership style (LEAD-LS) (13)**

Developing and communicating a shared vision for teaching and learning with technology (Brown, Czerniewicz, Huang, et al., 2016; Jameson, 2013)

Facilitating and committing to distributed, collaborative leadership for TEL throughout the organisation (Garrison & Vaughan, 2013; Jameson, 2013)

Guiding which questions are asked, what changes are made and encouraging movement towards a new future (Orr & Cleveland-Innes, 2015)

Demonstrating quiet transparency and authenticity to foster trust (Johansen, 2012)

Encouraging risk-taking and accepting failure with a view to learning from mistakes (Davis, 2012; Johansen, 2012)

Having patience, resilience, dedication and tolerance for ambiguity and risk (Beaudoin, 2016)

Respecting the culture of academic freedom in decision-making about TEL (Jameson, 2013)

Integrating digital technologies into leadership presence (Ahlquist, 2014)

Committing to a transformative leadership style (Beaudoin, 2016)

Being able to create conditions for innovation and change (Beaudoin, 2016)

Recognising that the priority is managing change rather than technology (Beaudoin, 2016)

Valuing and engaging in networking, sharing ideas, strategies and resources (Beaudoin, 2016)

Maintaining a commitment to quality (Beaudoin, 2016)

Branding and public relations (LEAD-BPR) (2)

Establishing TEL as a key aspect of the institution's brand or identity (Sheninger, 2014)

Leveraging social media to create a positive brand image emphasising the quality of teaching and learning supported by technology (Sheninger, 2014)

RELATIONAL (RELA) (13)

Involving all stakeholders in decision-making about TEL (teachers, students, administrative staff, researchers) (Jameson, 2013)
 Empowering others (Jameson, 2013)
 Developing and demonstrating emotional intelligence (Jameson, 2013)
 Developing and demonstrating interpersonal skills (Jameson, 2013)
 Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement (Johansen, 2012)
 Fostering a culture of trust (Jameson, 2013)
 Helping others to find a clarity of purpose and direction (Davis, 2012)
 Helping others generate a sense of meaning out of everyday work (Davis, 2012)
 Articulating a shared vision to give inspiration and meaning to work (Davis, 2012)
 Investing time and energy in managing relationships (Davis, 2012)
 Paying attention to the creation of shared meaning and purpose (Orr & Cleveland-Innes, 2015)
 Demonstrating positive affect and caring (Orr & Cleveland-Innes, 2015)
 Ensuring the positive frame of reference is respected throughout the process of change (Orr & Cleveland-Innes, 2015)

LEARNINGFUL (8)**Leader as learningful self (LEARN-LS) (3)**

Engaging in formal and informal learning to develop understanding of key challenges by accessing the latest trends, research and ideas in the field (Brown, Czerniewicz, Huang, et al., 2016; Sheninger, 2014).
 Engaging in formal and informal learning to develop leadership skills and competencies, including change management and critical digital literacy. (Belshaw, 2014; Jameson, 2013; Johansen, 2012)
 Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with experts as well as practitioners in the field of education (Ahlquist, 2014; Brown, Czerniewicz, Huang, et al., 2016)

Supporting the development of a learningful community (LEARN-LC) (5)

Promoting a culture of organisational learning and innovation (C. Brown, Czerniewicz, Huang, et al., 2016; Jameson, 2013; Johansen, 2012)
 Contributing to the personal and professional growth of others (Davis, 2012)
 Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change (Davis, 2012)
 Fostering the development of transversal competencies such as problem-solving, critical thinking, creativity and risk-taking, in staff and students (Jameson, 2013)
 Viewing the organisation as an emerging book, encouraging exploration and re-consideration of the organisation's story, making it (the story) and its unfolding explicit, and acknowledging all contributions (Orr & Cleveland-Innes, 2015)

Appendix B: Framework v.1

WORLDLY (29)	
W-VISION	e-leadership visioning (13)
W-VISION 01	Making informed decisions about TEL appropriate to context.
W-VISION 02	Understanding the technological environment in which students study.
W-VISION 03	Having a clear vision of the mission of one's institution (beyond preparing learners), but also within society.
W-VISION 04	Encouraging the development and support of an open and respectful environment for discussion and debate around educational and pedagogical issues.
W-VISION 05	Understanding the importance of involving other stakeholders in influencing processes/developments.
W-VISION 06	Encouraging active and open monitoring of results to keep focus, avoid derailments, and ensure value for learners and institutions.
W-VISION 07	Demonstrating the ability to select key leadership team members and managerial personnel that 'fit' the organisational needs to meet vision goals.
W-VISION 08	Having a good understanding of educational policy making.
W-VISION 09	Encouraging future vision, supporting others to experiment.
W-VISION 10	Inviting specialists (from your institution or not) to share their knowledge and experience with stakeholders when defining your strategy.
W-VISION 11	Engaging in teaching and learning leadership.
W-VISION 12a	Predicting
W-VISION 12b	Ownership
W-VISION 12c	Inclusiveness
W-VISION 12d	Agile acting
W-VISION 12e	Seeing the big picture, holistic approach, system change.
W-VISION 13	Being able to interpret and construct dynamic models of real-world processes.
W-TECH	(Self-)relationship with technology (9)
W-TECH 14	Possessing a basic understanding of TEL.
W-TECH 15	Advocating people as the organisation's most valuable resource and technology as a tool that will be effective due to creative and innovative talent of people.
W-TECH 16	Demonstrating appropriate knowledge of ethics, cybersecurity, infrastructure and health and safety requirements in proportion to one's institutional role.
W-TECH 17	Sufficient knowledge about and/or experience in using state-of-art digital technology in education.
W-TECH 18	Developing and demonstrating critical digital literacy.
W-TECH 19	Awareness of research on student use of media.
W-TECH 20	Encouraging personal and educational awareness of digital developments and of their social adoption and impact.
W-TECH 21	Demonstrating a healthy embracing of digital technologies.
W-TECH 22	Acting mindfully as a leader in critiquing and challenging inappropriate, excessive and harmful uses of technology.
W-PEDA	(Self-)relationship with teaching and learning (7)
W-PEDA 23	Understanding how TEL relates to, and supports, other forms of teaching and learning.
W-PEDA 24	Understanding the affordances and potential risks of technology for teaching, learning and assessment.
W-PEDA 25	Understanding a variety of different learning theories and approaches.
W-PEDA 26	Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities.
W-PEDA 27	Knowing the (learning) characteristics of current and future learners.

W-PEDA 28	Building multi-disciplinary teams, focusing on design thinking for pedagogy.
W-PEDA 29	Understanding the socio-cultural aspects of teaching and learning.
SUST	SUSTAINING (8)
SUST 30	Developing a vision and policy for TEL which includes issues of access, equity and inclusion.
SUST 31	Awareness of the environmental implications of technology choices for teaching and learning.
SUST 32	Awareness of the human implications of technology choices for staff and students.
SUST 33	Developing policies for safe, legal and ethical use of TEL.
SUST 34	Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges.
SUST 35	Developing a shared vision for the transformation of learning spaces.
SUST 36	Promoting the use of digital technology and TEL for social good and digital citizenship.
SUST 37	Engaging in developing and acquiring open and freely accessible resources in HE and society.
	LEADINGFUL (15)
LEAD	Leadership style (13)
LEAD 38	Being able to create conditions for innovation and change.
LEAD 39	Encouraging risk-taking and accepting failure with a view to learning from mistakes.
LEAD 40	Being able to find incentives and create time for supporting change management
LEAD 41	Acting as a catalyst for change and innovation for digital transformation.
LEAD 42	Facilitating and committing to distributed, collaborative leadership for TEL throughout the organisation.
LEAD43	Recognising that the priority is managing change rather than technology.
LEAD 44	Valuing and engaging in networking, sharing ideas, strategies and resources.
LEAD 45	Maintaining a commitment to quality.
LEAD 46a	Being empowering
LEAD 46b	Being quality focused
LEAD 46c	Being boundless
LEAD 46d	Being resilient
LEAD 47	Developing diverse visions for teaching and learning with technology.
LEAD 48	Leading in a manner that engages everyone as change agents.
LEAD 49	Demonstrating a lack of personal ego, showing support for distributed leadership.
LEAD 50	Integrating digital technologies into day-to-day management practices and/or leadership presence.
	Branding and PR (2)
LEAD 51	Supporting and promoting open forms of learning and knowledge creation.
LEAD 52	Leveraging appropriate digital communication channels (which may include social media) to create a positive brand image emphasising the quality of teaching and learning supported by technology.
RELA	RELATIONAL (10)
RELA 53	Articulating a shared vision to give inspiration and meaning to work.
RELA 54	Investing time and energy in managing relationships.
RELA 55	Paying attention to the creation of shared meaning and purpose.
RELA 56	Creating a culture of quality and shared responsibility to (personally) invest in the process of change.
RELA 57	Ensuring that reward mechanisms in the institution foster innovation and change.

RELA 58	Fostering a culture of inquiry, innovation and collaboration at all levels of the institution.
RELA 59	Fostering a culture of trust.
RELA 60	Demonstrating positive affect and caring.
RELA 61	Pooling knowledge and comparing notes with others toward a common goal.
RELA 62	Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement, which may include being able to make a decision even when consensus cannot be achieved.
LEARNINGFUL (7)	
LEARN-LS	Learningful self (4)
LEARN-LS 63	Engaging in formal and informal learning to develop leadership skills and competencies, including change management and critical digital literacy.
LEARN-LS 64	Identifying and choosing the right people / networks to support strategy and tactics.
LEARN-LS 65	Developing the ability to search for, synthesize, and disseminate information.
LEARN-LS 66	Learning the art of delegation, delegation and more delegation. Leaders must pick the right people but they must also let these talented people do their jobs.
LEARN-LC	
Learningful community (3)	
LEARN-LC 67	Ensuring the reward mechanisms foster the competencies that are necessary for change.
LEARN-LC 68	Encouraging/fostering/enabling digital scholarship (teacher and staff development).
LEARN-LC 69	Promoting a culture of organisational learning and innovation.

Appendix C: Framework v.2

WORLDLY			
Digital Education visioning (W-VISION)			
REPRESENTATION	PURPOSES	Integrating Digital Education (Digital Education) in institutional vision, mission and strategy Big picture thinking	COMMUNICATION
	PEOPLE	Ownership of institutional vision for Digital Education	
	PROCESSES	Understanding educational policy-making Being able to interpret and construct dynamic models of real-world processes Identifying opportunities to bring about transformation	
	PURPOSES	Encouraging future vision Aligning decisions about Digital Education with institutional vision and strategy Communicating the institutional vision in clear, simple terms	
PEOPLE	Appointing key leadership and management team members who 'fit' the institutional vision for Digital Education. Mobilising internal / external expertise		
PROCESSES	Making informed decisions about Digital Education appropriate to context Making iterative transformations Mobilising collective decision-making processes Supporting others to experiment		
(Self-)relationship with technology (W-TECH)			
REPRESENTATION	PURPOSES	Understanding the societal impact of digital technology Understanding educational technology (basic / sophisticated) Taking a critical attitude to educational technology	COMMUNICATION
	PEOPLE	Understanding the technological environment in which students study	
	PROCESSES		
	PURPOSES	Fostering critical attitudes to educational technology	
PEOPLE	Putting people before technology		
PROCESSES	Ensuring technology integration is 'fit for purpose'		
(Self-)relationship with teaching and learning (W-PEDA)			
REPRESENTATION	PURPOSES	Awareness of teaching and learning theories	COMMUNICATION
	PEOPLE	Awareness of learners' practices Awareness of teachers' practices	
	PROCESSES		
	PURPOSES	Putting pedagogy before technology	
PEOPLE	Building multi-disciplinary teams		
PROCESSES	Engaging in teaching and learning leadership Focusing on design thinking for pedagogy		

SUSTAINING			
REPRESENTATION	PURPOSES		PURPOSES
	Awareness of the environmental implications of technology choices for teaching and learning.		Embedding environmental concerns in vision and policy Developing a vision and policy for digital education around access, equity and inclusion Promoting Digital Education for social good and digital citizenship
	Framing the institutional mission in terms of social responsibility		
	PEOPLE		PEOPLE
	Awareness of the human implications of technology choices for staff and students		Developing policies for safe, legal and ethical use of educational technology
	PROCESSES		PROCESSES
			Facilitating organisational agility Supporting scalable initiatives Developing and/or acquiring open educational resources
			COMMUNICATION
LEADINGFUL			
REPRESENTATION	PURPOSES		PURPOSES
			Acting as a catalyst for change and innovation for digital transformation.
	PEOPLE		PEOPLE
	Recognising that the priority is managing change rather than technology Self-awareness as leader		Fostering collegiality and collaboration Leading by example Encouraging risk-taking and accepting failure with a view to learning from mistakes. Being able to find incentives and create time for supporting change management Leading in a manner that engages everyone as change agents Giving agency to academic staff Giving agency to professional staff
	PROCESSES		PROCESSES
	Awareness of the need to provide support for distributed leadership. Being quality focused		Facilitating and committing to distributed, collaborative leadership for digital education throughout the organisation. Ensuring that reward mechanisms in the institution foster innovation and change Encouraging active and open monitoring of results. Using data to defend vision and convince others Reaching across institutional silos Mobilising digital technology in support of leadership presence
			COMMUNICATION

RELATIONAL			
REPRESENTATION	PURPOSES		PURPOSES
			Fostering a culture of inquiry, innovation and collaboration
	PEOPLE		PEOPLE
	Awareness of reasons for resistance to change		Investing time and energy in managing relationships Fostering a culture of trust Demonstrating positive affect and caring
	PROCESSES		PROCESSES
			Implementing mechanisms to facilitate the creation of shared meaning Taking a constructive approach to conflict management
			COMMUNICATION
LEARNINGFUL			
	Learningful self		Learningful community
	Recognising the importance of Leadership Development Accepting and learning from past mistakes (unlearning, relearning) Engaging in formal, non-formal and informal learning to develop Digital Education Leadership Literacies		Promoting a culture of organisational learning and innovation Designing physical space to support organisational learning Ensuring staff have opportunities (and time) for professional development Integrating research and scholarship into professional development for both academic and professional staff Fostering the development of digital scholarship

Appendix D: Framework v.3

WORLDLY				
Digital Education visioning (W-VISION)				
REPRESENTATION	PURPOSES		PURPOSES	COMMUNICATION
	Integrating Digital Education in institutional vision, mission and strategy Big picture thinking		Encouraging future vision Aligning decisions about Digital Education with institutional vision and strategy Communicating the institutional vision in clear, simple terms	
	PEOPLE		PEOPLE	
	Ownership of institutional vision for Digital Education		Appointing key leadership and management team members who 'fit' the institutional vision for Digital Education. Mobilising internal / external expertise	
	PROCESSES		PROCESSES	
	Understanding educational policy-making Being able to interpret and construct dynamic models of real-world processes Identifying opportunities to bring about transformation		Making informed decisions about Digital Education appropriate to context Making iterative transformations Mobilising collective decision-making processes Supporting others to experiment	
(Self-)relationship with technology (WTECH)				
REPRESENTATION	PURPOSES		PURPOSES	COMMUNICATION
	Understanding the societal impact of digital technology Taking a critical attitude to educational technology		Fostering critical attitudes to educational technology	
	PEOPLE		PEOPLE	
	Understanding the technological environment in which students study		Putting people before technology	
	PROCESSES		PROCESSES	
	Understanding educational technology (basic / sophisticated)		Ensuring technology integration is 'fit for purpose'	
(Self-)relationship with teaching and learning (W-PEDA)				
REPRESENTATION	PURPOSES		PURPOSES	COMMUNICATION
	Awareness of teaching and learning theories		Putting pedagogy before technology	
	PEOPLE		PEOPLE	
	Awareness of learners' practices Awareness of teachers' practices		Building multi-disciplinary teams	
	PROCESSES		PROCESSES	
			Engaging in teaching and learning leadership Focusing on design thinking for pedagogy	

SUSTAINING			
REPRESENTATION	PURPOSES		PURPOSES
	Awareness of the environmental implications of technology choices for teaching and learning. Framing the institutional mission in terms of social responsibility		Embedding environmental concerns in vision and policy Developing a vision and policy for digital education around access, equity and inclusion Promoting Digital Education for social good and digital citizenship
	PEOPLE		PEOPLE
	Awareness of the human implications of technology choices for staff and students		Developing policies for safe, legal and ethical use of educational technology
	PROCESSES		PROCESSES
			Facilitating organisational agility Supporting scalable initiatives Developing and/or acquiring open educational resources
COMMUNICATION			
LEADINGFUL			
REPRESENTATION	PURPOSES		PURPOSES
	Understanding the form(s) of leadership appropriate to the institutional context and goals		Acting as a catalyst for change and innovation for digital transformation
	PEOPLE		PEOPLE
	Recognising that the priority is managing change rather than technology Self-awareness as leader		Fostering collegiality and collaboration Leading by example Encouraging risk-taking and accepting failure with a view to learning from mistakes Being able to find incentives and create time for supporting change management Leading in a manner that engages everyone as change agents Giving agency to academic staff Giving agency to professional staff
	PROCESSES		PROCESSES
	Awareness of the need to provide support for distributed leadership Being quality focused		Facilitating and committing to distributed, collaborative leadership for digital education throughout the organisation Ensuring that reward mechanisms in the institution foster innovation and change Encouraging active and open monitoring of results Using data to defend vision and convince others Mobilising digital technology in support of leadership presence
COMMUNICATION			

Note: Additions in bold

RELATIONAL				
REPRESENTATION	PURPOSES		PURPOSES	COMMUNICATION
	Understanding the importance of interpersonal relationships		Facilitating the creation of shared meaning	
	PEOPLE		PEOPLE	
	Awareness of reasons for resistance to change Giving due credit to the leadership of others		Investing time and energy in managing relationships Fostering a culture of trust Taking a constructive approach to conflict management Demonstrating positive affect and caring	
	Understanding team dynamics			
	PROCESSES		PROCESSES	
Understanding institutional dynamics Understanding the notion of third space as a means to overcome institutional silos Awareness of sources of conflict		Reaching across institutional silos		

Note: Additions in bold

LEARNINGFUL				
	Learningful self		Learningful community	
	Recognising the importance of Leadership Development Accepting and learning from past mistakes (unlearning, relearning) Engaging in formal, non-formal and informal learning to develop Digital Education Leadership Literacies		Creating a culture of organisational learning and innovation Designing physical and virtual spaces to support organisational learning Ensuring staff have the competencies required for change and innovation Integrating research and scholarship into professional development for both academic and professional staff Fostering the development of digital scholarship	

Appendix E: Final DELLHE framework



The **WORLDLY** Leadership Literacy “acknowledges that leaders understand themselves as well as their place in the many interrelated inner and outer worlds they occupy.” (Davis, 2012, p. 99).

In DELLHE terms, it concerns leaders’ conceptions of the digital world, and mindsets, attitudes and behaviours relating to:

- Context, vision and strategy,
- learning and teaching,
- (educational) technology.

REPRESENTATION (attitudes & mindsets)		
Context, vision & strategy	Pedagogy	Technology
Understanding the institutional culture(s) Knowing how the economic and political context favours or hinders the development of Digital Education (DigEd) Place of DigEd in vision and strategy Big picture thinking, abstraction, modelling Ownership of institutional vision for DigEd Identifying opportunities to bring about transformation	Awareness of teaching and learning theories Awareness of learners’ practices Awareness of teachers’ practices	Understanding the societal impact of digital technology Understanding the digital world(s) of leaders, staff and students Understanding educational technology Critical attitude to educational technology
COMMUNICATION (behaviours & actions)		
Context, vision & strategy	Pedagogy	Technology
Encouraging future vision Aligning decisions about DigEd with context, vision & strategy Communicating the institutional vision in clear, simple terms Appointing key leadership and management team members who ‘fit’ the institution’s vision for DigEd Mobilising internal / external expertise Making iterative transformations Collective decision-making processes	Putting pedagogy before technology Building multi-disciplinary teams Engaging in teaching and learning leadership Focusing on design thinking for pedagogy Supporting staff to experiment	Fostering critical attitudes to educational technology Putting people before technology Ensuring technology integration is ‘fit for purpose’

SUSTAINING



The **SUSTAINING** Leadership Literacy envisages “sustainability and ecologies as key considerations globally and locally for the conduct of leadership in the 21st century.” (Davis, 2012, p. 100).

In DELLHE terms, it concerns:

- The human, environmental and financial impact of technology choices;
- Digital citizenship, social responsibility open education;
- Organisational agility.

REPRESENTATION (attitudes & mindsets)		
Environmental concerns	Human concerns	Financial concerns
Weighing up the positive and negative impacts of technology choices on the natural environment	Awareness of the human implications of technology choices for staff and students Framing the institutional mission in terms of social responsibility Ethical implications of educational technology	Willingness to invest in both: - appropriate technological solutions and - the professional development of staff
Being alert to changes in the external environment (and even weak signals) which may impact the institution’s approach to DigEd		
COMMUNICATION (behaviours & actions)		
Environmental concerns	Human concerns	Financial concerns
Embedding environmental concerns in vision and policy	Developing a vision and policy for digital education around access, equity and inclusion Developing policies for safe, legal and ethical use of educational technology Promoting DigEd for social good and digital citizenship	Supporting scalable initiatives
Developing and/or acquiring Open Educational Resources		
Facilitating organisational agility in order to react quickly and effectively to changes in the external environment		



The **LEADINGFUL** Leadership Literacy entails “a shift to a post-heroic age for leadership... acknowledging the distributed nature, processes and practices of leadership.” (Davis, 2012, p. 100).

In DELLHE terms, it concerns:

- The leadership attitudes, behaviours and actions which support the uptake of Digital Education throughout the institution.

REPRESENTATION (attitudes & mindsets)		
Purposes	People	Processes & systems
Understanding the form(s) of leadership appropriate to the institutional context and goals	Self-awareness as leader Recognising that the priority is managing change rather than technology	Awareness of the need to provide explicit support for distributed leadership Being quality-focused
COMMUNICATION (behaviours & actions)		
Purposes	People	Processes & systems
Implementing and supporting appropriate models of leadership (distributed leadership, e-leadership, etc.) Acting as a catalyst for change and innovation with a view to digital transformation	Fostering collegiality and collaboration Leading by example Encouraging risk-taking and accepting failure with a view to learning from mistakes Being able to find incentives and create time for supporting change management Leading in a manner that engages everyone as change agents Giving agency to academic staff Giving agency to professional staff	Facilitating and committing to distributed, collaborative leadership for digital education throughout the organisation Ensuring that reward mechanisms in the institution foster innovation and change Encouraging active and open monitoring of results Using data to defend vision and convince others Mobilising digital technology in support of leadership presence



The **RELATIONAL** Leadership Literacy involves “enacting leadingful approaches by privileging relationships...with the self, with others, with our place and purpose in the world.” (Davis, 2012, p. 101).

In DELLHE terms, it concerns enabling literacies in both areas of Relational Leadership theory:

- Interpersonal relationships,
- Organisational dynamics.

REPRESENTATION (attitudes & mindsets)	
Interpersonal relationships	Organisational dynamics
Understanding the importance of interpersonal relationships Awareness of reasons for resistance to change Humility and lack of personal ego	Understanding team dynamics Understanding wider institutional dynamics Understanding the notion of third space as a means to overcome institutional silos Awareness of approaches to resolving conflict
COMMUNICATION (behaviours & actions)	
Interpersonal relationships	Organisational dynamics
Investing time and energy in managing relationships Fostering a culture of trust Demonstrating positive affect and caring	Fostering a culture of inquiry, innovation and collaboration Implementing mechanisms to facilitate the creation of shared meaning Reaching across institutional silos Taking a constructive approach to conflict management



The **LEARNINGFUL** Leadership Literacy concerns “alternative sense-making models, unlearning and relearning.” (Davis, 2012, p. 101).

- In DELLHE terms, it concerns:
- The leader as learningful self;
 - How leadership supports the development of a learningful community.

REPRESENTATION (attitudes & mindsets)	
Learningful self	Learningful community
Knowing the difference between leader and leadership development Recognising the importance of Leadership Development Accepting and learning from past mistakes	Knowing the characteristics of a learning organisation, and how this can support the development of DigEd Consideration of privacy concerns with respect to digital scholarship
COMMUNICATION (behaviours & actions)	
Learningful self	Learningful community
Engaging in formal, non-formal and informal learning to develop Digital Education Leadership Literacies	Promoting a culture of organisational learning and innovation Designing physical and virtual spaces to support organisational learning Ensuring staff have opportunities (and time) for professional development Supporting staff and students to develop as DigEd leaders Integrating DigEd research and scholarship into professional development for both academic and professional staff

Appendix F: Delphi study background document

PhD student: Deborah Arnold, UOC
Supervisor: Dr. Albert Sangrà

Delphi study: e-leadership literacies for Technology-Enhanced Learning in Higher Education

Aims

- To reach consensus on a definition of e-leadership literacies for technology-enhanced learning (TEL-eLL)
- To reach consensus on the proposed TEL-eLL framework, a combination of Davis' (2012) Leadership literacies and Jameson's (2013) e-leadership for TEL framework.

Background information

- Key concepts
- Working definition of TEL-eLL
- Rationale
- Leadership literacies (Davis, 2012)
- e-leadership framework (Jameson, 2013, pp. 909, 911)
- Organisation of the Delphi study and contact details
- References

Key concepts

The key concepts which have led to the working definition below are the following:

- Literacy is defined as the ability to use cognitive skills "in ways that contribute to socioeconomic development, to developing the capacity for social awareness and critical reflection as a basis for personal and social change." (Unesco, 2006, p. 147);
- E-leadership is "a social influence process embedded in both proximal and distal contexts mediated by AIT [Advanced Information Technology] that can produce a change in attitudes, feelings, thinking, behavior, and performance." (Avolio, Sosik, Kahai, & Baker, 2014, p. 107);
- E-leadership for TEL in HE is defined as the knowledge and skills required for leaders in terms of purpose (vision and planning for technology and for teaching and learning), people (values, ethics, trust, human resources management) and structures and social systems (organisational structure, infrastructure) (Jameson, 2013, p. 911);
- Leadership literacies are a set of attitudes, understandings and mindsets which enable leaders to address complex problems and solve them in ways which are respectful of people and the environment, adapted from Davis (2012).

On skills, competences and literacies

Before going any further, it is important to understand what we mean by literacies, and how these differ from the concepts of skills and competences. Davis (2012) situates her theory within Freire's (1970) notion of "literacy as conscientization pointing to possibilities for empowerment, social transformation and emancipation for leadership practitioners and scholars" (Freire, 1970, p. 27).

Similarly, the UNESCO report 'Understandings of literacy' (2006) points to a shift "from viewing literacy as a simple process of acquiring basic cognitive skills, to using these skills in ways that contribute to socio-economic development, to developing the capacity for social

awareness and critical reflection as a basis for personal and social change.” (Unesco, 2006, p. 147).

The references to socio-cultural awareness and the ability to bring about personal and social change in these definitions of literacies, and to ‘the production of change in attitudes, feelings, thinking, behavior, and performance’ (Avolio et al., 2014) in the definition of e-leadership suggest that there is potential for further research combining these two concepts.

We fully recognise the complex, multiple, imprecise or overlapping understandings and use of the terms ‘skills’, ‘competences’ and ‘literacies’, in particular in reference to digital literacy (Belshaw, 2014; M. Brown, 2017). Therefore, in order to guide us in defining the concept of e-leadership

literacies for TEL for the purposes of this study, we need to keep in mind the following two conditions:

- Literacies refer to attitudes, mindsets (including world views), understandings and behaviours rather than the ability to perform a particular task.
- Literacies integrate the notions of critical reflection, social transformation and empowerment.

Working definition of TEL-eLL

(To be refined and validated as part of the Delphi study.)

TEL-eLL can be defined as “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”

Rationale

Leadership is understood here as a social influence process with the view to achieving common goals (Northouse, 2015). Consistent with contemporary post-heroic theories of leadership (Pearce & Conger, 2002), it can be situated both within the realm of the individual and that of the organisation, through the latter’s culture, organisational structure and relationship with the external environment.

In HE, the stakeholders concerned by and impacted by change for the improved use of digital technology for teaching and learning are diverse and many, and leadership for TEL can operate at different levels within the institution.

Formal TEL leadership includes a) governance: presidents, rectors or vice-chancellors; vice presidents or vice-rectors with a remit for digital learning, learning innovation and/or teaching and learning; b) academic, for example heads of department or programme directors; c) management: directors/managers of TEL and/or learning innovation departments, or IT managers where TEL is within their remit.

Informal TEL leadership can come from teachers and researchers within and outside the institution, TEL staff, library staff, students.

However given the overarching goal of the study for which this framework is being designed, that of supporting HE governances in developing strategic thinking for TEL (Bates & Sangrà, 2011), it concentrates specifically on the TEL-eLL of formal leaders in decision-making positions, in particular at the vice-president / vice-rector level.

The proposed TEL-eLL framework is only part of the whole picture, focussing as we have seen on the e-leadership literacies of these leaders with respect to technology-enhanced learning. It excludes governance or management actions and interventions such as quality assurance and resource allocation. The contextual and operational dimensions will be studied in depth in a series of case studies in conjunction with the aforementioned e-leadership literacies.

Concretely, once the TEL-eLL framework has been validated by this Delphi study, it will serve

as the basis for developing a semi-structured interview template and an online questionnaire to be applied in these case studies.

The list of e-leadership literacies for TEL (to be found in the online survey) has been compiled and categorised according to two main existing frameworks: Davis' (2012) Leadership Literacies for professional staff in universities, which provide the overarching dimensions, and Jameson's (2013) e-leadership framework for TEL. Other work which has informed the current proposed list includes Johansen's (2012) leadership skills for an uncertain world, Sheninger's (2014) seven pillars of digital leadership, Belshaw's (2014) digital literacies, Ahlquist's (2014) ten competencies of a digital leader, Beaudoin's (2016) recommendations for distance education decision makers in HE, the work of the C-DELTA project in developing a curriculum for Digital Education Leadership (C. Brown, Czerniewicz, Huang, & Mayisela, 2016), Appreciative Leadership (Orr & Cleveland-Innes, 2015).

Some of the original definitions have been modified slightly to adapt them to the specific context of TEL or to align them with the notion of literacies, and so some evolution of their initial meaning is unavoidable.

Finally, while the majority of the leadership literacies in the proposed framework should be understood as specific to the integration of technology for teaching and learning, some are indeed more general leadership literacies without which the framework would be incomplete.

[Presentation of conceptual frameworks Davis (2012) and Jameson (2013) – see Table 1 and Figure 1]

Organisation of the Delphi study

The exercise proposed in the three rounds of the Delphi study is thus to refine, complete and validate the overall framework of e-leadership literacies for TEL in HE.

In the first round (January 24th-31st 2018), experts will

- a) rank the statements in order of importance within each dimension or sub-dimension,
- b) propose any necessary reformulations,
- c) propose any new statements which should be included,
- d) propose a reformulation of the working definition of TEL-eLL.

In the second round (February 7th-11th), a new list of statements will be proposed, based on the ranking and including the new and reformulated statements. Experts will express a YES/NO for inclusion in the final framework and will also rate the proposed reformulations of the overall TEL-eLL definition.

The third round (February 19th-23rd) is to reach consensus on any outstanding statements which did not gain consensus in the previous round, as well as to validate the final TEL-eLL definition.

Contact details:

All enquiries concerning this Delphi study should be sent to: Deborah Arnold:
darnold@uoc.edu

References

[not reproduced here to avoid duplication]

Appendix G: Delphi survey Round 1

e-leadership literacies Delphi survey: Round 1

This survey is designed to validate a definition of e-leadership literacies for technology-enhanced learning (TEL-eLL) in higher education and to reach consensus on a series of statements reflecting these literacies. Before starting, please read the background information if you haven't done so already. Please insert the 4-figure PIN code you received by email. This is simply to be able to track which experts reply in each of rounds 1, 2 and 3 of the Delphi survey.

e-leadership literacies for TEL: definition

TEL-eLL can be defined as “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”

Please complete the sentence: "I think this definition is..." *
perfectly satisfactory / reasonably satisfactory / unsatisfactory

e-leadership literacies for TEL: improved definition

If you are not satisfied with the definition, please propose an alternative. You are advised to copy your proposed redefinition to a text document as you will need to refer to it at the end of the survey.

The worldly e-leadership literacy - e-leadership visioning

The following 15 statements concern literacies relating to the WORLDLY LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of E-LEADERSHIP VISIONING. They concern formal leaders in higher education. When answering the questions, it might help if you imagined the attitudes, mindsets, world views or behaviours of formal TEL leaders you know (e.g. vice-presidents / vice-rectors with a remit for teaching and learning, learning innovation and/or technology-enhanced learning), or of yourself if you hold or have held such a position. You will be asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Understanding the impact of digital technology on society and education. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

2. Demonstrating an understanding of the complex nature of HE organisations. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

3. Knowing and understanding the organisation as an ever-changing human construction. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

4. Articulating a vision for TEL around institutional values, mission and purpose. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

5. Encouraging collective positive inquiry and an imagery which leads to new, even multiple, future realities. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

6. Engaging in teaching and learning leadership. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

7. Making informed decisions about TEL appropriate to context. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

8. Being able to distinguish between and utilise both strategic and tactical planning. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

9. Applying diagnostic skills to assess situations before acting. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

10. Focusing on both the micro and macro perspectives. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

11. Being able to operationalise one's vision, not just espouse it. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

12. Being an articulate and informed advocate of distance/digital education. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

13. Being enterprising, but resisting early adoption of what is currently in vogue. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

14. Deciding and acting as a learner-centred educator. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

15. Utilising data for decision making. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

Finally, please list here any additional literacies relating to e-leadership visioning that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

The worldly e-leadership literacy - self-relationship with technology

The following 5 statements concern literacies relating to the WORLDLY LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of leaders' SELF-RELATIONSHIP WITH TECHNOLOGY. You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Knowing and articulating one’s own vision of the role and impact of digital technology on society. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

2. Knowing and articulating one’s own vision of the role and impact of digital technology on education. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

3. Developing and demonstrating critical digital literacy. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

4. Developing one’s own online self-awareness. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

5. Establishing personal virtual boundaries (in terms of privacy, time management, overall wellness). *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

Finally, please list here any additional literacies relating to leaders' self-relationship with technology that you would like to see included in the framework. Please use the

same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

--

The worldly e-leadership literacy - self-relationship with teaching and learning

The following 4 statements concern literacies relating to the WORLDLY LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of leaders' SELF-RELATIONSHIP WITH TEACHING AND LEARNING.

You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Understanding a variety of different learning theories and approaches. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

2. Understanding the affordances and potential risks of technology for teaching, learning and assessment. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

3. Possessing sound knowledge of (distance/digital) education theory and practice. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

4. Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

Finally, please list here any additional literacies relating to leaders' self-relationship with teaching and learning that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

--

The sustaining e-leadership literacy

The following 8 statements concern literacies relating to the SUSTAINING LEADERSHIP

dimension. The sustaining leadership literacy concerns sustainability and ecologies as key considerations globally and locally for the conduct of leadership in the 21st century (Davis, 2012). You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this dimension.

1. Awareness of the environmental implications of technology choices for teaching and learning. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

2. Awareness of the human implications of technology choices for staff and students. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

3. Developing a vision and policy for TEL which includes issues of access, equity and inclusion. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

4. Developing policies for safe, legal and ethical use of TEL. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

5. Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

6. Developing a shared vision for the transformation of learning spaces. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

7. Awareness of the potential of developing shared assets to benefit all players, in the form of digital commons. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

8. Promoting the use of digital technology and TEL for social good and digital citizenship. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

Finally, please list here any additional literacies for the sustaining leadership dimension that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

--

The leadingful e-leadership literacy - leadership style

The following 13 statements concern literacies relating to the LEADINGFUL LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of LEADERSHIP STYLE. You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Developing and communicating a shared vision for teaching and learning with technology. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

2. Facilitating and committing to distributed, collaborative leadership for TEL throughout the organisation. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

3. Guiding which questions are asked, what changes are made and encouraging movement towards a new future. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

4. Demonstrating quiet transparency and authenticity to foster trust. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

5. Encouraging risk-taking and accepting failure with a view to learning from mistakes. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

6. Having patience, resilience, dedication and tolerance for ambiguity and risk. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

7. Respecting the culture of academic freedom in decision-making about TEL. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

8. Integrating digital technologies into leadership presence. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

9. Committing to a transformative leadership style. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

10. Being able to create conditions for innovation and change. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

11. Recognising that the priority is managing change rather than technology. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

12. Valuing and engaging in networking, sharing ideas, strategies and resources. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

13. Maintaining a commitment to quality. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

Finally, please list here any additional literacies relating to leadership style that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

The leadingful e-leadership literacy - branding and public relations

The following 2 statements concern literacies relating to the LEADINGFUL LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of BRANDING AND PUBLIC RELATIONS. You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) to suggest additional literacies to add to this sub-dimension.

1. Establishing TEL as a key aspect of the institution’s brand or identity. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

2. Leveraging social media to create a positive brand image emphasising the quality of teaching and learning supported by technology. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

Finally, please list here any additional literacies relating to branding and public relations that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

The relational e-leadership literacy

The following 13 statements concern literacies relating to the RELATIONAL LEADERSHIP dimension (Davis, 2012). You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this dimension.

1. Involving all stakeholders in decision-making about TEL (teachers, students, administrative staff, researchers). *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

2. Empowering others. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

3. Developing and demonstrating emotional intelligence. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

4. Developing and demonstrating interpersonal skills. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

5. Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

6. Fostering a culture of trust. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

7. Helping others to find a clarity of purpose and direction. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

8. Helping others generate a sense of meaning out of everyday work. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

9. Articulating a shared vision to give inspiration and meaning to work. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

10. Investing time and energy in managing relationships. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

11. Paying attention to the creation of shared meaning and purpose. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

12. Demonstrating positive affect and caring. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

13. Ensuring a positive frame of reference is respected throughout the process of change. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

--

Finally, please list here any additional literacies for the relational leadership dimension that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

--

The learningful e-leadership literacy - the leader as learningful self

The following 3 statements concern literacies relating to the LEARNINGFUL LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of LEADER AS LEARNINGFUL SELF. You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Engaging in formal and informal learning to develop understanding of key challenges by accessing the latest trends, research and ideas in the field. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

2. Engaging in formal and informal learning to develop leadership skills and competencies, including change management and critical digital literacy. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

3. Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with experts as well as practitioners in the field of education. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

Finally, please list here any additional literacies relating to the leader as learningful self that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

--

The learningful e-leadership literacy - Supporting the development of a learningful community

The following 5 statements concern literacies relating to the LEARNINGFUL LEADERSHIP dimension (Davis, 2012) and in particular the sub-dimension of SUPPORTING THE DEVELOPMENT OF A LEARNINGFUL COMMUNITY. You are asked to 1) indicate the importance of each of these literacies for such formal HE leaders, b) propose an alternative formulation if necessary and finally 3) suggest additional literacies to add to this sub-dimension.

1. Promoting a culture of organisational learning and innovation. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

2. Contributing to the personal and professional growth of others. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

3. Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change. *

highly important					not at all important
1	2	3	4	5	

Your proposed reformulation of the statement, if necessary.

--

5. Viewing the organisation as an emerging book, encouraging exploration and re-consideration of the organisation’s story, making it (the story) and its unfolding explicit, and acknowledging all contributions. *

highly important				not at all important
1	2	3	4	5

Your proposed reformulation of the statement, if necessary.

Finally, please list here any additional literacies relating to the supporting of learningful communities that you would like to see included in the framework. Please use the same formulation, beginning each with a verb in the gerund form, for example "Acting/Demonstrating..."

(Re)definition of e-leadership literacies for TEL

The initial proposed definition of TEL-eLL was "“a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.” You may have suggested an alternative definition at the beginning of the survey, however after discovering the framework and the statements it contains, you may wish to reformulate either the proposed definition or the one you suggested. Now is your chance!

Appendix H: Delphi survey Round 2

The definitions resulting from Round 1 as provided to the Delphi expert in Round 2, followed by the survey itself.

Initial definition

TEL-eLL can be defined as “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”

Adjustments to initial definition

- A “a set of attitudes, understandings, mindsets **and visions** which enable leaders in higher education to **employ sound judgment for making consistently good decisions for** addressing complex problems relating to the integration of technology-enhanced learning and to solve these problems in ways which are respectful of people and the environment; and which contribute to socio-economic development and **enhancing the capacity for individual social awareness** and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- B “a set of attitudes, understandings, **capacities** and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- C “a set of attitudes, understandings and mindsets, including an awareness of how **technology changes the traditional paradigms of education, research, scholarship and administration.** TEL-eLL should enable leaders in higher education to address complex problems relating to the **integration of technology in education**, and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- D “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning”. ~~and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”~~
- E “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment **while developing** the capacity for social awareness and critical reflection as a basis for personal and social change.”
- F “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution).” ~~as a basis for personal and social change.”~~
- G “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning **in XXX** and to solve them in ways which are respectful of people and the environment, now and in the future, and which contribute to capacity building for socio-economic development, social

- awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- H** “a set of **critical and reflective** attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment ~~and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution)~~ as a basis for personal and social change.”
- I** “a set of attitudes, understandings and mindsets which enable leaders in higher education to **identify potentials, formulate vision and create futures** relating to the integration of technology-enhanced learning and to solve complex problems in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- J** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to **teaching and** the integration of technology-enhanced learning and to solve them in ways which are respectful of people, **the role of staff** and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- K** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people **and the organisational environment** and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- L** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems **relating to mindful selective application of technology-enhanced learning** and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- M** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning. **To find solutions** in ways which are respectful of people and the environment, which contribute to socio-economic development, and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”
- N** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social **development.**”
- Major rewording or alternative definition**
- O** “having a set of attitudes, understanding, and mindsets that **empower leaders in higher education with skills to practice foresight, insight, and action to address complex problems in relation to the integration of technology-enhanced learning.**
- P** “a set of **particular attributes** (knowledge, attitude, **innovative mindset**) that enable leaders in higher education **to address the challenge of organisation-wide integration of technology-enhanced learning within the wider context of the multi-faceted challenges of HE leadership generally.**
- Q** “a set of attitudes, understandings **and skills** which enable leaders in higher **education to use technology to understand and catalyse solutions for complex organisational problems impacting on student learning and the value of the university to its communities and stakeholders.**”

- R** “a set of attitudes, values, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration **and transformation** of technology-enabled learning, **to solve, and predict them in ways which are agile, but also sustainable**, and respectful of people and the environment and which contribute to socio-economic development and growth, and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.” **To empower access, equity, equality, LLL, inclusiveness, diversity, foster cultural and quality at all levels. Empowering trust, moral, ethos, pathos and logical issues. Ownership and personal commitment. Agile innovative methods for transformation and change. Change is more important than TEL as such, to be in gear with the 21st century global demands, the UNESCO SDG 4 and the 4th industrial revolution, in all means. Advocacy at local, regional, national and international level.**
- S** “a view of leadership enabling incremental and radical innovation for digital learning benefits that encompasses adaptive systems and thinking, acknowledges multiple stakeholders and their values and is futures- and designed- orientated.”
- T** “a set of attitudes, understandings and mindsets which enable leaders in higher education to **enhance the quality of education and make optimal use of opportunities offered by the integration of technology-enhanced learning and constructively address the complex challenges of related change management.**”
- U** “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of individuals and groups and the environment and which contribute to socio-economic and cultural development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change. **A willingness to exploit strengths in the organisation and individuals, grasp opportunities offered by technological innovation and emerging digital practices in society. A willingness to address ethical, pedagogical and cultural weakness in the institution, as well as internal and external threats to successful integration of technology-enhanced learning in HEIs**”.

e-leadership Delphi survey - Round 2

Welcome to Round 2 of the TEL-eLL Delphi study. In this survey, you will be asked to select your preferred definitions of TEL-eLL and to validate statements for inclusion in the final framework, whether in their initial wording or as reformulations proposed by members of this expert group. Before continuing, please insert the 4-figure PIN code you received by email. *

Definitions of TEL-eLL

The initial proposed definition of TEL-eLL was:

TEL-eLL can be defined as “a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change.”

21.1% of experts found this definition perfectly satisfactory

68.4% found it reasonably satisfactory

10.5% found it unsatisfactory

To answer this question you will need to refer to the list of new definitions you received by email. You can also find it in Google Drive:

https://drive.google.com/file/d/1m6DrRx_HUDLMA16Z6X0zoRjXtr2SMbq_/view?usp=sharing

Please indicate your top three definitions, in order of choice.

	First choice	Second choice	Third choice
Initial definition			
Definition A			
Definition B			
Definition C			
Definition D			
Definition E			
Definition F			
Definition G			
Definition H			
Definition I			
Definition J			
Definition K			
Definition L			
Definition M			
Definition N			
Definition O			
Definition P			
Definition Q			
Definition R			
Definition S			
Definition T			
Definition U			

The WORLDLY e-leadership literacy: e-leadership visioning - consensus + reformulations

In Round 1, consensus was reached on 9 of the 15 statements for e-leadership visioning. Here you are asked to choose whether to maintain the initial statement or to choose one of the proposed reformulations. Where experts made comments rather than suggest reformulations, I have endeavoured to integrate these into proposed reformulations wherever possible. The numbering of the statements below corresponds to that used in Round 1. Please indicate your preference, either by validating the initial statement or choosing one of the reformulations (Rn).

1. Understanding the impact of digital technology on society and education. *
 - Validate initial statement.
 - (R1) Being able to explain the impact of digital technology on society and education.
 - (R2) Understanding the potential and impact of digital technology on society and education.
 - (R3) Understand the impact of digital technology on society and education and take into consideration for actions and strategies.
 - (R4) Appreciate drivers from digitalization as part of a complex system.
 - (R5) Understanding the impact of digital technologies on society and education.
 - (R6) Understanding the impact of digital technology on society, education, students and staff.
 - (R7) Demonstrating a capacity for analysis, reflection and critique of the impact of digital technology on society and education.

2. Demonstrating an understanding of the complex nature of HE organisations. *
 - Validate initial statement.
 - (R1) Being able to explain and provide examples of the complex nature of HE organisations.
 - (R2) Taking conscious actions and considerations for actions and strategies.
 - (R3) Demonstrating an understanding of the complex nature of HE organisations in the context of a dynamic, evolving societal context.
 - (R4) Demonstrating a capacity for analysis and decision making within the complex organisation that is a higher education institution.

4. Articulating a vision for TEL around institutional values, mission and purpose. *
 - Validate initial statement.
 - (R1) Evaluating the impact and degree to which TEL is important in terms of institutional values, mission and purpose.
 - (R2) Articulating a vision for TEL aligned to and supporting institutional values, mission and purposes.

- (R3) Articulating a vision for TEL around institutional values, mission and purpose, and finding ways to convince stakeholders.
- (R4) Articulating a discerning, insightful vision for TEL which meaningfully positions it within the context of institutional values, mission and purpose.

6. Engaging in teaching and learning leadership. *

- Validate initial statement.
- (R1) Engaging in teaching and learning leadership, whether directly (in person) or via specifically appointed people.
- (R2) Engaging in teaching and learning leadership, with foresight not hindsight.
- (R3) Engaging in shared leadership of teaching and learning.
- (R4) Having experience in teaching leadership.

7. Making informed decisions about TEL appropriate to context. *

- Validate initial statement.
- (R1) Making informed decisions about TEL appropriate to context, only when it is decided that another lower level of decision making should not make these decisions.

8. Being able to distinguish between and utilise both strategic and tactical planning.*

- Validate initial statement.
- (R1) Being able to distinguish between and utilise both strategic and operational planning.
- (R2) Being able to distinguish between incremental and adaptive planning (and the different approaches needed).

10. Focusing on both the micro and macro perspectives. *

- Validate initial statement.
- (R1) Focusing on micro, meso and macro perspectives.
- (R2) Focusing on both the micro and macro perspectives, including context and time within adaptive systems.
- (R3) Focusing on both the micro and macro perspectives, top down, bottom-up or horizontal approaches as well, but keeping in mind the possible cost of delaying timecritical action.
- (R4) Focusing more on macro perspectives without creating contradictions with the possible micro perspectives.

11. Being able to operationalise one's vision, not just espouse it. *

- Validate initial statement.

- (R1) Being able to operationalise (communicate) one's vision [to] organizational followers and to lead effective change based on the key goals of the vision.

15. Utilising data for decision making. *

- Validate initial statement.
- (R1) Utilising data for decision making, while recognising that not all data is created equal.
- (R2) Exploiting data as one of several supporting tools for decision making.
- (R3) Using empirical evidence (including relevant data) in decision making without losing the connection with the vision.

Explanations of your choices if wished.

The WORLDLY e-leadership literacy: e-leadership visioning - No consensus + reformulations

In Round 1, no consensus was reached on the following 6 statements for e-leadership visioning. You are therefore asked to decide whether each statement should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework. The numbering of the statements below corresponds to that used in Round 1.

3. Knowing and understanding the organisation as an ever-changing human construction.*

- Validate initial statement.
- (R1) Being able to provide examples of how the organisation is an ever-changing human construction.
- (R2) Knowing and understanding the organisation as human-centred and everchanging.
- (R3) Having understanding and insight to lead the organisation with respect to it as an ever-changing human construction.
- (R4) Knowing and understanding the organisation as an ever-changing human construction shaped by history and context.
- Eliminate from framework.

5. Encouraging collective positive inquiry and an imagery which leads to new, even multiple, future realities.*

- Validate initial statement.
- (R1) Encouraging evidence-based inquiry.
- (R2) Encouraging participatory inquiry and an imagery which leads to new, even multiple, future realities.
- (R3) Encouraging collective positive inquiry and an imagery which leads to viable and preferred futures.
- (R4) Supporting collective decision-making incorporating a range of perspectives.
- (R5) Encouraging collective positive inquiry and an imagery which leads to new, even multiple, future realities, as a starting point.
- (R6) Encouraging exploration of a rich array of scenarios and experiments that may respond to future needs and ambitions.
- Eliminate from framework.

9. Applying diagnostic skills to assess situations before acting.*

- Validate initial statement.
- (R1) Avoiding over-diagnosis and giving priority to action and prototyping.
- (R2) Using evidence to inform and sustain action.
- (R3) Applying diagnostic skills to assess situations before acting, taking into account that the passage of time impacts situations and therefore can have an additional cost.
- Eliminate from framework.

12. Being an articulate and informed advocate of distance/digital education.*

- Validate initial statement.
- (R1) Being an articulate and informed advocate of open, online and flexible education.
- (R2) Being able to diagnose the impact of distance/digital education and act accordingly.
- (R3) Being an articulate and informed advocate of higher education.
- (R4) Being an articulate, informed leader in relation to selective appropriate and beneficial uses of distance/digital education.
- (R5) Having a realistic view on the potentials of distance/digital teaching/learning methods.
- Eliminate from framework.

13. Being enterprising, but resisting early adoption of what is currently in vogue. *

- Validate initial statement.
- (R1) Being enterprising, yet unpersuaded by untested fads.

- (R2) Being enterprising, predictable and enthusiastic, both [in one's] own advocacy and [encouragement of] members in the team. To be a good example and to live as one is advocating for.
- (R3) Being enterprising and adaptive, but resisting early adoption of what is currently in vogue.
- (R4) Being forward-leaning and strategic but cautiously discerning in early adoption of what is in vogue or trending.
- (R5) Being prepared to take risks on a small scale (fail often fail fast).
- (R6) Being supportive of ideas from a range of sources.
- (R7) [Recognising that] neither early nor late adoption has value, per se.
- (R8) Being aware that that the hype phase in the S curve is expensive and ephemeral, while still supporting early adoption.
- (R9) Demonstrating the capacity to identify the place of a particular technology in the innovation/adoption cycle, and relate that to institutional needs.
- Eliminate from framework.

14. Deciding and acting as a learner-centred educator. *

- Validate initial statement.
- (R1) Acting as a learner-centered educator when making decisions.
- (R2) Having the learner-centric vision as one of several key approaches to decision making.
- (R3) Demonstrating the capacity to identify learner-centred strategies and determine whether they are valuable to the institution and its current circumstances.
- Eliminate from framework.

Explanations of your choices if wished.

The WORLDLY e-leadership literacy: e-leadership visioning - new proposed statements

Please rate the following new statements proposed by members of the expert group. NB. Some of the statements which were proposed for this sub-dimension have been reallocated to other dimensions/sub-dimensions according to the Delphi coordinator's understanding of the overall framework.

Understanding the technological environment in which students study. *

highly important					not at all important
1	2	3	4	5	

Having a clear vision of the mission of one's institution (beyond preparing learners), but also within society. *

highly important				not at all important
1	2	3	4	5

Encouraging the development and support of an open and respectful environment for discussion and debate around educational and pedagogical issues. *

highly important				not at all important
1	2	3	4	5

Understanding the importance of involving other stakeholders in influencing processes/developments. *

highly important				not at all important
1	2	3	4	5

Encouraging active and open monitoring of results to keep focus, avoid derailments, and ensure value for learners and institutions. *

highly important				not at all important
1	2	3	4	5

Predicting, ownership, inclusiveness, agile acting, seeing the big picture, holistic approach, system change. *

highly important				not at all important
1	2	3	4	5

Demonstrating the ability to select key leadership team members and managerial personnel that 'fit' the organisational needs to meet vision goals. *

highly important				not at all important
1	2	3	4	5

Demonstrating the ability to experiment with one's surroundings as a form of problem-solving. *

highly important				not at all important
1	2	3	4	5

Being able to interpret and construct dynamic models of real-world processes. *

highly important				not at all important
1	2	3	4	5

Creating the future, trying the impossible. *

highly important				not at all important
1	2	3	4	5

Acting on system thinking, and demonstrating planning capacity. *

highly important				not at all important
1	2	3	4	5

Having a good understanding of educational policy making. *

highly important				not at all important
1	2	3	4	5

Encouraging future vision, supporting others to experiment. *

highly important				not at all important
1	2	3	4	5

Inviting specialists (from your institution or not) to share their knowledge and experience with stakeholders when defining your strategy. *

highly important				not at all important
1	2	3	4	5

Demonstrating insights in and willingness to build upon the impact of social media and collaborative cultures have had on individual and collective practices within and outside higher education. *

highly important				not at all important
1	2	3	4	5

The WORLDLY e-leadership literacy: self-relationship with technology

In Round 1, consensus was reached on 2 of the 5 statements for self-relationship with technology. Please indicate your preference for statements 1 and 2. No consensus was reached on statements 3, 4 and 5. You are therefore asked to decide whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Knowing and articulating one's own vision of the role and impact of digital technology on society. *

- Validate initial statement.

- (R1) Coordinating multiple visions regarding the role and impact of digital technology on society.
2. Knowing and articulating one's own vision of the role and impact of digital technology on education. *
- Validate initial statement.
 - (R1) Knowing and articulating a shared organisational vision of the role and impact of digital technology on education.
 - (R2) Coordinating multiple visions regarding the role and impact of digital technology on education.
3. Developing and demonstrating critical digital literacy. *
- Validate initial statement.
 - (R1) Developing and demonstrating critical thinking in all issues of digital literacy.
 - (R2) Showing an awareness of critical digital literacy.
 - Eliminate from framework because it would be surprising if anyone in a HE leadership role would not have a strong level of critical awareness generally.
 - Eliminate from framework.
4. Developing one's own online self-awareness. *
- Validate initial statement.
 - (R1) Developing one's own self-awareness in online settings.
 - (R2) Developing one's own/Demonstrating digital scholarship.
 - Eliminate from framework because already covered by 3. above.
 - Eliminate from framework.
5. Establishing personal virtual boundaries (in terms of privacy, time-management, overall wellness). *
- Validate initial statement.
 - (R1) Establishing personal virtual boundaries (in terms of privacy, security, ethics, time-management, overall wellness).
 - (R2) Demonstrating an awareness of the need for personal virtual boundaries (in terms of privacy, time-management, overall wellness) together with the ability to make decisions on that basis.
 - Eliminate from framework because this is a personal competence rather than a leadership competence.
 - Eliminate from framework.

Explanations of your choices if wished.

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WORLDLY / self-relationship with technology (new statements)

Please rate the following new statements proposed by members of the expert group.

Possessing a basic understanding of TEL. *

highly important				not at all important
1	2	3	4	5

Awareness of research on student use of media. *

highly important				not at all important
1	2	3	4	5

Encouraging personal and educational awareness of digital developments and of their social adoption and impact. *

highly important				not at all important
1	2	3	4	5

Advocating people as the organization's most valuable resource and technology as a tool that will be effective due to creative and innovative talent of people. *

highly important				not at all important
1	2	3	4	5

Demonstrating a healthy embracing of digital technologies. *

highly important				not at all important
1	2	3	4	5

Acting mindfully as a leader in critiquing and challenging inappropriate, excessive and harmful uses of technology. *

highly important				not at all important
1	2	3	4	5

Demonstrating appropriate knowledge of ethics, cybersecurity, infrastructure and health and safety requirements in proportion to one's institutional role. *

highly important				not at all important
1	2	3	4	5

Sufficient knowledge about and/or experience in using state-of-art digital technology in education. *

highly important				not at all important
1	2	3	4	5

Being at ease with transmedia navigating. *

highly important				not at all important
1	2	3	4	5

The WORLDLY e-leadership literacy: self-relationship with teaching and learning

In Round 1, consensus was reached on 1 of the 4 statements for self-relationship with teaching and learning. Please indicate your preferred version for statement 2.

No consensus was reached on the other 3 statements. You are therefore asked to decide whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Understanding a variety of different learning theories and approaches. *
 - Validate initial statement.
 - (R) Understanding a variety of different learning theories and approaches and knowing where they fit into the wider education theory landscape.
 - Eliminate from framework because needed more by first-line (pedagogical) leaders than at Vice-rector level.
 - Eliminate from framework.

2. Understanding the affordances and potential risks of technology for teaching, learning and assessment. *
 - Validate initial statement.
 - (R) Understanding the affordances and potential impact of the use of digital technologies on communication and learning, teaching and assessment of learning needs and of learning achievements.

3. Possessing sound knowledge of (distance/digital) education theory and practice. *
 - Validate initial statement.
 - (R) Possessing sound knowledge of the theory and practice of using digital technology in education. (distance and digital are not alternatives)
 - Eliminate from framework.

4. Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities. *
 - Validate initial statement.
 - (R1) Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, either directly through reading, attending conferences, participating in communities or by ensuring briefing by staff directly engaged in such activities

- (R2) Keeping up to date with developments in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities.
- (R3) Keeping up-to-date with research in the fields of teaching and learning in general, and TEL in particular, through digesting information, attending conferences and participating in communities.
- Eliminate from framework.

Explanations about your choices if wished.

--

WORLDLY / self-relationship with teaching and learning (new statements)

Please rate the following new statements proposed by members of the expert group.

Knowing the (learning) characteristics of current and future learners. *

highly important					not at all important
1	2	3	4	5	

Building multi-disciplinary teams, focussing on design thinking for pedagogy. *

highly important					not at all important
1	2	3	4	5	

Having a current teaching practice [oneself]. *

highly important					not at all important
1	2	3	4	5	

Understanding the socio-cultural aspects of teaching and learning. *

highly important					not at all important
1	2	3	4	5	

Understanding how TEL relates to, and supports, other forms of teaching and learning. *

highly important					not at all important
1	2	3	4	5	

The LEARNINGFUL e-leadership literacy - the leader as learningful self

Consensus was reached for all 3 statements in this sub-dimension. Please indicate your preference for each statement.

1. Engaging in formal and informal learning to develop understanding of key challenges by accessing the latest trends, research and ideas in the field. *
 - Validate initial statement.
 - (R) Engaging in formal and informal learning to develop understanding of key challenges.

2. Engaging in formal and informal learning to develop leadership skills and competencies, including change management and critical digital literacy. *
 - Validate initial statement.
 - (R) Engaging in formal or informal learning to develop leadership skills and competencies, including change management and critical digital literacy. (Formal learning may not be possible.)

3. Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with experts as well as practitioners in the field of education. *
 - Validate initial statement.
 - (R) Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with decision & policy makers, experts as well as practitioners in the field of education.

Explanations of your choices, if wished.

--

LEARNINGFUL / learningful self (new statements)

Please rate the following new statements proposed by members of the expert group.

Identifying and choosing the right people / networks to support strategy and tactics. *

highly important					not at all important
1	2	3	4	5	

Developing the ability to search for, synthesize, and disseminate information. *

highly important					not at all important
1	2	3	4	5	

Further suggestions if wished.

--

The LEARNINGFUL e-leadership literacy - supporting the development of a learningful community

In Round 1, consensus was reached on 3 of the 5 statements for the 'learningful community' sub-dimension. Please indicate your preference. For the 2 statements which did not reach consensus (4 & 5), state whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Promoting a culture of organisational learning and innovation. *
 - Validate initial statement.
 - (R) Promoting a culture of organisational learning.

2. Contributing to the personal and professional growth of others. *
 - Validate initial statement.
 - (R) Contributing to the professional growth of others.

3. Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change. *
 - Validate initial statement.
 - (R1) Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change, embracing interdisciplinarity and diversity.
 - (R2) Bringing people together to think creatively, both as individuals and collectively, about preferred futures, current realities and challenges of achieving change.

4. Fostering the development of transversal competencies such as problem solving, critical thinking, creativity and risk-taking, in staff and students. *
 - Validate initial statement.
 - (R1) Fostering the development of transversal competencies such as problem solving, critical thinkings, creativity, risk-taking and intercultural communication in staff and students.
 - (R2) Fostering the development of transversal competencies such as decision making, problem-solving, critical thinking, creativity and risk-taking, in staff and students.
 - Eliminate from framework.

5. Viewing the organisation as an emerging book, encouraging exploration and reconsideration of the organisation's story, making it (the story) and its unfolding explicit, and acknowledging all contributions. *
 - Validate initial statement.
 - (R1) Viewing the organisation both as a product of history and human relationships that embody a set of values, as well as an emerging book, encouraging exploration and re-consideration of the organisation's story,

making it (the story) and its unfolding explicit, and acknowledging all contributions.

- (R2) Being aware of the possibility of viewing the organisation as an emerging book and of exploring and reconsidering the organisation's story.
- Eliminate from framework as covered by statement 3 above.
- Eliminate from framework.

Explanation of your choices, if wished.

LEARNINGFUL / learningful community (new statements)

Please rate the following new statements proposed by members of the expert group.

Ensuring the reward mechanisms foster the competencies that are necessary to change. *

highly important				not at all important
1	2	3	4	5

Encouraging/fostering/enabling digital scholarship (teacher and staff development). *

highly important				not at all important
1	2	3	4	5

Further suggestions if wished.

The RELATIONAL leadership literacy

In Round 1, consensus was reached on 8 of the 13 statements for the relational e-leadership literacy. Statements 9 and 10 received no proposed reformulation and so are validated in their original wording and not included here. Please indicate your preferred version for the remaining statements. For the 5 statements which did not reach consensus (1, 3, 7, 8, 13) state whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Involving all stakeholders in decision-making about TEL (teachers, students, administrative staff, researchers). *

- Validate initial statement.
- (R1) Involving all relevant stakeholders in decision-making about TEL.

- (R2) Involving all stakeholders in the process of decision-making about TEL (teachers, students, administrative staff, researchers), recognising that actual decisionmaking must be discussed, consulted and open, but it cannot be delegated or shared.
 - (R3) Involving all relevant stakeholders in decision-making about TEL, including stakeholders outside the institution, to act as an advocate in society at local, regional, national and international level.
 - (R4) Consulting all relevant stakeholders in decision-making about TEL, without making them all decision makers - for speed, executive decision making is essential.
 - (R5) Demonstrating an awareness of the implications of involving all stakeholders in decision-making about TEL (teachers, students, administrative staff, researchers).
 - Eliminate from framework.
2. Empowering others. *
- (O) Empowering others.
 - (R1) Empowering, trusting and encouraging others [to foster] ownership and inclusiveness.
 - (R2) Encouraging and empowering others to embrace and implement TEL.
 - (R3) Being aware of the implications of empowering others.
3. Developing and demonstrating emotional intelligence. *
- Validate initial statement.
 - (R1) Developing and demonstrating emotional intelligence, logos and pathos.
 - (R2) Developing and demonstrating emotional intelligence, but allow some focussed geeks too.
 - Eliminate from framework because this is a character trait not a literacy.
 - Eliminate from framework.
4. Developing and demonstrating interpersonal skills. *
- Validate initial statement.
 - (R) Developing and demonstrating interpersonal skills, such as communication, teamwork, conflict management and negotiation.
5. Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement. *
- (O) Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement.
 - (R1) Being prepared for high-stakes conversations to constructively depolarise tense situations and bring people from divergent culture towards positive results.
 - (R2) Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive

engagement, being able to make a decision when consensus cannot be achieved.

6. Fostering a culture of trust. *
 - (O) Fostering a culture of trust.
 - (R1) Fostering a culture of trust, where people are permitted to be wrong or change their mind.

7. Helping others to find a clarity of purpose and direction. *
 - Validate initial statement.
 - Eliminate from framework.

8. Helping others generate a sense of meaning out of everyday work. *
 - Validate initial statement.
 - Eliminate from framework.

11. Paying attention to the creation of shared meaning and purpose. *
 - Validate initial statement.
 - (R) Paying attention to shared purpose (individuals extract their own meaning).

12. Demonstrating positive affect and caring. *
 - Validate initial statement.
 - (R1) Demonstrating positive affect and caring, as appropriate for a given national or regional culture.
 - (R2) Demonstrating positive affect, as appropriate for a given national or regional culture.

13. Ensuring a positive frame of reference is respected throughout the process of change. *
 - Validate initial statement.
 - (R) Supporting the respect of a positive frame of reference throughout the process of change.
 - Eliminate from framework.

Explanation of your choices, if wished.

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RELATIONAL (new statements)

Please rate the following new statements proposed by members of the expert group.

Create a culture of quality and shared responsibility to (personally) invest in the process of change. *

highly important				not at all important
1	2	3	4	5

Ensuring that reward mechanisms in the institution foster innovation and change. *

highly important				not at all important
1	2	3	4	5

Pooling knowledge and comparing notes with others toward a common goal. *

highly important				not at all important
1	2	3	4	5

Fostering a culture of inquiry, innovation and collaboration at all levels of the institution. *

highly important				not at all important
1	2	3	4	5

The LEADINGFUL e-leadership literacy - leadership style

In Round 1, consensus was reached on 8 of the 13 statements for the leadership style subdimension. Statement 10 received no proposed reformulation and so is validated in its original wording and not included here. Please indicate your preferred version for the remaining statements. For the 5 statements which did not reach consensus (3, 4, 7, 8, 9) state whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Developing and communicating a shared vision for teaching and learning with technology. *

- Validate initial statement.
- (R1) Developing and communicating a shared understanding for teaching and learning with technology.
- (R2) Fostering debate and the exchange of ideas and visions for teaching and learning with technology.

2. Facilitating and committing to distributed, collaborative leadership for TEL throughout the organisation. *

- Validate initial statement.
- (R1) Facilitating and committing to distributed, collaborative leadership (including for TEL) throughout the organisation.

- (R2) Facilitating and committing to distributed, collaborative leadership for TEL at all levels, micro, meso and macro, and in a holistic conceptual approach.
 - (R3) Facilitating and committing to shared, collaborative leadership for TEL throughout the organisation.
 - (R4) Facilitating and committing to the delegation of initiative, development and resources for TEL.
3. Guiding which questions are asked, what changes are made and encouraging movement towards a new future. *
- Validate initial statement.
 - (R1) Guiding which questions are asked, what changes are made and encouraging movement towards new futures.
 - (R2) Facilitating and committing to distributed, collaborative leadership for TEL at all levels, micro, meso and macro, and in a holistic conceptual approach.
 - (R3) Inspiring which questions are asked, what changes are made and encouraging movement towards a new positive future.
 - (R4) Promoting reflective practice around change.
 - Eliminate from framework.
4. Demonstrating quiet transparency and authenticity to foster trust. *
- Validate initial statement.
 - (R1) Demonstrating transparency and authenticity to foster trust.
 - (R2) Demonstrating trust and confidence.
 - (R3) Demonstrating quiet transparency (or noisy, as necessary) and authenticity to foster trust.
 - (R4) Fostering an educational and digital cultural that increases trust and accountability.
 - Eliminate from framework because this is a personal trait rather than a literacy.
 - Eliminate from framework.
5. Encouraging risk-taking and accepting failure with a view to learning from mistakes. *
- Validate initial statement.
 - (R) Applying judicious use of a learning by failure approach, integrating critical self-evaluation.
6. Having patience, resilience, dedication and tolerance for ambiguity and risk. *
- Validate initial statement.
 - (R1) Valuing patience, resilience, dedication and tolerance for uncertainty and risk.
 - (R2) Having patience, resilience, dedication and tolerance for ambiguity, risk and boundlessness.

7. Respecting the culture of academic freedom in decision-making about TEL. *
 - Validate initial statement.
 - (R1) Respecting the culture of academic freedom in decision-making about TEL, while recognising that often people hide behind the notion of "academic freedom" to avoid change.
 - (R2) Demonstrating awareness of the culture of academic freedom in decision-making about TEL.
 - Eliminate from framework.

8. Integrating digital technologies into leadership presence. *
 - Validate initial statement.
 - (R1) Integrating digital technologies into leadership presence, in that leaders have to live themselves as they are advocating.
 - (R2) Using digital technologies as part of one's own leadership behaviour (for example, virtual team leadership, social media).
 - (R3) Integrating digital technologies into day-to-day management practices.
 - Eliminate from framework.

9. Committing to a transformative leadership style. *
 - Validate initial statement.
 - (R1) Demonstrating optimum integration of leadership styles and approaches that result in a benefits continuum that benefits the majority of stakeholders of the organisation.
 - (R2) Embracing a transformative leadership style.
 - Eliminate from framework.

11. Recognising that the priority is managing change rather than technology. *
 - Validate initial statement.
 - (R1) Recognising that the priority is managing change rather than technology, that technology is a means to an end, not an end in itself.
 - (R2) Recognising that the priority is managing unceasing institutional transformation rather than technology.
 - (R3) Recognising that the priority is leading change rather than managing technology.
 - (R4) Recognising that while the priority is managing change, technology needs managing too.
 - (R5) Recognising that the priority is managing ongoing change rather than technology.
 - (R6) Recognising that the priority is managing people and change rather than technology.
 - (R7) Demonstrating an awareness of the need to focus on managing change rather than technology.

12. Valuing and engaging in networking, sharing ideas, strategies and resources. *

- Validate initial statement.
- (R) Valuing, empowering, encouraging and engaging in networking, sharing ideas, strategies and resources.

13. Maintaining a commitment to quality. *

- Validate initial statement.
- (R1) Maintaining a commitment to quality at micro, meso and macro level.
- (R2) Maintaining a commitment to the range of qualities that describe the institution's purpose, values and mission.
- (R3) Maintaining a commitment to quality, in dynamic balance with other strategic objectives.
- (R4) Maintaining a commitment to educational and scientific quality.

Explanations of your choices, if wished.

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LEADINGFUL/leadership style (new statements)

Please rate the following new statements proposed by members of the expert group.

Being able to find incentives and create time for supporting change management. *

highly important				not at all important
1	2	3	4	5

Being empowering, quality focused, boundless and resilient. *

highly important				not at all important
1	2	3	4	5

Developing diverse visions for teaching and learning with technology. *

highly important				not at all important
1	2	3	4	5

Acting as a catalyst for change and innovation for digital transformation. *

highly important				not at all important
1	2	3	4	5

Leading in a manner that engages everyone as change agents. *

highly important				not at all important
1	2	3	4	5

Demonstrating a lack of personal ego and support for distributed leadership. *

highly important				not at all important
1	2	3	4	5

The LEADINGFUL leadership literacy - Branding and Public Relations

Neither of the 2 statements for Branding and Public Relations achieved consensus. Please state whether each of these statements should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Establishing TEL as a key aspect of the institution's brand or identity. *
 - Validate initial statement.
 - (R1) If mission critical, establishing TEL as a key aspect of the institution's brand or identity.
 - (R2) Establishing TEL as a catalyst for innovation, systemic change and transformation.
 - (R3) Establishing TEL as one of several key aspects of the institution's brand or identity.
 - Eliminate from framework.

2. Leveraging social media to create a positive brand image emphasising the quality of teaching and learning supported by technology. *
 - Validate initial statement.
 - (R1) Leveraging appropriate digital communication channels to create a positive brand image emphasising the quality of teaching and learning supported by technology.
 - (R2) Leveraging social media to engage with diverse communities, emphasizing the purposes, values and mission of the university.
 - (R3) Leveraging social media to create a positive brand image emphasising the quality of teaching and learning supported by technology, while being aware of the serious risks to reputation in case of under-delivery.
 - Eliminate from framework.

Explanation of your choices, if wished.

LEADINGFUL / Branding and Public Relations (new statements).

Please rate the following new statements proposed by members of the expert group.

Finding a way to describe online learning with accuracy and integrity, whilst also needing to 'sell'. *

highly important				not at all important
1	2	3	4	5

Acting as a catalyst for change and innovation for digital transformation. *

highly important				not at all important
1	2	3	4	5

Demonstrating an awareness of the danger of 'grandiosity' narratives driven by a superficial marketing approach to university reputation building. *

highly important				not at all important
1	2	3	4	5

Supporting and promoting open forms of learning and knowledge creation. *

highly important				not at all important
1	2	3	4	5

The SUSTAINING e-leadership literacy

In Round 1, consensus was reached on 5 of the 8 statements for the sustaining e-leadership literacy. Please indicate your preferred version for these statements. For the 3 statements which did not reach consensus (1, 7, 8), state whether each of these should be included in the final framework, in its original form or with a proposed reformulation, or whether it should be eliminated from the framework.

1. Awareness of the environmental implications of technology choices for teaching and learning. *

- Validate initial statement.
- (R1) Awareness of the organisational environmental implications of technology choices for teaching and learning.
- (R2) Awareness of the impact of technology choices on the environment, in terms of energy consumption for example.
- Eliminate from framework.

2. Awareness of the human implications of technology choices for staff and students.

*

- Validate initial statement.
- (R) Awareness of the fact that technology is created with and for humans.

3. Developing a vision and policy for TEL which includes issues of access, equity and inclusion. *

- Validate initial statement.
- (R) Developing a vision and policy for TEL which includes issues of access, equity, inclusion, equality and Lifelong Learning.

4. Developing policies for safe, legal and ethical use of TEL. *

- Validate initial statement.
- (R) Developing policies for safe, legal, ethical and moral use of TEL.

5. Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges. *

- Validate initial statement.
- (R1) Supporting the development of an organisation able to respond quickly and efficiently to new challenges.

6. Developing a shared vision for the transformation of learning spaces. *

- Validate initial statement.
- (R1) Developing a shared vision for the transformation of learning spaces and also cross action spaces.
- (R2) Helping students and staff develop a shared vision for the transformation of learning spaces.

7. Awareness of the potential of developing shared assets to benefit all players, in the form of digital commons. *

- Validate initial statement.
- (R1) Awareness of the potential of developing an ecosystem for developing and using open educational resources and enablers such as Creative Commons licensing.
- (R2) Awareness of the potential of developing shared assets to benefit all stakeholders, in the form of digital commons.
- Eliminate from framework.

8. Promoting the use of digital technology and TEL for social good and digital citizenship. *

- Validate initial statement.
- (R) Promoting the use of digital technology and TEL for social good and digital international citizenship.
- Eliminate from framework.

Explanations of your choices, if wished.

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SUSTAINING (new statements)

Please rate the following new statements proposed by members of the expert group.

Awareness and application of CSR (Corporate Social Responsibility) models *

highly important				not at all important
1	2	3	4	5

Looking over the horizon every day. *

highly important				not at all important
1	2	3	4	5

Engaging in prospective acting and advocating. *

highly important				not at all important
1	2	3	4	5

Engaging in developing and acquiring open and freely accessible resources in HE and society. *

highly important				not at all important
1	2	3	4	5

Final comments

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Appendix I: Delphi survey Round 3

e-leadership for TEL Delphi survey - Round 3

Welcome to Round 3, the final round in this TEL-eLL Delphi study. In this survey, you will see the results of Round 2 shown as graphs and will be asked to give your opinion again, first by selecting your preferred definition of TEL-eLL and then on each of the statements retained for the final framework.

As the proposed TEL-eLL framework has evolved over the course of the previous rounds, you might want to take a look at this overview, which shows which statements have already obtained consensus and which are pending decisions in this final round.

<https://drive.google.com/file/d/1jWZIW1YFVbu9vzduifkQ6GgDyZ34CA1w/view?usp=sharing>

Before continuing, please insert the 4-figure PIN code you received by email. *

Definitions of TEL-eLL

The following graph presents the results of Round 2. 3 points were given to definitions selected as first choice, 2 points to those selected as second choice, and 1 point for third choice. The top 4 definitions are put to you again for you to select your preferred version. If you do not wish to choose one of the proposed definitions, select 'other' (and you will then be asked to explain your choice).

Please choose your preferred definition of TEL-eLL from the options under the graph.

*

(A) "a set of attitudes, understandings, mindsets and visions which enable leaders in higher education to employ sound judgment for making consistently good decisions for addressing complex problems relating to the integration of technology enhanced learning and to solve these problems in ways which are respectful of people and the environment; and which contribute to socio-economic development and enhancing the capacity for individual social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change."

(C) "a set of attitudes, understandings and mindsets, including an awareness of how technology changes the traditional paradigms of education, research, scholarship and administration. TEL-eLL should enable leaders in higher education to address complex problems relating to the integration of technology in education, and to solve them in ways which are respectful of people and the environment and which contribute to socio-economic development and to developing the capacity for social awareness and critical reflection (within and beyond the institution) as a basis for personal and social change."

(D) "a set of attitudes, understandings and mindsets which enable leaders in higher education to address complex problems relating to the integration of technology-enhanced learning."

(O) "a set of attitudes, understanding, and mindsets that empower leaders in higher education with skills to practice foresight, insight, and action to address complex problems in relation to the integration of technology-enhanced learning."

Other

Please justify why you preferred not to choose one of the proposed definitions. *

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The WORLDLY e-leadership literacy: e-leadership-visioning

Here you will find the results of Round 2 for each statement. Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Understanding the impact of digital technology on society and education. *
 - Validate initial statement.
 - (R2) Understanding the potential and impact of digital technology on society and education.
 - (R7) Demonstrating a capacity for analysis, reflection and critique of the impact of digital technology on society and education.
 - Other
2. Demonstrating an understanding of the complex nature of HE organisations.*
 - Validate initial statement.
 - (R3) Demonstrating an understanding of the complex nature of HE organisations in the context of a dynamic, evolving societal context.
 - (R4) Demonstrating a capacity for analysis and decision making within the complex organisation that is a higher education institution.
 - Other
- 5.
3. Knowing and understanding the organisation as an ever-changing human construction. *
 - Validate initial statement.
 - (R4) Knowing and understanding the organisation as an ever-changing human construction shaped by history and context.
 - Eliminate from framework.
 - Other
4. Articulating a vision for TEL around institutional values, mission and purpose. *
 - Validate initial statement.
 - (R2) Articulating a vision for TEL aligned to and supporting institutional values, mission and purposes.
 - Other

5. Encouraging collective positive inquiry and an imagery which leads to new, even multiple, future realities. *
 - Validate initial statement.
 - (R4) Supporting collective decision-making incorporating a range of perspectives.
 - Other
6. Engaging in teaching and learning leadership. *
 - Validate initial statement.
 - (R3) Engaging in shared leadership of teaching and learning.
 - Other
8. Being able to distinguish between and utilise both strategic and tactical planning. *
 - Validate initial statement.
 - (R1) Being able to distinguish between and utilise both strategic and operational planning.
 - Other
9. Applying diagnostic skills to assess situations before acting. *
 - Validate initial statement.
 - (R2) Using evidence to inform and sustain action.
 - Other
10. Focusing on both the micro and macro perspectives. *
 - Validate initial statement.
 - (R1) Focusing on micro, meso and macro perspectives.
 - Other
11. Being able to operationalise one's vision, not just espouse it. *
 - Validate initial statement.
 - (R1) Being able to operationalise (communicate) one's vision [to] organisational followers and to lead effective change based on the key goals of the vision.
 - Other
12. Being an articulate and informed advocate of distance/digital education. *
 - (R1) Being an articulate and informed advocate of open, online and flexible education.
 - (R5) Having a realistic view on the potentials of distance/digital teaching/learning methods.
 - Other
13. Being enterprising, but resisting early adoption of what is currently in vogue. *
 - Validate initial statement.

- (R9) Demonstrating the capacity to identify the place of a particular technology in the innovation/adoption cycle, and relate that to institutional needs.
- Other

14. Deciding and acting as a learner-centred educator. *

- (R2) Having the learner-centric vision as one of several key approaches to decision making.
- (R3) Demonstrating the capacity to identify learner-centred strategies and determine whether they are valuable to the institution and its current circumstances.
- Other

15. Utilising data for decision making. *

- (R2) Exploiting data as one of several supporting tools for decision making.
- (R3) Using empirical evidence (including relevant data) in decision making without losing the connection with the vision.
- Other

The WORLDLY e-leadership literacy: e-leadership visioning (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

21. Predicting, ownership, inclusiveness, agile acting, seeing the big picture, holistic approach, system change. *

highly important				not at all important
1	2	3	4	5

23. Demonstrating the ability to experiment with one's surroundings as a form of problem-solving. *

highly important				not at all important
1	2	3	4	5

24. Being able to interpret and construct dynamic models of real-world processes. *

highly important				not at all important
1	2	3	4	5

25. Creating the future, trying the impossible. *

highly important				not at all important
1	2	3	4	5

26. Acting on system thinking, and demonstrating planning capacity. *

highly important				not at all important
1	2	3	4	5

30. Demonstrating insights in, and willingness to build upon, the impact that social media and collaborative cultures have had on individual and collective practices within and outside higher education. *

highly important				not at all important
1	2	3	4	5

The WORLDLY e-leadership literacy: self-relationship with technology

Here you will find the results of Round 2 for each statement. Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Knowing and articulating one's own vision of the role and impact of digital technology on society. *

- Validate initial statement.
- (R1) Coordinating multiple visions regarding the role and impact of digital technology on society.
- Other

2. Knowing and articulating one's own vision of the role and impact of digital technology on education. *

- Validate initial statement.
- (R1) Knowing and articulating a shared organisational vision of the role and impact of digital technology on education.
- Other

3. Developing and demonstrating critical digital literacy. *

- Validate initial statement.
- Eliminate from framework.
- Other

4. Developing one's own online self-awareness. *

- Eliminate from framework.
- Other

5. Establishing personal virtual boundaries (in terms of privacy, timemanagement, overall wellness). *

- (R2) Demonstrating an awareness of the need for personal virtual boundaries (in terms of privacy, time-management, overall wellness) together with the ability to make decisions on that basis.
- Eliminate from framework.
- Other

WORLDLY / self-relationship with technology (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

e-leadership for TEL Delphi survey - Round 3

7. Awareness of research on student use of media. *

highly important				not at all important
1	2	3	4	5

8. Encouraging personal and educational awareness of digital developments and of their social adoption and impact. *

highly important				not at all important
1	2	3	4	5

10. Demonstrating a healthy embracing of digital technologies. *

highly important				not at all important
1	2	3	4	5

11. Acting mindfully as a leader in critiquing and challenging inappropriate, excessive and harmful uses of technology. *

highly important				not at all important
1	2	3	4	5

14. Being at ease with transmedia navigating. *

highly important				not at all important
1	2	3	4	5

The WORLDLY e-leadership literacy: self-relationship with teaching and learning

Here you will find the results of Round 2 for each statement which did not achieve consensus. Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Understanding a variety of different learning theories and approaches. *
 - Validate initial statement.
 - Eliminate from framework.

- Other
3. Possessing sound knowledge of (distance/digital) education theory and practice. *
- Validate initial statement.
 - (R) Possessing sound knowledge of the theory and practice of using digital technology in education. (distance and digital are not alternatives)
 - Other
4. Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, through reading, attending conferences, participating in communities. *
- Validate initial statement.
 - (R1) Keeping up to date with research in the fields of teaching and learning in general, and TEL in particular, either directly through reading, attending conferences, participating in communities or by ensuring briefing by staff directly engaged in such activities
 - Other

WORLDLY / self-relationship with teaching and learning (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

5. Knowing the (learning) characteristics of current and future learners. *

highly important				not at all important
1	2	3	4	5

6. Building multi-disciplinary teams, focussing on design thinking for pedagogy. *

highly important				not at all important
1	2	3	4	5

7. Having a current teaching practice [oneself]. *

highly important				not at all important
1	2	3	4	5

8. Understanding the socio-cultural aspects of teaching and learning. *

Une seule réponse possible.

highly important				not at all important
1	2	3	4	5

The LEARNINGFUL e-leadership literacy - the leader as learningful self

Here you will find the results of Round 2 for each statement which did not achieve consensus.

Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

- 1. Engaging in formal and informal learning to develop understanding of key challenges by accessing the latest trends, research and ideas in the field. *

 - Validate initial statement.
 - (R) Engaging in formal and informal learning to develop understanding of key challenges.
 - Other

- 3. Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with experts as well as practitioners in the field of education. *

 - Validate initial statement.
 - (R) Forming personal learning networks to acquire resources, access knowledge, receive feedback and connect with decision & policy makers, experts as well as practitioners in the field of education.
 - Other

LEARNINGFUL / learningful self (new statements)

Please rate the following statements. Statement 5 did not achieve consensus in Round 2. Statement 6 is a new proposal.

5. Developing the ability to search for, synthesize, and disseminate information.

highly important				not at all important
1	2	3	4	5

6. Learning the art of delegation, delegation and more delegation. Leaders must pick the right people but they must also let these talented people do their jobs. *

highly important				not at all important
1	2	3	4	5

The LEARNINGFUL e-leadership literacy – supporting the development of a learningful community

Here you will find the results of Round 2 for each statement which did not achieve consensus.

Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose other and explain why.

- 2. Contributing to the personal and professional growth of others. *

 - Validate initial statement.
 - (R) Contributing to the professional growth of others.

- Other
3. Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change. *
- Validate initial statement.
 - (R1) Bringing people together to think collectively about preferred futures, current realities and challenges of achieving change, embracing interdisciplinarity and diversity.
 - (R2) Bringing people together to think creatively, both as individuals and collectively, about preferred futures, current realities and challenges of achieving change.
 - Other
4. Fostering the development of transversal competencies such as problem-solving, critical thinking, creativity and risk-taking, in staff and students. *
- Validate initial statement.
 - (R1) Fostering the development of transversal competencies such as problem-solving, critical thinking, creativity, risk-taking and intercultural communication in staff and students.
 - (R2) Fostering the development of transversal competencies such as decision making, problem-solving, critical thinking, creativity and risk-taking, in staff and students.
 - Other
5. Viewing the organisation as an emerging book, encouraging exploration and re-consideration of the organisation's story, making it (the story) and its unfolding explicit, and acknowledging all contributions. *
- Eliminate from framework.
 - Other

The RELATIONAL leadership literacy

Here you will find the results of Round 2 for each statement which did not achieve consensus. Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Involving all stakeholders in decision-making about TEL (teachers, students, administrative staff, researchers). *
- Validate initial statement.
 - (R1) Involving all relevant stakeholders in decision-making about TEL.
 - Other
- .
2. Empowering others. *
- Validate initial statement.

- (R1) Empowering, trusting and encouraging others [to foster] ownership and inclusiveness.
 - (R2) Encouraging and empowering others to embrace and implement TEL.
 - Other
3. Developing and demonstrating emotional intelligence. *
- Validate initial statement.
 - (R3 - new) Developing and demonstrating emotional literacy.
 - Eliminate from framework.
 - Other
4. Developing and demonstrating interpersonal skills. *
- Validate initial statement.
 - (R) Developing and demonstrating interpersonal skills, such as communication, teamwork, conflict management and negotiation.
 - Other
5. Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement. *
- Validate initial statement.
 - (R2) Being able to constructively depolarise tense situations where differences dominate, bringing people from divergent cultures towards positive engagement, being able to make a decision even when consensus cannot be achieved.
 - Other
6. Fostering a culture of trust. *
- Validate initial statement.
 - (R1) Fostering a culture of trust, where people are permitted to be wrong or change their mind.
 - Other
7. Helping others to find a clarity of purpose and direction. *
- Validate initial statement.
 - Eliminate from framework.
 - Other
8. Helping others generate a sense of meaning out of everyday work. *
- Validate initial statement.
 - Eliminate from framework.
 - Other
12. Demonstrating positive affect and caring. *
- Validate initial statement.

- (R1) Demonstrating positive affect and caring, as appropriate for a given national or regional culture.
- Other

13. Ensuring a positive frame of reference is respected throughout the process of change. *

- Validate initial statement.
- Eliminate from framework.
- Other

RELATIONAL (new statements)

The following statement did not achieve consensus in Round 2. Please take a look at the results and rate the statement again.

16. Pooling knowledge and comparing notes with others toward a common goal. *

highly important					not at all important
1	2	3	4	5	

The LEADINGFUL e-leadership literacy – leadership style

Here you will find the results of Round 2 for each statement which did not achieve consensus.

Only options which obtained a score of over 20% are proposed for selection in Round 3. For statement 11, due to the high level of dispersion of the results, two statements which obtained a score of 16.1% are included exceptionally. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Developing and communicating a shared vision for teaching and learning with technology. *

- Validate initial statement.
- (R2) Fostering debate and the exchange of ideas and visions for teaching and learning with technology.
- Other

2. Facilitating and committing to distributed, collaborative leadership for TEL throughout the organisation. *

- Validate initial statement.
- (R3) Facilitating and committing to shared, collaborative leadership for TEL throughout the organisation.
- Other

3. Guiding which questions are asked, what changes are made and encouraging movement towards a new future. *

- Validate initial statement.
- (R4) Promoting reflective practice around change.

- Eliminate from framework.
 - Other
4. Demonstrating quiet transparency and authenticity to foster trust. *
- (R1) Demonstrating transparency and authenticity to foster trust.
 - Eliminate from framework.
 - Other
6. Having patience, resilience, dedication and tolerance for ambiguity and risk. *
- Validate initial statement.
 - (R1) Valuing patience, resilience, dedication and tolerance for uncertainty and risk.
 - Other
7. Respecting the culture of academic freedom in decision-making about TEL. *
- Validate initial statement.
 - (R1) Respecting the culture of academic freedom in decision-making about TEL, while recognising that often people hide behind the notion of "academic freedom" to avoid change.
 - (R2) Demonstrating awareness of the culture of academic freedom in decision-making about TEL.
 - Other
8. Integrating digital technologies into leadership presence. *
- Validate initial statement.
 - (R3) Integrating digital technologies into day-to-day management practices.
 - Eliminate from framework.
 - Other
9. Committing to a transformative leadership style. *
- Validate initial statement.
 - (R2) Embracing a transformative leadership style.
 - Eliminate from framework.
 - Other
11. Recognising that the priority is managing change rather than technology. *
- Validate initial statement.
 - (R3) Recognising that the priority is leading change rather than managing technology.
 - (R4) Recognising that while the priority is managing change, technology needs managing too.
 - Other
12. Valuing and engaging in networking, sharing ideas, strategies and resources. *
- Validate initial statement.

- (R) Valuing, empowering, encouraging and engaging in networking, sharing ideas, strategies and resources.
- Other

13. Maintaining a commitment to quality. *

- Validate initial statement.
- Other

LEADINGFUL/leadership style (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

15. Being empowering, quality focused, boundless and resilient. *

highly important				not at all important
1	2	3	4	5

16. Developing diverse visions for teaching and learning with technology. *

highly important				not at all important
1	2	3	4	5

18. Leading in a manner that engages everyone as change agents. *

highly important				not at all important
1	2	3	4	5

19. Demonstrating a lack of personal ego and support for distributed leadership. *

highly important				not at all important
1	2	3	4	5

The LEADINGFUL leadership literacy - Branding and Public Relations

Here you will find the results of Round 2 for each statement which did not achieve consensus.

Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Establishing TEL as a key aspect of the institution's brand or identity. *

- Validate initial statement.
- (R3) Establishing TEL as one of several key aspects of the institution's brand or identity.
- Other

2. Leveraging social media to create a positive brand image emphasising the quality of teaching and learning supported by technology. *

- Validate initial statement.
- (R1) Leveraging appropriate digital communication channels to create a positive brand image emphasising the quality of teaching and learning supported by technology.
- Eliminate from framework.
- Other

LEADINGFUL / Branding and Public Relations (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

3. Finding a way to describe online learning with accuracy and integrity, whilst also needing to 'sell'. *

highly important				not at all important
1	2	3	4	5

5. Demonstrating an awareness of the danger of 'grandiosity' narratives driven by a superficial marketing approach to university reputation building. *

highly important				not at all important
1	2	3	4	5

The SUSTAINING e-leadership literacy

Here you will find the results of Round 2 for each statement which did not achieve consensus. Only options which obtained a score of over 20% are proposed for selection in Round 3. Please state your final preference. If you do not wish to select any of the proposed options, please choose 'other' and explain why.

1. Awareness of the environmental implications of technology choices for teaching and learning. *

- Validate initial statement.
- Eliminate from framework.
- Other

2. Awareness of the human implications of technology choices for staff and students. *

- Validate initial statement.
- (R) Awareness of the fact that technology is created with and for humans.
- Other

4. Developing policies for safe, legal and ethical use of TEL. *

- Validate initial statement.
- (R) Developing policies for safe, legal, ethical and moral use of TEL.

- Other

5. Supporting the development of an agile organisation able to respond quickly and efficiently to new challenges. *

- Validate initial statement.
- (R1) Supporting the development of an organisation able to respond quickly and efficiently to new challenges.
- Other

6. Developing a shared vision for the transformation of learning spaces. *

- Validate initial statement.
- Other

7. Awareness of the potential of developing shared assets to benefit all players, in the form of digital commons. *

- Validate initial statement.
- (R2) Awareness of the potential of developing shared assets to benefit all stakeholders, in the form of digital commons.
- Other

8. Promoting the use of digital technology and TEL for social good and digital citizenship. *

- Validate initial statement.
- Other

SUSTAINING (new statements)

The following statements did not achieve consensus in Round 2. Please take a look at the results and rate each statement again.

9. Awareness and application of CSR (Corporate Social Responsibility) models *

highly important				not at all important
1	2	3	4	5

10. Looking over the horizon every day. *

highly important				not at all important
1	2	3	4	5

11. Engaging in prospective acting and advocating. *

highly important				not at all important
1	2	3	4	5

12. Engaging in developing and acquiring open and freely accessible resources in HE and society. *

highly important				not at all important
1	2	3	4	5

Final comments

Feel free to add any final comments you might have on Round 3 or on this Delphi study as a whole.

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Appendix J: Sample memo from QUAL analysis

WORLDLY

The WORLDLY Leadership Literacy (Davis, 2012) concerns leaders' understanding of themselves as well as their place in the many interrelated inner and outer worlds they occupy. In relation to Digital Education (Digital Education), the WORLDLY Leadership Literacy is articulated around three key concepts: vision (W-VISION), pedagogy (W-PEDA) and technology (W-TECH), with each of these being considered in terms of representation (understandings and mindsets) and communication (behaviour and action) in line with Cope et al.'s (2017) understanding of multiliteracies.

W-VISION

W-VISION

The W-VISION subdimension concerns Digital Education vision, mission and strategy.

REPRESENTATION

In terms of representation, W-VISION concerns Digital Education leaders' perceptions and ownership of the vision for Digital Education.

COMMUNICATION

In terms of communication, W-VISION concerns how the vision is communicated to others through the strategy, and how the Digital Education strategy is developed and implemented.

The W-VISION subdimension is further broken down into the following components of purposes, people and processes (Jameson, 2013).

PURPOSES

Goals, aims and values

PEOPLE

Personal and interpersonal aspects

PROCESSES

Structures and social systems, procedures, infrastructure

Integrating Digital Education in institutional vision, mission and strategy

PURPOSE/REPRESENTATION

Notes

Added and validated by Delphi experts.

In v.1 (resulting from the Delphi study), this was formulated as 'Having a clear vision of the mission of one's institution (beyond preparing learners) but also within society. Following the coding of the case study data (interviews and strategy documents) it was reformulated to this version to make it more specific to Digital Education. The wider societal role of the institutional mission is covered under SUSTAINING.

It is considered 'representation' rather than 'communication' as the fact of framing the institutional vision in terms of Digital Education is a mindset, in other words a precondition to developing and implementing an actual Digital Education strategy.

Data snapshots**CS1****CS1\\KIA**

l'université écrit une feuille de route du numérique qui s'inspire... en tout cas qui est en... , accost..., enfin qui est en corrélation avec le contrat quinquennal 2018-2022 de l'établissement, et en fonction des actions et des objectifs de ce contrat on a décliné un certain nombre d'actions autour du numérique. Et il y en a une qui concerne davantage le renforcement des usages du numérique en formation et en recherche.

CS2**CS2\\KID**

And so being responsible for Going Digital, at the beginning of our mandate, it's, it had to be observed that we didn't have em, well let's say a very well-defined and identified stra... overall strategy on the use of education technology in our university. Of course there were a whole number of eh, good practices and perfect use of technology, but what we wanted to do now is create a kind of overall integrated approach of the use of technology.

CS2\\KIB

it's one of the five strategic domains, we have to put, we will put effort, or we are putting effort on. It plays an important role. It's there, but it plays an important role in connection to learning, in connection to motivation towards learning, in connection to facilitating students to learn, facilitating em... staff, teachers, didactical team to stimulate learning or to help learning to accommodate it

CS2\\KIE

Em, for the first time in years, so this is the first team that did this, there is a digital plan Going Digital plan, and em, in line with the different phases of em, educational technology within the university.

CS2\\KIA

I think there I think I have to start with er, vision on er, yeah, like we call it in the policy plan here Future Oriented Education, and I would really like to see education, educational technology to em, play a, a role of significance in those, in those ambitions of the university, to really, em, er, offer innovative study programmes, maybe even er a whole different kind of study programmes

CS3**CS3\\KID**

this is because we have a single strategy at N, called Transforming Lives, Inspiring Change, anything that hangs from it is a plan. So we have the research plan, we have the estates plan, the IT plan, the learning and teaching plan, and various other plans.

CS3\\KIF

Er, it's right at the core. For us. Em, it's core in terms of our learning and teaching strategy, it's core in terms of the vision for the new campus

Big picture thinking

PURPOSE/REPRESENTATION

Notes

Added and validated by the Delphi experts.

V.1: Formulated as 'Seeing the big picture, holistic approach, system change'. Reformulated for concision as of v.2. System change integrated in change management under RELATIONAL.

Also relates to representations of the digital world.

CSI - Not noted at GOV level

Data snapshots**CSI****CSI\\KIB**

on n'est plus sur une approche techniciste et technologique euh de l'outil mais que c'est bien c'est quoi la culture du numérique... voilà, qu'est-ce que ça, qu'est-ce que ça a comme impact pour notre société au sens large ?

CSI\\KID

en réalité le numérique n'est que le révélateur pour moi, euh, de changements qui sont beaucoup plus profonds

CSI\\KIC

Donc il faut réussir à dépasser, euh, ça, et pour, pour prendre un petit peu de, de hauteur

CS2**CS2\\KIB**

Em, so how to combine the historical role of, of teaching, and of learning especially at the university, the role of reflection, within the university, to help students growing up to play an important role in society

What it brings to me and what it inspires to me is that you look further than education alone and that you look at the, in a holistic way, from what is digitalisation bringing to society and what does it brings to the experience of the people, individuals, with respect to learning

So that's why I say it might be strange that I call this kind of things inspiring, but it's really that, yeah, to create a vision, to bring all these complex things together in its whole complexity and then say OK, this crystallises now for me at this time (DA: aha) and what I need to do in the next steps.

CS2\\KIA

em, yeah, I think I, er, I see that there is a very large impact on society and I feel that there is also em... for me it's like a normal evolution, every, everything is er, is becoming more digitised and I, there I think that my worry is that we do not find a way to cope with that evolution that

is for me a bit natural, the way things go and the way things are going already for, for years and years. I think that the speed of the, of the evolution is, em, is quite heavy and I think that's why a lot of people er, feel uncomfortable with it,

CS3**CS3\\KID**

So, er, the, that, there are benefits there as well. but er, eh,... in so far as these digital landscapes, these digital ecosystems enable us to gain, to further our meta-cognitive skills, then there always will be, in my view, a very significant place for them, in society at large. Whether it is to, to fulfil a particular purpose or whether it's to shape the purpose that we don't know about, yet

CS3\\KIA

I suppose... you know, technology come,... technology in education I suppose happened because technology was part of society

we didn't, we didn't really decide to, quote - unquote, enhance learning through technology, because there was some really great studies that showed that people learned more, better, faster, etc., it was adopted because technology is part of society.

Appendix K: Sample coded interview transcript

Extract from an interview in Case Study 2 showing coding bands at the level of each of the DELLHE dimensions.

2KID: OK. Well, em, by trying to have the buy-in of the staff. It's not the... well, let's say the financial problem eh, and the operational problem is only about the second step. The first step is convincing people. And showing by example that eh, this could make a difference, and have a good narrative, but evidence-based. An evidence-based narrative. Creating the buy-in of the staff. If the staff is not, doesn't have the beginning of conviction, of what you want to realise, it will never get, happen. And then leading by example also, showing that, we I have realised myself some of those eh, innovations, with successes and failures, but I guess that if you want to show leadership in that field and you have never worked in the field yourself, it could be quite hard, so that's a second element, and the third element for me is manage successes and failures. Never, never promise, let's say that technology will be the ultimate goal and leans to solve our problems. Not at all. And it's not a problem. If some of those elements doesn't succeed. But as we say it here the glass is half empty and half full. So I focus on the fullness of the glass, not on the emptiness of the glass. And so em, motivating events is also very, very important, so buy-in of the staff is for me the crucial driver. Otherwise we'll never manage... this kind of solutions.

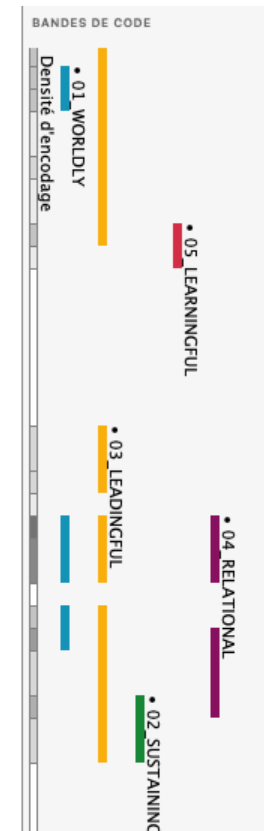
DA: OK, em, are there any situations where you've been faced with a conflict, or a difference of opinion or resistance to change?

2KID: Absolutely! Absolutely!

DA: And how did you deal with it?

2KID: OK, stay calm (laughter) and try to discuss, and try to convince people, to a certain extent. So I think, em, arguing, evi... offering evidence to colleagues is a very, very important one. So, start from a good vision, and er, try to er, convince colleagues is a very important one. So that's the first one. Second, er, be reasonable, er, and em, we had more ambitions than we integrated in the final plan er, in the first year. Definitely. But they said well, quite a lot of colleagues said 'you're too ambitious in your plan, make it more reasonable and more feasible. And that's a very important one. The third one was em, don't impose anything but have the faculties, groups, colleagues, choose themselves what they consider to be their own priorities, and at that moment the buy-in will be higher, and so through those discussions I learned alot about what were their own priorities. There was no colleague, not conceiving using technology at least at one, for one component of the teaching and learning process. So that wasn't the point. The point was discussing about priorities, about em, er, let's say who takes the leadership and the responsibility for the ownership, er, discussing ownership is a very very important one too. Who will be responsible for the processes? The fact that I didn't want to impose my own view on, and that I didn't want to create a... my own... I didn't have staff for Going Digital, I don't have staff for Going Digital, even now, and that's not a problem for me, that's really not a problem, em, by convincing people, we try to solve discussions. Did we solve all problems? Not at all. I mean I'm offering er, on quite regular basis a kind of balance of where we stand, and explaining to the colleagues these are successes, these are failures, this is what we do, and we want to em, adapt also the plan to modifying realities, so adaptability em, is also very, very important.

(pause due to background noise)



Appendix L: Data snapshots (KUL and UoN)

LEADINGFUL sub-themes	Data snapshots (KUL)
Leadership and decision-making approaches (collegial, democratic)	Don't impose anything but have the faculties, groups, colleagues, choose themselves what they consider to be their own priorities. (2KIB). And that, that's what makes the em, the decisions more democratic, and, and the debates more thoroughly, em, and you have to, to speak up, and you also have to challenge each other on, on that, and make sure that there is no hidden agenda and things like that. So, so, leading the university is, is more like bringing up reasoning and, and bringing up the, the debates. (2KIB).
Giving due credit to the leadership of others	So I know that now who is the director of em, the services for education, she is very young, but I think she is a marvellous leader because em, er,... she really takes her team in a, in a very turbulent (<i>laughs</i>) er period er to, to a very focussed direction. (2KIC).
Empowerment and agency	The point was discussing about priorities, about em, er, let's say who takes the leadership and the responsibility for the ownership, er, discussing ownership is a very very important one too. Who will be responsible for the processes?" (2KID). So what I think what we realise at present as a team with [X] and myself especially but also by enforcing (<i>sic</i>) the, the the people in the coordination for the Leuven Learning Lab, I think, this demonstrates leadership." (2KIB).
Change Management	I think that's also very important, you don't have to start a new idea with people who are a little bit sceptical, you have to start, er, something new with people who are really em, champions, or who really believe also in the... and then just start. (2KIC).
Advocacy	Yeah I er also have a lot of talks with people in faculties for example in a few weeks I will, I will go to a meeting of all the administrative directors to tell them a bit about the LLL concept and what we are trying to do. (2KIA). Nobody believed in MOOCs and then I went to the dean and I asked him, em, what do you think? em, I'm convinced that, that we have to do it, that we have to take this er, money and, and go for a contract for EdEx, because then maybe in two years or three years they will say 'where is KUL? Where, why are we not there?'. (2KIC).
Risk-taking	And the third element for me is manage successes and failures. Never, never promise, let's say that technology will be the ultimate goal and leans to solve our problems. Not at all. And it's not a problem. If some of those elements doesn't succeed. (2KID). I mean I'm offering er, on quite regular basis a kind of balance of where we stand, and explaining to the colleagues these are successes, these are failures, this is what we do, and we want to em, adapt also the plan to modifying realities, so adaptability em, is also very, very important. (2KID).

LEADINGFUL sub-themes	Data snapshots (KUL)
Quality	So beyond that of course there is the quality culture, too, quality assurance you could say, but it's more on quality em, creating the quality culture for getting accreditation and so on. (2KIB). Leuven Learning Lab has the ambition of realising all that and doing the monitoring, eh, the benchmarking also of this plan. (2KID).
Working across institutional silos	And what I tried throughout those five years is to make er links with other support units and departments because of the, yeah, interwovenness of that educational technology. (2KIA). We already, we always had a very strong relationship with em, er, er the team that, we call it 'DO', it's services for education are, these are the, em, it's a team, er, that, er, reports to the vice-rector of education, so we always had a strong relationship, we were doing more the technology er, er, focus and they were more on the didactical focus, and we work together. (2KIC).
Leading by example	And then leading by example also, showing that, we I have realised myself some of those eh, innovations, with successes and failures, but I guess that if you want to show leadership in that field and you have never worked in the field yourself, it could be quite hard. (2KID).
Using data and evidence to defend vision	I'm quite interested by meta-analysis and if you look at the meta-analysis done by John Hattie for instance, the visible learning, there you see that this kind of colleagues are inspiring in the sense that they offer us, er, facts and figures that are very convincing as to the usefulness of active learning principles, including technology-enhanced learning, but the main issue is 'does active learning make the difference?'. Well we have a whole series of colleagues that has, that have, er, evidence for that kind of stuff. (2KID). And showing by example that eh, this could make a difference, and have a good narrative, but evidence-based. An evidence-based narrative. Creating the buy-in of the staff. If the staff is not, doesn't have the beginning of conviction, of what you want to realise, it will never get, happen. (2KID).

LEADINGFUL sub-themes	Data snapshots (UoN)
Leadership and decision-making approaches (top-down)	And er, in those roadshows that happened two years before, er, the VC said "This is your, this is the time to think about this, guys. You either jump on the bus, or you get out of the way. It's perfectly fine to do either. But this is the time to make a decision. (3KID).
Giving due credit to the leadership of others	So vision-wise, people like the VC, the Chief Operating Officer, and er, [X], the, the head of student academic services, their work was outstanding in, in, in er, in inspiring themselves and in inspiring others, er, to begin to entertain the idea that this was a goer. (3KID). Em, you know, er, I find er, [Y], er, head of library learning services, em, he's, he's good, he's a good leader, em, I... quite, quite an unusual leader I think, in a, in a lot of ways but em,... yeah, he's been, you know, he's, he's a very good person. Just because he's very, he's very open, em, he inspires a lot of kind of trust, and honesty. (3KIA). Em, ... I think, er, ... interestingly enough, I think what's been really helpful in terms of us is that we've actually got a head of Library and Learning development, [Y], who em, ... is really forward-looking. (3KIC).
Self-awareness as leader	I think em, if you consider a manager and a leader, I'm people's manager, but I'm not necessarily a great leader, depending on how they see me, on that side. (3KIB). So, it's, yeah, [Y] often says that I've sort of transformed the team. Em,.. it's, it's kind of, if I think hard about it, I've sort of changed, I've obviously changed it a little bit, but, em,... (3KIA).
Empowerment and agency	In an academic environment, you could argue that er, for any academic particularly member of staff to remotely consider making changes to their practice, er you need three things. You need this, evidence, you need support, and you need agency. (3KID).
Change Management	So I put the things, I put the mechanisms in place, the change management, the pedagogic views, the evidence, the support and the agency, er, in place, for making change at P&A campus. (3KID).
Advocacy	So, em, it helps enormously that we've got a Vice-Chancellor who's very keen on roadshows, and he'll go round and he'll take presentations about vision and missions and he's very comfortable with anybody asking questions. that helps a lot if you've got people right at the very top of the institution em, that's happy to do those kinds of things. (3KIC).
Risk-taking	You've got to be able to, to take risks. You've got to be able to, em, do what others haven't done. And be prepared to get your fingers burned, and be prepared to learn from the experience. (3KID). Em, so I've always, I've always tried things, I think one of the things I try to encourage my staff to do, em, and, as my staff are working with academics a lot, as well, to pass that on, is to take risks, to be innovative, to try things, em... and if they don't work, understand why they don't work, but try something else. (3KIE).

LEADINGFUL sub-themes	Data snapshots (UoN)
Quality	Em, I, I have worked hard so that all the KPIs are translated into module level targets and thresholds, programme level targets and thresholds, faculty level targets and thresholds, em.. and that everything that we do around corporate action planning, faculty action planning, right the way down to programme and module level action planning, you, there's that complete line of sight, so is that.. joined up, so that we all run together fast. (3KIC).
Working across institutional silos	Em, physically we sit very close to the Institute of Learning and Teaching, which is a different line management structure, but because we're so physically co-located, em, it's really helpful with regards to communication and, you know we, we actually communicate across those boundaries, so the Library Learning Services structure is, is an admin structure, really, em, but we have our separate communication structures, which are far more, er, efficient, and fluid really. (3KIB).
Leading by example	Em, we consistently were doing things that none of the rest of the university were doing. And we were held up, again consistently, as exemplars for that [...] Em, I think... now... I try to make sure that LLS are the department is seen as someone who embraces, in our practice, digital learning. (3KIE).
Using data and evidence to defend vision	So we generated evidence through them and we began to show that what they were doing, largely because they were good teachers, er, and they would have been doing that anyway, er, we managed to be infectious about that evidence and, and bring others into the process of change. (3KID).

Appendix M: QUAN survey

BACKGROUND

In which country is your institution based?

[Dropdown alphabetical list of all countries, now that the survey will be widely distributed]

PART A: Your relationship with technology for teaching and learning

A1 Which best describes your approach to using digital technologies for teaching and learning? (one response possible)

- I tend to use digital technologies after the majority of my colleagues
- I tend to use digital technologies at the pace of the majority of my colleagues
- I tend to be an early adopter, but only where I see clear benefits
- I am usually among the innovators who do not hesitate to try out new technologies
- Prefer not to say

A2 When you want inspiration about how to use technology for learning and teaching, who or what do you turn to? (several responses possible)

- Formal leadership (governance)
- The academic/educational development unit
- The educational technology unit
- Colleagues in my department/faculty
- Colleagues outside my department/faculty, within my institution
- People in my wider network
- Resources on the web
- Scientific articles
- Other (please specify)

PART B: ABOUT YOUR INSTITUTION

B1 How does your institution define itself?

- Primarily campus-based higher education institution (Public)
- Dual-mode higher education institution (Public)
- Distance education institution or Open University (Public)
- Primarily campus-based higher education institution (Private)
- Dual-mode higher education institution (Private)
- Distance higher education institution (Private)
- Other

B2 Does your institution have a strategy for developing Digital Education?

YES / NO / Don't know

If you answered yes above:

Please indicate your level of agreement with each of the following statements

5 = Totally agree; 4 = Somewhat agree; 3 = Neither agree nor disagree; 2 = somewhat disagree, 1 = Totally disagree.

			5	4	3	2	1	Don't know
B301	W-VISION	The Digital Education strategy was developed collectively, taking into account the views of ACADEMIC staff.						
B302	W-VISION	The Digital Education strategy was developed collectively, taking into account the views of relevant PROFESSIONAL staff (e.g. from academic development and learning technology units).						
B303	SUST	The Digital Education strategy includes issues of access.						
B304	SUST	The Digital Education strategy includes issues of equity.						
B305	SUST	The Digital Education strategy includes issues of inclusion.						
B306	W-VISION	The Digital Education strategy prioritises pedagogical concerns over technology.						

PART C: ABOUT DIGITAL EDUCATION LEADERSHIP

This section asks you a series of questions about Digital Education Leadership. After identifying the person you regard as a leader for Digital Education within your institution, you will be asked about how they enact this leadership, as well as about how important these practices are for you.

In the context of this research, a Digital Education Leader is defined as someone in a formal leadership position within the institution, whose remit covers Digital Education, online learning or educational technology. While there may be several people in your institution who have a leadership role for Digital Education, in this question you are asked to identify one person.

C1 What role does your Digital Education leader currently hold?

(one response only)

- Digital affairs vice-president / vice-rector or similar (Governance)
- Teaching and learning vice-president / vice-rector or similar (Governance)
- Director for digital affairs or learning technology (Operational)
- Director for teaching and learning (Operational)
- Other (please specify):

C2 To what extent do you agree with the following statements about the Digital Education leader you have identified?

In this question you will be asked about how the Digital Education leader you have identified enacts leadership.

For the first scale (on the left), please indicate your level of agreement with each of the following statements.

5 = Totally agree; 4 = Somewhat agree; 3 = Neither agree nor disagree; 2 = Somewhat disagree; 1 = Totally disagree.

For the second scale (on the right) please indicate how of these practices influences your own attitude towards Digital Education.

For example, if this leader clearly encourages risk-taking but this has no influence on your own attitude towards Digital Education, you will answer '5 (totally agree)' and 'no influence'.

C217	RELA	Fosters a culture of trust.																		
C218	LEAD	Leads in a manner that engages everyone as change agents.																		
C219	LEAD	Recognises that the priority is managing change rather than technology.																		
C220	LEARN-LC	Fosters a culture of innovation for Digital Education throughout the institution.																		

*Distributed Leadership is understood as the practice of "engaging expertise wherever it exists within the organization rather than seeking this only through formal position or role." (Harris, 2004, p. 13).

Part D: Institutional culture and practice with respect to Digital Education

DI: To what extent do you agree with the following statements about the institutional organisation and culture with respect to Digital Education

(5 = totally agree; 4 = somewhat agree; 3 = neither agree nor disagree; 2 = somewhat disagree; 1 = disagree)

			5	4	3	2	1	Don't know
DI01	LEAD	Reward mechanisms in the institution foster innovation and change.						
DI02	LEAD	Quality assurance mechanisms are applied to Digital Education initiatives to avoid derailments.						
DI03	RELA	There is an open and respectful environment for discussion and debate around Digital Education.						
DI04	LEAD	The leadership picks the right people AND lets these talented people do their jobs.						
DI05	LEARN-LC	My institution generates scientific evidence through research into internal Digital Education practices.						
DI06	SUST	My institution responds quickly and efficiently to new challenges.						
DI07	W-PEDA	Multi-disciplinary teams work together to integrate digital technology in teaching and learning practice						

DI08	LEARN-LC	Academic staff have professional development opportunities to develop as Digital Education leaders.							
DI09	SUST	My institution has a policy for safe, legal and ethical use of educational technology.							
DI10	LEAD	Change management approaches are implemented when necessary.							
DI11	LEAD	Academics and professional staff work together across traditional institutional boundaries.							
DI12	LEAD	Decisions about educational technology are grounded in scientific evidence.							
DI13	W-VISION	I feel personally motivated to contribute to achieving the institution's goals for Digital Education.							
DI14	W-PEDA	Design-thinking approaches are used when integrating the use of digital technology in courses or curricula.							
DI15	LEARN-LC	Academic staff are encouraged to engage in the Scholarship of Teaching and Learning* with a focus on Digital Education							
DI16	SUST	My institution has a policy which takes into account the environmental impact of technology (e.g. energy consumption, recycling, carbon footprint).							
		<i>(If positive answer (5 or 4) to DI15)</i>							
DI17	LEARN-LC	Academic staff are encouraged to use social media as means for stimulating conversations around their research into Digital Education.							

*The Scholarship of Teaching and Learning (SoTL) is understood as 1. Grounding your work in discipline-specific and pedagogic knowledge and research, normally through engagement with the literature,

2. Analysing your practice through critical reflection on your teaching and the learning of your students

3. Disseminating the outcomes of your SoTL work for peer review and public scrutiny in order to further develop it.

Source: <https://www.ed.ac.uk/institute-academic-development/learning-teaching/staff/sotl/what-is-sotl>

D2 To what extent are the following values important in your institution?

5 = highly important; 4 = of some importance; 3 = neither important nor not important; 2 = of little importance; 1 = not at all important.

		5	4	3	2	1	Don't know
D201	The generation, interpretation and dissemination of knowledge						
D202	Furthering the personal and professional development of all members of the higher education community						
D203	Widening access through open education						
D204	Embracing the complexities of the digital world						
D205	Face to face teaching on a physical campus						
D206	Equal treatment of all teaching staff in terms of pay and recognition						
D207	Academic freedom and autonomy						
D208	Complying with standards						

Part E: About you**E1 Age**

Under 30 / 31 – 45 / 46 – 60 / over 60 / prefer not to say

E2 Gender

Male / Female / Other / Prefer not to say

E3 How many years have you been teaching in higher education?

I do not teach in higher education / Less than 5 years / 5 – 10 years / 11 – 20 years / More than 20 years

E4 What is your disciplinary field? [drop-down list of UNESCO/ISCED-F disciplines (top level only)]
(not shown if answer 'I do not teach in higher education')

E5: To what extent would you say that your perception of Digital Education leadership has been influenced by your experience during the Covid-19 pandemic?

- Significantly more positive view of the leadership
- Slightly more positive view
- No change in perception of leadership
- Slightly more negative view
- Significantly more negative view of the leadership

E6: Please explain why your perception of Digital Education leadership has evolved (or not) as a result of your experience during the Covid-19 pandemic.

E7 Have you ever held a Digital Education leadership position yourself?

Yes / No

E8 If so, what is/was your title? (if several positions, provide the most relevant or the most recent)

E9 For how long in total did you hold / have you held a Digital Education leadership position?

Less than 2 years / 3-5 years / more than 5 years

Appendix N: Frequency tables

1) Frequencies for COUNTRY

COUNTRY	Frequency	Percent
Andorra	1	0.98
Belgium	1	0.98
Croatia	22	21.57
Finland	2	1.96
France	20	19.61
Germany	4	3.92
Ireland	3	2.94
Italy	3	2.94
Lithuania	1	0.98
Netherlands	1	0.98
Poland	7	6.86
Portugal	3	2.94
Romania	1	0.98
Spain	23	22.55
Sweden	2	1.96
United Kingdom	8	7.84
Missing	0	0.00
Total	102	100.00

2) Frequencies for HEI TYPE (mode)

HEI TYPE (mode)	Frequency	Percent
Campus-based or dual mode HEI	95	93.14
Distance HEI	7	6.86
Total	102	100.00

3) Frequencies for DIGED STRATEGY

HEI TYPE (mode)	DIGED STRATEGY	Frequency	Percent
Campus-based or dual mode HEI	NO or DON'T KNOW	46	48.42
	YES	49	51.58
	Total	95	100.00
Distance HEI	NO or DON'T KNOW	1	14.29
	YES	6	85.71
	Total	7	100.00

4) Frequencies for E1_AGE

E1_AGE	Frequency	Percent
30-45	42	41.18
45-60	51	50.00
Over 60	6	5.88
Under 30	3	2.94
Missing	0	0.00
Total	102	100.00

**5) Frequencies for
E2_GENDER**

E2_GENDER	Frequency	Percent
Female	53	51.96
Male	46	45.10
Prefer not to say	3	2.94
Missing	0	0.00
Total	102	100.00

6) Frequencies for E4_DISCIPLINE

E4_DISCIPLINE	Frequency	Percent
01. Education	30	29.41
02. Humanities and arts	5	4.90
03. Social sciences, journalism and information	5	4.90
04. Business administration and law	22	21.57
05. Natural Sciences, mathematics and statistics	7	6.86
06. Information and Communication Technologies	13	12.75
07. Engineering, manufacturing and construction	13	12.75
08. Agriculture, forestry and veterinary	3	2.94
09. Health and welfare	4	3.92
Missing	0	0.00
Total	102	100.00

7) Frequencies for E3_EXP-TEACHING

E3_EXP-TEACHING	Frequency	Percent
11 - 20 years	44	43.14
5 - 10 years	17	16.67
Less than 5 years	12	11.76
More than 20 years	29	28.43
Missing	0	0.00
Total	102	100.00

8) Frequencies for E7_PREV-EXP-DIGED-LEAD

E7_PREV-EXP-DIGED-LEAD	Frequency	Percent
NO	69	67.65
YES	33	32.35
Missing	0	0.00
Total	102	100.00

9) Frequencies for ATTITUDE

ATTITUDE	Frequency	Percent
1	4	3.92
2	13	12.75
3	42	41.18
4	43	42.16

9) Frequencies for ATTITUDE

ATTITUDE	Frequency	Percent
Missing	0	0.00
Total	102	100.00

Compiled Frequency Table - sources of inspiration**10) Frequencies for INSPIRATION**

	YES		NO		TOTAL	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
RESOURCES ON WEB	78	76.47	24	23.53	102	100.00
WIDER NETWORK	51	50.00	51	50.00	102	100.00
DEPT COLLEAGUES	48	47.06	54	52.94	102	100.00
UNI COLLEAGUES	42	41.18	60	58.82	102	100.00
SCIENTIFIC ARTICLES	36	35.29	66	64.71	102	100.00
EDDEV-UNIT	30	29.41	72	70.59	102	100.00
EDTECH-UNIT	18	17.65	84	82.35	102	100.00
FORMAL LEADERSHIP	4	3.92	98	96.08	102	100.00

Appendix O: online focus group questionnaire

Background

A little about yourself

Please indicate which of the following most closely represents your role with respect to this study. As roles may overlap, you may choose as many options as you wish.

- HE governance (vice-rector or similar)
- Senior manager in HE (reporting directly to governance or top management)
- Middle manager in HE (reporting to a senior manager)
- Researcher in Digital Education or related areas
- Independent consultant
- Other:

Do you intend to participate in the synchronous online session on Thursday March 18th?

- Yes
- No

Recommendations for Digital Education Leadership Development (1)

In this section you will be asked about the recommendations for Digital Education Leadership Development (Digital Education LD) which have been developed as part of this research. Relevant findings from the study can be found in the 'Help' section under the question.

(This question is mandatory)

Please comment on this recommendation, which represents a general principal for the design of Digital Education LD.

Digital Education LD should be designed as leadership development *interventions* which work through the following phases:

- unlearning preconceptions about Digital Education / educational technology,
- defining the purpose and values of a particular HEI with respect to Digital Education,
- determining the model(s) of leadership most appropriate for the purpose,
- designing and embedding LD which supports the development of leadership capacity over time,
- evaluating the effectiveness of these according to the identified purpose.

Note: LD interventions, as opposed to isolated LD programmes, concern an array of different interventions including formal training, mentoring, coaching, 360° feedback, self-narratives and personal development. They can focus both on the individual leader and on collective processes. The recommendations above are drawn from Dopson et al. (2019) as well as the following keynote.

Morgan, T. (2016). Future Considerations in the Adoption of Educational Technologies. *The Proceedings of the International Conference on Information Communication Technologies in Education*. <http://www.icicte.org/ICICTE16Proceedings.htm>

Recommendations (2)

Relevant findings from the study can be found in the 'Help' section under the question.

Please indicate whether you agree with each of the following recommendations.

	YES	NO
The focus of Digital Education LD should be adapted for different target groups, according to their status and level within the organisation and their previous knowledge and experience.	YES	NO
Digital Education LD for Middle Managers should focus on building cultural and political capital within the institution, and on identifying and mobilising influence strategies.	YES	NO
Digital Education LD for governance members with little direct experience of Digital Education should focus on the WORLDLY Leadership Literacies “self-relationship with technology” and “self-relationship with teaching and learning”.	YES	NO
Efforts should be made to support faculty management (deans, programme directors) in developing Leadership Literacies across all five dimensions of the DELLHE framework.	YES	NO
Digital Education LD at all levels should focus on both aspects of the RELATIONAL Leadership Literacy, namely organisational dynamics and building interpersonal relationships	YES	NO

Note: In the case studies, Digital Education leaders at different levels (governance, senior and middle management) demonstrated DELLHE to differing degrees across the five dimensions, and not always as might be expected. For example, some middle managers showed a much higher level of big-picture thinking than either governance or senior management.

Recommendations (3)

Digital Education LD for Governance Members and Senior Management (whether professional staff or heads of faculty) should focus on the following DELLHE in particular.

Big-picture thinking	YES NO
Encouraging risk-taking and accepting failure with a view to learning from mistakes	YES NO
Facilitating and committing to distributed, collaborative leadership for Digital Education throughout the organisation	YES NO
Encouraging academic and professional staff to work together across traditional institutional boundaries	YES NO
Leading in a manner that engages everyone as change agents	YES NO
*Empowering teaching staff to make their own decisions about how they use educational technology with their students	YES NO
*Supporting teachers to experiment with new teaching and learning approaches using technology	YES NO
*Encouraging educational awareness of new digital developments	YES NO
*Encouraging the expression of diverse visions for teaching and learning with technology	YES NO
Demonstrating leadership presence through the judicious use of digital communication technologies (e-leadership)	YES NO
Generating scientific evidence through research into internal Digital Education practices	YES NO
Developing Digital Scholarship, for example by encouraging staff to use social media as means for stimulating conversations around their research into Digital Education.	YES NO

*Note: These DELLHE were identified either as exemplary practice in one or more of the case studies or, where they were lacking, it was found that they were frequently associated with tensions. Those which were perceived to have the greatest positive influence on academics' attitudes to Digital Education among the survey respondents (n=102) are indicated by **

The last item, Digital Scholarship, was not reported as explicitly fostered or practised in the case studies, but is of sufficient importance for the development of a LEARNINGFUL community around Digital Education to be included here as a recommendation.

Recommendations (4)

Digital Education leaders embarking on large multi-stakeholder projects such as e-portfolios or digital exams should integrate explicit LD for all staff involved, irrespective of their status or level within the institution. This LD should put particular emphasis on the creation of shared meaning, change management, distributed leadership and conflict management.

YES NO

Digital Education LD should incorporate the SUSTAINING dimension through a focus on developing a vision and policies for Digital Education which address environmental and ethical issues as well as wider sustainability goals of (Digital) Education for social good and digital citizenship.

YES NO

Note: Large multi-stakeholder projects such as e-portfolios and digital exams were identified in the case studies as being sources of tensions and even conflict.

The SUSTAINING dimension was unequally addressed across and within the CSIs, only one of which explicitly incorporated all aspects of sustainability at strategic level.

The DELLHE framework (1)

The DELLHE framework was presented to you in the background information document. In this section you are asked to provide feedback on the framework itself together with any recommendations for improvement on the final form it should take. How useful do you think the full DELLHE framework would be in the following situations?

**Very useful
with
immediate
application** **Useful but
requires
adaptation** **Not useful**

As a theoretical framework for further qualitative research in Digital Education Leadership

As a theoretical framework for further quantitative research in Digital Education Leadership

As a theoretical framework for designing Digital Education Leadership Development Programmes

The DELLHE framework (2)

This question concerns the form of the framework. This concise version shows the main dimensions and themes but is lacking the detailed items and the interplay with the notions of representation (meaning-making for the self) and communication

(meaning-making for others). How useful is this as a conceptual framework? How could it be improved? Please comment in the box under the image.

Concise DELLHE Framework



Deborah Arnold (UOC) – work in progress – not for reproduction

Appendix P: List of Delphi expert group members

Daniel Apollon	Fabio Nascimbeni
Anne Boyer	Yildiray Ogurol
Gráinne Conole	Don Olcott Jr.
Alastair Creelman	Ebba Ossiannilsson
Laura Czerniewicz	Ross Paul
Jacques Dang	Marci Powell
Sir John Daniel	Christophe Reffay
Heather Davis	Gilly Salmon
Jim Devine	Ferenc Tátrai
Florence Ducreau	Antonio Teixeira
Ada Giannatelli	Imma Tubella
Brenda Gourley	George Ubachs
Maruja Gutierrez Diaz	Wim Van Petegem
Jill Jameson	David White
Nicholas Kearney	Andrzej Wodecki
Stephen Marshall	

Appendix Q: List of final focus group members

Paul Bacsich	Independent consultant
Mark Brown	Director, National Institute for Digital Learning, Dublin City University
Alastair Creelman	e-learning specialist, Linnaeus University
Maren Deepwell	Chief Executive, Association for Learning Technology
Muriel Henry	Director, Pole Formation et Vie Universitaire, University of Burgundy
Brian Holmes	Principal Advisor, Digital Education, European Commission, DG Education and Culture
Sandra Kucina	President, European Distance and E-learning Network
Donna Lanclos	Consulting anthropologist Anodyne Anthropology LLC
Diana Laurillard	Professor of Learning with Digital Technology, University College London
Lawrie Phipps	Professor of Digital Education and Leadership, JISC / Keele University
Susanna Sancassani	Managing Director, METID Learning Innovation, Politecnico di Milano