Learning patterns, engagement, and academic performance of Arab undergraduates in Kuwait

Laureta Seitaj

Universitat Autònoma de Barcelona

Doctoral Thesis

Learning patterns, engagement, and academic performance of Arab undergraduates in Kuwait

Laureta Seitaj

Thesis supervisor and tutor: Dr. J. Reinaldo Martínez-Fernández

Doctoral Program in Psychology of Communication and Change

Department of Cognitive, Developmental and Educational Psychology

Faculty of Psychology

2024

“The principal goal of education in the schools should be creating men and women who are capable of doing new things, not simply repeating what other generations have done”.

— **Jean Piaget,** 1896- 1980

Dedication

to my mother, Razie,

and to my daughters, Zeinah and Sihana

Acknowledgement

بِسْمِ اللهِ الرَّحْمٰنِ الرَّحِيْمِ

In the name of God, the Most Gracious, the Most Merciful!

All that I am and all that I achieve is by His will. I am profoundly grateful for everything Allah has taken and given to me. Nothing unfolds without His knowledge!

First and foremost, I extend my heartfelt thanks to my supervisor, Dr. J. Reinaldo Martínez-Fernández. Saying that you have been a guiding light, and a model scholar does not capture the depth of my gratitude. You were the tireless energy that pushed this research forward, believing in me even in my weakest moments. In every one of the 354 emails and countless messages we exchanged, your "you can do it" message shone through. Those words were the anchor I needed countless times. I am honored and blessed to have had you by my side throughout these years. Your dedication, hard work, and positivity have made this achievement possible.

I am also deeply grateful to my colleagues at the universities where I worked for their unwavering support. Thank you for opening your classes to me and providing invaluable feedback on my research. My special thanks go to my colleagues in the English department for their assistance with the research instruments and for continuously helping me improve my writing skills.

To my fellow researchers in the PAFIU group, your insights, support, and updates from our doctoral school have been invaluable. Thank you for your guidance and encouragement.

To my beloved family, thank you for standing by me and pushing me forward. To my dear mother, Razie, who was with us when I began this journey but could not witness its completion—I miss you dearly, Mom.

And to my husband, Mohamed—these years have brought us a marriage, a pandemic, two beautiful children, and a Doctoral Thesis. I promise to make up for the moments we have missed! Your love and support have been my anchor.

Thank you all, from the depths of my heart!

Laureta Seitaj

Kuwait, 2024

Abstract

Academic success is a goal in higher education, and it is in the interest of the researchers to understand factors that guarantee good learning and better outcomes. One way of analyzing the path to academic success is through students' approaches (beliefs and strategies) used while learning. Another one is looking at engagement to ensure success. The existing research investigates both perspectives widely, but separately. There is a general agreement that approaches to learning and engagement are curved by the educational context and culture of the learner. This study aims to contribute to the current research by investigating these two perspectives together within an understudied educational context: Arab undergraduates in Kuwait. The Inventory of Learning patterns for Students (ILS), drawn upon Vermunt's framework, was used to depict and analyze the learning patterns of participants. As for the engagement, the Student Engagement Instrument (SEI), drawing upon the work of Appleton and colleagues, was used to investigate the types of engagement and their impact on achievement. Two separate and yet interconnected studies were conducted. The first study (*N*=392) investigated the validity of the SEI among Arab undergraduates and analyzed the predictive validity of the emotional and cognitive engagement in students' academic performance. The second study (*N*= 563) depicted students' learning patterns and factor configuration and analyzed their relationship with academic performance through the lenses of cognitive engagement. The participants were attending their classes during the fall and spring terms in the 2021-2023 academic years. The research employed a quantitative descriptive-correlational design. Factor structure analysis, equation modeling, and linear and multiple regression were some of the primary analyses performed. Results from the first study show that the SEI model was fit for the study's sample with a robust hierarchical structure. Arab undergraduates in Kuwait prevailed more in cognitive engagement, with the future and aspirations goals being the most important component. For emotional engagement,

results showed that these students highly value family support, followed by teacher support. Both cognitive and emotional engagement were positively correlated to academic performance, with the earlier engagement having a stronger correlation. Moreover, the cognitive engagement was found to have a predicting value on performance. Regarding the second study, the ILS was used to depict students' learning patterns. Results showed a surprising configuration. The three learning patterns depicted were active, passive, and undirected. The active pattern was characterized by processing and regulation strategies only, leaving out conceptions of learning and orientations of learning, which indeed were grouped together in what seemed to be a passive pattern. Ambivalent learning, lack of regulation, and two conceptions of learning: cooperative learning and intake of knowledge, characterized the third pattern, undirected. The dominant pattern for the study's sample was the passive. Both active and passive patterns positively correlated to academic performance, with the former having a slightly more substantial relationship. Both patterns were positively correlated with the cognitive engagement. As for the moderating role of engagement in the relationship between learning patterns and academic performance, the path analysis revealed that cognitive engagement positively enhanced the impact of active and passive patterns on academic performance. However, the configuration, which included the cognitive engagement and passive pattern, was more significant and explained 15% of the variance in student's GPAs. The findings stress the role of educational context in the way students approach their learning and engagement. The revised model of the SEI and the surprising configuration of the ILS once more support the argument that learning is shaped by the context of education. Cured interventions that meet learners' expectations and needs must be used to ensure involvement and proper learning approaches.

Keywords: Learning Patterns, Cognitive Engagement, Academic Performance, Arab Students, Moderation.

Resumen

El éxito académico es un objetivo en la educación superior, y es de interés para los investigadores comprender los factores que garantizan un buen aprendizaje y sus mejores resultados. Una forma de analizar el camino hacia el éxito académico es a través del uso de enfoques (creencias y estrategias) por parte de los estudiantes mientras aprenden. Otra forma es observar el compromiso como una manera de asegurar el éxito. La investigación existente investiga ampliamente ambas perspectivas, pero aún de manera separada. Hay un acuerdo general de que los enfoques de aprendizaje y el compromiso están moldeados por el contexto educativo y la cultura del estudiante. Este estudio tiene como objetivo contribuir a la investigación actual investigando estas dos perspectivas juntas dentro de un contexto educativo poco estudiado: estudiantes árabes de pregrado en Kuwait. Se utilizó el Inventario de Patrones de Aprendizaje de los Estudiantes (ILS), basado en el marco de Vermunt, para representar y analizar los patrones de aprendizaje de los participantes. En cuanto al compromiso, se utilizó el Instrumento de Compromiso Estudiantil (SEI), basado en el trabajo de Appleton y colegas, para investigar los tipos de compromiso y su impacto en el logro. Se realizaron dos estudios separados pero interconectados. El primer estudio (N=392) investigó la validez del SEI entre los estudiantes árabes de pregrado y analizó la validez predictiva del compromiso emocional y cognitivo en el rendimiento académico de los estudiantes. El segundo estudio (N=563) representó los patrones de aprendizaje de los estudiantes y su configuración factorial, y analizó su relación con el rendimiento académico a través de la lente del compromiso cognitivo. Los participantes asistieron a sus clases durante los términos de otoño y primavera en los años académicos 2021-2023. La investigación empleó un diseño cuantitativo descriptivo-correlacional. El análisis de estructura factorial, el modelado de ecuaciones y la regresión lineal y múltiple fueron algunos de los principales análisis realizados. Los resultados del primer estudio muestran que el modelo SEI fue adecuado para

la muestra del estudio con una estructura jerárquica robusta. Los estudiantes árabes de pregrado en Kuwait prevalecen más en el compromiso cognitivo con el futuro y las metas de aspiración como el componente más importante. En cuanto al compromiso emocional, los resultados mostraron que estos estudiantes valoran altamente el apoyo familiar seguido por el apoyo del profesor. Tanto el compromiso cognitivo como el emocional se correlacionaron positivamente con el rendimiento académico, siendo el primero el que tiene una correlación más fuerte. Además, se encontró que el compromiso cognitivo tiene un valor predictivo en el rendimiento. En cuanto al segundo estudio, se representó una configuración diferente de patrones de aprendizaje utilizando el ILS. Los tres patrones de aprendizaje representados fueron activo, pasivo y no dirigido. El patrón activo se caracterizó por estrategias de procesamiento y regulación solamente, dejando fuera las concepciones de aprendizaje y las orientaciones de aprendizaje, que de hecho se agruparon juntas en lo que parecía ser un patrón pasivo. El aprendizaje ambivalente, la falta de regulación y dos concepciones de aprendizaje: aprendizaje cooperativo y adquisición de conocimientos, caracterizaron el tercer patrón, no dirigido. El patrón dominante para la muestra del estudio fue el pasivo. Tanto los patrones activos como los pasivos se correlacionaron positivamente con el rendimiento académico, siendo el primero el que tiene una relación ligeramente más sustancial. Ambos patrones se correlacionaron positivamente con el compromiso cognitivo. En cuanto al papel moderador del compromiso cognitivo, el análisis de rutas reveló que el compromiso cognitivo mejoró positivamente el impacto de los patrones activos y pasivos en el rendimiento académico. Sin embargo, la configuración que incluía el compromiso cognitivo y el patrón pasivo fue más significativa y explicó el 15% de la variación en los GPA de los estudiantes. Los hallazgos enfatizan el papel del contexto educativo en la forma en que los estudiantes abordan su aprendizaje y compromiso. El modelo revisado del SEI y la sorprendente configuración del ILS una vez más apoyan el argumento de que el aprendizaje

está moldeado por el contexto educativo. Deben utilizarse intervenciones personalizadas que satisfagan las expectativas y necesidades de los estudiantes para asegurar la participación y los enfoques de aprendizaje adecuados.

Palabras clave: Patrones de Aprendizaje, Compromiso Cognitivo, Rendimiento Académico, Estudiantes Árabes, Moderación.

مُلخَّص

يُعد النجاح الأكاديمي هدفًا في التعليم العالي، ومن مصلحة الباحثين فهم العوامل التي تضمن التعلم الجيد ونتائجه الأفضل. إحدى طرق تحليل الطريق إلى النجاح الأكاديمي هي من خلال استخدام الطلاب للمناهج (المعتقدات والاستراتيجيات) أثناء التعلم. طريقة أخرى هي النظر إلى الالتزام كوسيلة لضمان النجاح. تبحث الأبحاث الحالية في كلا المنظورين بشكل واسع، لكن بشكل منفصل حتى الآن. هناك اتفاق عام على أن المناهج الدراسية والتفاعل يتم تشكيلها حسب السياق التعليمي والثقافة الخاصة بالمتعلمين. يهدف هذا الدراسة إلى المساهمة في البحث الحالي من خلال التحقيق في هذين المنظورين معًا داخل سياق تعليمي غير مدروس بشكل كافٍ: الطلاب العرب الجامعيين في الكويت.

تم استخدام "قائمة أنماط التعلم للطلاب" (ILS) للمشاركين. المستندة إلى إطار فيرمونت، لوصف وتحليل أنماط التعلم ، المستندة إلى عمل أبلتون وزملائه، للتحقيق في أنواع الالتزام (SEI) "بالنسبة للالتزام، تم استخدام "أداة الالتزام الطلابي وتأثيرها على التحصيل الدراسي.

تم إجراء دراستين منفصلتين ولكنهما مترابطتين. الدراسة الأولى (N=392) حققت في صحة أداة SEI بين الطلاب الجامعيين العرب وحللت الصلاحية التنبؤية للالتزام العاطفي والمعرفي في الأداء الأكاديمي للطلاب. الدراسة الثانية (N=563) وصفت أنماط التعلم للطلاب وتكوينها العامل وتحليل علاقتها بالأداء الأكاديمي من خلال عدسة الالتزام المعرفي. حضر المشاركون فصولهم الدراسية خلال فصلي الخريف والربيع في السنوات الأكاديمية 2021-2023. استخدمت الدراسة تصميمًا كميًا وصفيًا-ترابطيًا. بعض التحليلات الرئيسية التي تم إجراؤها تضمنت تحليل هيكل العوامل، نمذجة المعادلات، والانحدار الخطي والمتعدد.

أظهرت نتائج الدراسة الأولى أن نموذج SEI كان مناسبًا لعينة الدراسة مع هيكل هرمي قوي. الطلاب الجامعيون العرب في الكويت يتفوقون أكثر في الالتزام المعرفي مع المستقبل وأهداف الطموح باعتبارهما العنصر الأكثر أهمية. بالنسبة للالتزام العاطفي، أظهرت النتائج أن هؤلاء الطلاب يقدرون دعم الأسرة بشكل كبير يليه دعم المعلم. كان كل من الالتزام المعرفي والعاطفي مرتبطين إيجابيًا بالأداء الأكاديمي، مع كون الأول له علاقة أقوى. علاوة على ذلك، تم العثور على أن الالتزام المعرفي له قيمة تنبؤية على الأداء.

فيما يتعلق بالدراسة الثانية، تم وصف تكوين مختلف لأنماط التعلم باستخدام ILS. الأنماط الثلاثة للتعلم التي تم وصفها كانت نشطة، وسلبية، وغير موجهة. تم تمييز النمط النشط باستراتيجيات المعالجة والتنظيم فقط، مستبعدًا مفاهيم التعلم وتوجهات التعلم، التي بالفعل تم تجميعها معًا فيما بدا أنه نمط سلبي. التعلم المتردد، نقص التنظيم، ومفهومان للتعلم: التعلم

التعاوني واكتساب المعرفة، كانت السمات المميزة للنمط الثالث، غير الموجه. كان النمط السائد لعينة الدراسة هو النمط السلبي. كانت كل من الأنماط النشطة والسلبية مرتبطة إيجابيًا بالأداء الأكاديمي، مع كون الأول له علاقة أكثر قوة. كانت كلا النمطين مرتبطة إيجابيًا بالالتزام المعرفي. بالنسبة لدور الالتزام المعرفي كعامل معدل، كشف تحليل المسار أن الالتزام المعرفي عزز بشكل إيجابي تأثير الأنماط النشطة والسلبية على الأداء الأكاديمي. ومع ذلك، كانت التكوين التي شملت الالتزام المعرفي والنمط السلبي أكثر أهمية وفسرت 15% من التباين في معدلات الدرجات التراكمية للطلاب.

SEI تؤكد النتائج على دور السياق التعليمي في كيفية اقتراب الطلاب من التعلم والالتزام. يدعم النموذج المعدل للـ مرة أخرى الحجة بأن التعلم يتشكل بالسياق التعليمي. يجب استخدام التدخلات المصممة لتلبية ILS والتكوين المدهش للـ توقعات واحتياجات المتعلمين لضمان المشاركة ومناهج التعلم المناسبة.

الكلمات المفتاحية: أنماط التعلم، الالتزام المعرفي، الأداء الأكاديمي، الطلاب العرب، التعديل.

Table of Contents

Section B: Theoretical background

Chapter 2: Learning Patterns

Section C: Methodology

Section D: Results

Section E: Discussion and Conclusions

Abbreviations

Active	Active Pattern
AD	Application Directed
CRSW	Control and Relevance to Schoolwork
FGA	Future Goals and Aspirations
FSL	Family Support for Learning
GCC	Gulf Cooperation Council
GPA	Grade Point Average
ILP	Instrument of Learning Patterns
ILS	Instrument of Learning Patterns for Students
MD	Meaning Directed
MoHE	Ministry of Higher Education
MoE	Ministry of Education
Passive	Passive Pattern
PSL	Peer Support for Learning
PUC	Private Universities Council
RD	Reproduction Directed
SAL	Student Approaches to Learning
SEI	Student Engagement Instrument
TSR	Teacher Student Relationship
UD	Undirected

List of Tables

Chapter 2: Learning Patterns: Understanding the context

Chapter 6: Student Engagement and its Predictive Validity for Academic Performance among Arab Undergraduates in Kuwait

Chapter 7: Learning Patterns among Arab College Students: The Relationship with Academic Performance and the Moderating Role of Cognitive Engagement

List of Figures

Chapter 1: Introduction

Chapter 2: Learning Patterns: Understanding the context

Chapter 6: Student Engagement and its Predictive Validity for Academic Performance among Arab Undergraduates in Kuwait

Chapter 7: Learning Patterns among Arab College Students: The Relationship with Academic Performance and the Moderating Role of Cognitive Engagement

Preface

You are reading thesis dissertation on "Learning Patterns, Cognitive and Emotional Engagement, and Academic Performance of Arab Undergraduates in Kuwait." I completed this thesis to fulfill the requirements for the Doctoral Degree in Psychology of Communication and Change at the Autonomous University of Barcelona, which started on November 2018 and finished in September 2024.

Starting this adventure, I come with a mix of learning experiences from two cultures. I studied in Albania, where teachers hold authority, and the focus is on a teacher-led education. This upbringing shaped my views on learning within a system where teachers play a role in education. It made me realize how important educators are in shaping the outcomes of learning.

When I moved to Kuwait and taught under an American-designed curriculum, I expected to face the challenges of new ways of practicing this profession. I was anticipating being less of a traditional teacher and more of a facilitator. I was excited about this. However, the reality in the classroom just reflected the archetypes of teaching back home. The center of the classroom was the teacher, with students around who showed so little of their engagement. This crisp contrast, which I had not anticipated, I can demonstrate from the ambience I have in a typical teaching day. It is early afternoon. While I leave the class to head to my office during office hours and wait for students who seldom visit, I walk through the halls of the university, where the classroom doors are left open. My colleagues' voices echo, rarely interrupted by a student's voice.

This silence is worrying. These students are concerned about their grades and degrees but not about learning itself. While I appreciate the respect and humbleness these students show us, I cannot help but wonder: What keeps them away from their own learning?

It is early afternoon... My colleagues' voices echoing rarely interrupted by a student' voice.

It was new for me to see a whole generation of students in such great economic comfort yet with so little involvement in learning. Reflecting on my own student days, I recall how economic necessity instilled a need in me—juggling work, bills, and studies, while centering my life around my education in psychology. I genuinely enjoyed my classes and learning. I do not think there was anything else I could have done better, or more of. Observing my students, who are free from many of these burdens thanks to Kuwait's wealth and government support, I have noticed a surprising trend. Youngsters are driven to get grades, not to learn. Students attend classes out of fear of being dismissed. For them, it is not about learning; it is about graduating. As one student told me during an after-class debate: "Mrs., why does it matter? Won't we all get that degree in the end?" It became clear that paying salaries for attending university and guaranteeing employment after graduation seemed to lessen, rather than enhance, the drive this young generation must have to take learning—and therefore, the future—into their own hands.

These experiences have fueled my curiosity to explore my students' learning approaches and engagement. It became a quest for me to understand their perspectives. I believe these differences rely on cultural and educational environment. Thus, I realized that study approaches and involvement of my students are awfully explained by their settings and context. That pushed me into this academic journey, which has been about learning about my students learning, but it has revealed a lot about myself as a professional teacher.

Therefore, with this research, I aim to understand more about how my students approach their learning, what they think and feel about learning, and what glitches they have while studying. This is not a solitary endeavor, but a collaborative one. I want to work with fellow researchers in Kuwait and the region to understand more about the challenges that Arab learners face in their own country, where there is often an unusual cultural gap between them and their teachers. The perspectives used in this research can make a significant impact on the learning experiences of Arab learners.

To me, this investigation is more than an academic pursuit; it is a personal journey to make a meaningful contribution to the educational landscape in Kuwait. When first I came here, I planned to leave after my first year. I now find myself here eight years later, not alone, but with a family of my own and with students who inspire me as I strive to give back. This is my way of making a difference in a place that, despite its challenges, has become my home.

Laureta Seitaj

April 2024

Salwa, Kuwait

Section A: Presentation

Chapter 1: Introduction

> *"Basic research is what I'm doing when I don't know what I am doing."*
>
> — **Wernher Von Braun,** *The Mars Project*, 1952

1.1. Problem Statement: Addressing Kuwait's Educational Challenges for Future Growth

Kuwait, uniquely positioned at the crossroads of Western and Eastern cultures, offers a distinctive perspective on students' learning approaches and engagement. The country's education system reflects its cultural diversity and historical context. Since the early 20th century, with the discovery of oil, the Kuwaiti government has invested heavily in improving the educational system, recognizing education as pivotal for national development and economic diversification.

Higher education and scholarly research are pivotal in promoting comprehensive development and rapid transformation, especially as Kuwait navigates the challenges of globalization. This is evident in the investments and policy reforms under the New Kuwait Vision 2035 (The Report: Kuwait, 2019). Kuwait's strategic educational plan aims to enhance teaching quality, learning experiences, and student evaluations across the country. The Ministry of Education (MoE) oversees pre-primary to secondary education, while the Ministry of Higher Education (MoHE) manages tertiary education. Kuwait's educational landscape includes public and private institutions, with public schools offering free education

to Kuwaiti citizens and private schools primarily serving the expatriate community. This system includes a mix of Arabic and international schools, highlighting Kuwait's commitment to a globally informed education.

Figure 1

Map of Kuwait in the Arabian Peninsula

Kuwaiti students benefit from full scholarships for high tuition fees at the university level. Due to laws limiting non-Kuwaiti enrollment, the university student body is predominantly made of young citizens, with 76.5% of Kuwaiti (The Report: Kuwait, 2019). The government's commitment to education is reflected in its budget allocation, spending approximately $14,300 per student per semester, higher than the $11,000 average in the Gulf Cooperation Council (GCC) (Saad, 2019).

However, Kuwait needs help in its education sector. Despite substantial investments, the MoHE reports that education returns only about 10% of the invested budget (Kuwait Times, 2017). The low quality of education, traditional teaching methods, and prolonged graduation times are significant issues. On average, Kuwaiti students take six years to complete a four-year program, like trends in other Arab nations (Coffman, 1996). One approach to addressing this issue is the centralized placement system for higher education, which matches university choices based on secondary grades, specializations, and student preferences. Another approach is adopting American-style credit hours to reduce unnecessary repetitive coursework and allow smoother progression through degree programs. Most private universities in Kuwait claim to use an American curriculum (The International Trade Administration, 2023).

The mismatch between university education and job market requirements is a pressing issue that demands immediate attention. The government's recognition of this problem is evident in the reliance on expatriates for the workforce, as universities are not producing graduates with the skills the economy needs. This gap, both economic and social, is exacerbated by Kuwait's unique demographic makeup, with citizens constituting only 30% of the population (PACI, 2018).

Despite the strides towards future growth, challenges such as low returns on educational investments, prolonged graduation periods, and disparities between university training and job market needs persist. These issues demand immediate attention and innovative policy reforms. A comprehensive reevaluation of Kuwait's higher education framework must align with contemporary societal needs (Siddiek, 2012).

Regarding the issues mentioned above, public opinion is divided. Some argue that paying students' salaries deters timely graduation, while others point out the poor quality of

the education system compared to regional and global standards (Arab Times, 2023). Typically, higher education issues are examined from a macro level, considering systems, investments, social factors, and general teaching practices. While these perspectives are critical, we stress the need for a more focused, detailed understanding from the learner's viewpoint, which can provide valuable insights. The learner's role in the educational process is critical, and the learning responsibility lies with the learner (Shuell, 1986). For example, self-regulated learning, a key aspect of this, is where students actively engage in planning, monitoring, and reflecting on their learning processes (Jansen et al., 2019; Zimmerman, 2002). Furthermore, gaining a deeper understanding of students' affective and cognitive connections to learning activities is essential for all stakeholders involved in education. This includes teachers, administrators, policymakers, and even the students themselves. Such insights can illuminate the reasons behind students' levels of engagement and disengagement. When students actively participate in their learning, it often reflects a strong connection with learning activities. Conversely, when students are not participating, it typically indicates a lack of engagement and interest.

Understanding the issues at hand from the learner's perspective is the most effective approach. Students are in the best position to report their perspectives and feelings about learning. By seeing the problem from their point of view, we can gain valuable insights that can inform policy and practice (Betts et al., 2010).

Identifying the dynamics of the ways students’ approach their learning and involve while learning can empower educators and policymakers to devise more effective teaching strategies and learning environments that foster greater student engagement. By understanding what motivates students emotionally and intellectually, teachers can adapt their instructional methods to better pique students' interests and address their needs. This

approach not only enriches the learning experience but also fosters better academic outcomes, offering a promising path forward.

This approach is of utmost importance. However, Kuwaiti students' learning methods, thoughts, and feelings about learning need to be explored more (Alfadly, 2013). Therefore, a productive approach to comprehending the issues discussed in this section is to examine them from the students' perspective, focusing on their learning methods and emotional and cognitive involvement.

Addressing these multifaceted challenges in Kuwait's higher education system requires a shift from traditional macro-level analyses to a more nuanced understanding of the learning process. To bridge the gap between educational policies and their practical outcomes, it is essential to delve into the student's learning experiences. By focusing on how students interact with and perceive their educational journey, we can identify the underlying factors contributing to their successes and struggles. This learner-centered approach emphasizes the importance of strategies and ways approach learning where students actively plan, monitor, and reflect on their educational activities. By exploring students' affective and cognitive connections to their studies, we can develop strategies that address systemic issues and enhance individual learning experiences, thereby fostering a more effective and responsive educational environment.

1.2. Learning

Learning is the central word of this thesis, and, specifically, adult learning that takes place in higher education. Learning, here, is “a process that leads to change….and (it) may happen at the level of knowledge, attitude or behavior” (Ambrose et al., 2010, p.3). While teachers, educators, policymakers, and other actors put significant efforts into fostering vibrant teaching, the nub of learning ultimately rests in learners' hands. The student's role in learning

is more pivotal than the teacher's actions (Shuell, 1986) and the responsibility of grasping, assimilating, and interpreting information lies with the student (Knowles, 1970). Factors like prior experiences, relevance to the content, level of engagement, and the learner's unique set of learning tools are what matters most in the learning process. Therefore, logically, the focus for optimal adult learning has shifted from educators to learners.

Over the last few decades, the learner-centered approach has become the focal point. However, the shift to the learner-centered model has urged and triggered a new area of focus, such as self-directedness and personal development of the learner. Indeed, the new adult learning perspectives align with the philosophies of Thomas Paine (1736-1806), a political writer of the Age of Revolution. Renowned for his revolutionary beliefs in natural rights, equality, tolerance, and human dignity, Paine's ideas are now mirrored in modern adult education principles. In his vision, adult learners, to become knowledgeable, have to be involved with their own learning.

The learner-centered approach has evolved into a perspective known as 'andragogy', where learning is viewed as a self-directed process (Knowles, 1970). Andragogy is built upon student-centered and self-directed methodologies. The more students understand their learning strategies, the more empowered they are in their personal learning journey. Therefore, understanding the individuality of the learning experience is crucial for the empowerment of the individual learning way. To have a successful learning process, it is important to recognize distinct learning strategies learners use the ways as well that they connect emotionally and cognitively to learning. Learning strategies are specific to learners' patterns and behaviors and refer to "a context- and content-specific way of carrying out academic tasks" (Entwistle & Peterson, 2004, p.537).

1.3. Why Learning Patterns and Academic Engagement?

Understanding the learning approaches used by learners in higher education is crucial for achieving successful learning outcomes. This interest stems from recognizing that educational success is not solely dependent on the education system's structure but also on how students learn, engage, and navigate their learning experiences, a concept rooted in constructivism (Alehegn Sewagegn & Diale, 2019). In the context of Kuwait, where significant investments have been made in education, understanding these constructs becomes even more vital to address the persistent issue of prolonged graduation times and generally, education not giving back to its citizenry.

Significant investigations into student learning have emerged in Europe, the UK, and Australia. Rooted in the phenomenographic tradition, seminal authors such as Entwistle and Ramsden (1983), Marton and Säljö (1976), and Biggs (1993) have focused on students' perspectives of learning, emphasizing individual differences in student approaches to learning (SAL) and self-regulation learning (SRL). Struyven et al. (2006) stated that the relationship between the learner and the context determines learning approaches. These approaches comprise both motivational and strategic components of learning and are meaningful only within a specific context, making them subject to change. Broadly, the approaches to learning were categorized into three types: deep, strategic, and surface approaches (Tait et al., 1998). These approaches vary based on students' perceptions and conceptions of the learning environment.

In this respect, Vermunt (1998) investigated the interplay between conceptions of learning and other dimensions of learning within traditional approaches, developing a framework that integrates these research traditions. His framework, which is widely recognized and used in the field, calls for the interrelated investigation of students' cognitive processing and metacognitive regulation strategies. He highlighted a unique perspective by

identifying different learning patterns. Vermunt (1996) believes these patterns combine student's usual learning activities, orientations, and mental learning models. Contrary to fixed characteristics, he views these patterns as highly dynamic because of the interplay between personal and contextual factors, making them adaptable over time. The patterns differ from each other in five areas: how students cognitively process learning content, how students prefer their learning to be regulated (self-regulated or externally regulated), the affective processes that occur during studying, the student's mental models of learning (or conceptions of learning), and their learning orientations (or motives). The combinations of these dimensions of learning are known as learning patterns. Thus, learning patterns are a coordinating concept of how students perceive and regulate their learning. Due to its comprehensiveness and successful tradition of studies, Vermunt's framework is used in this research to provide a comprehensive understanding of learning patterns and academic engagement.

Understanding learning patterns takes on a heightened significance in the Kuwaiti context. The educational challenges in Kuwait necessitate more than just systemic reforms; they demand a profound understanding of how students interact with their learning environments and the strategies they employ to excel. This perspective shifts the focus from a purely structural view of educational reform to one that recognizes students' experiences and behaviors as pivotal components.

As we deepen our understanding of learning processes, we recognize that student learning is multifaceted. It involves not only absorbing material and employing strategies but also engaging with the content, receiving support from peers and teachers, and interacting with the broader educational ecosystem (Appleton et al., 2008). These interactions form the foundation of academic engagement. Learning process is most effective when it is active rather than passive. Students who are actively engaged not only grasp material more

effectively but also enjoy a richer educational experience. They ask questions, challenge ideas, and seek additional resources, enhancing classroom discussions and cooperation. Engaged students tend to achieve higher academic results, enjoy learning, feel more connected to their institution, and experience better social-emotional well-being. They often find purpose in their studies and link their academic efforts to future career goals. Additionally, their sense of connectedness with the institution leads to better behavior and higher graduation rates. From a broader perspective, engaged students are more likely to succeed in their careers (Fredricks et al., 2004; Zepke, 2017; Field, 2009).

Researchers agree that student engagement is a multifaceted construct, typically encompassing behavioral, emotional, and cognitive dimensions (Ben-Eliyahu et al., 2018; Zepke, 2017; Fredricks et al., 2004). Behavioral engagement involves observable actions such as participation and involvement, while emotional and cognitive engagements involve deeper, non-visible aspects like students' feelings towards learning and their mental investment in educational tasks. This thesis focuses on emotional and cognitive engagements, as they provide deeper insights into students' motivations and perceptions of learning. By understanding these dimensions, we aim to uncover the more intricate and less visible aspects of engagement that influence academic achievement, going beyond mere observable behaviors to explore how students feel and think about their learning experiences (Appleton et al., 2008; Bowden et al., 2021).

Unlike student engagement, learning strategies equip students with a roadmap to navigate their educational paths. These strategies are tools that students use to comprehend and retain the information presented to them. Student engagement, however, is the driving force behind the use of these tools (Kuh et al., 2008). An engaged student is more likely to deploy these strategies effectively, adapting and tailoring them to their unique needs and the demands of their academic environment. The ways these two dimensions of learning are

combined and affect each other is the final scope of current research. Thus, this research aims to provide a deeper understanding of learning approaches and their potential to significantly impact academic performance through the lens of student engagement.

The current literature mainly investigates learning patterns and engagement as separate constructs, with the aim of improving them both, but independently. Despite the general agreement that learning patterns are affected by a myriad of student factors, the exact role of academic engagement in that perspective has yet to be explored. This gap drives future research toward an integrative approach to student learning.

1.4. Academic Performance

As it is one crucial factor subject to investigation, we find it necessary to clarify our definition of academic performance. Oxford Bibliographies (n.d.) defines "academic performance as achievement outcomes that indicate the extent to which a person has accomplished specific goals that were the focus of activities in instructional environments, specifically in school, college, and university." In higher education, academic performance quantifies the Grade Point Average (GPA) or Cumulative Grade Point Average (CGPA) as the grading systems applied in universities tend to use standardized assessments leading to a central metric system, GPA (Alyahyan & Düştegör, 2020).

The GPA remains the crucial determinant of student performance, and is vital to understand whether a student will continue his studies towards graduation or not. GPA is an indicator of not only academic performance, but of personal and social outcomes as well such as higher self-concepts, higher IQ scores, and a greater self-efficacy (Sakiz et al., 2021). Because GPA includes a group of variables related to cognitive development, curricular learning, academic motivation, and study methods, along with levels of engagement, its importance on explaining the academic performance in higher education is relatively easy to

understand (Casanova et al., 2021) making it the most investigated measure in universities (Al Hazaa et al., 2021).

1.5. Learning Patterns, Engagement, Academic Performance, and Kuwait: Putting It All Together

Research on learning patterns and student engagement about academic performance has been extensive. Studies have shown that learning patterns contribute to variations in academic achievement (Vermunt, 2005), and student engagement positively affects it (Lei et al., 2018). Despite the range of research exploring these two factors, the precise interplay between learning patterns and academic achievement, mainly through the lens of student engagement, has not been examined. While most research highlight the crucial role of learning patterns and engagement in academic achievement and student satisfaction, it also points to a gap in understanding how different types of engagement interact with learning patterns to influence academic outcomes (Mengjie et al., 2023).

Moreover, most research on learning patterns and engagement has primarily been conducted in European countries and the Americas. This geographical concentration has led to a somewhat skewed understanding, heavily influenced by Western educational systems and cultural norms, creating an unintended research gap. Certain geographical contexts such as Arab region, including Kuwait, remain understudied. Neither learning patterns nor student engagement has been extensively investigated in this unique setting, either independently or in relation to each other. This lack of research represents an opportunity to expand our understanding of learning patterns and engagement and their dynamics in a diverse educational context.

Putting all together, learning patterns perspective and student engagement in relationship to academic performance will serve well to address the current problems that Kuwait is facing in education. As we mentioned earlier, Kuwait's mission for 2035 is to develop a knowledge-based economy, and education has a key role in it. However, the country, despite its investment, is not receiving enough from the education sector, suffering from unmotivated students who are not able to satisfy future economic needs with their preparation.

Until know, the government of Kuwait and public opinion has seen the problem from a macro-perspective when considering the whole system and the quality of it. However, a narrow perspective from that of the learner only has not discussed or seen it as an option. New theories in learning stress that the process of learning and success relies on the hands of the student. Therefore, education has shifted, in decades now, from the educator to the learner. Drawn upon this idea, we believe that a lot can be solved by taking a learner's stand.

Finally, a wholesome understanding of students' perspectives on learning and engagement could benefit not only Kuwait but also the Gulf region. The Gulf is a group of countries who are similar concerning their culture and education system. Therefore, often the same problems are seen from one country to another. For example, Qatar, very similar to Kuwait, is flooded with private education institutes with Western curricula (Ridge et al., 2015). The country despite having a high rate of literacy relies on expat for all the sectors of the economy. Thus, understanding the problems of the learners in Kuwait will benefit the understanding of the issues of the *Arab learner* in general.

1.6. Research Objectives

As highlighted at the beginning of this chapter, learning patterns and engagement are crucial for academic performance. However, more comprehensive research is needed to

investigate the relationship between learning patterns and academic performance, particularly through the lens of student engagement. Moreover, the theoretical assumptions from the research in this field are predominantly framed within a Western context, indicating the need to broaden our understanding of learning patterns and engagement across diverse educational settings. The unique challenges of the Kuwait context, which is an understudied area, further underline the urgency and relevance of this study. It aims to address the gaps in the current literature and further understand the learning dynamics of Arab students. Specifically, the study has five main objectives concerning Arab students in Kuwait:

1. Explore the nature and dimensions of student engagement in Kuwait.
2. Analyze the impact of student engagement on academic performance.
3. Explore learning patterns and their dimensions among students in Kuwait.
4. Discuss the impact of learning patterns on academic performance through the moderating role of student engagement.
5. Suggest actions to improve learning for students in Kuwait through learning patterns and academic engagement.

To achieve these objectives, two distinct studies were designed and conducted among Arab students in Kuwait. The first study focused on the nature of student engagement and its role in academic performance (GPA). The second study examined learning patterns and their impact on academic performance, alongside the role of engagement in this relationship. These studies aimed to generate empirical evidence supporting theoretical models of learning patterns (objective 3) and engagement (objectives 1 and 2) and to suggest practical implications for Arab students in Kuwait by discussing the interplay between learning patterns and academic engagement (objectives 4 and 5).

The structure of the thesis is as follows: Section B offers a comprehensive and current review of the most relevant research on learning patterns (Chapter 2) and student engagement (Chapter 3). It aims to contextualize the research within the broader scholarly discourse, highlighting significant theories and findings that have influenced these perspectives in learning. Chapter 4 explains how the learning patterns and engagement frameworks discussed are essential to connect within Kuwait. Chapter 5 describes the study framework of the current research, detailing the methodological approach common to both studies and providing a rationale for adopting the quantitative approach, explaining how it meets the research objectives. This chapter also includes a general description of the study setting and the participants.

Chapter 6 presents the first study, which examines student engagement and academic performance of undergraduates in Kuwait. This study is positioned first for two reasons: it was conducted first, and its results help shape the research objectives and analysis of the second study. Chapter 7, presenting the second study, investigates the learning patterns of undergraduates in Kuwait, their relationship with academic performance, and how student engagement moderates this relationship. Chapters 6 and 7 are organized into introduction, methodology, results, and discussion sections. Chapter 8 integrates the results from both studies without offering extensive interpretation. Discussions of the findings about the research questions are provided in Chapter 9, aligning the findings with existing literature and contrasting them with previous studies. Lastly, Chapter 10 concludes with the importance of the findings, limitations, and perspectives for future research.

This research, conducted within the context of private higher education in an Arab educational setting, aims to provide valuable insights into educational psychology, focusing directly on learning and indirectly on teaching. The goal is to contribute meaningfully to

academic literature and practical applications for teachers, policymakers, and student support services in Kuwait and similar contexts, thereby directly impacting the educational landscape.

SECTION B: THEORETICAL BACKGROUND

Chapter 2: Learning Patterns

> *"Whether we're talking about Darwin or college students, important achievements require a clear focus, all-out effort, and a bottomless trunk full of strategies. Plus allies in learning. This is what the growth mindset gives people, and that's why it helps their abilities grow and bear fruit."*
>
> **— Carol S. Dweck,** *Mindset: How You Can Fulfil Your Potential*, 2006

2.1. Introduction

Research on learning, and particularly the one that takes place in higher education, has developed significantly over the past few decades, beginning in Europe and spreading worldwide. The 1970s note that academic literature shifted its focus toward learning strategies, revolutionizing the understanding of student learning. The initial research work in this field saw the first generation of learning strategy inventories arise. These tools were designed to provide insights into the cognitive processes and motivational aspects of learning. Notably, the Study Process Questionnaire (SPQ, Biggs, 1978) developed by Biggs in Australia and the Inventory of Learning Processes (ILP) in the USA (ILP, e.g., Schmeck & Steven, 1991) offered a new perspective on student learning strategies.

Entwistle and colleagues in Europe made a significant contribution with the creation of the Approaches to Studying Inventory (ASI, e.g., Entwistle & Wilson, 1977). This tool provided a deeper understanding of how European students approached their studies, incorporating five factors from their factor analysis, including Entwistle's organized study methods and achievement motivation. The ASI integrated scales based on Marton and Säljö's

(1976) deep and surface learning approaches, Pask's (1976) learning styles, and scales on motivation from Biggs' Study Behaviour Questionnaire (SBQ, Biggs, 1976).

These scholastic events showed an era characterized by a keen focus on cognitive processing strategies and study motivation. Researchers attempted to decode the underlying patterns of how students processed information and what motivated their study habits. Tools developed during this time were instrumental in identifying and categorizing these strategies, paving the way for a subtler understanding of the learning process.

The field of learning strategies witnessed a significant shift in the mid-1980s with the rise of metacognition as a critical concept. This shift brought a new dimension to the study of learning strategies, integrating the role of students' awareness and regulation of their cognitive processes into the analysis. The work of Brown (1987) and Flavell (1987), as well as colleagues in the United States, highlighted the importance of metacognitive strategies in regulating and controlling students' learning processes. This period also saw European researchers delving into students' conceptions of learning, uncovering qualitatively different perspectives on what learning meant to students and how it related to their approaches to learning.

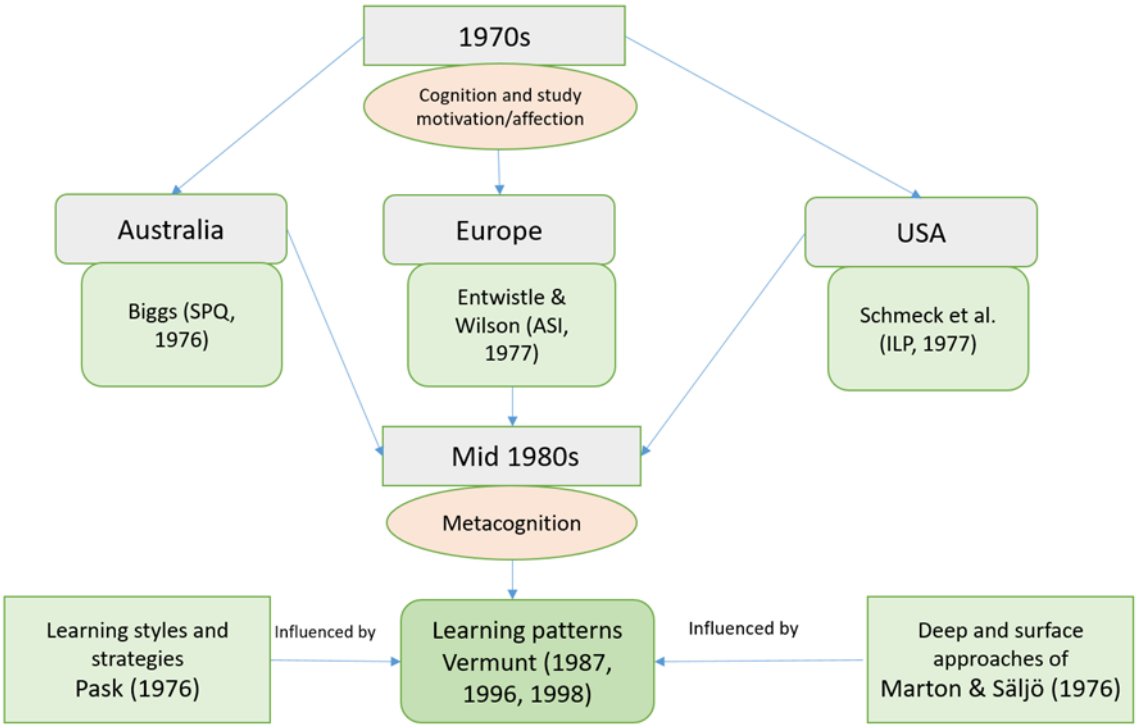
It can be said that the interests in learning transitioned from a solely cognitive focus to a more comprehensive approach that included affective and regulatory aspects, leading to the emergence of the second generation of student learning inventories. These inventories, such as the Motivated Strategies for Learning Questionnaire developed by Pintrich and colleagues in the USA (MSLQ, e.g., Pintrich et al., 1991) and Vermunt's Inventory of Learning patterns of Students (ILS: Vermunt, 1998; 2020) expanded the scope of learning strategy research by including metacognitive dimensions. This broadened perspective allowed for a more holistic

view of student learning, acknowledging the complex interplay between cognitive, affective, and metacognitive components.

Drawn upon a phenomenographic research, Vermunt (1996) proposed a holistic view of learning including activities students' employ, their orientations to learning, and mental model of learning. It combines the model of learning strategies (Pask, 1976) with that of approaches to learning (Marton & Säljö, 1976).

Figure 2

The Background Development of Vermunt' Learning Patterns Framework



Since its creation, Vermunt's learning patterns model has been influential in depicting individual approaches to learning in formal educational settings. His framework is characterized by the integration of cognitive, affective-motivational, and regulatory aspects. Vermunt believed that the ways students combine these aspects of learning and the presence of significant relationships within them create a *pattern*. Therefore, a *pattern* reflects the

intricate interplay between four dimensions of learning: *conceptions of learning*, *learning orientations, regulation strategies*, and *processing strategies*.

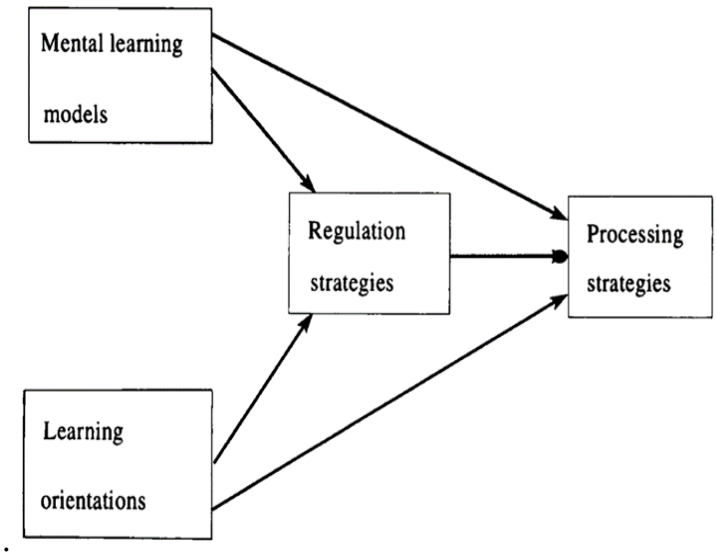
2.2. Components of Learning Patterns

Vermunt defined a learning pattern, initially referred to as *a learning style*, as a 'whole of learning activities that learners commonly employ their beliefs for learning, and their motivations' (1996, p. 23). This integrative perspective brings together four learning components: cognitive processing strategies, regulation strategies, conceptions of learning, and orientations to learning (Vermunt, 1996; Vermunt & Vermetten, 2004). Therefore, the concept of learning pattern refers to a style that results from the combination of a particular conception of learning which, together with a motivational orientation, influences regulation and processing strategies (Vermunt, 1998). Indeed, the relationship between dimensions of learning are dynamic. Conceptions of learning and learning orientations influence how learners regulate and process their learning (Figure 3).

Besides being mutually affected, the dimensions of learning are shaped by learners' individual characteristics as well. These characteristics include age, gender, environment, culture, and previous learning experiences, to name just a few. Additionally, the context of learning, encompassing elements like learning materials, teaching strategies, and assessment methods, plays a significant role (Vermunt, 2005).

Figure 3

The Impact of Learning Conceptions and Orientations in Learning Strategies (Vermunt, 1998; p. 153)



Vermunt's wholesome model attempts to enhance teaching as well by gaining an in-depth understanding of students' learning processes. It emphasizes the importance of understanding how students regulate these internal and external processes and how to foster self-regulation in them. What makes this model successful is that it underscores the importance of integrating cognitive, metacognitive, and affective components in the learning process (Hederich-Martínez & Camargo-Uribe, 2019).

For a better understanding of the learning patterns model, here we will provide a detailed description of the dimensions of learning, which will be followed by a review of the most recent research on this perspective.

Conceptions of learning

Conceptions of learning are at the core of approaches to learning that are used to acquire knowledge. These conceptions are shaped by the metacognitive skills and beliefs influencing how learning and cooperation in education are perceived and applied while learning.

Learning conceptions sustain beliefs about how knowledge is conceived and how learning is defined. Flavell (1987) stressed that what learners do to learn strongly depends on their metacognitive knowledge and their beliefs on learning, which Säljö (1979) called learning conceptions. Säljö (1979), in his pioneer research, asked students what learning meant to them, leading to a more comprehensive understanding of conceptions of learning. Drawing from his work, learning conceptions reflect the interaction between the learner and content and are expressed with activities that show what learners think about learning. Five distinct learning conceptions were depicted in Säljö's research. These conceptions ranged from perceiving learning as a quantitative increase in knowledge to understanding it as an interpretative process. This spectrum of views captures the transition from viewing learning as a passive intake of information (memorizing facts and methods for later use) to engaging in a deeper, more abstract process of meaning-making.

In understanding the conceptions of learning, important factors such as teaching expectations and views of cooperating with teachers and peers were added to the framework. For example, Van Rossum, Deijkers, and Hamer (1985) saw that students who perceived learning as reproductive preferred a structured teaching approach, while those who perceived learning as constructive preferred open forms of teaching in which they take responsibility. McKinley (1983) investigated the cooperation with peers as a conception of learning. Conceptions varied from highly cooperative, emphasizing the importance of peer feedback and support, to extremely individualistic.

Vermunt (1986) interviewed students at Open University in Netherlands about conceptions of learning, teaching, and cooperation. In addition to findings from colleagues, Vermunt had compelling results on that students' conceptions about learning activities (e.g., relating, structuring, testing, diagnosing, etc.) varied based on who must conduct the activities (e.g., they, teachers, or fellow students). For example, students who perceived

learning simply as adding information tended to view most processing and regulation tasks as the educator's responsibility, not as part of their learning activities. That said, reproductive conceptions of learning are associated with a stepwise approach to studying, while constructive conceptions are linked to a deeper, more engaged approach.

Upon this context of findings, Vermunt empirically validated five conceptions of learning.

- Learning as *intake of knowledge* refers to learning as absorption of knowledge through memorizing and reproducing. This learner takes a passive position in learning and is highly influenced by course directives.
- The *construction of knowledge* implies learning as constructing one's knowledge. The learner takes an active role, reflects upon his learning strategies, creates connections and new meaning, and seeks out new information.
- Learning as a *use of knowledge* implies learning as the practical use of acquired knowledge, a sense of responsibility to find new applications of knowledge and being active with the content.
- *Cooperative learning* refers to attaching value to learning in cooperative work with peers and sharing the tasks with them. These learners seek out for both emotional and cognitive support in their learning activities.
- *Stimulating education* is that conception in which learning is seen as a task for students that needs to be instructed and directed continuously by teachers and textbooks. Learners attribute their cognitive and regulation strategies more to the teaching process than the learning process itself.

Learning orientations

The second component, learning orientations, refers to students' motives and orientations toward their study, which affect the regulation and processing strategies while learning. These orientations are not only about what activates and produces the behavior but also include an interplay between students' personal goals, emotional processes, and their beliefs in their efficacy (Vermunt & Van Rijsiwik, 1988). Expanding on the same tradition, Vermunt defined five aspects of learning orientations.

- *Personal interest* characterizes a genuinely enthusiastic learner who is curious about learning. These learners have intrinsic motivation to learn driven by personal satisfaction and the quest for self-improving, as was first noted by Dweck and Elliot (1983). Learners deeply engage in learning while receiving pleasure and intellectual enrichment.
- *Certificate orientation* emphasizes learning from an extrinsic motivation perspective. Learners are oriented toward tangible outcomes such as degrees, certificate or diplomas. They see learning through the eyes of passing exams and tests, which, on the other hand, are perceived as substantial for future educational or professional opportunities.
- *Self-test* learners are those who feel the need to prove themselves to others as capable of passing exams and tests. The learning is encouraged by performance goals, and progress is evaluated in comparison to others. This orientation strands in between intrinsic motivation (e.g., a need for self-efficacy) and extrinsic motivation (e.g., stimulation for a sense of competence and autonomy).
- *Vocation-oriented* is a motivation to learn to develop professional competencies and skills. It is an internal motivation in which the learner sees learning as essential to gain proficiency for their future career.

- *Ambivalent* orientation is characterized by doubt and confusion while learning. Learners doubt their skills and the value of learning and struggle to find a clear educational goal. There is uncertainty in motivation, and learners might have a poor self-concept regarding their study skills.

Learning orientation directs students' engagement in learning and influences the adopted strategies. A student with a personal interest in learning is more likely to use deep processing strategies. Test-oriented students adopt surface processing, such as memorizing and rehearsing, to pass tests and exams. Thus, learning orientations, in a similar way of learning conceptions, affect learning outcomes indirectly through processing and regulation strategies.

Regulation strategies

Regulation strategies comprehend the use of metacognitive skills in regulating one's learning. Self-regulated learning refers to the mastery of the learning content and to the independent management of the learning processes. The metacognitive regulation refers to the use of processing strategies in accordance with learning purposes and other factors such as the nature of the learning task, existing knowledge, and available time at disposition to complete the task. In addition, it implies using regulation activities to control the course and learning outcomes. The following are known as regulation activities.

- *Orientating is* the initial phase in which the learner assesses the learning task and positions it in their existing knowledge. It sets the stage for purposeful learning.
- *Planning* implies building a roadmap for the learning by selecting the content, identifying adapted learning activities, and setting a sequence in which parts of the content are learned.

- *Monitoring* ensures that learning activities are effective, and that the learner remains on the course to meet the objectives.

- *Testing* is metacognitive regulation in which the learner engages with learning by formulating questions and hypothetical problems and seeking answers. Self-testing is vital for providing feedback to the learner.

- *Diagnosing* happens when a learner faces learning difficulties and tries to understand the problem by examining his learning strategies.

- *Repairing* makes it possible to re-evaluate and choose other processing strategies rather than ineffective ones.

- *Evaluating* helps to measure the alignment of the learning outcomes with the initial planning and goals.

- *Thinking* refers to thinking about studying, teaching, learning activities, and learning experiences in general.

Vermunt (1998) identified three types of regulation strategies:

- *Self-regulation* is a modality in which the learner is autonomous and independently directs his educational process. A self-regulated learner is resilient and adaptable and is capable of thriving even in a less-than-ideal learning environment. Self-regulated learning is characterized by the use of activities like planning, monitoring progress, diagnosing the problem, adjusting, and reflecting.
- *External regulation* implies using external and structured sources, guidance, and feedback from teachers or other actors from the learner so that they are guided while learning. Although it might be assumed that this external regulation is inefficient,

studies show that in certain territories it leads to deep learning (Martínez-Fernández & Vermunt, 2015).

- Lastly, the *lack of regulation* shows a void in the control over learning activities. A learner with no regulation cannot produce actions for their learning. This learner is not able to choose the processing strategies to respond properly to the educational demands.

The self-regulation of learning is the most adequate way to learn. However, teaching might determine a lot about the use of self-regulation strategies. For example, when the teacher chooses to provide preliminary overviews (orientation), depicting goals and actions relevant to the content matter (planning), making questions to understand whether students grasped the task (testing), providing feedback on the non-verbal behavior of the students (monitoring), questioning why students face difficulties (diagnosing) are all examples which move the location of the regulation from internal (students) to external (teachers). So, the lack of regulation can arise when both parties try to regulate learning, and there is *friction* between the two modes of control. Lack of regulation can lead to a sense of being overwhelmed by the learner, stressing the need for support and guidance. From Vermunt's point of view, a combination of external- and self-regulation is much more likely to occur due to the exchange between the learner and the teacher.

Processing strategies

The fourth component are the processing strategies students use to attain learning in terms of knowledge, understanding, integrating, and applying the content. The processing strategies are more than learning methods; they imply how students learn independently. In other words, processing strategies are thinking skills students use to process learning matter. Some of these strategies are mentioned below.

- *Selecting* involves the examination of the learning content, identifying and stressing the most significant ones. Selecting implies prioritizing information. A learner who applies a section of the content tends to pay attention to key terms and definitions, crucial parts of the content that will be considered necessary for understanding.
- *Relating* is the cognitive process of associating new and old learning content. It implies learning new material using old content.
- *Concretizing* is the process of grounding the learning content into real-life experiences, be it the world or personal experiences. Those who concretize learning tend to grasp better the learning content.
- *Analyzing* is a processing strategy learner use to understand the content. It implies using a step-by-step approach to grasp the learning content.
- *Structuring* refers to organizing various parts of learning content into a whole in which both new and old information is integrated.
- *Personalizing* is the cognitive process of integrating acquired knowledge into the learner's life.
- *Being active* is about finding out things, checking the logic of an author's line of argument, forming interpretations and opinions, etc.
- *Memorizing and rehearsing* implies repetition of the information to store it in the memory.

Vermunt (1998) states that the ways in which these processing strategies are combined may be referred to as:

- *Deep processing strategies* represent those strategies of complex thinking that enable learners to gain a profound understanding of the learning content. This includes elements of elaboration (e.g., selecting) and structuring. Deep processing can be seen

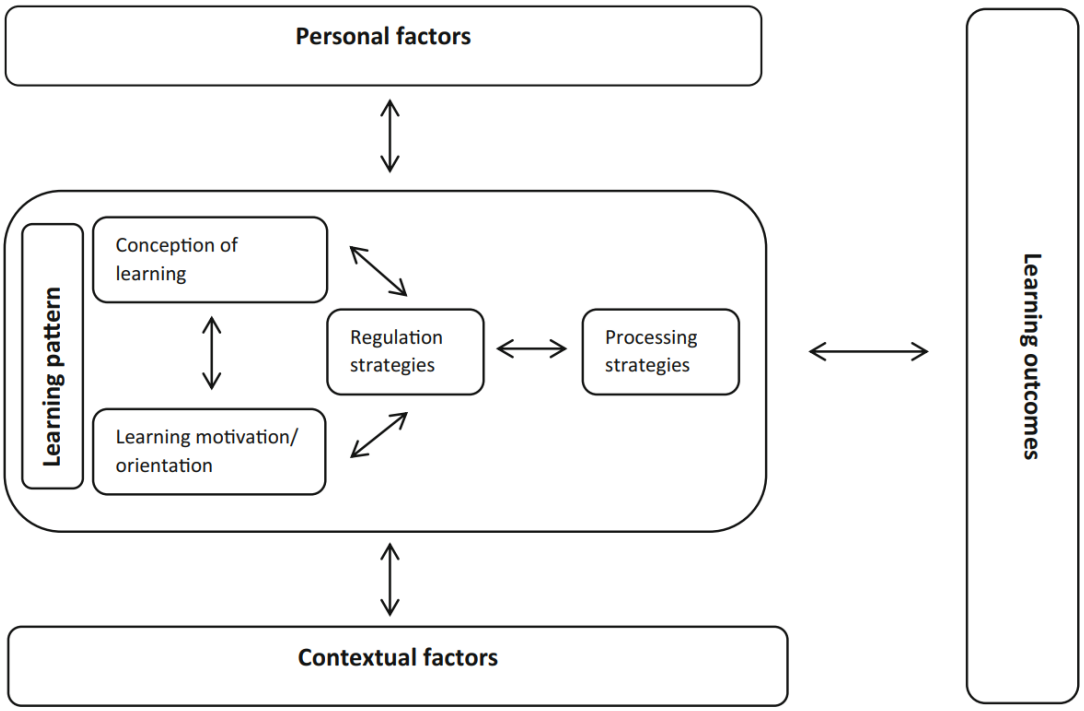
as critical processing in which learners select, analyze, and evaluate information critically to form personal judgments and opinions.

- *Stepwise processing* is mainly based on memorizing and rehearsing the content without deep reflection. This strategy might imply a very systematic methodology, such as taking notes, reading, and highlighting, but it does include a genuine interest in understanding the content rather than memorizing it for the sake of tests. Stepwise processing implies analysis as well. Specifically, the sequential analysis is used to determine which parts of the content are split in order to be remembered better.
- Lastly, *concrete processing* is a cognitive effort that learners use to apply and relate the learning content with real-world examples, their experiences, and practices in general. Concrete processing involves concretizing, personalizing, and being active while learning. It makes the transfer of knowledge into different contexts possible.

Lastly, all four dimensions of learning are co-dependent and influenced by the learning characteristics and context. Figure 4 illustrates the interconnections of learning dimensions, highlighting how personal and contextual factors influence learning outcomes. At its core, the learning pattern box shows the dynamic interplay between learners' conception of learning, their motivation/orientation towards learning, and the strategies they use to process information and regulate their learning. These internal mechanisms are influenced by the personal factors and broader environmental or contextual factors surrounding the learner. The model suggests that these components are not static but interact continuously, affecting the learner's ability to achieve desired learning outcomes (Vermunt & Vermetten, 2004). The bidirectional arrows indicate that the learning process is adaptive and cyclical, where past outcomes can inform and reshape the learner's strategies and motivations moving forward.

Figure 4

Learning Patterns Perspective on Student Learning (retrieved from Vermunt & Donche, 2017, p. 272)



2.3.Dimensionality of Learning Patterns

Vermunt conducted large-scale research using phenomenographic data (1996) and constructed a diagnostic instrument called the Inventory of Learning patterns Students (ILS). Initially the construct had four domains that included five subscales containing nearly nine items for a total of 241 items. In 1998, Vermunt improved the model and through several iterations the items were reduced to 120 items. Subscales of dimensions of learning are combined (Table 1). A detailed description of the structure of the instrument will be given in Chapter 7 as is the main instrument used in the second study of the current research.

Table 1

Components, Dimension, and Descriptions of Learning Patterns (Adapted from Vermunt, 2005, p.213)

Learning components	Description of content
Processing strategies	
Deep processing	Students actively relate aspects of content to each other or prior knowledge structuring them.
Relating and structuring	Forming one's view of the course content, drawing one's conclusions, and being critical to those of teachers and text-authors.
Critical processing	
Stepwise processing	Memorizing and rehearsing facts of the learning content as they are.
Memorizing	Analysing the content thoroughly.
Analysing	Applying d relating the learning content to reality and one's own experiences.
Concrete processing	Students actively relate aspects of content to each other or prior knowledge structuring them.
Regulation strategies	
Self-regulation	Steering one's learning process through activities like planning, monitoring progress, diagnosing the problem, adjusting, and reflecting.
External regulation	Relying on external factors of the learning process, such as teachers, peers, instructions, learning objectives, assignments, etc.
Lack of regulation	Having problems with regulating one's learning.
Conceptions of learning	
Intake of knowledge	Seeing learning as absorption of knowledge through memorizing and reproducing.
Construction of knowledge	Seeing learning as constructing one's knowledge.
Use of knowledge	Seeing learning as acquiring knowledge that can be used and applied in practical content.
Cooperative learning	Attaching value to learning in cooperative work with peers and sharing the tasks with them.
Stimulating education	Viewing learning as a task for students that need to be instructed and directed continuously by teachers and textbooks.
Learning orientations	
Personally interested	Learning and studying the content out of internal interest in developing oneself as a person.
Certificate oriented	Studying and learning out of external motivation: achievements, exams, grades, credits, and degrees.
Self-test oriented	Studying to test and challenge one's capabilities and skills, to improve and develop oneself.
Vocation oriented	Studying and learning to acquire professional and practical skills to obtain a profession.
Ambivalent	Being unclear, doubtful and uncertain about one's own capacities, study, choices, and the type of education.

Vermunt observed strong relationships between the four dimensions of learning that they could arguably be termed “learning styles” (p.166). He depicted four learning styles, namely, meaning-directed (MD), application-directed (AD), reproduction-directed (RD), and undirected (UD). Table 2 represents the learning patterns which were depicted in Vermunt’s earliest research.

Table 2

The Distribution of Learning Components by Learning Patterns (Vermunt, 1998; Vermunt & Donche, 2017)

	Meaning Directed (MD)	**Application Directed (AD)**	**Reproduction Directed (RD)**	**Undirected (UD)**
Conceptions of learning	Construction of knowledge	Use of knowledge	Intake of knowledge	Being stimulated and cooperation
Orientations of learning	Personal interest	Vocation	Certificate and self-evaluation	Ambivalent
Regulation strategies	Self-regulation	Self- and external regulation	External regulation	Lack of regulation
Processing strategies	Deep processing	Concrete processing	Step-by-step analysis	Very scarce

The *meaning-directed learning (MD)* comprehends a deep personal engagement in the learning process. The learner wants to understand the meaning of the content, creates relationships, makes associations of new content with the old content, and tries to find wholesome meanings of it. These learners combine a constructive view about learning with an intrinsic orientation that active a self-regulation strategy, holding themselves responsible for learning, and the use of deep processing strategies. They go beyond teachers' instructions and assume responsibility for constructing their knowledge and mastering their learning. Paralleling this pattern with Biggs's (1987) findings, the meaning directed is very similar to

the deep approaches to learning. Students see learning as a construction of knowledge and consider learning as significant.

Application-directed learning (AD) comprehends looking for associations between knowledge, content, and practical use. If, in the MD pattern, learners find relevance between and within the learning content itself, in the AD pattern, the connections are made between the content and the practical world. Learners perceive learning as the use of knowledge and might be oriented toward career goals and professions. As for the processing strategies, these learners are interested in the concrete application of knowledge. Depending on the task, they might use self- and external-regulation ways during their learning actions. Vermunt (1998) believed this pattern is usually planted later in life, not present in the first years of study. Referring to the literature on learning approaches, the application directed learning seems like the professional orientation (Lindblom-Ylänne & Lonka, 1999).

Reproduction-directed learning (RD) is characterized by a conception of learning as an intake of knowledge without a deep accumulation and understanding involved. These learners are oriented toward tangible achievements like certificates, self-tests, and passing exams. They use stepwise processing of the content centered on memorization and repetition and with some forms of analyzing. Learners with reproduction characteristics are externally regulated. They rely sincerely on their teachers, their directions on the study materials and their peers. They feel they must be directed, and teachers must specify the learning goals. This pattern is similar to Biggs's (1987) surface approach as well.

Lastly, the *undirected pattern (UD)* comprehends difficulties in general learning and processing knowledge specifically. Learners rely deeply on their teacher's directions and seek peer cooperation; in this manner, their orientation towards learning is ambivalent because they depend on the variable influence of the others. There is doubt about the purpose of

learning and their self-efficacy in study skills. UD learners do not use one specific form of regulation rather, they are paralyzed and lack the ability to regulate their own learning. Vermunt (1998) believed this pattern might be prevalent in transitioning periods in the educational journey. This pattern is partly similar to the apathetic approach of the SAL tradition (Tait & Entwistle, 1996).

2.4. Research on Learning Patterns

Vermunt's framework of learning patterns became influential among the higher education learning community in the Netherlands, and many more authors pursued his research in different contexts. These studies backed the original findings of Vermunt that four different learning patterns could be identified. Vermunt himself tested the stability of learning patterns among Open University students using the test-retest method (1998). About three months later, the first administration, Vermunt, invited the same students to retake the ILS. Again, he found out that learning patterns had high stability, but not that high, to make them "unchangeable." Conceptions of learning and learning orientations had higher stability than processing and regulation strategies, suggesting that environmental influences can affect the latter. It was also clear that students naturally employ specific combinations of learning activities, as identified by Vermunt (1996, 1998, 2005; Vermetten et al., 1999). Therefore, the best term to use for these combinations was "pattern" rather than "style" to emphasize the flexibility of the use of these combinations as a temporal interplay between personal and contextual influences' (Vermunt, 1996, p.29) and to avoid the connotation of the term "style," which is often seen as a fixed characteristic of student' personality.

Busato and colleagues (1998) carried out research to test the development of learning patterns across years for study. Findings revealed no systematic correlation between the year of study and learning patterns. As it was not expected, the MD and AD patterns did not become more significant in later years of study compared to RD and UD patterns. In another

longitudinal study with a gap of one year, authors found that the use of MD and AD increased, while the use of RD and UD decreased (Busato et al., 2000). These results were repeated by research done over the period of three semester of academic year at Tilburg University (Vermetten et al., 1999). The study found a significant increase of learning strategies related to meaning and application directed. However, strategies indicative of a reproduction learning patterns, did not decrease as they expected but remained at the same level which could be explained by the idea that "the reproductive learning could have been crystallized" (Vermetten et al., 1999, p. 234).

The inconsistent findings from their own studies (Vermunt et al., 1998; Vermetten et al., 1999) and those of their colleagues, (Busato et al., 2000), led to the formulation of two hypotheses. The "*development hypothesis"* explained the changes: as students' progress in education, the factors related to learning strategies, mental models of learning, and learning orientations will become more focused and have stronger interrelations (Vermetten et al., 1999). On the other hand, the "*context hypothesis*" suggested that inconsistencies in finding using the ILS must be explained with variations of the learning context.

However, testing the applicability of ILS in another context, Boyle et al. (2003) conducted research with 273 social sciences students at various British universities. Findings confirmed the four learning patterns depicted by Vermunt (1998). Two factors depicted, MD and RD, were coined well with the ones found by Vermunt. However, a third factor, like the UD pattern of Vermunt, needed more integration among the components. The fourth factor was AD, with loading only of learning orientations and learning conceptions. The variations of factor configuration of learning patterns could have been explaining with the characteristic of the sample as it was from Social Sciences, as authors explain.

Research testing the applicability and configuration of the ILS has expanded significantly beyond its initial focus in the Netherlands and the UK over the past two decades. Numerous studies utilizing various ILS' versions have contributed valuable insights into its configurational properties across a range of educational settings, supporting the *contextual hypothesis* proposed by Vermetten et al., (1999). This body of research has extended geographically, encompassing other European countries as well as in other regions such as Asia and Ibero-America.

In the following, we will provide an overview of some of the most influential recent research on Vermunt's framework of learning patterns. This body of work, encompassing a wide range of diverse studies, will be organized geographically, starting with studies from Western countries, i.e., Europe, North America, and Australia, followed by research in Asia and Ibero-America. We will then discuss some key studies that offer comparative findings from various regions and contexts, followed by vast research found in the Arab region. This comprehensive review offers a deep understanding of the validity of the ILS, the dimensionality of learning patterns, their configurations, their development throughout school career, and most importantly, their variations from the context.

Western Studies

Research on learning patterns in Europe has significantly expanded beyond the foundational studies by Vermunt (1996, 1998). The previous section provided an overview of research on learning patterns in Europe, specifically focusing on studies conducted during the initial formulation of this perspective. This section on Western studies will contain subsequent research conducted in the Netherlands, the UK, and beyond.

Vermunt and Minnaert (2003) conducted a study comparing ILS results between first and third-quarter social science students (N=244) in the Netherlands. Initially, they identified three learning patterns: *meaning-directed (MD), reproduction-directed (RD),* and *undirected*

UD). They noted dissonances, such as the absence of an *application-directed* (AD) pattern and an overemphasis on *certificate orientation* within the RD and UD patterns. In the third quarter, they identified the greatest dissonance and defined three patterns: a consistent MD pattern, a passive-idealistic pattern characterized by a saturation of all conceptions, and a third pattern combining RD and UD elements.

Studies by Donche et al. (2010) and Coertjens et al. (2016), investigated the advances in learning approaches, particularly as students move from secondary to higher education. Findings show a tendency of students to shift from using UD in the first year to deep learning patterns, such as MD ones, in the second and third years of studies. Yet, the RD pattern was quite persistent among the third-year students.

Similarly, Coertjens et al. (2016), in their study with Flander students, found that as they progress in higher education, students tend to increase the use of six out of seven learning strategies, with the memorizing scale showing no growth in the third year. Vermetten et al. (1999) found that changes in the use of learning strategies varied on specific courses, especially those incorporating more constructivist elements and involving students actively. In similar vein, courses built upon problem-based learning tend to enhance students' deep approaches to learning with high self0regulation of the learning (Van der Veken et al., 2009). Nieminen et al. (2014) found among a sample of Finish undergraduate students decreased the use of reproductive learning, which itself was significantly correlated to dualistic conceptions of knowledge. Moreover, students who prevailed in RD learning were less likely to succeed academically.

These results were not supported by the study of Asikainen and Gijbels (2017) in their meta-analysis of 43 studies about the evolvement of learning patterns across years of study for Finish and Belgian students. To the question whether students develop more deep

approaches in later years of the studies, authors did not find a clear picture of how learning patterns develop, challenging the idea that deep learning patterns tend to increase naturally with the student's age. As suggested in another study (Beaten et al., 2010), the use of deep learning is more affected by the learning context, students' perceptions about this context, and students' characteristics.

Backing the above findings (Asikainen & Gijbels, 2017; Beaten et al., 2010), in Australia, Smith et al. (2010) focused on understanding how pharmacy students approach learning, particularly in the context of Vermunt's framework of learning patterns. Pharmacy students demonstrated a strong *vocational orientation* in their learning across all year groups. This vocational focus was significantly related to their academic performance. Students predominantly favored external regulation strategies, and there was little evidence of evolution in learning approaches as they progressed through the curriculum. Contrary to expectations of maturation in learning strategies over time, the study found no significant developmental trend in students' learning approaches from the first to the fourth year of their studies. The study suggested that the approaches to learning among higher education students might be more influenced by their specific learning environment and individual preferences rather than the subject matter.

In a US-based study, Lloyd (2007) investigated the connection between medical students' performance on the in-training examination and their learning patterns using an adapted version of the ILS. The study found four configurations of learning patterns: MD, AD, RD, and UD pattern, replicating the original studies on this perspective. Regarding the relationship with performance, significant correlations were found with two specific learning patterns: a positive correlation with meaning-directed learning and a negative correlation with undirected learning. The other two patterns, application-directed and reproduction-directed, did not relate to performance.

Van Bragt et al. (2007) studied how students' personality traits affect their learning methods, they used the ILS to assess Dutch students' learning orientations, conceptions, and strategies. Additionally, the Five-Factor Personality Inventory (FFPI) was utilized to evaluate their personality characteristics. The study found notable differences between vocational students and general education students in how their personal attitudes toward learning influenced their perception of the learning environment and strategies they used. Specifically, vocational students, who scored higher in autonomy and conscientiousness, were more inclined towards self-directed learning, used concrete learning strategies, and perceived learning as acquiring knowledge.

Further emphasizing the importance of the learning context, Lycke et al. (2006) and Dolmans et al. (2016) conducted research comparing problem-based learning with traditional learning in medical programs at Norwegian and Dutch universities. They found that problem-based learning students employed different self-regulation strategies and had distinct conceptions of learning, suggesting that this learning context might enhance deep learning.

A study by Kanselaar et al. (2003) explored how the university environment impacts students' approaches to learning and their preferences for learning environments. The study included 610 Dutch students and 241 students from other European countries who had participated in international exchange programs. The research focused on understanding students' perceptions of their home and host universities' learning environments and preferred learning environments. The study revealed that learning environments characterized as student-oriented discourage *reproductive learning* and promote *constructive learning*, especially when the learning area highlights conceptual and epistemological relations. The research showed that South European students were oriented towards more constructive and less reproductive learning approaches during their stay at Dutch universities, showing that students generally preferred less reproduction-oriented environments and emphasized active

learning aspects. This preference is strongly associated with students who learn constructively and are accustomed to such learning environments.

Donche et al. (2014), with students from Belgium, focused on understanding first-year university students' preferences for receiving feedback on their learning patterns and how these preferences relate to individual learner characteristics like learning strategies and self-efficacy. The study involved first-year students enrolled in a vocational bachelor program at a Belgian University College. The research revealed several significant findings. Students displayed diverse preferences regarding how they wished to adjust their learning patterns throughout the first year. This variation was depending on students' sense of self-efficacy and how they regulated their learning. Moreover, the study found a connection between students' preferences for feedback on learning patterns and their sense of self-efficacy and *learning regulation* strategies. For example, students with increased learning independence preferred internal feedback mechanisms. The study underlines the importance of regarding individual learner differences when designing feedback mechanisms in educational settings. It highlights how personalized feedback can better support students in conceiving effective learning patterns, particularly during their first year of higher education.

Other studies on learning patterns are done in Eastern Europe. In the Czech Republic and Romania, Juklová et al. (2017) identified four learning patterns. In the Czech Republic, they found an MD pattern with concrete processing, a passive pattern, an RD pattern, and a UD pattern. In Romania, the first pattern was active but without concrete processing, the second was passive-motivational with a lack of regulation, the third was AD, and the fourth involved isolated scales of knowledge increment and use.

Ahmedi (2022) recently conducted research in Albania, Kosovo, and North Macedonia and identified three learning patterns across three groups of students. These

patterns were the active MD/AD with all strategies and knowledge construction, the passive with orientations and conceptions, and the RD/UD with ambivalent orientation, lack of regulation, and elements of certificate orientation and memory processing. Results showed a high correlation between the passive pattern and active MD/AD. A small but significant relationship between active MD/AD and RD/UD indicates the need for a more detailed, person-focused analysis.

Asia

In Asia's diverse educational landscapes, the ILS has shed light on unique learning patterns, utterly contrasting those typically seen in Western contexts.

Law and Meyer's (2011) study in Hong Kong, involving 1,572 students from six post-secondary institutions, not only affirmed the applicability of the ILS in Asian settings but also deepened the understanding of how students perceive their learning environments. A key takeaway was the negligible influence of age on preferences for learning patterns like deep processing, challenging traditional views on the role of age in learning. This research also reevaluated gender-based assumptions in learning patterns. It discovered that, unlike previous beliefs, reproduction learning was not a predominant pattern among female students. Instead, passive learning was more characteristic of female students, while male students showed a propensity for active learning strategies. This nuanced finding pushes beyond the usual categorization into deep and surface learning approaches. The study also revealed that academic success was more closely linked to students' previous educational backgrounds than to age or gender, underscoring the significant role of prior learning experiences. It questioned the notion that a deep learning approach automatically correlates with higher academic achievement.

In China, Song and Vermunt (2021) compared the configurations of learning patterns among secondary, high school, and college students. Results revealed the college students had three configurations, which differed from the other two groups. The first pattern was dominated by a set of scales of cognitive processing strategies and regulation strategies, interpreted as *action-directed* learning, as it contains only strategies that needed to put learning into effect. The second pattern exhibited high loadings of learning conceptions and the third pattern captured high loadings of learning orientations. These two patterns have been reported in previous studies and were interpreted as *passive-idealistic* and *passive-motivated patterns*, respectively

In Indonesia, Ajisuksmo and Vermunt (1999) explored the learning patterns of 888 students from diverse academic fields. Their findings, which did not segregate the disciplines, unveiled four dominant learning factors. These patterns, a mix of active learning, memorization, rehearsal, and external regulation, differed markedly from those found in Western studies, mirroring the nuanced learning conceptions of Chinese students, where memorizing and understanding were not seen as contradictory. A clear passive- idealistic pattern was found though, proposing that Chinese students could struggle to find their own conception of learning in a new academic context and may not have clear mental models of learning and strong study motives.

In Sri Lanka, Marambe et al. (2007) examined the learning patterns of first-year medical students, validating the ILS in this new context. They discovered a preference for deep processing strategies alongside an unexpected simultaneous use of memorizing and rehearsing strategies. The study noted no significant differences in learning conceptions among Sri Lankan students, reflecting a strong personal investment in their studies.

Expanding on this, Marambe et al. (2012) conducted a cross-cultural study comparing learning patterns in Indonesia, Sri Lanka, and the Netherlands. They observed that Sri Lankan students scored lower in critical processing and memorizing but higher in concrete processing, self-regulation, and lack of regulation than Dutch students. Regarding learning conceptions, Sri Lankan students had a more constructionist view of learning and were more self-test-oriented, vocation-oriented, and ambivalent in their learning orientations than their Dutch counterparts. Significant differences emerged in eight scales comparing Sri Lankan and Indonesian students, with Sri Lankan students favoring relating and structuring strategies and Indonesian students leaning more towards memorizing and rehearsing. In their learning orientations, Sri Lankan students were less certificate-oriented, self-test-oriented, and vocation-oriented than Indonesian students. In the conceptions of learning scales, Indonesian students scored higher in the intake of knowledge and use of knowledge, whereas Sri Lankans endorsed stimulating education more significantly.

An important conclusion about studies on learning patterns in this region is that, unlike Dutch studies, these Asian studies did not exhibit a distinct AD pattern. Instead, one identified factor was predominantly shaped by learning conceptions, resulting in a *passive-idealistic* learning pattern.

In Turkey, Kalaca and Gulpinar (2011) studied the learning styles of 532 medical students at Marmara University utilizing the shortened Turkish version of the ILS. This instrument helped gather insights into the students' learning conceptions, study motives, regulation strategies, and processing strategies. The reliability of the scales, as indicated by alpha coefficients, was found to be respectable for processing strategies, regulation strategies, and mental models of learning, though it was somewhat lower for learning orientation scales. While the Turkish version of the ILS identified four learning patterns, it did not support the common finding of factors with high loadings across at least three learning components. This

discrepancy is known as *dissonance* in learning patterns, highlighting a divergence from established patterns. The study's findings were particularly notable in revealing low scores in external regulation and personal interest. The authors suggested that this might be attributed to issues in the translation of the instrument and, perhaps more significantly, to *sociocultural factors*. They proposed that the paternalistic approach prevalent in Turkish families and schools could be influencing these learning styles, indicating a more profound interplay between culture and learning approaches.

Topal et al. (2015) examined how students' learning patterns affect their adaption to the learning environment. Two questionnaires, problem-based program evaluation, and the ILS, respectively, were administered to a sample of 317 medical students at the University of Marmara. Data revealed that personally interested students who needed external regulation strategies and used stepwise processing were less satisfied with problem-based learning and other active learning methods than students who were less reliant on these learning styles. Hence, the former students did not benefit much from the content and obtained knowledge and abilities of problem-based learning. Students with certain learning patterns, such as a need for external regulation and a stepwise approach, may find it challenging to adapt to active learning environments like problem-based learning. Finally, the study suggest that students' learning patterns significantly influence their adaptation to different learning environments

Ibero-America

Multiple studies have examined learning patterns in Spain, Portugal, and Latin America. Interest in this perspective in this region has started since the 2000s (De Lima et al., 2006). The noted work of Martínez-Fernández and his colleagues (2009) in translating and adapting the ILS in Spanish has increased interest in Vermunt's perspective, sparking a more

comprehensive regional investigation and discussion. Therefore, the research on learning patterns in this region is widespread and keeps growing.

De Lima et al. (2006) focused on medical students at the University of Buenos Aires, Argentina, analyzing learning patterns about gender, previous experience, academic performance, and type of previous educational institution. They found that Argentinian medical students primarily used *application-directed* learning, with previous experience as a teaching assistant influencing undirected learning. Interestingly, students with lower university grades tended to adopt more *reproduction-directed* learning strategies.

Similarly, Vázquez (2009) validated the ILS among engineering students in Argentina. The study confirmed the presence of four learning patterns and highlighted the influence of age, gender, and secondary education on students' learning patterns, with deep processing strategies linked to better academic performance.

Rocha and Ventura (2011) explored Portuguese students' learning patterns and found no significant gender or age correlations. However, they noted discipline-specific trends: Biotechnology students often used *reproduction-directed* learning, while Humanities students preferred *meaning-directed* learning, and Business and Economics students showed the use of both patterns.

Martínez-Fernández & García-Ravidá (2012) examined the learning patterns of teacher education students at a Spanish University. The findings did not replicate Vermunt's learning patterns, suggesting a possible hypothesis based on cultural reasons in the territory of Latin America. Thus, an MD pattern with external regulation is identified, a *passive pattern* based only on beliefs and motivations, an RD/UD pattern, and the grades orientation sub-scales are isolated. In addition, they found significant relationships between age and

reproduction and *certificate orientations*, with female students scoring higher in beliefs and learning orientations.

Similarly, in a later study, Martínez-Fernández et al. (2019) delve into the relationship between learning patterns, associated factors, and academic performance in 115 Colombian first-year university students. They underscore the pressing need to critically examine the Vermunt model in various contexts to provide evidence for a more robust, inclusive model. The results reveal a structure of four learning patterns consisting of different factor combinations according to Vermunt: MD combined with external regulation, the *passive-idealistic pattern*, a *passive-motivated* pattern, and an RD with a lack of regulation pattern. The relationship between learning patterns and the different factors was not supported. However, they offer an intriguing explanation of academic performance from the self-regulation and external regulation perspective. The study findings call for a more inclusive model, which is not just a suggestion but a crucial step towards a more comprehensive understanding of learning patterns.

Beyond investigating Vermunt's perspective of learning patterns in various contexts, a meta-analysis from a cross-cultural perspective is necessary to comprehend the validity of the model. Special attention must be given to comprehensive studies that provide deep insights into this perspective. Studies using Vermunt's learning patterns framework have shown significant findings across various cultural settings, as previously discussed. It is particularly important to focus on those studies that investigate and compare learning patterns in cross-cultural contexts, offering insightful meta-analyses on the conceptualization of learning patterns, their dimensionality and configurations, development, and consistency throughout school years.

Cross-cultural studies

Vermunt and Vermetten (2004), in their review paper of research on learning patterns, analyze, summarize, and provide insights on the perspective based on previous studies. The authors explain that the model, generally, has a good internal consistency for learners in higher education. Learning strategies, conceptions, and orientations link stronger as learners advance in their school years. As the authors explain, this finding of various studies might be due to the *development hypothesis*. As students' progress within their education, the constructs become clearer. Despite this, in some cases, specifically when students move from one type of education to another (for example, from secondary to tertiary education), a clear factor structure of the patterns is not found. The results might be explained with the *context hypothesis*. The "friction" period (Vermunt & Verloop, 1999, p. 270), during which students understand that their existing ways of learning might no longer work in the new setting, creates a need to adapt, suggesting that the context influences the learning patterns. For some other students, the interrelations between learning conceptions, learning motives, and learning processes are not found. *Dissonance* might be an explanation for such results. It comprehends incompatible combinations of motives, strategies, regulation mechanisms, and contextual perceptions (Meyer, 2000).

Turning to learning pattern configurations, the authors' analysis underscores that their depiction is context dependent. For instance, *reproduction* learning is more prevalent among students who perceive the learning environment as stressful and less conducive to active participation. In contrast, *meaning-directed learning* is shared among students who establish connections with the study topics and view the environment as student-oriented. In terms of learning patterns and outcomes, the authors' conclusions are particularly noteworthy. They find that learning patterns account for a significant variance in exam grades, ranging from 22% to 25%. *Meaning-directed* patterns show a positive correlation with student grades, in

contrast to *reproduction-directed patterns.* Application-directed learning, on the other hand, shows a weak relationship with exam results. The *undirected pattern* consistently and negatively correlates with exam results. Finally, Vermunt and Vermetten (2004) underscore that the model of learning patterns holds increased value in addressing teaching issues in higher education. They advocate for further research that integrates affective and social components into the model, suggesting a third generation of conceptualizations of student learning.

Eaves (2009) investigated differences in learning patterns among Thai students in the UK, Thailand, and their European counterparts. The study employed a mixed methods design, where the ILS was used for the quantitative data in addition to qualitative methods such as interviews and open-ended questionnaires. The findings indicate significant differences in learning patterns between the three groups, particularly in *meaning-directed* and *undirected learning*. Thai students in England showed a lesser inclination towards meaning-directed learning and a higher tendency towards reproduction-directed learning than their European peers.

Vermunt, Bronkhorst, and Martínez-Fernández (2014) conducted a comprehensive meta-analysis that explored cultural differences in learning patterns. They examined the results of five research studies involving 3,855 students from various countries, including Hong Kong, Indonesia, Sri Lanka, the Netherlands, Spain, Colombia, Mexico, and Venezuela. The meta-analysis revealed distinct dimensions of learning patterns. The total variance explained by four factors was relatively consistent across samples, ranging from 52.5% in Sri Lanka to 66.6% in Mexico. The first dimension identified is a *meaning-directed* pattern, characterized by scales related to processing and regulation strategies, such as relating and structuring, critical processing, concrete processing, and self-regulation, which load on the first factor in all samples. Notably, unlike other groups, the Dutch sample does

not include an analysis strategy for this factor. The second dimension observed is a *passive-idealistic* pattern, grouping all conceptions of learning on a single factor in most samples, indicating a focus on learning ideas without associated activities. This pattern was less evident in the Dutch sample. The third dimension is a *reproduction-directed* pattern, characterized by high loadings of memorizing, rehearsing, external regulation, intake of knowledge, and certificate orientation. This pattern appears prominently in Indonesian, Sri Lankan, Dutch, and Spanish samples, with a 'plain' version in Colombian, Hong Kong, and Venezuelan samples, lacking some components. The fourth dimension is an *undirected* pattern, identified by high loadings of lack of regulation and ambivalent learning orientation, seen in Mexican, Dutch, Hong Kong, Sri Lankan, Indonesian, and Venezuelan samples but associated with different aspects across countries. An *application-directed* pattern, previously identified in Dutch and Finnish students, was only evident in the Dutch sample here. Lastly, a grouping of learning orientations into a *passive-motivated* pattern was observed, particularly clear in Colombian, Indonesian, and Sri Lankan samples, where learning orientations load together on a single factor without other learning components. This comprehensive analysis underscores the cultural variability and complexity in student learning patterns, highlighting the need for culturally responsive educational strategies, a suggestion that was further explored by Martínez-Fernández and Vermunt in 2015.

Vermunt and Donche (2017) extended review pointed out some universal and context related findings of the research of learning patterns since the 2004. The studies conducting meta-analyses indicate that MD, RD, and UD learning patterns are common globally, but their specific characteristics can differ by context. The longitudinal studies show that learning patterns can develop over time, influenced by changes in the learning environment. However, these developments are not always linear, with significant changes often occurring during transitions, such as from secondary to higher education. Moreover, the review underscores

that learning patterns are influenced by an array of personal factors, suggesting that while there is a degree of stability in learning patterns, they are also subject to change and evolution. This finding paves the way for further exploration into the influence of social and emotional learning on learning patterns and outcomes, advocating for continued research within Vermunt's model, especially to understand cultural variations in learning strategies, thereby reinforcing the "context hypothesis" (Vermetten et al., 2001).

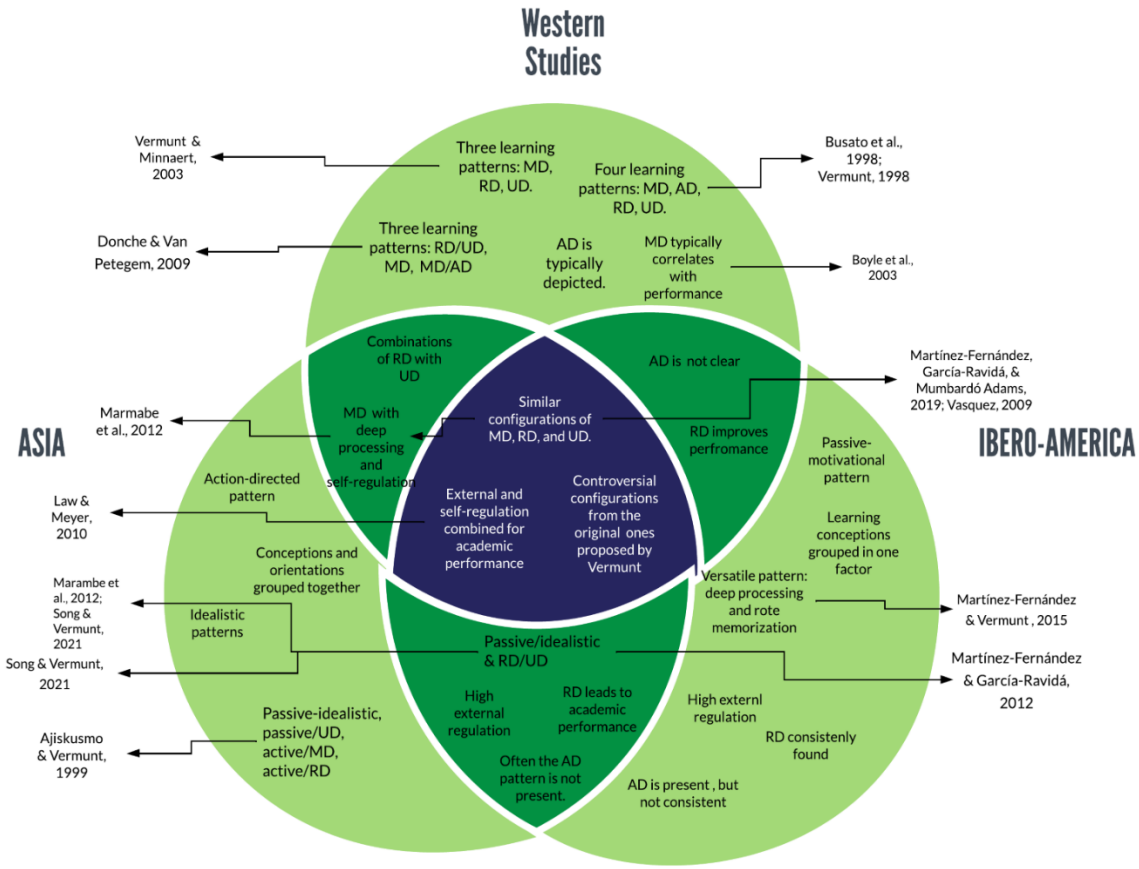
The dissertation of Ciraso-Calí (2023) provides valuable insights into the model of learning patterns and, specifically, of the ILS instrument. In her work, Ciraso-Calí (2023) conducts a meta-analysis reflecting on the cross-cultural validity of the learning patterns model based on 46 studies across various regions. In line with previous findings, the author notes that different configurations of learning patterns were found between Asian, European, and studies in Latin America. These differences are attributed to various factors, including context-specific factors. As for the configurations, the typical meaning-directed, reproduction-directed, and undirected patterns are found. In addition, passive-idealistic and passive-motivational patterns are depicted as well. However, there are considerable variations of these patterns. These variations have significant implications for educational research and practice. For instance, studies in Indonesia, Sri Lanka, and China revealed that local students often exhibit a blend of MD and RD patterns, with varying degrees of external regulation and vocational orientation. This suggests that a one-size-fits-all approach to education may not be effective in these contexts. Research in countries like Argentina, Colombia, and Mexico shows a prevalence of concrete processing strategies and significant variation in learning orientations and strategies depending on the educational context. Similar patterns to those found in the original Dutch studies were observed in countries like Turkey and the Czech Republic, with some regional adaptations. Finally, the author suggests that investigators should consider cultural and contextual factors when applying Vermunt's

learning patterns model. She calls for a nuanced approach to educational research and practice, recognizing the diverse ways in which students engage with learning across different regions.

As observed, research on Vermunt's perspective on learning patterns is extensive and has increased over the last two decades. Geographically, findings often vary from one region to another; however, some common tendencies are evident. Figure 5 presents research conclusions on learning patterns in Western, Asian, and Ibero-American studies, along with findings from meta-analyses.

Figure 5

Research on Learning Patterns: Common Findings and Differences across Regions



Research confirms the interrelations between cognitive processing, regulation strategies, learning conceptions, and learning motivations. Studies from various cultural contexts support these findings, highlighting both *universal* and *context-specific* patterns. Typically, four configurations of learning patterns—MD, AD, RD, and UD—are depicted in Western studies. These configurations are quite like the original studies of Vermunt (Vermunt, 1998). Variations of MD, RD, and UD patterns are found in Asia and Ibero-America. Commonly, MD is combined with external regulation, or MD and RD subscales are combined to create active patterns (i.e., MD active, RD active). European studies frequently identified an AD pattern characterized by concrete processing and vocational orientation. This pattern was less distinct in Asian studies, where it was often merged with other learning orientation. Instead of AD, in Asian studies, it is common to see configurations that are considered passive (i.e., passive, passive-idealistic, and passive-motivational). The UD pattern is never found in its original form. However, its configurations typically include ambivalent learning and lack of regulation. High external regulation is commonly seen among students in Asia and Ibero-America, as opposed to self-regulation used by their counterparts in Europe. Regarding the development of patterns throughout study years, there is no clear evidence that students tend to shift from a surface approach to learning to a deep approach in their later years. However, it is noted that in the first year of studies, unclear patterns might appear due to the "friction" period. As for the relationship with academic performance, learning patterns predict academic performance, with MD learning generally showing positive correlations, mainly in Western studies, and UD learning negative ones. RD pattern is found to correlate to academic performance in Asian studies suggesting that relationships between learning patterns and performance can vary by the cultural context.

To conclude this review, the critical paper by Hederich-Martínez and Camargo-Uribe (2019) on Vermunt's learning patterns provides valuable insights. The authors acknowledge

that the perspective provides a comprehensive understanding of the ways students approach learning. It emphasizes the dynamic nature of learning, and the ILS is a well-developed, structured instrument. However, the model, designed for a European educational setting, provides a sense of Eurocentric bias. The authors strongly advocate for adapting the model to the cultural setting, emphasizing the importance of this step in avoiding cultural biases. Moreover, some constructs, such as the UD pattern and some subscales (i.e., "cooperative learning" and "ambivalent learning"), are not clear and often overlap with other constructs, reducing the clarity of the instrument. A redefinition of scales and subscales of the ILS can be helpful in this regard.

Finally, these studies collectively indicate that learning context, specifically teaching methods, student characteristics, and the educational stage, influence learning patterns. They not only provide varied results regarding the impact of learning patterns on academic outcomes but also challenge the classical configuration of four learning patterns proposed by Vermunt (1998). From this review, done to the best of our skills, we observe that the learning patterns perspective has increasingly been used in research to address learning issues for students in various regions. However, there is one region that remains quite understudied: the Arab region.

Arab Region

The research on variations of the ILS and relevant findings on Vermunt's framework in Arab countries or Muslim cultures is scarce. This fact is supported by a comprehensive review of learning style instruments used in Arab countries, conducted by Yousef (2021). The review focused on measuring higher education students' learning styles. This study, the first of its kind, sought to identify the most common instruments and assess their reliability and validity within Arab contexts. The study found that there are few relevant studies on the learning styles of students in higher education. These studies were published between 2012 and 2016

and primarily used samples from Saudi Arabia, the United Arab Emirates, and Iraq. The ILS was found to be used only in one research, including Qatari students. This study merits a closer look as Qatar is very similar to Kuwait, culturally and contextually.

Lemke-Westcott and Johnson (2012) delved into the learning styles of Qatari students at a Canadian college in Doha, examining their processing strategies, regulation strategies, learning conceptions, and orientations. When it came to processing strategies, stepwise processing, particularly memorization, was notably prevalent among all students. Yet, those in their final year showed a greater tendency towards deep processing and were more adept at concrete processing of material for practical use.

In terms of regulation strategies, self-regulation emerged as a dominant theme. Interestingly, compared to newcomers, older students scored lower in external regulation, highlighting a shift towards self-directed learning over time. A general sense of control in learning was evident, as indicated by low scores in lack of regulation, meaning that students generally felt in command of their learning process. The study also shed light on students' motives and orientations for studying. Vocation and self-testing emerged as the primary drivers, with a notably low score in ambivalent motivation. This lack of ambivalence, particularly evident in those pursuing nursing degrees, implies a clear sense of purpose and direction in their university education.

As for learning conceptions, using knowledge stood out as a key aspect, along with a high score for intake of knowledge and an expectation for education to be stimulating, largely driven by the teacher’s role. Students valued the practical application of knowledge in class, expecting an engaging and stimulating educational experience from their instructors.

One interesting study about the validity of the ILS was conducted among medical students at King Abdulaziz Medical City in Riyadh (Al-Kadri, 2008). The author used the

quantitative method and semi-structured interviews with students to retain information and feedback on the applicability of the ILS. The results showed that the ILS was considered time-consuming to students and overlapping as different terminologies were used for same meanings. The interviews concluded that the inventory must be revised, and cultural variations and emotional aspects of learning must be considered.

Lastly, these findings highlight the need for more comprehensive research in the Gulf region to better understand and address students' unique learning patterns and educational needs in these contexts.

Chapter 3: Student Engagement

> *"Engagement is a wicked problem" that leaves the construct as ill-defined and grounded in conflicting perspectives unlikely to lead to tidy, generic or permanent solutions. This is a strength, not a problem."*
>
> — **Nick Zepke,** *Student engagement research: continuity and emergence, 2019*

3.1. Introduction

Engagement is an "ebb and flow trendy expression" (Dang & Koedinger, 2020, p.61) in higher education, much of the time explored, guessed, and talked about with developing proof of its noteworthy job in students' learning and achievement. It refers to the "quality of effort that students devote in educationally activities that contributes directly to desired outcomes" (Hu & Kuh, 2002, p. 555). It is a complex construct, which identifies what "students do, think, and feel when learning" (Zepke, 2017, p. 433). Student engagement concept comes with different labels: for example, "student engagement in academic work" (Marks, 2000), "academic engagement" (Libby, 2004), "school engagement" (Fredericks et al., 2004), "engagement in schoolwork" (National Research Council, 2004), "engagement" (Russell et al., 2005), to name but a few. All these terms point to the "exertion, interest, and time that students invest in meaningful educational practices" (Kuh, 2003, p. 446).

The early theoretical framework of Finn (1989), Connell (1990; Connell & Wellborn, 1991), and McPartland (1994) are the empirical foundations of the student engagement research. These frameworks not only shaped the research on student engagement, but also the

informed interventions for school dropouts such as “Works Clearinghouse” (Dynarski & Gleason, 2002) and “Check and Connect” (Christenson & Reschly, 2012). The former revealed that engagement cannot be legislated by the laws of the educational system and is influenced by students' perspectives and experiences, which, on the other hand, are not stable but dynamic and alterable. Student engagement was found to be affected by students' academic skills and beliefs, students' future postsecondary goals, academic and family support, and school climate (i.e., teachers, peers, and school regulations). Furthermore, the experience of “Check and Connect” on school dropout intervention, revealed that engagement was a construct that could be shaped by intervening variables such as relationships enhancing students' a sense of connection toward school and learning in general (Christenson & Reschly, 2010). Besides being affected, student engagement itself impacts students' outcomes, both proximal (i.e., academic, social, and emotional) and distal (i.e., graduation) (Christenson & Reschly, 2010).

As we explore the literature on student engagement, it becomes clear that it is a mixed bag that contains variations in its dimensionality and contextuality. These variations add more to the understanding of the relationship of student engagement with academic achievement. Below, we will provide an overview of the dimensionality of student engagement, stressing its multifaceted nature and examining how its various components interplay within the educational context.

3.2. Components of Student Engagement

More commonly, engagement is described as a model having two to three dimensions. Two-dimensional models of engagement include *a behavioral* (e.g., attendance, classroom participation) and an *emotional* (e.g., feelings of belonging, relationships with peers and teachers) subtypes as both essential for understanding engagement (Finn, 1989; Willms, 2003). Further studies include a *cognitive* (e.g., self-regulation and learning goals) subtype as

the third component of engagement (Fredericks et al., 2004). Reschly and Christenson (2006) proposed a more complex taxonomy of engagement wherein the *academic* component (e.g., time on task, credits earned, and schoolwork completion) was added to previous definitions, proposing four components perspective. This taxonomy was a result of both a systematic review of the existing literature on engagement (specifically Fredericks et al., 2004) and the analysis of qualitative comments of secondary students during 13 years of Check and Connect intervention (Sinclair et al., 2014) will later be a referring model for investigating engagement in higher education.

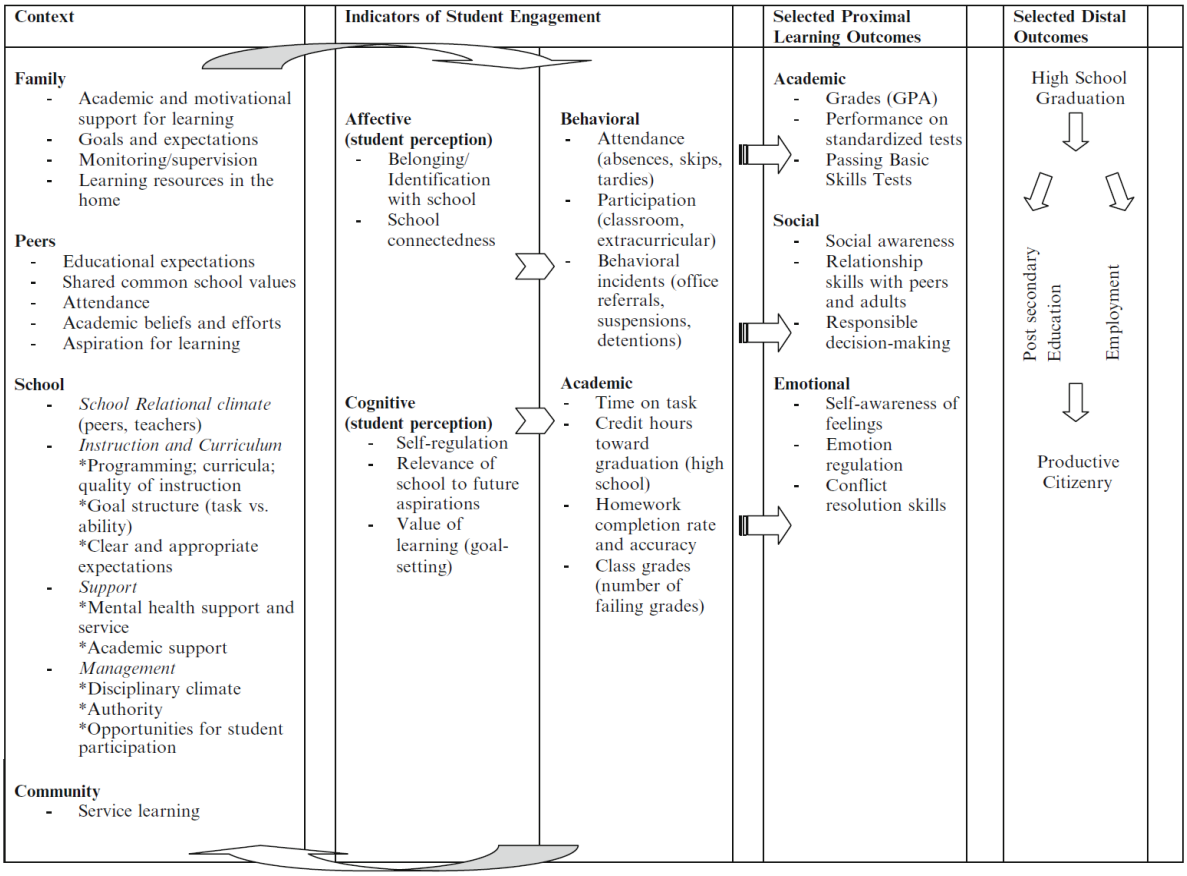
To the understanding of Appleton and colleagues (2006, 2008; Betts et al., 2010) the student engagement model is very complex and dynamic at the same time. The four dimensions of engagement—emotional, cognitive, behavioral, and academic—are changeable and context-dependent. Various factors of the student-learning context shape engagement. *Family* related factors include academic and motivational support for students learning as well as the monitoring and supervision through learning. *Peer* related factors include learning expectations, shared values with peers, and aspirations for learning and academic beliefs for learning. *School* related factors encompass the school climate (for example relationship with peers and teachers), structure of teaching and clear instructions and expectations along with the rules, the presence of authority and support for mental health.

Student engagement beside being shaped by the contextual-related factors, it impacts students' outcomes including grades, GPA, passing tests, skills, etc. Engagement shapes students' social outcomes such as relationship skills, decision-making and social awareness. It links to emotional competences of young learners (Santos et al., 2023). Emotional awareness, self-awareness, and conflict management as well are affected (Khan et al., 2023). To a more distal degree, student engagement impacts graduation, involvement in higher education, which will have a significant role on employment and, to a wide point of view,

will benefit a productive citizenry (Figure 6). Therefore, an engaged student is not only a high-performing student but also a young citizen who is more likely to contribute positively to society, demonstrate civic responsibility, and sustain personal and professional growth throughout their life.

Figure 6

Model of Associations between Context, Engagement, and Student Outcomes



Note: Retrieved from Reschly & Christensen, 2012: p.10.

From this perspective, the dimensions of student engagement are interrelated and affect each other. Specifically, *emotional and cognitive engagement*, which themselves are inherent and non-directly observable, impact *behavioral and academic engagement*, directly observable and measurable (Reschly & Christenson, 2006). Simply put, engaging or

disengaging students cognitively and emotionally precedes changes in student's behavior and academic engagement. Therefore, it is inherent to the model that the student perspective is crucial for change in learning and behavior. That said, what needs to be investigated is precisely the student's *emotional and cognitive engagement* from their point of view and through self-reporting, upon which the current thesis has been built.

But the question emerges: What exactly does *emotional and cognitive engagement* exactly mean?

Emotional engagement

Emotional engagement refers to the emotive connection's students have with the school. It includes "students' sense of belonging, identification with the school, and a sense of being connected" (Appleton et al., 2008, p. 376). School connectedness has long been researched as a core factor of student motivation and engagement in educational activities. Sometimes known as "the belongingness hypothesis," emotional engagement understates two main requirements for psychological wellbeing: one is the need for frequent, emotionally positive interactions with peers and individuals who share the same interests, and secondly, these interactions must happen within a context of long-term, stable care, and concern (Braumeister & Leary, 1995). The need to belong becomes the fundamental requirement for human motivation. In the context of the educational environment, students need to have a sense of attachment to be engaged. Due to this importance, emotional engagement has often been seen as the core of overall student engagement because it arouses the motivation to perform positive behaviors that lead to desired outcomes at school.

In education, the complexity of emotional engagement overlaps with other concepts (i.e., trust) and other facets of engagement itself (i.e., cognitive engagement). Therefore, it is essential to scrutinize the meaning of these concepts.

Emotional is an adjective that refers to feelings and emotions. It means that something is connected and influenced by emotions arising from circumstances, moods, and relationships. Engagement, instead, refers to being engaged and actively involved in a specific task. It implies participation, involvement, and commitment to the process of learning. Together, emotional engagement becomes feelings and emotions that produce engagement in a task or activity. In other words, students' emotional engagement involves how they feel at school (Finn & Rock, 1997). Actions and interactions, intentionally or unintentionally, caused by others (e.g., teachers, peers, and school climate) that produce positive feelings in students can be seen as promoters of emotional engagement.

Naturally, students' feelings at school can be positive and negative and point toward academic and social factors at school (Zhang, 2020). The emotional reactions might range from satisfaction and joy to boredom, frustration, and anxiety and can be reflected in various settings (e.g., group work and certain subjects) or with specific people (e.g., teachers and peers). When students report high positive feelings, their emotional engagement is high as well, which, on the other hand, will produce higher positive behaviors. For example, feeling physically and emotionally safe at school reflects a broader aspect of the school climate and, in turn, pushes students to a better engagement (Cohen, 2007). On the other hand, when students report negative feelings at school, such as anxiety, a downward relationship is found between anxiety and engagement across the years of study (Archambault et al., 2022).

As a "belongingness hypothesis," at the core of emotional engagement stand relationships of students with different actors in and out of the school. The relationship with *teachers* is one crucial factor of emotional engagement if not a determinant. In their review "Seven Principles for Good Practice in Undergraduate Education," Chickering and Gamson (2006) believe that "student-faculty contact in and out of classes is the most important factor in student motivation and involvement" (p.1). In the same way, Pascarella

and Terenzini (2005) found that students with frequent interactions and contact with faculty members tend to perform better academically, diminishing the negative impact of their pre-enrollment characteristics (e.g., high school GPA and school achievement score). The interactions and relationships of students with their teachers, in the form of caring and supportive alliances, predict student engagement in study activities (Murray & Greenberg, 2000). Warmth in the interaction between students and teachers is linked to students' positive self-perceptions, which increase a sense of calm and content while being at school (Skinner & Belmont, 1993).

Peer relationships are an important factor in emotional engagement as well. Supportive peer interactions foster emotional engagement, mainly by developing a sense of connectedness with the school (Allen et al., 2018). Indirectly, the sense of being connected and belonging to a group increases students' wellbeing and satisfaction while being at school. Students who are perceived to have peer support tend to have positive self-esteem as well (Rodríguez-Fernández et al., 2016) and increased positive emotions and engagement (Weyns et al., 2018).

Additionally, *family support* plays a role in students' sense of belonging and feelings towards school (Appleton et al., 2008). Students are more likely to show increased engagement when they feel their families are supportive and invested in their education. Estell and Perdue (2013) found that family support primarily boosts students' behavioral participation in school. In another study, Wang and Eccles (2013) found family support to surpass teacher support in fostering a sense of connectedness and engagement among adolescent students. Indeed, family support not only can bridge the gap between students' abilities at school, but also can boost their dedication to education. Moreover, as the primary environment for a student's initial socialization, the family plays a vital role in their engagement in educational learning.

Lastly, emotional engagement is deeply affected by the *school climate*, which shows the overall school character. It reflects students' thoughts, feelings, and descriptions of their school experience (Wang & Degol, 2016). Values, norms, and social interaction within the school shape the school climate. Positive attributes given to school climate, such as a safe and respectful environment, strengthen the sense of connectedness with the school (Cohen et al., 2009). Konold et al. (2018) have found positive relationships between the school climate and student engagement, indicating that as a positive perception of the school climate increases, student engagement increases as well. On the other hand, negatively perceived school climate, such as stress, decreased the chances of engagement.

Cognitive engagement

Compared to emotional engagement, cognitive engagement is even more challenging to determine and define, as it is a "covert" type in which many internal processes are activated while approaching learning. However, the definition by Reschly et al., 2014 as "cognitive engagement being students' investment in learning, in values given to learning, directing efforts towards learning, and using learning strategies to understand the material, accomplish tasks, achieve results, and master skills", is the one we approach for this research. From this conceptualization, cognitive engagement is both motivations to learn and the extent to which the students act to regulate their learning.

Motivated students try to learn and become more adept at school. Moreover, they tend to put goals related to learning more than goals related to performance. They do value mastering tasks and gaining skills from learning. Motivated students choose challenges and persist despite difficulties, value and prioritize learning, and put effort while learning, not only in terms of completing tasks and assignments (behavioral effort) but also in the sense of learning and mastering the content (cognitive effort) (Gul et al., 2021).

What does a cognitively engaged student look like? Indeed, cognitive engagement shows investment and motivation to learn. Motivated students value learning in general, explicitly learning tasks or projects. They use words like "I want to…" to engage in a specific task, show enthusiasm, and seem to enjoy it. They show *self-efficacy* by believing they have enough skills to succeed. They set goals that are mostly mastery and tend to attribute their success to things under their control, such as effort and the strategy used. Cognitively engaged students invest time in their learning; they are willing to sacrifice other activities to complete tasks, invest time in them, persist, and go above and beyond the task.

Cognitive engagement is also displayed in the use of *metacognitive strategies* to regulate one's learning. This can be seen in the use of self-evaluation in completing tasks. For instance, cognitively engaged students might use strategies such as setting a timer to manage their time effectively, or creating a checklist to ensure they have all the necessary resources *for a* task. These students can also set short- and long-term goals, chunk big learning tasks into small ones, create an action plan, make a to-do list, and evaluate what strategies will help them reach the goals set.

Understanding what constructs cognitive engagement one thing is, but it is equally important to consider the factors that intervene and affect it, particularly for implications and intervention practices. The classroom goal structure, teachers' expectations for their students, peer valuing of learning, family expectations, and student support are among these factors. Importantly, these factors extend far beyond the learning context, and each can serve as a potential intervention goal. This underscores the critical role of intervention practices in fostering cognitive engagement, highlighting the need for proactive and targeted approaches in educational settings.

Lastly, *emotional* and *cognitive engagement* are not independent of each other. As noticed while describing these components, words such as “emotion,” “enjoyment,” and “satisfaction” are often used for both types. For example, research agrees, “cognitively engaged students, tend to enjoy learning and have positive feelings towards learning tasks” (Kuh et al., 2008). As Manwaring and colleagues (2017) found in his systematic review of the literature, self-regulation and cognitive engagement are directly influenced by emotions students’ experience. Negative emotions such as anxiety and boredom lead to less cognitive engagement. Positive and activating emotions lead to more and higher quality cognitive engagement. Thus, the dominance of one type of engagement in a learner does not imply the absence or scarcity of the other; rather, it indicates a dynamic interplay where emotional states can significantly bolster or hinder cognitive efforts. This suggests the need for educational interventions that address emotional states to enhance cognitive engagement (Pekrun & Linnenbrink-Garcia, 2012).

3.3. Student Engagement and Academic Performance

Student engagement in pre-tertiary classrooms has been linked to desirable outcomes such as achievement (Ayub et al., 2017; Heng, 2014), and the importance of engagement in learning is no longer questionable (Khan et al., 2023). However, in higher education, the matter becomes complicated as adult learners bring additional factors to their learning, which can diminish the sole impact of engagement.

Although the body of research on student engagement and performance has significantly expanded and it has been around for approximately three decades, there is still a need to clarify the nature and role of engagement in performance for adult learners. Reschly and Christenson (2012) point out that student engagement role in achievement of the higher education student is still ‘fuzzy’. This fuzziness mainly comes from the fact that this is a new

area of study. It pulls together ideas from different fields like engagement (e.g., Finn, 1989) and motivation (e.g., Skinner et al., 2008) and overlaps with the research from psychology.

Mostly research has found that engagement is crucial and important for academic performance. For example, Grier-Reed et al. (2012) discovered that emotional engagement significantly predicts first-year students' academic performance. Utilizing the engagement model of Appleton and colleagues (2006), they found that relationships with teachers and peers, which are the core of emotional engagement, play a predictive role in GPA. Another study indicated that peer support was a controlling factor for students' career decisions and self-efficacy, highlighting its importance during the college adjustment process (Wentzel, 2012). However, students' relationships, specifically with peers, did not impact academic outcomes for Cambodian students (Heng, 2013). For Mexican students, the relationship with professors moderately predicted their GPA (Weiss & Garcia, 2015). Moreover, the sense of connectedness, an emotional facet of engagement, was found to predict a higher GPA over time among American students (Lee & Lerner, 2011). These results are supported by a comparative study of engagement among international and American students, which revealed that those enrolled in a supportive campus with quality relationships and a sense of belonging tend to perform better academically (Korobova & Starobin, 2015).

For students in Iran, the impact of the overall engagement in the GPAs was investigated and a predicting role was found across years of study (Hassaskhah et al., 2013). The emotional engagement was more prominent in the second year of studies, which is the best time to test its role. This result is backed up by Gonyea (2006), suggesting that the first year of college is too soon to investigate engagement and outcomes.

More than just predicting performance, *emotional engagement* has a more significant role in students' well-being, transformative learning, and happiness (Bowden et al., 2021).

Feeling connected to the institution and having support increases students' self-esteem and self-efficacy. Therefore, the role of emotional aspects is more profound in that it influences performance indirectly through other aspects of engagement (i.e., cognitive and behavioral engagement).

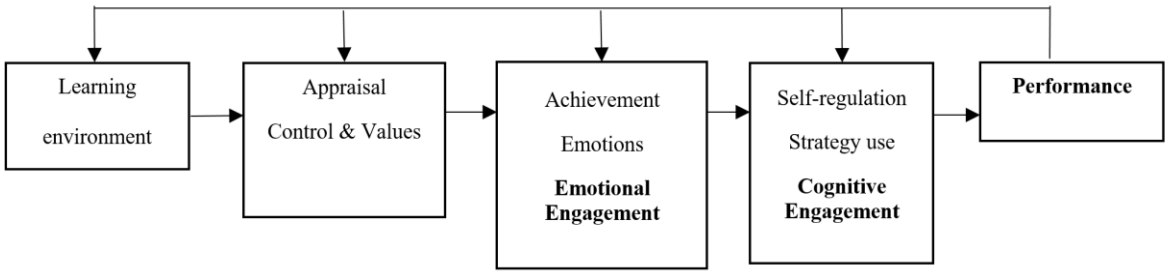
Similar to emotional engagement, the cognitive type has consistently been shown to play a crucial role in students' academic success (Greene, 2015; Khan et al., 2023). Its importance is so well-recognized that many studies have even suggested using cognitive-behavioral therapies to enhance students' cognitive abilities, aiming to boost their academic achievements (Wara et al., 2018). There is strong evidence that cognitive engagement significantly influences students' GPA (Robb, 2014; Rodriguez & Boutakidis, 2013). For instance, students in Iran have shown increasing cognitive engagement throughout their studies, peaking near graduation, which notably affects the GPAs of senior students (Hassaskhah et al., 2012).

However, a deeper understanding of the role of cognitive engagement is needed to see how its components relate to academic achievement. For example, metacognitive components (i.e., *self-regulatory strategies)* play a higher role in predicting performance than *self-efficacy* among Indonesian students (Sesmiyanti, 2018). That was not the case for Iranian students, for whom the perceived *self-efficacy and ability* determined the positive impact of cognitive engagement in their performance (Sedaghat et al., 2011). Students perceived self-efficacy and ability influenced their achievement in an earlier study by Garcia and Pintrich (1994). As for the goal's students had for learning, the same study found that the *performance goals* (meaning goals to outperform others) indirectly affected students' performance, while *learning goals* (meaning mastering skills and knowledge) did not predict performance.

To this complexity, it adds that emotional and cognitive engagement are intertwined when determining their overall impact on performance. As mentioned earlier, the relationship between emotional and cognitive engagement in academic performance is more than just one-way or straightforward. Instead, it is a dynamic, interactive cycle, and the learning environment influences both (Manwaring et al., 2017). Emotional engagement can both fuel and be fueled by cognitive engagement, meaning each can serve as a trigger or result of the other. For instance, self-regulation is boosted by students' emotions in their educational experience. This way, cognitive and emotional engagement will influence performance directly and indirectly. In return, performance will affect students' perceptions of the learning environment and, therefore, their goals and appraisals (Figure 7). Those who perform well tend to be satisfied with the learning and the school and display an increased cognitive engagement.

Figure 7

Student Engagement Cyclical Process (Adapted from Pekrun, 2006)



However, it is important to note that not all findings align. While there is a general agreement that strong engagement enhances academic performance (Trowler, 2010), it is intriguing to see that this is not a universal finding. Doğan (2015) found a moderate link between cognitive engagement and academic performance, and Zepke (2017) suggests that the correlation 'may not always be present and is often weak' (p.4). Christenson and Reschly

(2012), who advocate for more in-depth research to better understand this relationship, further highlight this diversity of perspectives.

That is especially true in the case of certain groups of students. Therefore, further consideration of these disagreements represents an area for future research that matches the current study's scope. Additionally, the current literature on engagement is scarce, particularly regarding Arab students in the Gulf region. Therefore, this study aims to address this gap by exploring how the engagement of Arab students affects their academic achievement and how it influences the relationship between their learning strategies and achievement.

Chapter 4: Learning Patterns and Student Engagement

> *"Basic research is what I'm doing when I don't know what I am doing."*
>
> — **Wernher Von Braun,** *The Mars Project*, 1952

4.1. Unveiling the Unexplored: The Interplay between Learning Patterns and Student Engagement.

In the first part of this chapter, we provided an in-depth overview of students' learning patterns, dimensions, configurations, development, and impact on learning and performance. Learning patterns encompass individual differences in cognitive, metacognitive, and motivational aspects of learning and significantly influence how students acquire and process information (Vermunt & Vermetten, 2004). Configurations of these aspects of learning create learning patterns that provide deep, surface, and strategic learning approaches (Biggs, 1987; Entwistle & McCune, 2004). Understanding these configurations helps educators tailor their teaching methods to suit students' needs better, ultimately enhancing learning outcomes. Furthermore, the review underscores the significant variations in learning pattern configurations across studies, educational contexts, and stages of education. Consequently, the 'preferred' learning pattern for academic performance differs across settings, highlighting the need for a nuanced understanding of learning patterns in the context of learning.

Research on Vermunt's wholesome model shows that certain regulatory and processing strategy combinations are preferred or considered 'desired' for students' learning. For example, students who employ meaning-directed learning tend to have higher academic results on tests than those who employ reproduction-directed learning. That was not the case

in Asia and Ibero-America, as reproductive strategies guarantee outcomes in highly structured learning environments. The use of learning components seems to be both a "context-specific" and an "individual-bond" component (Vermunt & Vermetten, 2004, p.379). As for the relationship between learning patterns and academic performance, it is complicated and opposed to expectations. It is impossible to speak about "desired" or "good" patterns that will guarantee learning outcomes.

The second part delved into the nature of engagement, its emotional and cognitive aspects, and its role in academic performance. Student engagement involves emotional and cognitive dimensions (Fredricks et al., 2004). Emotional engagement pertains to students' feelings about their learning experiences, while cognitive engagement involves the investment in learning and willingness to exert the effort necessary to comprehend complex ideas and master difficult skills (Fredricks et al., 2004; Reeve, 2012). High engagement levels correlate with improved academic performance, as engaged students are more likely to persist in the face of challenges and utilize effective learning strategies (Kahu, 2013). Similar to learning patterns, the exact role of engagement in academic performance is yet to be known.

To our understanding, while the literature on learning patterns and engagement is extensive, both models have issues and question marks regarding their nature, conceptualization, configurations, and relationship with performance. Not to mention that the interplay between these configurations has been largely overlooked in academic research, making this thesis a pioneering quest. For instance, students with deep learning patterns may exhibit higher cognitive engagement due to their intrinsic motivation and interest in the subject matter, yet empirical research examining this relationship needs to be more extensive.

Thus, this thesis underscores the significance of the intersection between these two constructs. Existing studies have focused on learning patterns or engagement in isolation,

neglecting how these elements influence student outcomes (Boekaerts, 2016). By delineating levels of student engagement and their preferred learning patterns, we can potentially devise more effective educational strategies, ones that are tailored to individual students. This prospect of personalized education holds promise for enhancing learning and academic success.

Moreover, learning the patterns students use for their learning does not absolutely indicate their engagement. The question remains: Do these 'certain' preferred learning approaches also imply engagement? There are points of conjunction in conceptualizations from learning pattern to engagement (e.g., metacognitive processing skills are present in cognitive engagement), but does the presence of these strategies guarantee that the student will be actively engaged in learning?

Emotional factors must be investigated alongside the cognitive components of learning. In Vermunt's framework, emotions are a significant aspect. However, it is not enough to assume that a student's possession of all the metacognitive skills of regulation and processing automatically implies emotional involvement in learning. This is a crucial point Vermunt and Vermetten (2004) emphasize in their review, where they strongly advocate for the inclusion of "the affective...components more prominently" (p.381) to develop the model further.

Therefore, bridging the learning patterns and engagement perspectives will enhance our understanding of a successful learning experience. Moreover, it is crucial to note that some educational contexts, particularly those in the Arab region, remain understudied underscoring the need for further investigation into learning patterns and student engagement, a call to action for policymakers in education.

SECTION C: METHODOLOGY

Chapter 5: Methodology and Objectives

> *"There are so many ways to account for negative outcomes that it is safer to doubt one's methods before doubting one's subjects."*
>
> — **Frans de Waal,** *Are We Smart Enough to Know How Smart Animals Are?,* 2016

5.1. Methodology and Justification

The current study considers the complexity of students' learning patterns and their interplay with students' cognitive and emotional engagement. It investigates their configurations and relationships within a sample of first-year Arab undergraduate students in Kuwait. Furthermore, the study aims to discuss the learning patterns of students in the lens of students' cognitive and emotional engagement to help the stakeholders create successful teaching and learning processes that match Arab students' needs towards their academic success.

That said, the study intends to investigate students' learning patterns including their configurations and characteristics, to delve deeper into the role of emotional and cognitive engagement into academic success, and how these factors interact to influence student academic success.

This study's approach is quantitative and involves describing these frameworks among Arab students and the interrelationships between the two perspectives. While

analyzing these configurations, their role is in academic performance is investigated, both separately and together.

In deciding the methodological approach for this study, the potential of the quantitative approach was considered and deemed as most suitable to meet the research objectives. Two interrelated yet independent studies were conducted to meet the objectives of the research, each employing quantitative methods to answer to specific questions as presented above. In this section, a general justification of the methodology used for both studies will be presented, while specifics on procedures, participants, and analysis will be elaborated in the subsequent section where each study is reported separately. The decision to dedicate a separate chapter to methodology derives from the need to set a clear and coherent foundation for the study. This chapter serves as the cornerstone upon which the subsequent analyses of study one and study two are presented in their respective chapters.

The quantitative method is a deductive approach that tests objective theories using experiments or surveys to examine relationships between measurable variables (Creswell, 2009, p. 233). It allows for a high level of objectivity as it is based on standardized collection and analysis of the data. In addition, it allows for the generalizability of the results, including a high level of precision in measurements and numerical representation of the data. The quantitative method of this study is based upon principles of both empiricism and post-positivism of research in social sciences.

This quantitative investigation relies heavily on instruments that are used in the most recent research on learning patterns and student engagement. The Instrument of Learning Patterns for Students (ILS; Vermunt, 1998, 2020) has been the main measure of the research, as presented in the previous chapter. Translated widely into many languages and in various versions (Ciraso-Calí, 2023), the ILS has been validated as effective and beneficial for

depicting students' ways of learning in different cultural contexts. However, as many studies have found, especially those conducting meta-analyses, the psychometrics of the ILS are not consistent. Different configurations of components of learning have been identified from one context to another. These controversial findings have been attributed to various reasons, including context-related factors and student characteristics. Additionally, these results might be due to the conceptualization of the instrument (Hederich & Camargo, 2019).

Similarly, the Student Engagement Instrument (SEI; Appleton et al., 2008) used here is a very robust measure that has been widely tested and examined. The SEI has been validated for analyzing the emotional and cognitive engagement of students in higher education. Yet, this abundant research does not offer an agreed understanding of student engagement. Variations have been observed in the structure of the instrument, and the exact nature of the relationship between types of engagement and academic performance remains unclear in current research.

Therefore, while the ILS and the SEI are well-established measures, their replication in various contexts is needed. Despite being used with the aim of achieving a "one size fits all" approach, research has proven that there is no such thing as a generic student. Consequently, the variety of findings we have presented so far is an advantage of the current research, which feeds future interests. Moreover, the use of these quantitative measures provides us with valuable tools to investigate learning and engagement in an understudied context, like Kuwait. This approach allows us not only to explore how Arab learners approach their learning and engagement, but also to compare our findings with existing research.

5.2. Objectives of the Study

As evidenced by the previous chapter, the up-to-date literature lacks clarity and is inconsistent about certain matters of both learning patterns and engagement of students in higher education. In reference to learning patterns of Arab undergraduates, a question about the different configurations and their impact in performance has not been addressed proper enough from research. About engagement, is not clear whether emotional or cognitive factors play a role in Arab undergraduates' academic performance. Therefore, the objectives of the current study are:

1. Explore the nature and dimensions of student engagement in Kuwait.
2. Analyze the impact of student engagement on academic performance.
3. Explore learning patterns and their dimensions among students in Kuwait.
4. Discuss the impact of learning patterns on academic performance through the moderating role of student engagement.
5. Suggest actions to improve learning for students in Kuwait through learning patterns and academic engagement.

Drawn by previous research regarding learning patterns and student engagement, the following research questions were established:

1. What is the nature and dimensions of student engagement among Arab students in Kuwait?
2. How does student engagement impact the academic performance of Arab students in Kuwait?
3. What learning patterns are prevalent among Arab students in Kuwait, and what are their dimensions?

4. How do learning patterns affect the academic performance of Arab students in Kuwait, and what moderating role does cognitive engagement play in this relationship?

5. How can we improve the learning processes of Kuwaiti students entering university in the light of data on learning patterns and academic engagement?

5.3. Research Design

This quantitative study follows a descriptive and correlational design. In this regard, the study examines data from a random sample of Arab students in Kuwait to investigate how they learn and engagement and their relationship to students' GPAs. The primary data was collected over two academic years: 2021-2022 and 2022-2023. Over this timeframe, two sets of data were collected in chronological order, where the first set was collected before the second one. The first set of data was about student engagement and academic achievement. The second set of data provided information about student learning patterns, cognitive engagement, and academic achievement.

Therefore, two related and yet distinct studies were conducted. One study was about student engagement and achievement. The second study was about learning patterns, student engagement, and academic achievement. The two studies can be considered independent as they are both based on two sets of data from two different subsets of study samples. Nevertheless, related as the findings from the first study informed the objectives and the methodology of the second study.

5.4. Study Settings

The population of this study was made of students attending various majors at private universities in Kuwait. Here, private universities make most of the institutions in higher education. There are 15 of them and only one public university. About 76.5 percent of the

student population is Kuwaiti, and 23.5 percent is non-Kuwaiti, with the latter having a predominant number of Arab students from other GCC countries (The Report: Kuwait, 2019).

Students came from both public and private secondary schools. For public secondary schools, the study language is Arabic and for private ones, English. Once entering the private university, they spend one year of studies in the foundation program to improve their English skills as it the official study language. Only once passing the foundation program, students can start their major studies. The participants of this research were in either first or second year of the major studies. Participants who were in their very first semester of studies were excluded from the research as the information about their GPA needed to be included.

Two types of sampling were employed this research. Convenient sampling is used for the first study in which 392 students majoring in business engineering at a private university in Kuwait voluntarily participated in a survey on student engagement. Random sampling was used in the second study in which 563 students of various majors from various private universities in Kuwait completed to two surveys: one about student engagement and another on learning patterns. Prior to participation, they were informed about the purpose of the research and agreed to report on their full name, university identification number, age, gender, major of study, and GPA at the time of participation.

Students' ages varied from 18 to 44 years old. The average age was 20.75, with the first study averaging 20 years and the second 21.5 years. As for gender, in the first study, 57.4 percent were female, 42.6 percent were male, and in the second study, females accounted for 71.8 percent and males for 28.2 percent.

Data collection was done on paper-pen instruments. Students answered two instruments that collected data about their inner experiences on engagement and learning

patterns while they were attending their university classes. Only fully answered and undamaged instruments were included in the analysis.

In this chapter, we gave an overview of the approach this study takes and its justification, as well as some general information about participants, settings, and instrumentation. The following chapters (6 and 7) will provide detailed description the two studies. The first study focuses on exploring students' cognitive and emotional engagement and its impact on academic performance. The second study delves into the configurations of student learning patterns and their interaction with engagement, assessing its influence on academic performance. In the second study, insights derived from the SEI in the first study are utilized. The chapters will be organized in introduction, methodology, results, and discussion. The presentation of integrated results and discussions of the findings are given in Chapters 8 and 9. Finally, Chapter 10 will conclude study’s findings, limitations, and future perspective for research and practice.

SECTION D: RESULTS

Chapter 6: Student Engagement and its Predictive Validity for Academic Performance among Arab Undergraduates in Kuwait

> *"Not having heard something is not as good as having heard it; having heard it is not as good as having seen it; having seen it is not as good as knowing it; knowing it is not as good as putting it into practice."*
>
> — ***Xunzi***, 312-230 BC

6.1. Introduction

Interest on student engagement has been increasing in the last three decades. Research has expanded across Europe and the Americas, aiming to analyze the multifaceted nature of the construct and its relation to students' academic performance of the learner in higher education. However, little is known about the engagement of students in the Arab Region, especially in Kuwait.

Therefore, the focus of this study revolves around the landscape of student engagement of Arab undergraduates. Student engagement, which refers to efforts students put into their learning activities to achieve desired results (Kahu et al., 2008), is a crucial element for academic success. Drawing from the works of Finn (1989), Connell (1990), and McPartland (1994), this research explores the nature of engagement, influenced by various factors such as learning abilities, feelings of connectedness with the university, family and peer support, and the learning environment.

Engagement is a multifaceted construct with forms of it that are directly observable and measurable (e.g., academic and behavioral) and non-directly observable (e.g., cognitive and emotional). This study approaches the idea presented by Appleton and colleagues (2008) that the proper way to harvest information about the internal facet of engagement is using the self-reporting tools. Only in this way can we gather information that is true to the student about his level of interest and engagement in learning. Most importantly, we agree to these authors when saying that the internal forms of engagement (cognitive and emotional) directly influence other forms of engagement and academic outcomes and indirectly affect distal outcomes. The SEI of Appleton et al. (2008) is a predominant tool used to depict cognitive and emotional engagement.

That said, this study aims at two objectives about student engagement. Firstly, it examines how the Appleton et al. (2008) model applies to undergraduate students in Kuwait to validate its relevance within the context. It also provides insights, into the cognitive and emotional dimension of engagement within a culturally specific setting. Furthermore, the study examines how cognitive and emotional engagement affect the performance of Kuwaiti undergraduates. Emotional engagement relates to students' feelings of connection, to their environment while cognitive engagement involves their commitment to learning and skill mastery.

Explicitly, among the general objectives of the thesis, the ones that this study aims are the following:

Objective 1: Explore the nature and dimensions of student engagement in Kuwait.

Objective 2: Analyze the impact of student engagement on academic performance.

Based on the above objectives, the current study's research questions are as follows:

1. What is the nature and dimensions of student engagement among Arab students in Kuwait?

2. How does student engagement impact the academic performance of these students?

This research goes beyond scholarly scopes to explore how student engagement influences the performance of the Arab learner: the study seeks to provide evidence and insights that will enhance discussions on student engagement globally and suggest ways to improve student success in Kuwait. It aims to connect theory with real-world experiences.

6.2. Methodology

The quantitative method was selected as the most appropriate approach for this study to reach the objectives. It utilizes a descriptive correlational design to analyze data obtained from a purposely selected subset through convenience sampling. The data was collected in the fall of the 2021-2022 academic year. The study uses survey research to answer questions on student engagement configuration and how the types of engagement impact student academic performance. Participants reported on their engagement levels and provided personal data. In addition to these self-reported measures, archival data, specifically students' GPA records, are utilized to verify and corroborate the information provided by the participants.

Participants

The participants were students from a private university in Kuwait. Students were majoring in a business-engineering undergraduate program. Prior to participation they were informed about the purpose of the study and informed consent was given. A total number of 392 students answered to the SEI while they were attending their elective courses classes. Of these, 225 students were female (57.4%), and 167 (42.6%) were male. They aged from 18 to 32 years old with the mean age 20 years (SD= 1.92). All participants were attending either

their first or second year of studies. Students who were in their very first semester of studies, were later excluded from research as no data about their GPA was available.

Participants were requested to provide their gender, age, and current GPA, to the best of their knowledge. Subsequently, the GPA data they reported were cross verified with the university's system. Most of the participants (87%) were Kuwaiti nationals, with the remainder being Arabs from other GCC countries. A paper-pen administration was used.

Research Instrument

The SEI (Appleton et al., 2006) is an investigative tool designed to measure both subtypes of student engagement: cognitive and emotional engagement. The SEI contains 33-items and measures five factors of cognitive and emotional engagement. All items score via a four-point Likert-like rating (1= strongly agree, 2= agree, 3= disagree, and 4= strongly agree).

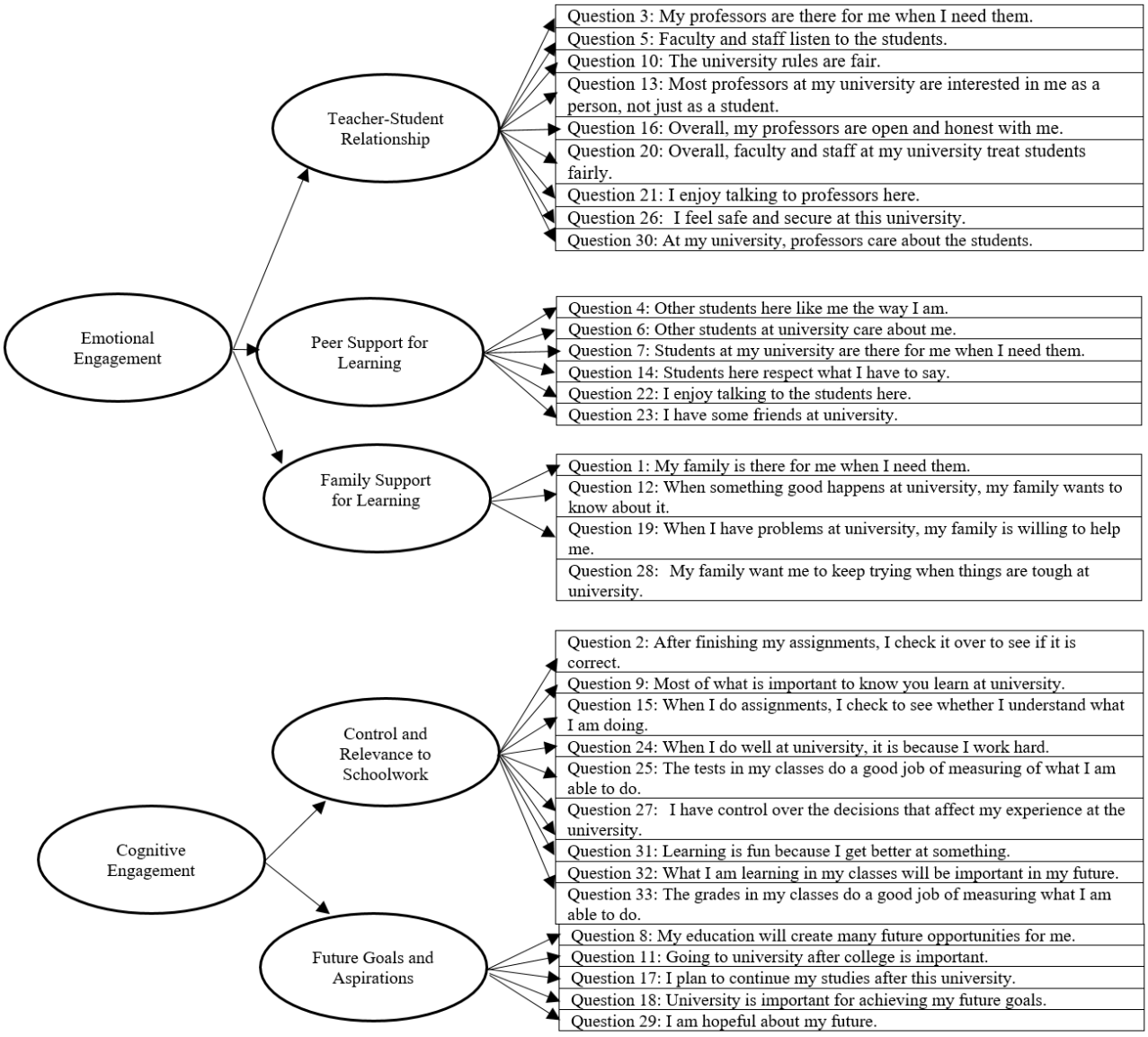
Table 3

The SEI: Types of Engagement, Subscales, and Question Items

Engagement	Factor	No. of items	Item
Cognitive engagement			
	Control and relevance to schoolwork (CRSW)	9	(2,9,15,24,25,27,31,32,33)
	Future goals and aspirations (FGA)	5	(8,11,17,18,29)
Emotional engagement			
	Peer and support for learning (PSL)	6	(4, 6,7,14,22, 23)
	Family support for learning (FSL)	4	(1,12,19,28)
	Teacher-student relationships (TSR)	9	(3,5,10,13,16,20, 21,26,30)

Figure 8

The Student Engagement Instrument (SEI-College Version)



Note. Adapted from "Measuring the Engagement of College Students: Administration Format, Structure, and Validity of the Student Engagement Instrument-College" by J. Waldrop et al., 2018, *Tandfonline*, p. 5. Copyright © 2018 by Taylor & Francis.

Initial research using the SEI showed for a reliability and validity of the instrument for the tertiary education as well (Grier-Reed et al., 2012). Factor analyses were conducted to determine whether the five-factor model of the SEI fit the data for college students. Findings

showed the SEI (college versions) was useful to measure the engagement of college students. Waldrop and colleagues (2018) supported the findings and supported the use of the SEI for college students as well. Figure 8 describes the SEI instrument: five factors along with item questions.

Pilot study

Initially the English version of the SEI was used. After adapting a few words for the university context, 11 undergraduate students answered to the instrument to assess the clarity of the questions. In overall, the questions were clear. However, the question 11— "Going to university after college is important" — was confusing and there was the need to clarify that it referred to the purpose of continuing university studies after the bachelor. Five of the participants of the pilot study asked for the question number 26 to be explained. They wanted to understand what the meaning of the word "safe" was. Similarly, eight participants asked about the meaning of question number 27. As such, the three questions were revised, and the changes are summarized in the Table 4.

Table 4

Original and Revised Items of the SEI Based on Initial Pilot Study

Item	Original version	Revised version
11	Going to university after college is important.	Continuing my studies after my bachelor is important.
26	I feel safe at this university.	I feel safe and secure at this university.
27	I feel like I have a say about what happens to me at my university.	I have control over the decisions that affect my experience at the university.

Participants involved in this research use English for their studies even though their primary language is Arabic, for most of them. As we did not find further issues with the instrument, the SEI was provided in the English version.

Data Screening

Four hundred twenty-one undergraduate students answered the revised engagement instrument on a paper-pen administration. An initial screening of the collected instruments excluded 19, as they were incomplete or damaged. The other 11 instruments were excluded because they pertained to students in their first semester. The remaining 392 instruments were assessed as suitable to generate a data set for the study.

The data entry and analysis were done using the IBM SPSS Statistics version 16.0. Once entered in the software, data screening was done as it is advised to be conducted prior to any primary analysis of interest to make sure that the data meets parametric assumptions. The first stage of screening was done on the missing values of the data set. It was noticed that there were 56 missing values across 15 survey questions. None of the question exceeded the 1.4% of missing values.

For further screening of missing values, the missing completely at random (MCAR) test (Little, 1988) was run as well. The Little's test (1988) is suitable to test the assumption that the data is missing completely at random for quantitative data. Results revealed that data had achieved the MCAR level ($p < .05$): Chi-Square = 604.820, DF = 509, Sig. = .211. To address the missing values, the series mean imputation was employed. The mean scores, standard deviations, and other descriptive data were computed for all questionnaire items regarded as variables.

Table 5

Descriptive Statistics of the Item Questions of the SEI

Descriptive Statistics	*Mean*	*SD*	*Kurtosis*
My family are there for me when I need them.	3.63	.68	3.91
After finishing my assignments, I check it over to see if it is correct.	3.23	.68	.48
My professors are there for me when I need them.	3.17	.67	-.16
Other students here like me the way I am.	3.02	.74	.41
Faculty and staff listen to the students.	2.96	.76	-.03
Other students at university care about me.	2.65	.78	-.25
Students at my university are there for me when I need them.	2.86	.76	-.07
My education will create many future opportunities for me.	3.43	.71	.99
Most of what is important to know you learn at university.	2.98	.80	-.21
The university rules are fair.	2.73	.83	-.54
Continuing my studies after my bachelor is important.	3.49	.75	.99
When something good happens at university, my family wants to know about it.	3.15	.88	-.33
Most professors at my university are interested in me as a person, not just as a student.	2.79	.78	-.22
Students here respect what I have to say.	2.99	.72	.38
When I do assignments, I check to see whether I understand what I am doing.	3.31	.66	.06
Overall, my professors are open and honest with me.	3.18	.68	.52
I plan to continue my studies after this university.	3.54	.70	.82
University is important for achieving my future goals.	3.51	.66	1.13
When I have problems at college, my family are willing to help me.	3.33	.80	.69
Overall, faculty and staff at my university treat students fairly.	3.07	.71	.09
I enjoy talking to professors here.	3.18	.70	.25
I enjoy talking to the students here.	3.00	.82	-.09
I have some friends at university.	3.45	.69	1.64
When I do well at university, it is because I work hard.	3.54	.70	2.01
The tests in my classes do a good job of measuring what I am able to do.	3.00	.76	.55
I feel safe and secure at this university.	3.26	.74	.65
I have control over the decisions that affect my experience at the university.	2.81	.81	-.52
My family want me to keep trying when things are tough at university.	3.41	.71	.86

I am hopeful about my future.	3.55	.71	2.19
At my university, professors care about the students.	3.14	.74	.08
Learning is fun because I get better at something.	3.23	.74	.74
What I am learning in my classes will be important in my future.	3.24	.77	-.16
The grades in my classes do a good job of measuring what I am able to do.	2.95	.91	-.4

6.3. Results

The factor analysis was performed using the maximum likelihood estimation method. The data were treated as categorical rather than continuous, as the Likert scale used in the instrument was ordinal in nature (Flora & Curran, 2005). The CFA allowed the testing of the hypothesized factor structure and the identification of any model misfit. The analysis was performed using SPSS AMOS 22.0 software package. The model fir was established by using a combination of three categories of fit indexes: absolute, incremental and parsimonious fit. The absolute fit index used for this study included the Root Mean Square of Error Approximation (RMSEA: Browne & Cudeck, 1993) and the Goodness of Fit Index (GFI: Jöreskog & Sörbom, 1981). The minimum Discrepancy of Shi-Square value (Chi-Square) was ignored as the sample size of the current study is greater than 200 (N= 392) (Graziano et al., 1996). For the incremental fit category used to test the worst possible structure model, two indexes were included: Adjusted Goodness of Fit (AGFI: Tanaka, 1987) and Comparative Fit Indexes (CFI: Bentler, 1990). As for the parsimonious fit, the Chi Square/Degrees of Freedom (Chisq/df) was used to determine the degrees of freedom of the model fit. The factor structure analysis was done in two orders.

First-order Analysis

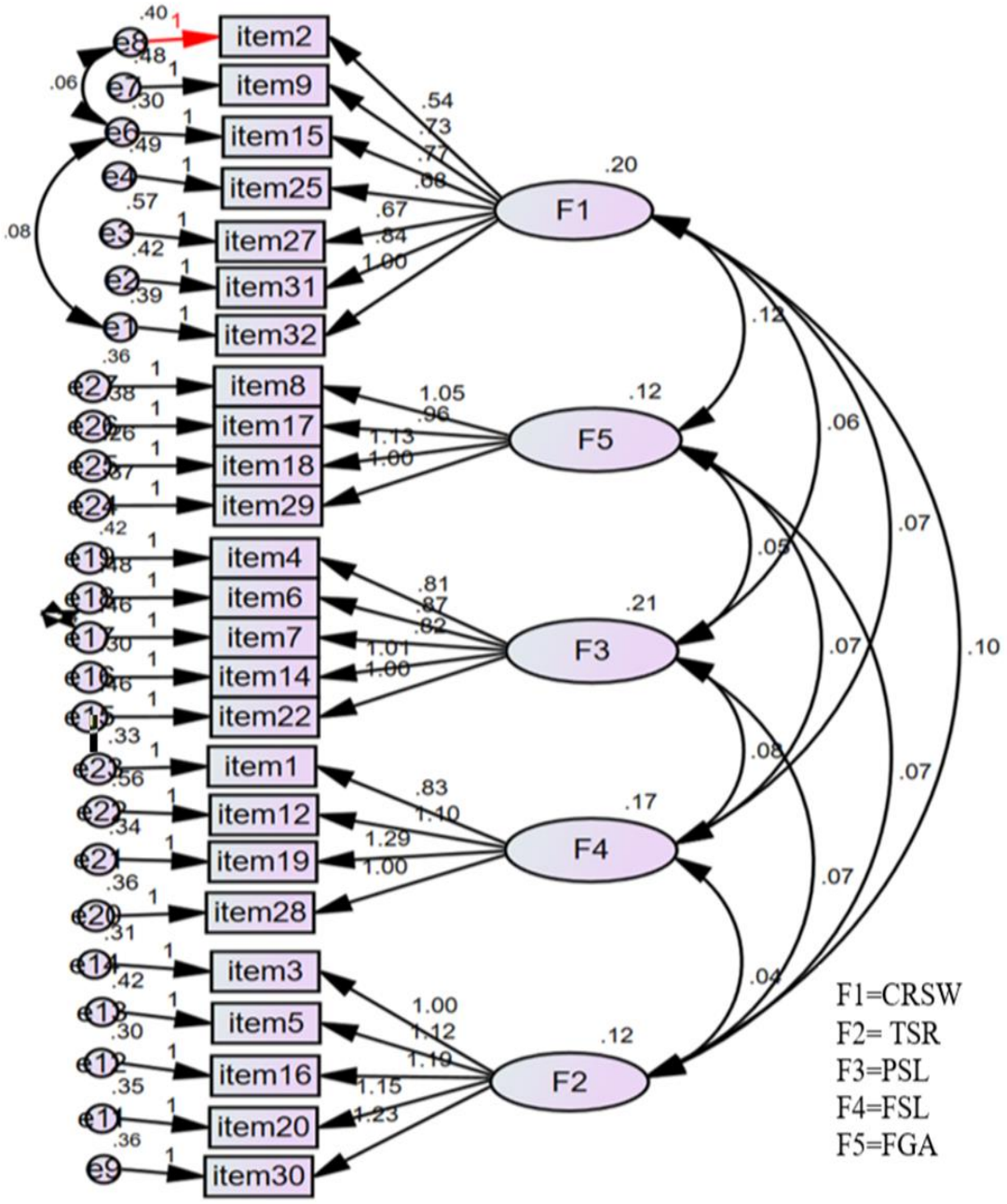
In the first order, all the question items of the SEI instrument were included to test the assumed five-factor structure. Five factors of engagement were depicted: teacher-student relationships (TSR), peer support for learning (PSL), family support for learning (FSL), future goals and aspirations (FGA), and control and relevance to schoolwork (CRSW). The initial analysis showed indexes to have an acceptable but unsatisfactory fit.

Modification indices were employed to identify the problematic issues and to improve the model fit. As a result, out of the 33 questions, eight question items were removed to improve the model fit. Among the questions removed, two were for the CRSW (F1), four for TSR (F2), one for the PSL (F3), and one was for the FSL factor (F4). The fifth factor depicted (FGA) had all the questions as for the original configuration of the instrument. The reasons for deletion of the question items are primarily substantive. Three of the deleted items were in consecutive order in the survey. This suggests that there may have been redundancy in the questions or that they were measuring a different construct than the intended factor. Other questions might have been not well designed or worded, leading to ambiguity of confusion among respondents. For instance, the question "I feel safe and secure at this university" might still be confusing even after revisions for students not knowing whether it refers to physical safety or emotional acceptance.

As seen in Figure 9, all loadings of the remaining items on their targeted factors were statistically significant and neared the .3 cut off values. The decision to not delete these items from the model was considered suitable for this step, as "the fitness indexes of the model had already achieved the required level" (Field, 2013, p. 676). Table 6 displays the index values of the model per each fit index category for the first-order factor analysis of the SEI.

Figure 9

Path Diagrams of the SEI Model in the First-order Factor Structure Analysis



Note: Latent constructs are shown in ellipses and observed variables are shown in rectangles. The questions number 10, 11, 13, 21, 23, 24, 26, and 33 were removed after modification indices.

Table 6

Categories, Name Indexes, Cut-off Values, and the Index Values of the First-order Factor Analysis of SEI after Modification Indices

Category	Index	Threshold	Value
Absolute fit	RMSEA	< .08	.07
	GFI	> .9	.88
Incremental fit	AGFI	> .9	.85
	CFI	> .9	.9
Parsimonious fit	ChiSq/df (cmin/df)	< 3	2.478

Second-order Analysis

The SEI model assumes that the five factors comprehend two types of engagement: cognitive and emotional showing for a hierarchical factor structure. This assumption was tested in the second-order factor analysis. The analysis showed the criteria with a better model fit compared to the first-order model. The GFI and the AGFI had better index values than the first-order factor: .912 (> .9) and .9 (> .9), respectively. Other indicators were also achieved: .035, .91, and 1.479 for RMSEA, CFI, and cmin/df, respectively. The path coefficients for each type of engagement in the hierarchical model were .58 for cognitive engagement and .56 for emotional engagement.

Figure 10

Path Diagrams of the SEI Model in the Second-order Factor Structure Analysis

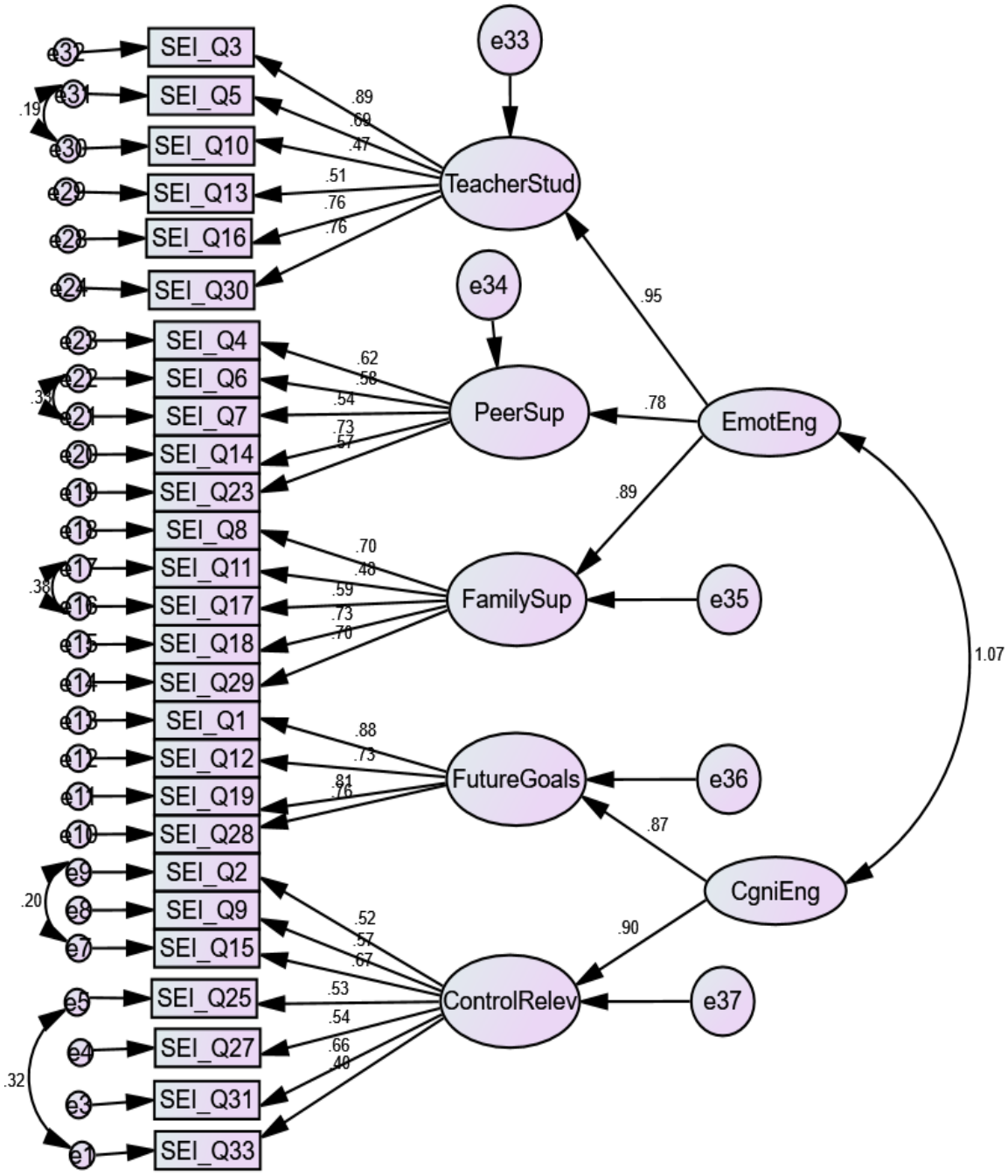


Table 7

Categories, Name Indexes, Cut-off Values, and the Index Values of the Second-order Factor Analysis of SEI

Category	Index	Threshold	Value
Absolute fit	RMSEA	< .08	.04
	GFI	> .9	.91
Incremental fit	AGFI	> .9	.9
	CFI	> .9	.91
Parsimonious fit	ChiSq/df (cmin/df)	< 3	1.48

The coefficient alphas (α) for the overall internal consistency and each depicted subscale of the model were calculated. Literature supports the use of Cronbach's alpha over other reliability tests for studies done in education and psychology areas and, specifically, if the nature of the data is categorical (such as in this study's case) (Viladrich et al., 2017). The overall Cronbach's alpha is a valuable coefficient that indicates the internal consistency of both factors depicted and their subscales. Each subscale showed acceptable fit (range α = .62 to .78). The overall score was high (α = .87), suggesting that dimensions of engagement are codependent- an aspect needing further discussion. The factor analysis of the SEI model delineated a refined model fit for the study's sample, underpinning its robust internal consistency. The characteristics of this refined model are detailed in Table 8.

Lastly, regarding the first aim of the study, among the two types of engagement, the data indicate that Arab undergraduates show a higher level of cognitive engagement (Mean = 3.31). Future goals and aspirations for learning appear to be more important to them than the control they have over their own learning. As for emotional engagement, family support is identified as the most significant factor encouraging student involvement in learning.

Table 8

Descriptives of Subscales of the SEI Model after Factor Analysis and the Cronbach's Alphas

Types	Factors	N	Items	Min	Max	*Mean*	SD	Skew	Ku	α
Cognitive engagement		392	11	1.82	4	3.31	.38	-.5	.03	.75
	Control and relevance to schoolwork (CRSW)	392	7	1.86	4	3.1	.42	-.55	1.59	.78
	Future goals and aspirations (FGA)	392	4	1.5	4	3.43	.49	-.95	1.52	.77
Emotional engagement		392	14	1.87	3.93	3.13	.37	-.4	.03	.62
	Peer and support for learning (PSL)	392	5	1	4	2.95	.49	-.44	.86	.71
	Family support for learning (FSL)	392	4	1	4	3.35	.53	-1.21	2.32	.69
	Teacher-student relationships (TSR)	392	5	1	4	3.06	.52	-.7	1.35	.7
Overall engagement		392	25	2.08	3.88	3.2	.32	-.4	-.2	.87

Engagement and Academic Performance

The second research question of this study is about the predicting role of cognitive and emotional engagement in academic performance of Arab undergraduates in Kuwait. There is an undisputable understanding that the presence of engagement improves academic results and performance of students. More engaged students are, better they perform academically. However, the exact nature of this interrelation is not well cleared from the existing research. To address the second research question, the linear regression analysis was employed.

Primary to the main analysis, the test for mutlicollinearity between each pair of variables was conducted. Table 11 represents the correlation coefficients between variables.

Table 9

Correlations among Types of Engagement, Subscales and GPA (N= 392)

	GPA	CRSW	FGA	PSL	FSL	TSR	Emotional
CRSW	.171**						
FGA	.191**	.522**					
PSL	.133*	.232**	.219**				
FSL	.049	.277**	.282**	.299**			
TSR	.115*	.492**	.392**	.464**	.258**		
Emotional	.129*	.432**	.375**	.781**	.737**	.721**	
Cognitive	.208**	.857**	.887**	.258**	.320**	.480**	.461**

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

As seen from the correlation matrix, the high correlations are noted only within sub-scales of the same construct, which is expected. Other correlations indicators show for the data to not have mutlicollinearity issues. Although there are significant relationships among types of engagement, their subscales and GPA, a high level of correlation is not calculated between variables (r_{yY} > .9). Both types of engagement - cognitive and emotional - exhibit a positive correlation with GPA, with cognitive engagement demonstrating a stronger correlation (r = .208) than emotional engagement (r = .129). Regarding subscales of emotional engagement, TSR was found to have a meaningful relationship with GPA (r = .115), while FSL did not exhibit a meaningful relationship. However, subscales of cognitive engagement—FGA (r = .191) and CRSW (r = .171) —demonstrated a higher level of statistical significance with GPA. Table 10 displays the tolerance and the variance inflation factor (VIF) values of the variables predicting the GPA. The VIF values are greater than one indicating that there is some degree of collinearity, but in acceptable range (Kline, 2011).

Table 10

Tolerance and VIF Values for Cognitive and Emotional Engagement

Types of Engagement	Collinearity Statistics	
	Tolerance	VIF
Cognitive Engagement	.788	1.478
Emotional Engagement	.798	1.269

The VIF values show no evidence of mutlicollinearity among the predictor variables. This allowed us to proceed with the linear regression analysis, which was conducted to determine the predictive value of emotional and cognitive engagement on students' GPA. The analysis employed the enter method and the results are presented in Table 11.

Table 11

Linear Regression Analysis of Cognitive and Emotional Engagement on Students' GPA

	Predictor variable	*B*	SE *B*	β	t	*p*
Model	(Constant)	1.466	.364		4.024	0
	Cognitive Engagement	.337	.105	.189	3.215	0

Note: Dependent Variable: College student GPA

R =.212; R^2 = .085; F = 8.209, p < .000, B= unstandardized beta, β=standardized beta

Linear regression analysis reveals that cognitive engagement significantly predicts college students' GPA, with an unstandardized beta coefficient of 0.337. This suggests that for each one-unit increase in cognitive engagement, a student's GPA is expected to increase by 0.337 points, holding all else constant. The standardized beta coefficient of 0.189 indicates a modest but positive effect of cognitive engagement on GPA. The model's intercept at 1.466, significantly different from zero ($p < .0005$), implies a baseline GPA when cognitive engagement is zero. The overall model explains approximately 8.5% of the variance in GPA

(R^2 = .085), indicating that the cognitive engagement has a statistically significant impact on performance.

To determine whether the model was useful, the ANOVA test was run as well. The significant F-statistic (F = 8.209, p < .05) confirmed that the model fits the data better than an intercept-only model. However, among the predictor variables, cognitive engagement was found to be the one variable to predict the students' GPA (*B*= .38) as the emotional engagement was found to be not statistically important (*B*= .08, t= 1.157, *p* > .05).

6.4. Discussion

In this study, we explored the psychometric properties of the SEI on a sample of Arab college students. Then, we used the revised measure to investigate the predicting role of engagement on GPA. The findings and their relevant discussion are as follows.

R.Q.1: What are the nature and dimensions of student engagement among Arab students in Kuwait?

Confirmatory factor analysis was used to establish a model with the closest fit to the data of undergraduates in Kuwait. Initial fit indexes showed an acceptable fit. Results confirmed a two-factor structure of the SEI with five sub-factors. Among the five subscales depicted, three comprehended the factor of emotional engagement and the other two cognitive engagement. Eight questions were removed from the original model. The model fit improved significantly. The internal reliability of the instrument was satisfactory according to other authors (Grier-Reed et al., 2012; Moreira et al., 2009). Betts and colleagues (2010) revised the model confirming five subscales. Similarly, Karim and Abd Hamid (2016) research among Malaysian students showed a six-scale model adding connectedness as a separate construct.

The findings from the current study suggest that a revised version of the SEI can be utilized to evaluate cognitive and emotional engagement among Arab undergraduates in Kuwait. This study also found the SEI to be reliable for undergraduate students in Kuwait, albeit with a few revisions. Hence, the current research contributes to the common interest in developing an international measure of engagement (Christensen & Reschly, 2012).

R.Q.2: How does student engagement impact the academic achievement of Arab students in Kuwait?

As for the study's second research question, correlation and linear regression analyses were used to explore the relationship and the predicting role of emotional and cognitive engagement on the GPA. Cognitive engagement was found to have a significant positive correlation with GPA, with the sub-factor of FGA having a more robust correlation than CRSW. It should be noted that this correlation is weak (Zepke, 2015; 2017). Regarding emotional engagement, PSL was found to have a positive correlation with GPA as opposed to TSR, which had a weak correlation, and FSL, which was insignificant. Cognitive engagement was found to significantly predict the GPA. However, emotional engagement does not explain the variance in GPA. This finding is in line with other authors (Greene, 2015; Heng, 2014; Tomaszewski et al., 2020; Wara et al., 2018). In the same vein, a meta-analysis by Freeman and colleagues (2014) looked at the relationship between cognitive engagement and academic performance across several studies. The authors found that higher levels of cognitive engagement were consistently associated with better academic outcomes. Apparently, being cognitively engaged enables students to participate in and control learning activities. Students, who find meaning and relevance to schoolwork and assignments, tend to engage more. Studies show positive conceptions of learning lead students to deep learning practices which, in turn, would increase chances for higher academic outcomes. Cognitive engagement assumes students to have goals and aspirations for their studies and therefore put

more efforts in purposeful academic activities. As one might think, those with clear goals regarding their future education tend to put in more effort. As mentioned by Kutlu and Kartal (2018, p. 10), “most hard-working students will concentrate fully on their academic exercises, with an eye on their future careers”.

Unlike cognitive engagement, emotional engagement did not affect students' academic outcomes. From the perspective of this study, emotional engagement comprehends relationships with the institution, teachers, peers, and the support from family. It explains a sense of belonging and connectedness with the school. Emotionally engaged students perceive themselves as involved, understood, and treated as humans rather than students, feel rules to be fair, and feel heard and accepted by peers, staff, and teachers. While there is ample evidence to suggest that emotional engagement can have a positive impact on students' academic performance, there are studies that suggest that emotional engagement may not have a significant impact on students' performance (Doğan, 2015; Heng, 2014; Kutlu & Kartal, 2018; Rodrigues & Boutakidis, 2013).

Results regarding the emotional engagement can be addressed to instrumental and contextual factors. One contextual factor relates to years of study of participants. Most of the current research, as is the case with the current study, includes first-year students. The first year is a difficult time for students due to the challenges of adapting to a new learning environment alongside significant changes in other areas of life. This year is a time of adjusting, exploring, experimenting with relationships, and understanding the institution's culture. For these reasons, measuring engagement among first-year students can be challenging. A review (Kuh et al., 2008) found that first-year students often experience a period of transition and that their college engagement level can fluctuate during this time. Tinto (2012) concedes that many first-year students struggle to find a sense of belonging and

engagement in college, particularly during their transition to the new academic and social environment.

Thus, from an instrumental point of view, to narrow it down, a student may not correctly report to statements such as “college/university rules are fair” as his perceptions of fairness are still to cultivate. In other items, students report on whether they feel “treated as humans rather than just as students by teachers and staff.” Such feelings might take time to clarify for a young learner transitioning from high school to university. Therefore, investigating engagement, especially emotional engagement, during the first year of studies might not yield meaningful results for researchers, as the connections between students and the institution are still being established. As Macfarlane and Tomlinson state, 'the first year is too early to investigate emotional engagement' (2017, p. 18)

Secondly, types of engagement are not separate constructs; they can overlap and interact with each other. They are not mutually exclusive and can influence each other in complex ways. One can even say that emotional and cognitive are just two sides of the same construct. Indeed, a student who is emotionally engaged will be more active in learning activities, have better academic results, have positive feedback, and get even more emotionally involved with the school and peers. According to Wen et al. (2010), “engagement has the following model: emotional engagement →cognitive engagement →behavioral engagement →academic performance→ emotional engagement” (p. 15). The model illustrates interconnections between different forms of engagement, and that emotional engagement is a prerequisite for cognitive engagement and performance. Rather than obvious and explicit, the role of emotional engagement is indirect. For example, Grier-Reed et al. (2012) found emotional engagement to affect students’ GPAs through learning perceptions. In another study (Pekrun et al., 2017), emotional engagement promotes deep learning and the development of key competencies, such as critical thinking, problem-solving, and

communication skills which lead to better results. In the same vein, Casanova and colleagues (2024) state that more engaged students have a higher self-efficacy perspective and engage in deeper processing.

To conclude, the construct of engagement, its components, and their relationships with performance remain complex issues requiring a broader theoretical, contextual, and instrumental discussion. Addressing these aspects will clarify the contradictory findings observed in various studies, particularly through cross-cultural analysis. In this regard, and agreement with Kahu (2013), Lam et al. (2014), and Marenco-Escuderos et al. (2024), it becomes evident that engagement is not a context-free issue. The influence of cultural, institutional, and individual factors underscores the necessity for a multifaceted approach to studying engagement. Future research should aim to integrate diverse perspectives and methodologies to develop a more comprehensive understanding of how engagement manifests and affects performance across different contexts. By doing so, we can better inform educational practices and policies that support student success locally.

Chapter 7: Learning Patterns among Arab College Students: The Relationship with Academic Performance and the Moderating Role of Cognitive Engagement

> *"Self-regulation will always be a challenge, but if somebody is going to be in charge, it might as well be me".*
>
> —**Daniel Akst**, *We Have Met the Enemy: Self-Control in an Age of Excess*, 2011

7.1. Introduction

Academic success is a crucial objective of higher education, and studies have identified learning patterns and cognitive engagement as crucial predictors of this success (Doğan, 2015; Martínez-Fernández, 2019; Vermunt, 2005). Learning patterns are essentially the methods students use to approach and handle learning tasks, including their strategies to process and comprehend information (Vermunt, 1998; 2020). On the other hand, cognitive engagement measures how much effort and time students are willing to put into their learning activities and their readiness to participate actively in the learning process (Fredricks et al., 2004). Therefore, capturing how these elements interact and affect academic performance is vital for shaping effective educational strategies and policies.

The classical research on learning patterns shows four types of learning. The meaning-directed (MD) pattern, where learners adopt a constructivist viewpoint, is driven by intrinsic motivation and utilizes self-regulation strategies that lead to deep cognitive processing. The

reproduction-directed (RD) pattern is characterized by a focus on acquiring discrete blocks of information, aiming for certification, and relying on external regulation, which results in surface processing. The MD pattern is typically associated with superior academic outcomes compared to the RD pattern (Chotitham et al., 2014; Vermunt, 2005). The application-directed (AD) pattern comprehends looking for associations between knowledge and its practical use. Students who prevail in AD use concrete processing strategies. They can be externally or self-regulated during their learning and tend to be vocationally motivated. Lastly, the undirected (UD) pattern comprehends difficulties in knowledge processing. Students with this pattern tend to rely strongly on teachers' directions and peer cooperation. They do not imply explicit regulation, see education as stimulating, and display ambivalence in their learning.

The MD and AD patterns are characterized as deep approaches to learning and are seen as adequate for positive academic outcomes. The RD pattern is defined as a surface approach that does not always result in high academic outcomes for the student. The UD pattern is neither a surface nor a deep approach but is mainly seen as an inadequate pattern that does not guarantee success.

Additionally, engagement enhances the positive effects of deep cognitive processing on learning results (Martínez-Fernández & Vermunt, 2015). Further exploring cognitive engagement could enrich our understanding of learning patterns. Cognitive engagement involves a significant investment of time and energy in learning activities and a willingness to engage actively in the learning process (Kuh et al., 2008), often leading to better academic results (Wang & Eccles, 2013). The most effective combination of learning patterns and engagement levels, particularly the balance between self-regulation and external regulation, remains an open question and is central to this study.

This research is particularly crucial as it addresses a gap in understanding among Arab college students, specifically in Kuwait, where traditional emphasis on rote learning might impact learning behaviors and academic outcomes (Al-Nouri, 2019). By examining the interplay between learning patterns, cognitive engagement, and academic performance in this context, the study aims to contribute to the academic literature, offer insights for educational policy and practice, and suggest broader educational strategies.

Drawn upon this context, the current study has the following objectives, aligned with the general objectives of this thesis:

Objective 3: Explore learning patterns and their dimensions of students in Kuwait.

Objective 4: Discuss the impact of learning patterns on academic performance through the moderating role of student engagement.

Objective 5: Suggest actions to improve learning for students in Kuwait through learning patterns and academic engagement.

Therefore, the research questions are the following:

1. What learning patterns are prevalent among students in Kuwait, and what are their dimensions?
2. How do learning patterns affect the academic performance of students in Kuwait, and what moderating role does cognitive engagement play in this relationship?

7.2. Methodology

Study Design and Participants

The research was conducted during the 2021-2022 and 2022-2023 academic years at private universities in Kuwait. A total of 563 undergraduate students from various disciplines participated in the study. They were informed about the purpose of the research and agreed to

report on their details, such as their full name, university identification number, age, gender, major of study, and GPA. Appropriate measures were taken to ensure this information's confidentiality and ethical use.

Students' age varied from 18 to 44 years old, with an average age of 21.5 years. Female students accounted for 71.8 percent of the total number, and male students constituted 28.2 percent. All participants were of Arab ethnicity (Kuwait and other GCC countries).

Research Instruments

Inventory of Learning Patterns for students (ILS)

The modified version of the ILS containing 60 questions is used in current study (Martínez-Fernández & García-Orriols, 2017). It contains 60 questions about the four domains of learning. Sixteen subscales pertain to the four domains of learning: three for processing strategies, three for regulation strategies, five for conceptions of learning, and five for orientations of learning. Table 12 describes the subscales for each of the domains of learning with sample questions of the 60-questions version of the instrument. The instrument is organized in two parts. Part A includes the study activities students' employee and includes two learning dimensions: processing strategies and regulation strategies. Part B includes questions about study motives and comprised the other two dimensions: learning orientations and mental models of learning. Questions are scored via five-point Likert-like rating: for Part A (1= strongly disagree, 2= disagree, 3=undecided, 4=agree, and 5= strongly agree), Part B (1= I do this seldom or never, 2=I do this sometimes, 3=I do this regularly, 4=I do this often, and 5=I do this almost always).

Table 12

Subscales of Domains of Learning and Sample Questions of the ILS (Martínez-Fernández & García-Orriols, 2017)

Domains of learning	Subscales	Sample questions
Processing strategies		
	Deep processing	*I try to map an overall picture of a course for myself.*
	Stepwise processing	*I memorize the meaning of every concept that is unfamiliar to me.*
	Concrete processing	*I use what I learn from a course in my activities outside my studies*
Regulating strategies		
	Self-regulation	*In addition to the syllabus, I study other literature related to the content of the course.*
	External regulation	*I study according to the instructions given in the study materials or provided by the teacher.*
	Lack of regulation	*I realize that it is not clear to me what I have to remember and what I do not have to remember.*
Conceptions of learning		
	Construction of knowledge	*To me, learning means to understand and deal with the problem from all sides, even the ones that I do not know.*
	Intake of knowledge	*I should memorize definitions and other facts on my own.*
	Use of Knowledge	*To me, learning means acquiring knowledge that I can use in everyday life.*
	Stimulating education	*When I have difficulty understanding something, the teacher should encourage me to find a solution by myself.*
	Cooperative learning	*I consider it important to be advised by other students as to how to approach my studies.*
Orientations to learning		
	Personally interested	*When I have a choice, I opt for courses that suit my personal interests.*
	Self-test oriented	*1 I want to discover my own qualities, the things I am capable and incapable of.*
	Vocation oriented	*When I have a choice, I opt for courses that seem useful to me for my present or future profession.*
	Ambivalent learning	*I wonder whether these studies are worth all the effort.*
	Certificate oriented	*I aim at achieving my study goals.*

Table 13

ILS Items for Each of 16 Subscales of the Short Version Instrument (Martínez-Fernández & García-Orriols, 2017)

Learning Patterns	Subscales	ILS (items)
MD *Meaning Directed*	Construction of knowledge	(1,6,11)
	Personally interest	(16,26,29)
	Deep Processing	(35,38,40,31,36,45)
	Self-Regulation	(48,52,55,47,50,56)
RD *Reproduction Directed*	Intake of Knowledge	(3,8,12)
	Certificate	(20,23,28)
	Stepwise processing	(32,39,42,33,37,41)
	External Regulation	(46,51,57,53,58,60)
AD *Application Directed*	Use of knowledge	(2,7,15)
	Self-test	(17,21,25)
	Vocation	(18,27,30)
	Concrete Processing	(34,43,44)
	Self-Regulation	(48,52,55,47,50,56)
UD *Undirected*	Stimulating education	(5,10,13)
	Cooperative learning	(4,9,14)
	Ambivalent	(19,22,24)
	Lack of regulation	(49,54,59)

Translation

The participants in this research use English as their formal language of college studies, while for most of them, their first language is Arabic. To identify potential language barriers in the questionnaire, we conducted a pilot study. In the fall semester of 2020, seven students, randomly selected from various classes, were asked to answer the self-reporting ILS. We noticed that five out of the seven students needed assistance in completing the questionnaire. This assistance was primarily required for translating, clarifying, and explaining words

throughout the questionnaire. For example, the word 'map' in question number 38 was unclear to students regarding its meaning and context. Similarly, the term 'sheer interest' in question number 29 was asked twice to clarify its meaning. Therefore, we decided to translate the ILS into Arabic.

The back-and-forth translation was used to ensure the accuracy and cultural relevance of the translation. Working in the Department of Arts and Sciences, where various disciplines are taught, made it possible to have assistance from colleagues in the English department. First, the instrument was given to two English professors with Arabic as their first language. Then, the translated instrument was given to two other English professors whose Arabic was their native language as well, and they translated the Arabic version back to English. The translated English version was very similar to the original version of the instrument but not the same.

Arabic is a vibrant language compared to English. Arabic is known for its lexical richness and complexity compared to English. This is often illustrated by the claim that Arabic has significantly more words than English. For instance, some sources suggest that while English has a vocabulary of approximately 500,000 words, Arabic boasts over 12 million words (Andrews, 2020). Arabic, with its system of roots and patterns, allows for the creation of numerous words from a single root, contributing to its perceived richness. According to The National – the United Arab Emirates' leading English-speaking news outlet – on average, a single written word in Arabic has 3 meanings, 7 pronunciations, and twelve interpretations (The National, last visited on 3rd March 2024). This linguistic diversity is reflected in the translation challenges we faced, where a single English term might correspond to multiple Arabic words, each with nuanced meanings. For example, getting back to our instrument, when translated into Arabic, the word “qualities” in question number 21 can be either “ جودة,” meaning “quality” and “fineness” or “ن,” meaning “kind” and

"virtuous ." Therefore, we believed that more than just translating, it was necessary to discuss the translation. All our colleagues sat to discuss the Arabic version of the instrument and one final Arabic version of the ILS was concluded.

However, the experience of teaching Arab students in GCC has shown that the background of the students living in these countries varies greatly regarding their culture, education, and, therefore, their language skills. Many students, due to their primary and secondary education in English curricula, coming from families of a mix of cultures and, therefore, languages, having studied abroad, struggle to understand and speak Arabic fluently. We often hear students saying that they do not understand Arabic well and feel comfortable with English. For that reason, considering the students' diverse proficiency levels and cultural backgrounds, we decided to keep both the Arabic and English versions of the ILS. Table 14 displays what the instrument looked like when participants answered it.

Table 14

A Sample Question of ILS after Translation

No.	Statement البيانات	Entirely disagree لا أوافق تماما	Mostly disagree في الغالب لا أوافق	Undecided غير محدد	Mostly agree أوافق في الغالب	Entirely Agree أوافق تمامًا
1	To me, learning means to understand and deal with the problem from all sides, even the ones that I do not know. بالنسبة لي ، التعلم يعني فهم المشكلة والتعامل معها من جميع الجوانب ، حتى تلك التي لا أعرفها.	1	2	3	4	5

Student Engagement Instrument (SEI)

The SEI was translated into Arabic also, employing a back-and-forth translation process akin to that used for the ILS. This approach ensured consistency across instruments and aimed to

eliminate any language barriers among participants. Consequently, similar to the ILS, the SEI was made available to participants in both the original and Arabic versions (Table 15).

Table 15

A Sample Question of the SEI after Translation

Statement ا يانات	Strongly Disagree لا أوافق بشدة	Disagree تعارض	Agree يوافق	Strongly Agree موافق بشدة
2. After finishing my assignments, I check it over again to see if it is correct. بعد الانتهاء من مهامي ، أتحقق منها مرة أخرى لمعرفة ما إذا كانت صحيحة.	**1**	**2**	**3**	**4**

Academic Performance

The Grade Point Average (GPA) indicated students' academic performance. Students reported their GPA two times throughout the study on a 4.0 scale. However, the information was verified in the administration system of the university. The minimum GPA value among the study sample was .67 and the highest was 4.0. The average was 2.93.

Procedure

Both instruments were distributed in English and Arabic version simultaneously. The SEI was the first instrument to be distributed to students during classes in elective courses. In a similar administration, the ILS was distributed a week later. Once all the questionnaires were collected, they were paired for each student using their full name and university identification number. Complete data were collected for five hundred and sixty-three students (*N*= 563).

Analysis

Firstly, the reliability of the ILS among undergraduate students in the Arab context was evaluated using Cronbach's alphas for each sub-scale. In addition, assumptions of normal distribution were tested. As shown in Table 16, Cronbach's alphas for the scales of learning patterns were acceptable in rank. However, lower values were recorded for *"intake of knowledge"* (.43) and "*personally interested"* (.5) subscales.

In general, a Cronbach's alpha value of .7 or higher is seen as acceptable, showing good internal consistency. However, in exploratory research, such as the current one, or when the constructs being studied are particularly complex, where lower alpha values might still be considered reasonable. For the subscale with an alpha of .43, although it is not the ideal scenario, it still offers important insights into the construct under investigation. This suggests that it may still be valuable to retain the .43 and .5 subscales in the model, as it contributes meaningful information that aids in a deeper understanding of the overall construct. Therefore, we opted to keep these two subscales. However, the subscale *certificate oriented* (.31) demonstrated poor reliability and was excluded from further analysis. The rest of the subscales had a reliability range from .6 to .76. The relatively low number (3) of items for each sub-scale can explain the somewhat low Cronbach's alpha coefficients. Indeed, subscales with the highest reliability (i.e., external regulation .76) include six items. In overall, the results indicate good internal reliability (Pallant, 2016) of ILS and its suitability to work with Arab undergraduates in Kuwait.

About the normality test, Skewness and Kurtosis were calculated using the descriptive statistics function. The Skewness ranged from -1.03 to .15, and the Kurtosis -.52 to 1.96. The data suggest that the distribution is approximately normal, with no significant deviation from a normal distribution (George & Mallery, 2010).

Table 16

Descriptive Statistics and Cronbach's Alphas for the Subscales of the Dimensions of Learning Patterns (ILS; Vermunt, 1998, 2020) (N = 563)

Dimensions of learning and subscales	Mean	SD	Skew	Ku	α
Processing strategies					
Deep processing	3.21	.75	-.35	-.17	.72
Stepwise processing	3.38	.78	-.37	-.01	.7
Concrete processing	3.42	.84	-.36	-.12	.69
Regulating strategies					
Self-regulation	3.38	.75	-.52	.13	.69
External regulation	3.71	.69	-.72	.88	.76
Lack of regulation	2.79	.9	.05	-.52	.62
Conceptions of learning					
Construction of knowledge	3.95	.68	-.81	1.7	.63
Intake of knowledge	3.57	.68	-.3	.03	.43
Use of Knowledge	4.12	.64	-.97	1.65	.65
Stimulating education	3.98	.67	-.62	.42	.6
Cooperative learning	3.34	.82	-.41	.02	.67
Orientations to learning					
Personally interested	3.81	.65	-.75	1.35	.5
Self-test oriented	3.89	.69	-.65	.9	.63
Vocation oriented	4.14	.67	-1.03	1.96	.67
Ambivalent learning	3.09	.75	.15	.01	.65
Certificate oriented	3.69	.65	-.5	.92	.31

As for the second instrument, SEI, the study used AMOS version 26.0 to validate the model fit of the instrument through confirmation factor analysis (CFA). It established the model fit using a combination of three categories of fit indexes namely, absolute, incremental, and parsimonious fit. The absolute fit statistics used in this study were the Root Mean Square of Error Approximation (RMSEA) and Goodness of Fit Index (GFI). The minimum Discrepancy of the Chi-Square value (Chi-Square) was ignored as the sample size of the current study is greater than 200 (*N*= 563) (Hair et al., 1998). Two indexes were included in the incremental fit category used to test the worst possible structure model: Adjusted Goodness of Fit (AGFI) and Comparative Fit Indexes (CFI). As for the

parsimonious fit, the Chi-Square/Degrees of Freedom (ChiSq/df) determined degrees of freedom of the model fit.

The initial analysis showed fit indexes to have acceptable fit but not satisfactory. Therefore, by applying the modification indices, the model improved. Eight items were removed from the original version of the SEI. Among the items removed, seven described emotional engagement and one cognitive engagement. The deletions were based on substance, with some items possibly being redundant or measuring different constructs. Ambiguity in question wording may have caused confusion, exemplified by unclear references in certain items. After modification, the model reached more favourable fit indices. The RMSEA, GFI, AGFI, CFI, and ChiSq/df indexes were achieved: .07, .88, .85, .90, and 2.48, respectively.

Regarding cognitive engagement, two sub-scales were depicted from the analysis: Future Goals and Aspirations (FGA) and Control and Relevance to Schoolwork (CRSW). Cronbach's alphas for these subscales were calculated to estimate whether the SEI was reliable regarding students' cognitive engagement in the Arab context. Subsequently, data showed the SEI to have a good fit. The means, standard deviations, Skewness, Kurtosis, and Cronbach's alphas for subscales cognitive engagement are given in Table 17.

Table 17

Descriptive Statistics and Cronbach's Alphas for Cognitive Engagement and Subscales based on the SEI Model (based on Betts et al., 2010) (N = 563)

	No. of items	Mean	*SD*	*Skew*	Ku	α
Cognitive engagement	11	3.34	.37	-1.2	4.61	.76
Control and relevance to schoolwork (CRSW)	7	3.14	.42	-.62	-.55	.68
Future goals and aspirations (FGA)	4	3.5	.49	-1.17	2.4	.67

7.3. Results

Dimensionality and Prevalence of Learning Patterns

The existing body of research is controversial regarding the factor structure of ILS (Song & Vermunt, 2021). Therefore, the present study tested the dimensionality of the instrument for the Arab sample. The principal component analysis with Promax Kaiser Normalization as a rotation method depicted three factors. These factors accounted for 50.94 percent of the total variance. The Kaiser-Meyer-Olkin test (KMO) of appropriateness was achieved (.84), and Bartlett's test of Sphericity was significant.

Table 18

KMO and Bartlett's Test of ILP

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.843
Bartlett's Test of Sphericity	Approx. Chi-Square	2343.686
	df.	105
	Sig.	0

Table 19 presents the factor loading of the ILS scales on three extracted and rotated factors. Factor 1 was loaded with subscales of processing and regulating strategies, therefore grouping a set of actions toward learning with no connection to the belief components. This pattern can be seen as an *active* pattern. Students with this pattern engage in various processing strategies and use both external and self-regulation for their learning but do not conceptualize or idealize learning.

The subscales of learning orientations and conceptions of learning are loaded in Factor 2. These subscales create a *passive* pattern, as there is no exhibition of processing or regulation strategies. Personal interest has a good saturation in factor (.69) which shows a tendency to relate to learning personally. Factor 3 captures high loadings of ambivalent learning (.83) and lack of regulation (.72) combined with cooperative learning (.36) and intake of knowledge (.33). These scales show an *undirected* pattern, as students do not imply a specific way of engagement and are unable to regulate their learning.

Table 19

Factor Loadings of ILS Scales in a 3-factor Solution for Arab Undergraduates

	Factor 1 (Active)	Factor 2 (Passive)	Factor 3 (Undirected)
Stepwise processing	.83		
Deep processing	.83		
Self-regulation	.76		
Concrete processing	.73		
External regulation	.59		
Use of knowledge		.81	
Vocation oriented		.74	
Personally interested		.69	
Self-test directed		.66	
Stimulating education		.57	
Construction of knowledge		.47	
Ambivalent learning			.83
Lack of regulation			.72
Cooperative learning			.36
Intake of knowledge			.33

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

Table 20 displays the descriptive data of the depicted factors for the study's sample. The data allow us to identify the dominant learning pattern. As seen, the *passive pattern* has the highest mean score (3.99) indicating that is the prevalent pattern among students in Kuwait. The second most employed pattern is the *active* (3.43) followed by the *undirected* pattern (3.2).

Table 20

Descriptive Data of Extracted Patterns for Undergraduates in Kuwait (N=563)

	Min	Max	Mean	*SD*
Active	1	4.93	3.43	.6
Passive	1	4.93	3.99	.48
Undirected	1.25	4.58	3.20	.48

Learning Patterns, Cognitive Engagement and GPA

The Pearson product-moment correlation assessed the relationships between the depicted learning patterns, cognitive engagement, and GPA.

Table 21

Correlation Matrix of GPA, Learning Patterns, and Cognitive Engagement

	GPA	Cognitive	Active	Passive
Cognitive	.248**			
Active	.336**	.478**		
Passive	.329**	.472**	.462**	
UD	-.133**	.117**	.287**	.153**

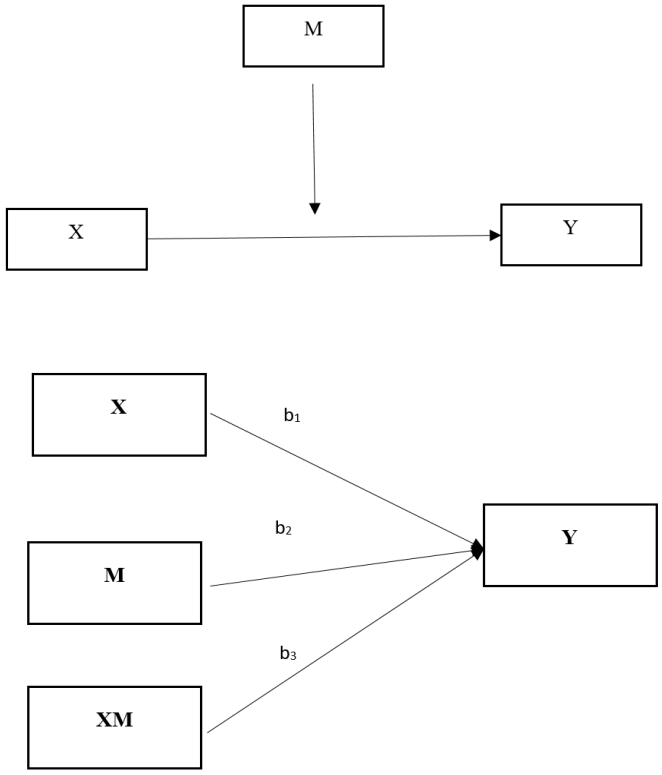
** Correlation is significant at the 0.01 level (2-tailed).

As seen in Table 21, GPA had a moderate positive correlation with active pattern (r = .34; p= .002) and cognitive engagement (r = .25; p< .01). Similarly, the passive pattern was positively correlated with cognitive engagement (r = .47; p< .01) and GPA (r = .33; p= .004). The undirected pattern showed a weak negative correlation with students' GPA (r =-.13; p= .003). Regarding the cognitive engagement, the undirected pattern showed a weaker connection with cognitive engagement (r = .12; p= .005) when compared with the other two patterns. The correlational analysis indicated inter-correlations exist between learning patterns, cognitive engagement, and GPA, suggesting moderating effects among factors.

The second question of the study aimed to test whether there was a moderating effect of cognitive engagement on the association of learning patterns with students' GPAs. The Process Macro of Hayes (Hayes, 2018) was used for this purpose, which is an extension tool for the SPSS Statistical package 26.0. The Process Macro conducts multiple regression analysis by centering the values, creating the interaction term, and running the analysis with the interaction term. Figure 11 represents the conceptual framework of Hayes's Macro Process Model 1.

Figure 11

Conceptual and Statistical Diagram of Simple Moderation (Model 1: Adapted from Hayes, 2018)



Conditional effect of X on Y = $b_1 + b_3M$

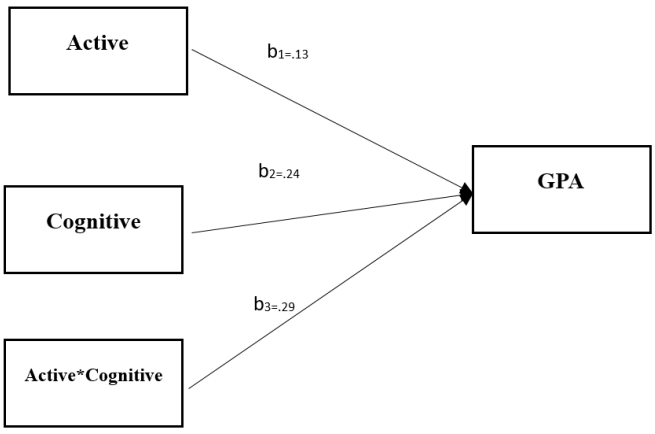
The analysis was run separately for each pattern.

Active Pattern, Cognitive Engagement, and GPA

Firstly, the study tested whether cognitive engagement (Cognitive) moderated the effect of the active pattern (Active) on students' GPAs (Figure 12). Both the indirect and direct impacts of the cognitive engagement and active pattern on GPA were found to be significant. The direct effect of the *active pattern* on GPA was positive and significant (B = .13, SE= .57, p = .02). The direct effect of cognitive engagement on GPA was also positive and significant (B = .23, SE = .08, p< .00), indicating that a higher cognitive engagement affects students' GPA. The indirect effect of cognitive engagement on GPA was also positive and significant: B = .29, SE = .077, β =.07, p = .00 <.05. The results showed that cognitive engagement has positive moderating effect on students' GPA through active habits of learning. In other words, the interaction of cognitive engagement with active learning significantly affect students' academic performance. Moreover, the model with the interaction term (Active* Cognitive) accounted for significant variance in GPAs: R^2 =.14 (Figure 12).

Figure 12

Conditional Effect of the Active Pattern on GPA with Cognitive Engagement as a Moderator

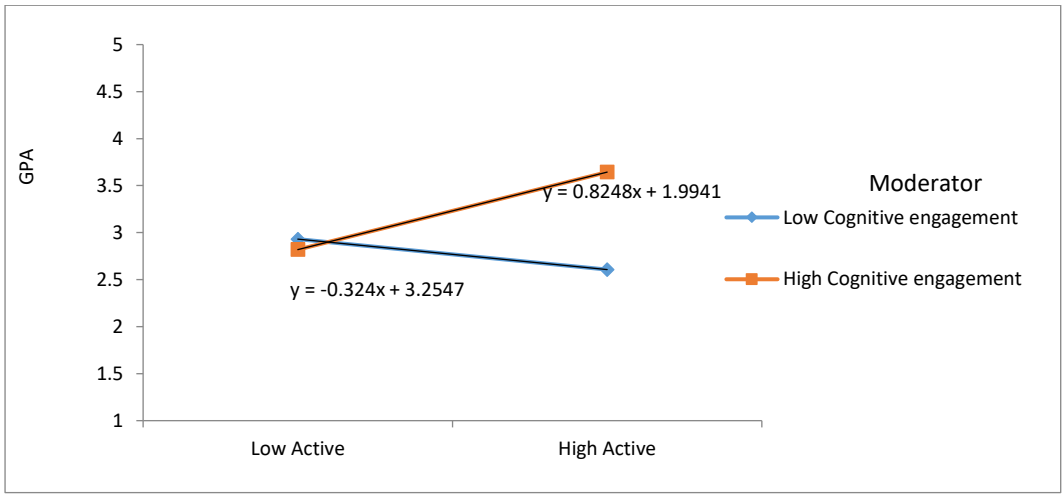


To further investigate the moderation effect, the study analyzed the simple slopes. The results are shown in Figure 13. As can be seen, the line is much steeper for high cognitive engagement; this indicates that at a high level of cognitive engagement, the impact of active

patterns on a students' GPA is more substantial. In other words, as the level of cognitive engagement increased, the effect of active patterns on GPA increased as well.

Figure 13

The Plot of the Simple Slope Analysis for the Moderator Variable Cognitive Engagement (Active Pattern as the Independent Variable)

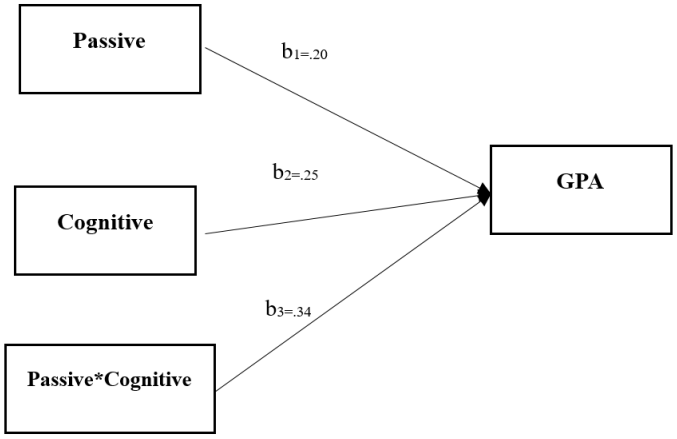


Passive Pattern: Cognitive Engagement and GPA

Cognitive engagement (Cognitive) moderated the relationship between *passive pattern* (Passive) and GPA: B =.34, SE =.10, β =.08, p =.00, indicating that the interaction term (Cognitive*Passive) was significant. The conceptual diagram is presented in Figure 14. The direct effect of the *passive pattern* on GPA was significant: B =.20, SE =.07, p =.04. The second path of the immediate effect of cognitive engagement on GPA was significant as well: B =.25, SE =.08, p =.00 (Figure 14). These results showed the model with the interaction term (Passive* Cognitive) was statistically significant, accounting for 15% of the variance in students' GPAs (R^2 =.15).

Figure 14

Conditional Effect of the Passive Pattern on GPA as Cognitive Engagement as Moderator

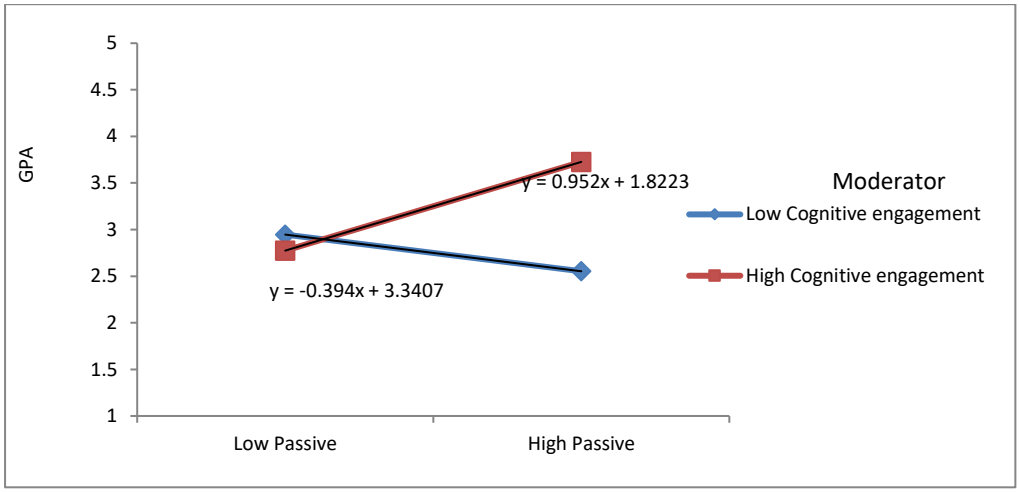


Simple slopes analysis revealed that cognitive engagement strengthens the relationship between the passive learning pattern and students' GPAs. In other words, when the cognitive engagement of the student increases, the effect of the passive pattern in learning on his GPA will also increase (Figure 15).

In conclusion for the second research question: the interaction of cognitive engagement with both passive and active learning patterns significantly moderated the relationship between these patterns and GPAs. Noteworthy mentioning that the interaction term, including the passive pattern (Passive*Cognitive), had a greater impact on the GPA when compared with the other interaction (Active*Cognitive): b=.34 and b=.29, respectively.

Figure 15

The Plot of the Simple Slope Analysis for the Moderator Variable Cognitive Engagement (Passive Pattern as the Independent Variable)



Undirected Pattern: Cognitive Engagement and GPA

The analysis did not reveal a moderating effect of cognitive engagement on the relationship between undirected patterns and GPA. The model including the interaction term (Undirected*Cognitive) was statistically insignificant (B =.20, SE =.12, p =.12) However, both direct paths were statistically significant: B =-.20, SE =.60, p =.00 and B =.30, SE =.08, p =.00 for Undirected*GPA and Cognitive *GPA, respectively.

7.4. Discussion

This study aimed to (1) depict students' learning patterns of undergraduates in Kuwait based on Vermunt's' model, (2) inquire on the relationship between learning patterns, cognitive engagement, and GPA, and determine if cognitive engagement moderates the relationship between these learning patterns and GPA.

Learning Patterns of Arab Undergraduates

The study used the ILS inventory, for which it first tested its reliability and dimensionality. Results showed that the ILS, based on the Vermunt model (1998, 2020), was a reliable instrument to depict students' learning patterns, with alphas being in an acceptable range. Further structure analysis revealed a different configuration of the learning patterns from the original model suggested by Vermunt (1998). Three learning patterns were displayed, namely *active, passive, and undirected*.

These results are supported by recent literature. For example, an *active pattern* characterized mainly by regulation and processing strategies was found among Chinese, Spanish, and Latin-American students (Martínez-Fernández & Vermunt, 2015; Song & Vermunt, 2021). Students prevailing in the *active pattern* use external and internal regulation strategies to succeed in their learning. They actively manage their learning while being cautious and receptive to external feedback. For example, a student that sets goals and monitors his learning can update and progress while receiving feedback from the teacher and his peers (Donche et al., 2014). Mixed processing strategies were noticed as well in Ibero-America studies which authors saw it as “versatile” learning (Martínez-Fernández & Vermunt, 2015). In addition, the use of processing strategies that are both deep and stepwise tells about the existence of mixed methods of teaching. Evidently, teaching these students shifts from the teacher's activity to the student's active behavior, emplacing both teacher and student-centered approaches. Therefore, a student perceives that success is achieved by being active no matter how to approach learning.

The findings show a *passive* pattern, which comprehends a combination of learning motivations and conceptions with no regulation or processing strategies. Similar to the passive pattern of Arab students in Kuwait, was found also found among Asian students in Sri Lanka and Indonesia (Marambe et al., 2012). In Ibero-America studies, a pattern like the

passive here is the passive motivational pattern (Martínez-Fernández & Vermunt, 2015). Students prevailing in this pattern tend to study for tests with the final goal of completing their studies to find a job. Therefore, they think education must be stimulating. Students may not be proactive but are idealistic and have expectations for their learning. Highly structured teaching might induce passive learning, as well-defined and structured courses leave little space for independent learning (Loyens et al., 2008). That said, this pattern might guarantee students' performance in a high-regulated learning environment.

The *undirected pattern* depicted in this study is similar to the original configuration proposed by Vermunt (1998, 2020), yet not identical. The saturation of the subscale of *ambivalent learning* and the *lack of regulation* characterizes the undirected pattern here. However, this configuration is very commonly found among studies across regions and often these two subscales are what keep the undirected pattern to be labeled as such (Ciraso-Calí, 2023). The *undirected pattern* displays a type of configuration in which students who score high on this subscale are characterized by motivational ambivalence and lack of regulation. In such a sense, it seems one of the least suitable pathways for the deployment of learning processes.

Finally, regarding the study's first question, the pattern mainly used by Kuwaiti undergraduates was the passive pattern, with a relatively high mean score compared to the other two patterns. Other studies have found the passive (or passive-idealistic) pattern to be dominant among Asian learners (Marambe et al., 2012; Song & Vermunt, 2021), making Arab learners appear like Asian learners. Traditional teaching practices such as lecture-based instructions and highly structured curricula with little space for independent learning might induce the passive approach. Indeed, rote learning and traditional teaching methods are predominant in Gulf countries, especially Kuwait. In this respect, Mahboob and Elyas (2017) mention that one main challenge of Kuwait's educational system is the shift from traditional

teaching methods to problem-based learning to promote critical thinking. Ideally, students are expected to engage in class and activities requiring critical thinking, deep processing, and understanding. When this does not happen, students might experience conflict between learning anticipations and strategies needed to cope with tests and examinations.

Another possible explanation of the dominant passive pattern for Arab undergraduates in Kuwait might be the year of studies. Most of the participants in the current study were in their first year of studies. Amid various changes and challenges, the use of explicit processing strategies is a process that takes time. Moreover, the lack of regulation among first-year students is expected as they still need to be habituated to the learning environment. Vermunt and Verloop (1999) referred to this as the "friction" period.

A noteworthy factor potentially contributing to the prevalent passive learning pattern among Kuwaiti students is the composition of the teaching workforce. According to the Kuwait Education Sector Report (2021), only 1.8% of teachers in private universities/schools in Kuwait are Kuwaitis, while the remaining 98.2% are non-Kuwaitis (p. 15). This suggests the possibility of a cultural gap between students and teachers. As Hofstede (1986) noted, "The teacher-student interaction is an archetypal pair... deeply rooted in culture, (which) ...produces fundamental problems between both parties... (such as) ...differences in cognitive abilities between parties" (p. 303). The cultural gap presents the risk of conflict between teachers' teaching methods and their students' cultural expectations, leading the latter group to disengage and adopt a more superficial approach to learning.

Learning Patterns, Engagement, and GPA

As for the second research question, this study showed correlations between learning patterns, cognitive engagement, and GPA. Positive correlations were found between cognitive engagement and both learning patterns. While active learning is expected to

correlate with cognitive engagement, the fact that the passive pattern also correlates with cognitive engagement is counterintuitive. This phenomenon may be attributed to the cognitive engagement framework employed in this study, which encompasses perceptions and motivations for learning. Cognitively engaged students consider learning essential for their future goals and careers, and therefore, they view assignments and schoolwork as relevant to their educational aspirations. In other words, cognitive engagement reflects students' attitudes toward learning rather than their behavior, much like the passive pattern.

Regarding GPA, both the *active* and *passive* patterns are positively connected to it. This result is not new to the existing literature (Song & Vermunt, 2021). Indeed, the passive pattern connecting to academic achievement challenges the “myth” in which the active pattern is considered the only “desired” one for academic success. Students may succeed in their learning in very personal varying ways. Passive learners might still be engaged in retaining and processing information. However, the result brought by this study about the passive pattern and GPA shows the need for further investigation of the issue.

The *undirected* pattern, on the other hand, had a weak negative correlation with the GPA. Based on the original model of Vermunt (1998), the expectancy is that the undirected pattern must strongly negatively correlate with academic success as it is labeled as an “undesired” pattern. Nevertheless, in many studies, the relationship between UD and academic results is unclear (Hederich & Camargo, 2019). This might be addressed to the nature of the UD pattern. It emphasizes the lack of regulation and processing strategies. However, a question is posed: is the lack of the processing and regulation strategies or the inconsistency of using them that determines the undirected pattern?

The Moderating Role of Cognitive Engagement

As for the last aim, this study found that cognitive engagement moderates the relationship between the active and passive patterns and students' GPAs among Arab undergraduates. The positive impact of the active and passive patterns on GPAs deepens with the presence of cognitive engagement. Of the two interaction models, the one including the passive pattern and the cognitive engagement was found to have higher significance. The presence of cognitive engagement better serves those students who prevail in passive learning. Thus, this study suggests that educators and policymakers should focus on enhancing students' cognitive engagement to support their academic achievement, particularly among those who adopt passive learning patterns. It also highlights the importance of considering students' learning patterns and cognitive engagement when designing educational programs and policies.

Chapter 8: Integration of Results

> "*Thus, education becomes a futile attempt to learn material that has no personal meaning. Such learning involves mind only. It is learning that takes place from the neck up. It does not involve feelings or personal meanings; it has no relevance for the whole person".*
>
> **—Carl Rogers**, *Freedom to Learn for the 80s*, 1983

This research aimed to investigate the learning patterns, engagement, and academic performance of Arab undergraduates in Kuwait. The ILS instrument, representing the Vermunt (1998) framework, was used for the learning patterns, and the SEI tool, as provided by Appleton and colleagues (2008), was used to measure engagement. Two studies were conducted in this regard: one investigated the types of engagement among the study sample and its predictive validity for performance, while the other depicted patterns of learning, how they correlate to achievement, and the role of cognitive engagement in this relationship. The results of each study are detailed in previous sections (4 and 5). Here, we integrate the results of both studies.

The first study aimed to depict participants' internal forms of engagement using a well-established model in higher education, particularly prevalent in Western countries. The SEI suggests that internal engagement is either emotional or cognitive. The former is built upon the sense of connectedness with the institutions, a sense of belongingness and safety, and relationships with teachers and peers, which are seen as supportive of learning. The latter involves using cognitive means to control learning, such as taking responsibility for the process of learning and its outcomes, finding the relevance of educational activities, and

relating these activities to their future goals and aspirations. Therefore, as evidenced by previous research, these forms of engagement significantly affect academic outcomes.

A revised model of the SEI was found to be suitable for the sample population of Arab undergraduates in Kuwait. A five-factor structure of the model was depicted in this study, the same as proposed by the original authors. There are two types of engagement—emotional and cognitive—each with subscales, three for cognitive and two for emotional. First-order structure analysis showed an acceptable fit of the model, indicating the robust value of the SEI (Table 6). However, in the second-order factor analysis, the model was notably improved (Table 7), with fit index values reaching perfect cutoff values. This emphasizes the hierarchical structure of the instrument. The internal consistency of both types of engagement with their subscales was also high, $\alpha = 0.87$. The results provide hints for a three-order factor structure of the SEI, which was not conducted here but remains a good suggestion for future studies. Emotional and cognitive engagement appear strongly correlated in this sample, suggesting that they are codependent. As for the prevalence of types of engagement, the cognitive type had a higher mean score compared to the emotional type: 3.31 and 3.13, respectively.

As for the concern this study had about engagement and academic performance, a correlation analysis was conducted (Table 9). Both emotional and cognitive engagements were positively correlated to the GPA. The emotional engagement — GPA relationship was weak, while the cognitive engagement — GPA relationship was moderate. Future goals and aspirations of participants (FGA) were better correlated to GPA compared to control and relevance over tasks and assignments (CRSW).

The linear regression revealed that cognitive engagement had predictive validity for the GPA (Table 11). The constant intercept value (B = 1.466) indicated that if cognitive

engagement were at zero level, the student's GPA would be 1.466, noting that the average score of the GPA of participants was 2.93. Therefore, about 8.5% of the variance in the GPA is explained by the variance in cognitive engagement. Emotional engagement, on the other hand, did not have predictive validity for participants' GPAs.

The second study used the results of the previous one about engagement and academic performance to expand the investigation of the learning patterns of students. The revised model of the SEI, resulting from the first study, was used in the second study. Considering the main finding that only cognitive engagement predicted the GPA, the second study's research objectives were drawn upon. The objective was to understand the patterns of learning of Arab students through the lens of cognitive engagement.

The ILS was used to depict participants' learning patterns. Before any primary analysis, equation modeling was done to understand the factor configuration of the ILS, which is one objective of this thesis. Three patterns of learning were depicted for this sample population: active, passive, and undirected. The active pattern was characterized by loading of processing and regulation strategies only, with no conceptions or motivations for learning (Table 19). All three types of processing were present, as well as both self- and external regulation. Therefore, we opted to label this pattern as *active*. The second pattern was characterized by loadings of conceptions of learning and orientations of learning without processing and regulation strategies. The use of knowledge had the highest saturation (0.81) in this pattern, and the construction of knowledge had the lowest saturation (0.47). As a pattern with no processing and regulation activity, we opted to call it a *passive* pattern. The third factor depicted was the *undirected* pattern characterized by ambivalent learning (0.83), lack of regulation (0.72), and conception of learning as a cooperative process (0.36) and intake of knowledge (0.33). We opted to keep the label Undirected as it is very close to the original undirected factor of Vermunt (1998).

The ILS had a different configuration from that proposed by Vermunt, but it did not contradict much of the recent literature (Martínez-Fernández & Vermunt, 2015). The ILS showed a satisfying structure with a three-factor solution. The internal reliability of the patterns was satisfactory, with alphas ranging from 0.501 for the undirected pattern to 0.803 for the active pattern. The passive pattern had the highest mean score (3.99), which was significantly higher than the active pattern (3.43, Table 20).

The second concern of the second study was to explore relationships between the depicted patterns and performance. Positive moderate correlations were found among *passive* and *active* patterns and the GPA: p = .329 for passive—GPA and p = .336 for active—GPA (Table 21). Meanwhile, the *undirected* pattern showed a weak negative correlation with the GPA, p = -.133. In addition, the passive and active patterns positively correlated to cognitive engagement in a similar p-value: 0.472 and 0.478 respectively.

Finally, multiple regression analysis revealed that cognitive engagement moderated the impact of passive and active patterns on performance. The conditional effect of cognitive engagement was significant in both cases. However, the Passive*Cognitive configuration was more significant ($b_3 = 0.34$) than the Active*Cognitive configuration ($b_3 = 0.29$) (Figures 11 and 12). The result indicates that the presence of cognitive engagement enhances the positive impact of both active and passive patterns on students' GPAs, but the moderation is more significant for the passive pattern. When a student employs passive learning, meaning has conceptions and motivations about learning, being cognitively engaged accounts for a 15% variance in their GPA ($R^2 = 0.15$). However, it is noteworthy that for low or moderate values of the passive pattern, there is no moderation effect of cognitive engagement (Figure 15). Therefore, the best moderation happens in the following configuration: High Passive*High Cognitive ⇾ GPA.

SECTION E: DISCUSSION AND CONCLUSIONS

Chapter 9: General Discussion

> *"The whole educational and professional training system is a very elaborate filter, which just weeds out people who are too independent, and who think for themselves, and who don't know how to be submissive, and so on — because they're dysfunctional to the institutions."*
>
> **— Noam Chomsky,** *Understanding Power, 2002*

This research investigated the configuration of learning patterns, prevalence, relationships with academic performance, and the role of engagement in this context. Additionally, it examined engagement and its predictive validity regarding academic performance among Arab students in Kuwait.

Two studies were conducted, with the respective results and discussions presented in Chapters 6 and 7. Integrated statistical results are provided in Chapter 8. This chapter will include discussions and interpretations of these results, aligning them with the latest literature from a cultural perspective.

9.1. What are the nature and dimensions of student engagement among Arab students in Kuwait?

In a sample of Arab undergraduates in Kuwait, the student engagement based on the Appleton and colleagues (2008; 2010) framework was utilized to depict internal forms of engagement. Initial analysis revealed the model with a good fit. Two types of engagement were identified: emotional and cognitive engagement, which align well with Appleton and colleagues' original proposal. The emotional engagement encompasses a sense

of connectedness and feelings toward the institution, relationships with teachers and peers (TSR, PSL), and support from the family (FSL). It refers to a general feeling of belongingness and satisfaction with the university and its learning environment.

The cognitive engagement was also depicted and includes factors of control and relevance to schoolwork and assignments (CRSW), and the student's future goals and aspirations (FGA). A similar configuration was found among Malaysian, American, Turkish, and Filipino students, where emotional and cognitive engagement were identified with the respective subscales (Appleton et al., 2014; Chickering & Gamson, 2006; Doğan, 2015; Francisco et al, 2015).

The model was further improved with some statistical procedure like modification indices. Similarly, Karim (2016) improved the model by removing items. It is interesting to note such similarities between the two different studies. One explanation for these common findings might be the cultural characteristics of the sample. Malaysian students attended an Islamic university, bringing them closer to the Arab sample in Kuwait. However, the robust structure of the model has been confirmed in studies distinctly different from the contexts of the ones we just analyzed. Fraysier et al. (2017) found the same factor structure of emotional and cognitive engagement among college students in the southeastern United States, later confirmed by another longitudinal study of the same population (Waldrop et al., 2019). Other studies that have confirmed this structure include Lovelace et al. (2019) and Reschly et al. (2014).

Arab students exhibit relatively high cognitive engagement strengthened by the emotional aspects of their relationships with teachers and the perceived support from their families.

What does it mean for Arab students to be emotionally and cognitively engaged?

Overall, an engaged student is someone who puts energy and effort into learning and takes responsibility in the process. However, emotional and cognitive engagement are the ancestors of engagement (the action).

For *emotional engagement*, *teacher support is* the most critical factor among Arab students (.95). This factor primarily relates to the relationships and interactions between students and their teachers. As reported from a student perspective, this relationship encompasses how students enjoy conversing with teachers, feel cared for, and believe that their personal characteristics are acknowledged by their teachers. Naturally, when students perceive their teachers as approachable and attuned to their needs, they are more motivated to work harder (Zepke, 2017). Therefore, the role of teachers extends beyond guiding the learning; it includes fostering positive emotions that enhance students' happiness and engagement. The faculty represents more than just teachers; they embody the institution itself, underscoring their pivotal role. The statement “Overall, faculty at my university treat students fairly” conveys how the teaching body personifies the university. The benefits students derive from their relationships with teachers translate into their overall satisfaction with the university. Indeed, as teachers, do we not represent the university itself? These findings have significant implications for educational practices, suggesting the need for increased support and training for teachers to enhance student engagement and satisfaction.

Family support has a similar importance as teacher support for emotional engagement (.89). Thus, for students to emotionally engage and develop a sense of connectedness, the family plays a crucial factor. When students feel that their family is involved and care about the challenges they face at university, their involvement is increased as well. “My family is there for me when I need them” - is the item that got the highest mean score among all the items of the instrument (3.63). Therefore, more than just within the university, factors that

influence the emotional involvement of these students are found outside the institution as well. As argued by Zepke (2017), engagement is alienated when external factors such as family problems are going on in the lives of students. That is especially the case for younger students. We, here, remind the reader that students of this research are in their first year of studies. Coming from high school to university needs adjustment and extra help that cannot be provided yet by young relationships with peers. Therefore, an essential supportive task goes for the family.

Moreover, culture might explain a lot about the importance of family support for engagement. These students live with their families, and probably, even after they get married and start families of their own. It is a value of this culture to consider family as the most important asset, and especially respect for parents and older people. Using the cultural theory of Hofstede (1983), the culture of Kuwait may be referred to as a *collectivist* one, which stresses belonging to a social organization (family) where individuals (students) are seen as a part of a larger group. Therefore, these young adults are children of their parents before they arrive at the university to be independent learners. That impact is being kept while studying.

Peer support is the least saturated factor of emotional engagement (.78). As we previously mentioned, students here are in the very first year of their studies. Long-lasting relationships have probably not been established yet. The statement “Other students at university care about me,”- which has the lowest mean score (2.65), indicates that still, for these students, their peers are not crucial for their engagement. However, further analysis, like cluster analysis, might be helpful in determining different profiles of emotional engagement according to its factors.

Cognitive engagement for this study's sample means learning is important to reach *future study and career goals* (FGA). These students learn because they want to succeed. From the perspective of the SEI model, being cognitively involved means connecting study activities with *future aspirations*. The statement –"University is important for achieving my future goals"- had the highest score among those for cognitive engagement (3.51). Indeed, this finding was expected before the current research process started. Seeing the extreme values these students give to grades and graduation so that to be ready for a job is the motivation behind the current research.

Cognitive engaged students use cognitive and meta-cognitive skills to process their learning. They try to find *relevance with learning tasks* (CRSW) and project success and failure to themselves rather than external factors. While cognitively engaged, these learners tend to rely more on themselves rather than on the nature of the task, directions given, or peer cooperation. These students make an internal attribution to success –"When I do well at university, it is because I work hard" (3.54), and they believe that tests measure well what they are able to do for their learning (3.00).

Between the two types of engagement detailed here, students in Kuwait tend to exhibit relatively high cognitive engagement (3.31 out of 4). This shows that on an average, an Arab student tends to be cognitively engaged. Emotional engagement is relatively high as well, but less compared to the earlier one (3.13 out of 4). Reading these results, one might expect that students in Kuwait are involved as well, active in class, participate, initiate, and control their learning. But to catalyze cognition into action, there are various interfering factors. For example, teachers and teaching are central to how students transform this engagement into behaviors that are observable and measurable. From a constructivist point of view, engagement is reached if it is allowed. Teachers must practice proper teaching and learning to create an environment where independence is a value (Knowles, 1983).

Moreover, what students do about their learning relies not only on their cognitive and emotional engagement but also on their learning methods. Combined, engagement and learning ways explain more about students' involvement and achievement, which we finally aim for in this thesis.

9.2. How does engagement affect the academic performance of Arab students in Kuwait?

The current study found that both types of engagement positively correlate to academic performance, albeit the strengths of these correlations differ. Cognitive engagement has a stronger correlation (r= .208) compared to emotional engagement. The mean score of cognitive engagement is also quite high, reinforcing the idea that students are deeply invested in the academic aspects of their education. This means that factors like control over learning, goals, and aspirations play a crucial role in academic success.

Similar findings are very common in the literature in which overall cognitive engagement positively affects performance (Robb, 2014; Wara et al., 2018). However, we must acknowledge that this correlation is not that strong despite the cognitive engagement being relatively high among Arab students (3.31 out of 4). One study with the closest result to the current one is that of Doğan (2015) with Turkish students, where the correlation of cognitive engagement with achievement was just moderate.

Deepening into the second research question, linear regression was done to analyze the predictive validity: How much the change of emotional and cognitive engagement produces change in academic achievement? Results showed that cognitive engagement predicts the academic achievement. When cognitive engagement increases, the GPA increases as well ($\beta = .189$). This strengthens the idea that cognitive

engagement is essential to achievement and learning in general. On the contrary, emotional engagement did not have any predictive validity on achievement.

However, these findings should not be seen in isolation. Cognitive and emotional engagement are interrelated rather than separate constructs. Emotions can trigger cognitive engagement. Emotional connections and a sense of belonging at the university may boost cognitive engagement, leading to more meaningful interactions with learning tasks, clearer goals, and higher motivation. This, in turn, fosters self-regulated learning and enjoyment of academic activities, potentially increasing overall academic satisfaction. As suggested by Pekrun (2006), positive emotions will increase the chances of using self-regulation and proper strategies that comprehend engagement, potentially leading to better academic performance.

Lastly, as we see it: Arab students in Kuwait exhibit relatively high cognitive engagement, which is strengthened by the emotional aspects of their relationships with teachers and the perceived support from their families. This dynamic contributes to their better academic performance.

9.3. What learning patterns are prevalent among Arab students in Kuwait, and what are their dimensions?

To answer this research question, Arab students were administered the Inventory of Learning Styles (ILS) based on Vermunt's model (1998, 2020).

The ILS was considered a reliable tool for depicting the learning patterns in Kuwait. The revised short 60-questions across 16 subscales were utilized (Martínez-Fernández & García-Orriols, 2017). The analysis demonstrated good internal reliability for the model, although some subscales, particularly the *certificate-oriented* subscale, showed low reliability and were subsequently removed. According to Ciraso-Calí (2023), in her ILS meta-analysis,

this subscale is typically problematic across educational settings. Such findings should not be seen as model weaknesses but as anticipated results that underscore the significant influence of context. It is common in exploratory research to encounter low reliability, especially in understudied contexts.

Our research has uncovered a significant configuration of three learning patterns among Arab undergraduates: active, passive, and undirected (UD). This finding is a departure from Vermunt's original proposal, which identified four patterns: MD, RD, AD, and UD. We will interpret these patterns for the current sample based on similar findings in previous studies, underscoring the importance of our research in contributing to the understanding of learning patterns in Kuwait.

Arab students have ideas about learning and are motivated internally or externally but do not exhibit action. They are motivation-driven and application-focused.

The first pattern is characterized by the types of regulation students use and by both deep and stepwise processing of learning content, which has a similar high saturation, followed by a concrete processing strategy. This pattern demonstrates a blend of surface-level and deep learning strategies, where learners employ rote memorization and deeper comprehension strategies. The presence of both *self-regulation* and *external regulation* suggests these learners are adaptable and capable of adjusting their learning strategies based on task requirements or learning environment. We opted to label this pattern as *"active."* A similar pattern has been depicted in other studies and contexts. For example, Ahmedi and Martínez-Fernández (2023) found that Balkan students "employ" a pattern incorporating only all types of processing and regulation strategies. Notably, Ahmedi (2022) considers the cultural dimension of the Balkan students to be *collectivist,* where traditional teaching methods are prevalent, like this study's sample and teaching context. In

their comparative analysis, Vermunt, Bronkhorst, and Martínez-Fernández (2014) found a similar configuration to the *active pattern* in countries like Colombia, Mexico, Spain, Venezuela, and Hong Kong, where no conceptions and learning orientations were loaded in this factor.

The *external regulation* is present in this pattern, although it has the lowest saturation compared to other components. In the study by Martínez-Fernández (2019), this pattern was labeled as MD/er, as the saturation for processing strategies and self-regulation was similar to a Meaning Directed (MD), but with external regulation. In the study of García-Béjar et al (2023), this pattern was labeled as meaning-oriented with external regulation pattern for Mexican students.

What is the practicality of this pattern? Apparently, students benefit from diverse teaching approaches that cater to memorization (for foundational knowledge) and deeper analytical tasks (for conceptual understanding). These students might excel in environments characterized by structured guidance of conventional teaching and non-traditional teaching methods that offer opportunities for independent critical thinking. Moreover, memorization and rehearsal, characteristic of *stepwise processing,* should not be viewed negatively, as is common in learning patterns perspectives. Memorization can be seen as a method that complements deeper understanding, recognized in some cultures as beneficial—akin to the *'Chinese paradox.'* The content can be better processed and understood once memorized. The presence of *external regulation* indicates the vital role of the teacher. One finding mentioned above revealed that Arab students' emotional engagement is regulated by their *teacher-student relationship*. Therefore, students here need and rely on these relationships, which can provide the necessary external regulation. A final note on this pattern: Active learners must adapt to the various demands and requirements set by their teachers to achieve desired learning outcomes. This phenomenon aligns with Marton and Säljö's (1984) concept of

'technification,' which observed that students' approaches to studying are reflective of the task's requirements.

The second pattern, a significant finding, was characterized solely by loadings of *learning conceptions and orientations*. The conception of *using knowledge*, which has the highest saturation, followed by *vocation orientation*, indicates a general motivation for these students to learn for their careers and future vocations. The presence of *personal interest* aligns with the same motivation. Therefore, these students are personally interested in learning content that can be used for their future careers, challenging the archetype that personal learning is solely for the sake of learning. Personal learning can thus refer to personal interests for future goals and careers.

This pattern can be interpreted as *passive* learning since it contains only ideas and motivations regarding learning but lacks any demonstrable activities. This configuration is a departure from the original configuration of Vermunt's model, although some research shows similarities (Marambe et al., 2012; Song & Vermunt, 2021). Donche et al. (2010) labeled a similar pattern as *passive-idealistic.* This pattern defines not only the students' conceptions of learning but also their motivations. It indicates that Arab students have ideas about learning and are motivated internally or externally but do not exhibit action. They are motivation-driven and application-focused.

What is the practicality of the *passive* pattern? It is evident that Arab students are motivated and have clear conceptions about the usefulness of their learning in terms of career advancement. Nevertheless, they might not be engaging actively in the learning process as much as they are planning and orienting themselves toward future goals. This can be seen as a form of *passive engagement* where motivation and conception are present but without significant active learning strategies or behaviors. These learners need urgent and targeted

interventions to connect learning with real-world applications and personal interests, potentially through project-based learning or internships, underscoring the need to move away from traditional methods.

A challenging factor is that views of learning and strategies are configured in separate patterns. The learning strategies that Arab students habitually use are different from what they perceive learning should be. There is a mismatch between the activities expected by the learning environment, a student-centered approach, and the strategies adopted in daily teaching and learning, primarily a teacher-centered approach.

The third pattern identified was characterized by a high loading of ambivalent learning, followed by a lack of regulation. Conceptions of cooperative learning and intake of knowledge exhibited low saturation. This is a pattern similar to the undirected UD as depicted by previous studies (Vermunt & Vermetten, 2004) and is not much different from that proposed originally by Vermunt. It is commonly found in more recent research in the Netherlands (Vermunt & Minnaert, 2003) and in Spain (Martínez-Fernández & García-Ravida, 2012). High saturation of ambivalent learning and lack of regulation characterize the UD pattern among students in Mexico, Hong Kong, Sri Lanka, Indonesia, and Venezuela (Vermunt et al., 2014). The lack of regulation shows high saturation, indicating that self-regulation is difficult for these students. However, does a lack of regulation mean only a lack of self-regulation? We believe this pattern might be conceptually problematic, as do some other researchers (Hederich-Martínez & Camargo-Uribe, 2019). What exactly does the lack of regulation mean? Does it imply that students do not engage in self- or external regulation? How is that practically possible? Is there any other type of regulation besides these two? Alternatively, does the lack of regulation mean an inconsistent use of regulation strategies rather than a complete absence, making it difficult for researchers to profile the student adequately? These conceptual issues, we argue, deserve further exploration.

The conception of *cooperative learning* is present as well. This means that Arab students rely on the cooperation and stimulation that they might get from teachers and peers. The *certificate orientation* is also present in the UD pattern, like Chinese students (Song & Vermunt, 2021). These students do not know how to regulate and what processing strategies to use. Therefore, this pattern can be seen as unregulated collaboration, meaning that students struggle to regulate their learning and, possibly, rely on group dynamics and less on personal initiatives to succeed.

What does the *undirected* learning mean for Arab students? Students who employ this pattern may require more structured guidance and support to overcome ambivalence and develop effective learning strategies, potentially through cooperative learning arrangements that also build individual accountability. Another finding of this study reveals that the sense of connectedness and the emotional engagement of Arab students rely deeply on their relationship with teachers. This remains the necessary support for the ambivalent unregulated learners to push forward in their academic lives.

Lastly, regarding the research question of the prevalence of learning patterns, the *passive* learning pattern emerged as the most prevalent among the students. This pattern reflects a strong tendency towards learning with a specific focus on future careers and vocational motivations. Students within this pattern demonstrate a clear motivation for learning that aligns with their career aspirations, indicating that their interest in learning is deeply intertwined with their professional goals.

However, this pattern is notable for its lack of active learning activities, marking it as passive. This finding underscores the need for us to address this issue. While students are highly motivated and possess clear conceptions about the usefulness of their learning for

career advancement, they may not actively engage in the learning process as intensively as required.

Furthermore, given the complexity and variability of these learning patterns, a cluster analysis could be a powerful tool in further delineating the profiles of these students. As the findings of this research are reported on a variable-based analysis, a cluster analysis can provide a deeper understanding of each group's specific characteristics and needs.

9.4. How do learning patterns affect the academic performance of Arab students in Kuwait, and what moderating role does cognitive engagement play in this relationship?

This study investigated the impact of learning patterns on academic performance, which here refers to measurable outcomes such as the GPA. Although GPA represents only a small part of learning results, it is often viewed as a good indicator of learning outcomes. The study found that both active and passive learning patterns positively correlate with the GPA, with the former showing a stronger correlation ($r = .34$, $p = .00$). This finding aligns with Song and Vermunt (2021), who observed similar relationships among Chinese students. Additionally, a combination of self- and external regulation with deep processing strategies—akin to the active pattern in this study—significantly influenced the academic performance for Spanish students (Martínez-Fernández & Vermunt, 2015).

Interestingly, the passive pattern also correlated with GPA among Arab students, suggesting that learning is a flexible process. Rather than defining patterns as universally "desirable" across educational settings, we should strive to understand what works best for each educational context without generalizing findings. Students succeed by learning in their own ways.

Both patterns also correlated positively with cognitive engagement at a very similar scale, indicating that as cognitive engagement increases, so does the prevalence of each pattern. These significant correlations suggest that patterns of learning and cognitive engagement influence each other. We explored the role of cognitive engagement in the relationship between learning patterns and academic performance. The findings are noteworthy, as no other studies have investigated these dynamics together. The presence of cognitive engagement deepens the impact of active and passive learning patterns on the GPAs of Arab students. More cognitively engaged students exhibit a greater impact of their learning approaches on their performance, especially passive learners. These students, who possess conceptions and motivations for learning but may not show much action in processing and regulation, benefit from cognitive engagement. We remind readers that cognitive engagement involves relating learning to future academic or vocational goals and finding relevance in the learning content with these goals. When students are engaged in this manner, their performance tends to improve, even if their learning actions are minimal.

Regarding the undirected pattern, as expected, there was a weak negative correlation with achievement ($r = -.133$, $p = .00$). This result is consistent with literature suggesting that students generally do not perform well if they exhibit a lack of regulation, particularly self-regulation (Busato et al., 1999; Lindblom-Ylänne & Lonka, 1999). From Vermunt's perspective, a stronger negative correlation with academic achievement might be expected since this pattern is considered "undesirable" (1998). However, this relationship is not always clear (Hederich-Martínez & Camargo-Uribe, 2019). Additionally, the results indicated that the model was not significant regarding the undirected pattern in relation to cognitive engagement; this suggests that the presence of cognitive engagement does not mitigate the negative impact of the undirected pattern on GPA.

Chapter 10: Contributions, Limitations, and Future Perspectives

> *"Learning is the process whereby knowledge is created through the transformation of experience."*
>
> **—David A. Kolb,** *Experiential Learning Theory*, 1984

This research addressed issues of learning patterns, engagement, and academic performance of Arab students in Kuwait. Chapter 3 and 4 have presented the most relevant theoretical influences and reviews related to these topics. The current research was consisting of two studies that are presented in Chapter 6 and 7. For each respective study, the discussion of the findings was given in Chapter 9. In this chapter, we will summarize the contributions of the current research findings, its limitations, and the future implications for research and practice. The sections presented here aim to address the last objective of the research; suggest actions to improve learning experience of students in Kuwait.

10.1. Conclusions and Contributions

The conclusions of the current study are manifold. Firstly, the study stresses the validity of the model of the learning patterns among Arab students. The ILS is a fit measure for the Arab context as for Western, Asian, and Ibero-America contexts. The configurations of dimensions of learning depicted here are aligned with those in other regions as well, and yet have some particularities that belong only to the Arab context. This evidence supports the context hypothesis of the learning patterns which, we believe, it necessary for researchers to "keep an eye open" when seeking for universal findings. The learning patterns model needs to be seen as adaptable rather than a robust perspective from which we aim at the understanding of

learning processes. The most universal statement we could reach to is that the model is flexible, and that is, exactly the advantage of it.

Furthermore, the study findings underscore the significant role of learning patterns and cognitive engagement in shaping academic performance among Arab students in Kuwait. It revealed that both active and passive learning patterns are positively associated with GPA, with the active pattern displaying a stronger correlation. This implies that while both types of learning are beneficial for this learning context. However, seems that the active pattern with active use of processing and regulation strategies while learning leads to more favorable academic results.

As for the engagement model, the crucial role of the cognitive engagement in academic performance is emphasized. Cognitive engagement not only enhances performance of Arab students as sole construct, but as well as the indirectly through learning patterns. The study found that increased cognitive engagement was linked to higher academic performance for students with active and passive learning, highlighting the importance of deeper cognitive processes for educational success.

Finally, the study highlights the importance of transforming passive learning into more active and engaged learning to maximize student outcomes. It suggests the necessity of educational strategies that are sensitive to cultural and contextual factors, emphasizing the need for a nuanced understanding of how these factors influence learning patterns and engagement. This call to action is crucial for educators and policymakers in Kuwait.

Considering all said, we believe that this study has made several contributions, both theoretical and practical.

Firstly, this study seems to be the first to investigate the learning patterns of students in Kuwait and one of the few for the Arab learner in general. To our knowledge, little is

known about the learning patterns of students here, especially those aligning with the Vermunt framework (1998). This framework is quite helpful in understanding issues of student learning and performance as it provides an integrative perspective on learning. It includes the ways students think and the activities they undertake, which are essential for comprehensive educational insights. The framework has been around for about three decades in higher educational research. And yet, it has not reached to Arab students in the Gulf region. Thus, theoretically we have drawn research upon the suggestion of "broadening the research perspective of learning patterns across different populations and contexts" (Vermunt, 2020, p. 11).

Similarly to the learning patterns framework, student engagement needs to be examined more in this region. Most research on engagement has been conducted in Western Europe and North America. The framework adopted here, which considers cognitive and emotional engagement as predictors of other forms of engagement, is crucial for understanding learning struggles from the student's perspective and addressing issues such as extended study years and delayed graduation. These issues are better understood through the lens of internal engagement to get through the real obstacles students face.

Again, for the theoretical contributions, this study, by adapting the frameworks, not only expands them geographically, but at the same time tests their validity and reliability. For example, the configuration of learning patterns among Arab students was not in trace with the proposal of Vermunt and his colleagues. Although, the framework was seen as valid for the sample, the grouping of dimensions of learning in the active and passive pattern is quite a new finding for the Arab learner, which makes them more similar with Asian and Ibero-American counterparts, rather than Western ones. Thus, this study suggests that rather than using measures to investigate learning with the aim to seek for universal ones, the research must be done with a mind that is free from such scope. Are measuring tools needed to be

universal? Rather than the measure, we must refer to the ideas and perspectives these authors suggest.

The theoretical, up-to-date research on engagement was also validated in a setting that had not been previously explored. The study found that the measure used here was adequate for the study's sample, but a revised model provided a better fit. The findings showed that students' relationships with their teachers foster a sense of connection with the university, while support from family and peers is still developing. Regarding cognitive engagement, the goals students set for themselves are crucial to their overall engagement.

Learning patterns were found to impact academic performance. Again, the current research on learning patterns and academic performance is quite rich and varies a lot. The current study contributes that some configurations of the learning dimensions toward performance work differently for Arab students compared to other contexts (i.e. Western) and are similar to some other (i.e. Asian). For example, driven by literature, we were expecting that the active pattern would only correlate with academic performance. Instead, the passive pattern positively correlated as well.

The two adapted configurations of this research have not been previously investigated together. We consider this valuable. Separately, the learning patterns and student engagement have been investigated in relation to a myriad of factors ranging from personal characteristics of the learner to the contextual factors. Together, they have not been seen. The study found that cognitive engagement improves the effect of learning patterns on performance, stressing the role of metacognition in learning. Surprisingly, the moderating role of cognitive engagement was even more significant in the case of passive learners.

As for the practical contributions, the research presented in this thesis provides valuable insights and offers practical implications as well. These insights are tools that can

empower educators, curriculum developers, and policymakers to significantly impact students' academic lives.

- Improving teaching methods: The study found that active and passive learners need different teaching approaches. This means mixing it up for teachers: Use activities that engage active learners and provide context-rich content that motivates the more passive ones. This way, all students get an attempt at success. In addition, integrating in-depth and essential learning activities could make classes more accessible and enjoyable for everyone, regardless of their learning style.
- Developing better courses: The insights into how students' active mental processes during learning relate to their understanding and retention of information can guide course design. If courses connect more with students' futures, it might boost their motivation and, subsequently, their grades. Tailoring course content to increase relevance to students' goals can make learning more meaningful, helping students see the value in their efforts.
- Educational policies: The study findings underscore the paramount importance of emotional support in educational policies. They highlight the urgent need for educational environments that foster both thinking and feeling. This insight should deeply resonate with policymakers, emphasizing the urgency and significance of implementing policies that support students' emotional and cognitive needs. By doing so, we can enrich the learning experience, making it more fulfilling and rewarding for students.
- Training educators: Teachers play a huge role in making or breaking a student's interest in learning. Professional development programs could help them develop better relationships with students, effectively understanding and addressing their emotional and cognitive needs. Moreover, getting teachers up to speed with cultural sensitivities could help them connect better with students from diverse backgrounds, making their teaching

more impactful. This is especially crucial in the Arab region, where the teaching body often does not come from the same society as the students.

- Creating support networks: Students thrive in supportive environments. Universities could set up mentoring, counseling, and peer support programs to help students manage their academic journeys more effectively. Encouraging students to develop self-regulation and reflection skills can also give them more control over their learning, leading to better outcomes.

10.2. Limitations

While this research has made significant contributions, like any other, has its limitations. Here we will discuss these limitations in detail as we acknowledge them.

To begin with, is important to note that this research took place in the aftermath of the COVID-19 pandemic, a time when Kuwait, like the rest of the world, faced disruptions across all aspects of life, particularly in education. The pandemic led to transitions to online learning, changes in assessment methods, and adjustments in course delivery. These shifts likely influenced how students learned and engaged differently from what is seen in more traditional academic settings. The behaviors and reactions we observed might be specific to the circumstances. It may not directly translate to more conventional educational settings. The emotional impact of the pandemic, including increased anxiety, stress levels, and feelings of isolation, could have affected how students engaged with learning and their strategies for learning. Therefore, there is a possibility that these findings may not be universally applicable to environments.

The findings of this study, which derived from a sample of students from private universities in Kuwait, particularly from the business engineering program in the first study, offer valuable insights into cognitive engagement and learning patterns within this specific

group. However, it is crucial to recognize that these results may not be applicable to other student populations, such as those in public institutions. Although there is only one public institution of higher education in Kuwait, we believe that the two settings differ drastically from one another. It is noteworthy that students who attend private universities in Kuwait are often those who were not able to pass the entry exams for the public Kuwait University. Therefore, when discussing Arab students in Kuwait, we are referring specifically to those in private education. Moreover, information about the study major of the sample in the second study was not available, which could have been an additional factor to analyze in relation to learning patterns and engagement.

The use of a cross-sectional study design in this research, capturing data at a single point in time, restricts the ability to infer causality or observe changes over time. To provide more definitive evidence of the relationships between cognitive engagement, learning patterns, and academic performance, the longitudinal research is needed. This would involve observing changes and developments across different stages of students' academic careers, considering that both the model of engagement and learning patterns suggest that these configurations are not stable and are subject to change influenced by various factors.

While this study contributes to understanding learning and engagement in an Arab context, cultural factors unique to Kuwait affect the transferability of these findings to other cultural settings. Kuwait has quite similar features when it comes its education and when comparing to other countries in the Gulf region. However, the study's findings cannot be generalized to non-Arab learners. Differences in educational systems, student-teacher relationships, and societal expectations could influence learning behaviors and engagement differently in other regions.

Regarding the methodology of the research, although the research instruments were carefully translated and provided in both languages for facilitate understanding, nuances in language and cultural relevance of the items may affect how participants interpret and respond to the survey questions. This could influence the reliability and validity of the measures used to assess learning patterns and cognitive engagement. Furthermore, the data was self-reported, which may introduce bias. The inherent limitations of self-report instruments must be considered, as participants may respond in ways they perceive as socially acceptable or beneficial rather than providing responses that genuinely reflect their experiences and behaviors.

The findings are also subject to statistical constraints, including the potential for Type I (false positive) and Type II (false negative) errors. For example, we claimed positive correlations between factors investigated, which could be false. The tests run here are denoted by α (alpha), the test's significance level. For instance, if α is set at 0.05, there is a 5% risk of incorrectly rejecting the null hypothesis. Similarly, false negative errors might occur. For instance, we claimed that emotional engagement has no predictive role on academic performance and that cognitive engagement does not moderate the impact of the undirected pattern on academic performance, among other examples. These results rely on the significance level denoted by β (beta).

Moreover, regarding statistical limitations, we suggest that profiles of student engagement and learning patterns in this research are very dynamic. Instead of grouping participants into very robust large groups, cluster analysis might provide a more detailed understanding of the profiles of participants.

While this study has provided valuable insights into the relationship between learning patterns, engagement, and GPA, it is important to acknowledge that it only scratches the

surface. It did not consider other factors that could influence students' learning patterns and engagement, such as teaching methods, curriculum design, and socioeconomic background. Therefore, further research is needed to fully understand the configuration of learning patterns and academic performance for Arab learners.

10.3. Recommendations for Future Research

Based on the discussions and limitations presented in this chapter, we find it mandatory to provide our suggestions for the future research.

Firstly, instead of a unified quantitative method, a mixed-method approach would be harvesting deeper insights on learning patterns and engagement of Arab students. Considering the theoretical background which this research is drawn upon, we see a trend, when it comes to learning pattern perspective, to use quantitative methods only, be it original investigations or meta-analyses. We suggest fellow researcher to be conscious on the following: the measures and tools used here—the ILS and the SEI—are originally built for Western students. As researchers in the educational psychology, we must acknowledge the subtle impact of unconscious bias when one comes with theoretical assumptions. Therefore, research must start free from these biases. As fit as the ILS and SEI are to capture student's perceptions of learning, they must be only as starting point of an investigation, not the end of it. Adding to research qualitative methods as well will just help to avoid errors and will lead to a deeper meaningful understanding of learning process.

Moreover, as we have often emphasized throughout this thesis that the learning patterns and engagement are constantly evolving. They are flexible and context- and personal-related. Longitudinal research would better understand how these constructs change over time among Arab students. Typically, studies, especially those following Vermunt's framework, focus on first-year university students. However, Vermunt (2020) suggests that

research should also look at later years to get a full picture of how learning patterns and engagement develop.

Finally, the research in understanding how personal characteristics, such as gender and prior education, influence learning patterns is not rich enough. This is especially important in Kuwait's cultural context, where cultural expectations differ greatly for male and female students and might be affecting the way they approach learning and involve. Additionally, whether students come from public or private secondary schools can impact their readiness for university, as these systems differ significantly in terms of curriculum, teaching practices, policies, and culture. We cannot stress enough how different these two student bodies are in Kuwait. Understanding challenges students face while learning in higher education through the lens of prior education, will shed more light for the current education problems in the country. Future research should take these factors into account to address the challenges within Kuwait's educational system, which the country is eager to reform.

REFERENCES

Adva, H. J. (2016). *The relationship between student engagement and academic achievement* [Doctoral dissertation, University of Auckland]. University of Auckland Repository.

Ahmed, A., & Ahmed, N. (2017). Comparative analysis of rote learning on high and low achievers in graduate and undergraduate programs. *Journal of Education and Educational Development, 4*(1), 111-129.

Ahmedi, S. (2022). *Learning patterns and social-emotional learning of Balkan students in secondary education* [Tesis doctoral, Universitat Autònoma de Barcelona]. Universitat Autònoma de Barcelona Repository.

Ahmedi, S., & Martinez-Fernandez, J. R. (2023). Learning patterns and social-emotional learning of Balkan students in secondary education: A cross-cultural discussion. *European Journal of Educational Research, 21*(61). https://doi.org/10.25115/ejrep.v21i61.6934

Aji, A. A., & Khan, J. (2019). The impact of active learning on students' academic performance. *Open Journal of Social Sciences, 7*, 204-211. https://doi.org/10.4236/jss.2019.73017

Ajisuksmo, C., & Vermunt, J. (1999). Learning styles and self-regulation of learning at university: An Indonesian study. *Asia Pacific Journal of Education, 19*, 45-59. https://doi.org/10.1080/0218879990190205

Al Hazaa, K., Abdel-Salam, A. S. G., Ismail, R., Johnson, C., Al-Tameemi, R. A. N., Romanowski, M. H., BenSaid, A., Ben Haj Rhouma, M., & Elatawneh, A. (2021). The effects of attendance and high school GPA on student performance in first-year undergraduate courses. *Cogent Education, 8*(1), 1956857. https://doi.org/10.1080/2331186X.2021.1956857

Al-Kadri, H. M. (2008). Improving inventory learning style. *Neurosciences, 13*(4), 426-429.

Alehegn Sewagegn, A., & Diale, B. M. (2019). Empowering learners using active learning in higher education institutions. In IntechOpen. https://doi.org/10.5772/intechopen.80838

Allen, K., Kern, M. L., Vella-Brodrick, D., & Waters, L. (2018). What schools need to know about fostering school belonging: A meta-analysis. *Educational Psychology Review, 30*(1), 1-34. https://doi.org/10.1007/s10648-016-9389-8

Al-Nakib, M. (2021, July 7). In Ruins: Reflections beyond Kuwait. *World Literature Today*.

Al-Nouri, R. M. (2019). Why are Kuwaiti students weak in the English language? *Multi-Knowledge Electronic Comprehensive Journal for Education and Science Publications (MECSJ),* (26).

Alves De Lima, A., Bettati, M., Baratta, S., Falconi, M., Sokn, F., Galli, A., Barrero, C., Cagide, A., & Iglesias, R. (2006). Learning strategies used by cardiology residents: Assessment of learning styles and their correlations. *Education for Health, 19*(3), 289-297. https://doi.org/10.1080/13576280600937788

Alyahyan, E., & Düştegör, D. (2020). Predicting academic success in higher education: Literature review and best practices. *International Journal of Educational Technology in Higher Education, 17*(3). https://doi.org/10.1186/s41239-020-0177-7

Ambrose, S. A., Bridges, M. W., DiPietro, M., Lovett, M. C., & Norman, M. K. (2010). *How learning works: Seven research-based principles for smart teaching*. Jossey-Bass. ISBN 978-0470484104.

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*(5), 369-386. https://doi.org/10.1002/pits.20303

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*(5), 369-386. https://doi.org/10.1002/pits.20303

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*(5), 427-445. https://doi.org/10.1016/j.jsp.2006.04.002

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. *Journal of School Psychology, 44*(5), 427-445. https://doi.org/10.1016/j.jsp.2006.04.002

Archambault, L., Leary, H., & Rice, K. (2022). Pillars of online pedagogy: A framework for teaching in online learning environments. *Educational Psychologist, 57*(3), 178-191. https://doi.org/10.1080/00461520.2022.2051513

Asikainen, H., & Gijbels, D. (2017). Do students develop towards more deep approaches to learning during studies? A systematic review on the development of students' deep and surface approaches to learning in higher education. *Educational Psychology Review, 29*, 1-30. https://doi.org/10.1007/s10648-017-9406-6

Assaf Alfadly, A. (2013). The efficiency of the "Learning Management System (LMS)" in AOU, Kuwait, as a communication tool in an E-learning system. *International*

Journal of Educational Management, *27*(2), 157-169. https://doi.org/10.1108/09513541311297577

Ayub, A. F. M., Yunus, A. S. M., Mahmud, R., Salim, N. R., & Sulaiman, T. (2017, January). Differences in students' mathematics engagement between gender and between rural and urban schools. In *AIP Conference Proceedings* (Vol. 1795, No. 1, p. 020025). AIP Publishing LLC. https://doi.org/10.1063/1.4972169

Beaten, M., Kyndt, E., Struyven, K., & Dochy, F. (2010). Using student-centred learning environments to stimulate deep approaches to learning: Factors encouraging or discouraging their effectiveness. *Educational Research Review*, *5*(3), 243-260. https://doi.org/10.1016/j.edurev.2010.06.001

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497-529. https://doi.org/10.1037/0033-2909.117.3.497

Ben-Eliyahu, A., Moore, D., Dorph, R., & Schunn, C. D. (2018). Investigating the multidimensionality of engagement: affective, behavioral, and cognitive engagement across science activities and contexts. Contemporary Educational Psychology, 53, 87–105. https://doi.org/10.1016/j.cedpsych.2018.01.002

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*(2), 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Betts, J. E., Appleton, J. J., Reschly, A. L., Christenson, S. L., & Huebner, E. S. (2010). A study of the factorial invariance of the Student Engagement Instrument (SEI): Results from middle and high school students. *School Psychology Quarterly*, *25*(2), 84–93. https://doi.org/10.1037/a0020259

Biggs, J. (1993). What do inventories of students' learning processes really measure? A theoretical review and clarification. *The British Journal of Educational Psychology, 63(Pt 1),* 3-19. https://doi.org/10.1111/j.2044-8279.1993.tb01038.x

Biggs, J. B. (1976). Dimensions of study behaviour: Another look at ATI. *British Journal of Educational Psychology, 46,* 68-80.

Biggs, J. B. (1987). *The Study Process Questionnaire (SPQ): Manual*. Hawthorn, Vic.: Australian Council for Educational Research.

Biggs, J.B. (1978). Individual and group differences in study processes. British Journal of Educational Psychology, 48, 266–279.

Boulton, C. A., Hughes, E., Kent, C., Smith, J. R., & Williams, H. T. P. (2019). Student engagement and wellbeing over time at a higher education institution. *PLoS ONE, 14*(11), Article e0225770. https://doi.org/10.1371/journal.pone.0225770

Bowden, J. L. H., Tickle, L., & Naumann, K. (2021). The four pillars of tertiary student engagement and success: a holistic measurement approach. *Studies in Higher Education*, *46*(6), 1207–1224. https://doi.org/10.1080/03075079.2019.1672647

Boyle, E., Duffy, T., & Dunleavy, K. (2003). Learning styles and academic outcome: The validity and utility of Vermunt's Inventory of Learning Styles in a British higher education setting. *British Journal of Educational Psychology, 73*(2), 267-290.

Bragt, C., Bakx, A., Sanden, J., & Croon, M. (2007). Students' approaches to learning when entering higher education: Differences between students with senior general secondary and senior secondary educational backgrounds. *Learning and Individual Differences, 17*(1), 83-96. https://doi.org/10.1016/j.lindif.2007.02.003

Brown, A. (1987). Metacognition, executive control, self-regulation, and other more mysterious mechanisms. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 65-116). Erlbaum.

Browne, M. W., & Cudeck, R. (1992). Alternative Ways of Assessing Model Fit. Sociological Methods & Research, 21(2), 230-258. https://doi.org/10.1177/0049124192021002005

Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (1999). The relation between learning styles, the Big Five personality traits and achievement motivation in higher education. *Personality and Individual Differences*, *26*(1), 129–140. https://doi.org/10.1016/S0191-8869(98)00112-3

Busato, V. V., Prins, F. J., Elshout, J. J., & Hamaker, C. (2000). Intellectual ability, learning style, personality, achievement motivation and academic success of psychology students in higher education. *Personality and Individual Differences*, *29*(6), 1057–1068. https://doi.org/10.1016/S0191-8869(99)00253-6

Busato, V.V., Prins, F.J., Elshout, J.J. and Hamaker, C. (1998) Learning styles: A cross-sectional and longitudinal study in higher education, British Journal of Educational Psychology *68*: 427–441.

Calfee, R. C., & Chambliss, M. (2005). The design of empirical research. In J. Flood, D. Lapp, J. R. Squire, & J. Jensen (Eds.), *Methods of research on teaching the English language arts: The methodology chapters from the handbook of research on teaching the English language arts* (pp. 43-78). Routledge. http://ezproxy.memphis.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=125955&site=eds-live&scope=site

Casanova, J. R., Sinval, J., & Almeida, L. S. (2024). Academic success, engagement and self-efficacy of first-year university students: personal variables and first-semester performance. *Anales de Psicología, 40*(1), 44-53. https://doi.org/10.6018/analesps.479151

Casanova, J. R., Vasconcelos, R., Bernardo, A. B., & Almeida, L. S. (2021). University dropout in Engineering: Motives and student trajectories. *Psicothema, 33*(4), 595–601. https://doi.org/10.7334/psicothema2020.363

Chickering, A. W., & Gamson, Z. F. (2006). Seven principles of good practice in undergraduate education. *New Directions for Teaching and Learning, 1991*(47), 63-69. https://doi.org/10.1002/tl.37219914708

Chickering, A., & Gamson, Z. (1987). Seven principles for good practice in undergraduate education. American Association for Higher Education Bulletin, 39(7), 3–7.

Chotitham, S., Wongwanich, S., & Wiratchai, N. (2014). Deep learning and its effects on achievement. *Procedia - Social and Behavioral Sciences, 116*. https://doi.org/10.1016/j.sbspro.2014.01.754

Christensen, L. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement*. Springer.

Christenson, S. L., & Reschly, A. L. (2010). Check & Connect: Enhancing school completion through student engagement. In E. Doll & J. Charvat (Eds.), *Handbook of prevention science* (pp. 327–348). Routledge/Taylor and Francis.

Christenson, S. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement.* Springer Science & Business Media. https://doi.org/10.1007/978-1-4614-2018-7

Ciraso-Calí, A. (2023). *Estudio sobre la transferibilidad del modelo de patrones de aprendizaje de Jan Vermunt: Exploración en distintos territorios y ámbitos educativos* [Tesis doctoral, Universitat Autònoma de Barcelona]. Universitat Autònoma de Barcelona Repository.

Coertjens, L., Brahm, T., Trautwein, C., & Lindblom-Ylänne, S. (2016). Students' transition into higher education from an international perspective. *Higher Education, 73*(1), 1-13. https://doi.org/10.1007/s10734-016-0092-y

Coffman, J. (1996). Current Issues in Higher Education in the Arab World. *International Higher Education*, (4). https://doi.org/10.6017/ihe.1996.4.6195

Cohen, J. (2007). *Making your school safe: Strategies to protect children and promote learning.* Teachers College Press.

Cohen, L., Manion, L., & Morrison, K. (2011). Research methods in education (7th ed.). London: Routledge.

Connell, J. P. (1990). Context, self, and action: A motivational analysis of self-system processes across the life span. In D. Cicchetti & M. Beeghly (Eds.), The self in transition: Infancy to childhood. The John D. and Catherine T. MacArthur foundation series on mental health and development (pp. 61 – 97). Chicago: The University of Chicago Press.

Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self processes and development* (Vol. 23, pp. 43-77). Lawrence Erlbaum Associates.

Creswell, John. (2009). Research Design : Qualitative, Quantitative, and Mixed Methods Approaches / J.W. Creswell.

Dang, S., & Koedinger, K. (2020). The ebb and flow of student engagement: Measuring motivation through temporal patterns of self-regulation. In A. N. Rafferty, J. Whitehill, V. Cavalli-Sforza, & C. Romero (Eds.), *Proceedings of the 13th International Conference on Educational Data Mining (EDM2020)* (pp. 61-68).

D'cruz, S. M., & Rajaratnam, N. (2018). Study of the learning approaches of medical students before and after clinical posting in a medical college in South India. *Int. J. Sci. Study, 6(3),* 95-98.

Delfino, A. (2019). Student engagement and academic performance of students of Partido State University. *Asian Journal of University Education, 15,* 42-55. https://doi.org/10.24191/ajue.v15i3.05

D'Errico, F., Paciello, M., & Cerniglia, L. (2016). When emotions enhance students' engagement in e-learning processes. *Journal of E-Learning and Knowledge Society, 12*, 9-23. https://doi.org/10.20368/1971-8829/1144

Dogan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*(3), 553–561. https://doi.org/10.1080/09720073.2015.11891759.

Dogan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*(3), 553-561. https://doi.org/10.1080/09720073.2015.11891759

Dolmans, D., Loyens, S., Marcq, H., & Gijbels, D. (2016). Deep and surface learning in problem-based learning: A review of the literature. *Advances in Health Sciences*

Education: Theory and Practice, 21(5), 1087-1112. https://doi.org/10.1007/s10459-015-9645-6

Donche, V., Coertjens, L., & Van Petegem, P. (2010). Learning pattern development throughout higher education: A longitudinal study. *Learning and Individual Differences, 20(3),* 256-259. https://doi.org/10.1016/j.lindif.2010.02.002

Donche, V., Coertjens, L., van Daal, T., De Mayer, S., Van Petegem, P. (2014). Understanding differences in student learning and academic achievement in first year higher education. An integrated research perspective. In D. Gijbels, V. Donche, J. Richardson, & J. Vermunt (eds.), Learning Patterns in Higher Education. Dimensions and Research Perspectives (pp. 214- 231). Routledge

Dynarski, M., & Gleason, P. (2002). How can we help? What we have learned from recent federal dropout prevention evaluations. *Journal of Education for Students Placed At Risk, 7*(1), 43-69. https://doi.org/10.1207/S15327671ESPR0701_4

Eaves, M. (2009). Learning styles technology and supporting overseas learners. *Multicultural Education & Technology Journal, 3*(1), 61-73. https://doi.org/10.1108/17504970910951156

Eccles, J., & Wang, M.-T. (2012). Part I commentary: So what is student engagement anyway? In S. Christenson, A. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 133-145). Springer. https://doi.org/10.1007/978-1-4614-2018-7_6

Entwistle, N. J., & Wilson, J. D. (1977). *Degrees of excellence: The academic achievement game*. London: Hodder and Stoughton.

Entwistle, N., & Peterson, E. (2004). Conceptions of learning and knowledge in higher education: Relationships with study behaviour and influences of learning environments. *International Journal of Educational Research, 41*, 407-428. https://doi.org/10.1016/j.ijer.2005.08.009

Entwistle, N., & Ramsden, P. (1983). *Understanding student learning*. https://doi.org/10.2307/3121589

Estell, D. B., & Perdue, N. H. (2013). Social support and behavioral and affective school engagement: The effects of peers, parents, and teachers. *Psychology in the Schools, 50*(4), 325–339. https://doi.org/10.1002/pits.21681

Field, A. (2013). *Discovering statistics using IBM SPSS Statistics: And sex and drugs and rock 'n' roll* (4th ed.). Sage.

Field, J. (2009). Well-being and happiness. Inquiry into the future for lifelong learning. Thematic paper 4. Leicester, UK: National Institute of Adult Continuing Education.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117-142. https://doi.org/10.3102/00346543059002117

Finn, J. D., & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 82*(2), 221–234. https://doi.org/10.1037/0021-9010.82.2.221

Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 97-131). Springer.

Flavell, J. (1987). Speculations about the nature and development of metacognition. In F. E. Weinert & R. H. Kluwe (Eds.), *Metacognition, motivation, and understanding* (pp. 21-29). Erlbaum.

Flora, D., & Curran, P. (2005). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods, 9*(4), 466-491. https://doi.org/10.1037/1082-989X.9.4.466

Francisco, M. B., Gonzales, R. D. L. C., & Vargas, M. A. (2015). Student Engagement: Associations with Teachers and Peers as Motivators. International Journal of Educational Investigations, 2(11), 1-17. Available at SSRN: https://ssrn.com/abstract=2746281

Fraysier, M. D., Reschly, A. L., & Appleton, J. J. (2017). Measuring the engagement of college students: Administration format, structure, and validity of the Student Engagement Instrument-College. *Professional School Counseling*, *21*(1), 70-84. https://doi.org/10.5330/1096-2409-21.1.70

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*, *74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and Instruction, 43*, 1–4.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America*, *111*(23), 8410-8415. https://doi.org/10.1073/pnas.1319030111

Gamage, K. A. A., Dehideniya, D. M. S. C. P. K., & Ekanayake, S. Y. (2021). The role of personal values in learning approaches and student achievements. *Behavioral Sciences (Basel, Switzerland)*, *11*(7), 102. https://doi.org/10.3390/bs11070102

Garcia, T., & Pintrich, P. R. (1994). Regulating motivation and cognition in the classroom: The role of self-schemas and self-regulatory strategies. In D. H. Schunk & B. J. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 127-153). Lawrence Erlbaum Associates, Inc.

García-Béjar, Ligia, Gaeta-González, Martha Leticia, Benítez-Ríos, Yuriko Teresa, Reyes-Vergara, María de Lourdes, & González, Mariela Lourdes. (2023). Learning patterns of educational sciences students in private Mexican universities. *Diálogos sobre educación. Temas actuales en investigación educativa*, *14*(26), 00017. Epub 08 de septiembre de 2023.https://doi.org/10.32870/dse.v0i26.1243

García-Ravidá, L. B. (2017). *Patrones de aprendizaje en universitarios Latinoamericanos: dimensión cultural e implicaciones educativas* [Doctoral dissertation, Universitat Autònoma de Barcelona]. Repository of Universitat Autònoma de Barcelona.

George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update* (10th Ed.). Boston: Pearson.

Gerber, C., Mans-Kemp, N., & Schlechter, A. F. (2013). Investigating the moderating effect of student engagement on academic performance. *Acta Academica, 45,* 256-274.

Gokcek, M. (2012). *Arabs and Turks: How they have drawn closer*. Middle East Institute. Retrieved from Middle East Institute

Gonyea, R. M. (2006). The relationship between student engagement and selected desirable outcomes in the first year of college. Indiana University Center for Postsecondary Research. Retrieved from http://nsse.iub.edu/pdf/research_papers/gonyea_air2006.pdf

Gonyea, R. M. (2006, May). *The relationship between student engagement and selected desirable outcomes in the first year of college*. Paper presented at the 46th Annual Association for Institution Research Forum, Chicago, IL, United States. Retrieved from http://nsse.iub.edu/pdf/research_papers/gonyea_air2006.pdf

Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. C. (1996). Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology, 70*(4), 820–835. https://doi.org/10.1037/0022-3514.70.4.820

Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist, 50*(1), 14– 30. https://doi.org/10.1080/00461520.2014.989230

Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist, 50*(1), 14-30. https://doi.org/10.1080/00461520.2014.989230

Greene, B. A., Miller, R. B., Crowson, H. M., Duke, B. L., & Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology, 29*(4), 462-482. https://doi.org/10.1016/j.cedpsych.2004.01.006

Grier-Reed, T. L., Appleton, J. J., Rodriguez, M., Ganuza, Z. M., & Reschly, A. (2012). Exploring the Student Engagement Instrument and career perceptions in college students. *Journal of Educational and Developmental Psychology*, *2*(2), 85-96. https://doi.org/10.5539/jedp.v2n2p85

Grier-Reed, T., Appleton, J., Rodriguez, M., Ganuza, Z., & Reschly, A. (2012). Exploring the Student Engagement Instrument and career perceptions with college students. *Journal of Educational and Developmental Psychology*, *2*(2), 85. https://doi.org/10.5539/jedp.v2n2p85

Gul, R., Tahir, T., Batool, S., Ishfaq, U., & Nawaz, H. (2022). Effect of different classroom predictors on students' behavioral engagement. *Journal of Positive School Psychology*, *6*(8), 3759-3778.

Gunuc, S., & Kuzu, A. (2015). Exploring the relationship between academic engagement and burnout among undergraduate students: A pilot study. *International Journal of Higher Education*, *4*(2), 1-10. https://doi.org/10.5430/ijhe.v4n2p1

Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th Ed.). Prentice Hall.

Hasnor, H. N., Ahmad, Z., & Nordin, N. (2013). The relationship between learning approaches and academic achievement among Intec students, UiTM Shah Alam. *Procedia - Social and Behavioral Sciences*, *90*, 178-186. https://doi.org/10.1016/j.sbspro.2013.07.080

Hassaskhah, J., Khanzadeh, A., & Mohamad Zade, S. (2013). The relationship between internal forms of engagement (cognitive-affective) and academic success across years of study. *Issues in Language Teaching*, *1*(2), 251-272.

Hassaskhah, J., Khanzadeh, A., & Mohamad Zade, S. (2013). The relationship between internal forms of engagement (cognitive-affective) and academic success across years of study. *Issues in Language Teaching, 1*(2), 251-272.

Hayes, A. F. (2018). *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd Ed.). Guilford Press.

Hederich-Martínez, C., & Camargo Uribe, A. (2019). Critical review of J. Vermunt's learning pattern model. *Revista Colombiana de Educación*, 77, 1-25. https://doi.org/10.17227/rce.num77-9469

Heng, K. (2013). The relationships between student engagement and the academic achievement of first-year university students in Cambodia. *The Asia-Pacific Education Researcher, 23*(2), 179-189. https://doi.org/10.1007/s40299-013-0095-8

Heng, K. (2014). The relationships between student engagement and the academic achievement of first-year university students in Cambodia. *The Asia-Pacific Education Researcher, 23*(2), 179–189. https://doi.org/10.1007/s40299-013-0095-8

Heng, K. (2014). The relationships between student engagement and the academic achievement of first-year university students in Cambodia. *The Asia-Pacific Education Researcher, 23*(2), 179-189. https://doi.org/10.1007/s40299-013-0095-8

Herrmann, K., McCune, V., & Bager-Elsborg, A. (2017). Approaches to learning as predictors of academic achievement: Results from a large scale, multi-level analysis. *Högre utbildning, 7*. https://doi.org/10.23865/hu.v7.905

Hoff, J., & Lopus, J. S. (2014, January). Does student engagement affect student achievement in high school economics classes? Paper presented at the Annual Meetings of the Allied Social Science Association, Philadelphia, PA, United States.

Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of Intercultural Relations, 10*(3), 301–320. https://doi.org/10.1016/0147-1767(86)90015-5

Hong, J. C., & Kinoshita, M. (2014). An exploratory study of Japanese university students' learning profiles: Implications for teaching and learning. *Asian Journal of Education and E-Learning, 2*(4), 242-250.

Hu, S., & Kuh, G. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education, 43*(5), 555-575. https://doi.org/10.1023/A:1020114231387

International Trade Administration. (2023, March 23). *Kuwait - Education and Training Services Industry Snapshot*. U.S. Department of Commerce. https://www.trade.gov/country-commercial-guides/kuwait-education-and-training-services-industry-snapshot

Jana Lay-Hwa Bowden, Leonie Tickle & Kay Naumann (2021) The four pillars of tertiary student engagement and success: a holistic measurement approach, Studies in Higher Education, 46:6, 1207-1224, DOI: 10.1080/03075079.2019.1672647

Järvelä, S., Järvenoja, H., Malmberg, J., Isohätälä, J., & Sobocinski, M. (2016). How do types of interaction and phases of self-regulated learning set a stage for collaborative engagement? *Learning and Instruction, 43,* 39–51. https://doi.org/10.1016/j.learninstruc.2016.01.005

Jöreskog, K. G., & Sörbom, D. (1981). *LISREL V: Analysis of linear structural relationships by maximum likelihood and least squares methods* (Research Report 81-8). University of Uppsala, Department of Statistics.

Juklová, K., Vondroušová, R., & Henter, R. (2017). Learning patterns of Czech and Romanian students within the context of a cross-cultural comparison. *8th ICEEPSY 2017: The International Conference on Education & Educational Psychology*. https://doi.org/10.15405/epsbs.2017.10.36

Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education*, *38*(5), 758–773. https://doi.org/10.1080/03075079.2011.598505

Kalaca, S., & Gulpinar, M. (2011). A Turkish study of medical student learning styles. *Education for Health (Abingdon)*, *24*(3), 459. https://doi.org/10.4103/1357-6283.101012

Kanselaar, G., Wierstra, R., Linden, J., Lodewijks, H., & Vermunt, J. (2003). The impact of the university context on European students' learning approaches and learning environment preferences. *Higher Education*, *45*(4), 429-455. https://doi.org/10.1023/A:1023981025796

Karagiannopoulou, E., & Entwistle, N. (2019). Students' learning characteristics, perceptions of small-group university teaching, and understanding through a "meeting of minds". *Frontiers in Psychology*, *10*, 444. https://doi.org/10.3389/fpsyg.2019.00444

Karim, M., & Abd Hamid, H. (2016). Factor structure of the Student Engagement Instrument among Malaysian undergraduates. *Jurnal Psikologi Malaysia*, *30*, 1-12.

Ketonen, E. E., Dietz, S., & Kelly, J. R. (2016). The relationship between academic engagement and achievement in high-poverty schools. *Journal of Educational Research*, *109*(1), 1-11. https://doi.org/10.1080/00220671.2014.917260

Khan, H., Gul, R., & Zeb, M. (2023). The effect of students' cognitive and emotional engagement on students' academic success and academic productivity. *Journal of Social Sciences Review, 3*, 322-334. https://doi.org/10.54183/jssr.v3i1.141

Kidd, J. R. (1973). *How adults learn*. Association Press.

Kim, D.-H., Wang, C., Ahn, H. S., & Bong, M. (2015). English language learners' self-efficacy profiles and relationship with self-regulated learning strategies. *Learning and Individual Differences, 38*, 136–142. https://doi.org/10.1016/j.lindif.2015.01.016

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Knowles, M. (1983). Andragogy: An emerging technology for adult learning. In M. Tight (Ed.), *Adult learning and education* (Vol. 1, pp. 53–70). Routledge.

Knowles, M. S. (1970). *The modern practice of adult education: Andragogy versus pedagogy*. New York Association Press.

Konold, T., Cornell, D., Jia, Y., & Malone, M. (2018). School climate, student engagement, and academic achievement: A latent variable, multilevel multi-informant examination. *AERA Open, 4*(4), 233285841881566. https://doi.org/10.1177/2332858418815661

Korobova, N., & Starobin, S. (2015). A comparative study of student engagement, satisfaction, and academic success among international and American Students. *Journal of International Students, 5*, 72-85.

Korobova, N., & Starobin, S. (2015). A comparative study of student engagement, satisfaction, and academic success among international and American students. *Journal of International Students, 5*(1), 72-85.

Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *Journal of Higher Education, 79*(5), 540–563.

Kuh, G., Cruce, T., Shoup, R., Kinzie, J., & Gonyea, R. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*(5), 540-563. https://doi.org/10.1353/jhe.0.0019

Kutlu, O., & Kula Kartal, S. (2018). Examining the relationships among school engagement, quality of school life and academic achievement of university students. *Electronic International Journal of Education, Arts, and Science (EIJEAS), 4*(8). Retrieved from http://www.eijeas.com/index.php/EIJEAS/article/view/124

Kuwait Education Sector Report: Industry Analysis for the Academic Year 2019/2020. (2021, July).

Kuwait Times. (2017, February 27). Education expenditure per student above average; quality remains low. *Kuwait Times*. https://kuwaittimes.com/efficient-use-of-budget-needed-to-enhance-educations-quality-ranking-in-kuwait/

Lam, S.-F., Jimerson, S., Wong, B., Kikas, E., Shin, H., Veiga, F., Hatzichristou, C., Polychroni, F., Cefai, C., Negovan, V., Stanculescu, E., Yang, H., Liu, Y., Basnett, J., Duck, R., Farrell, P., Nelson, B., & Zollneritsch, J. (2014). Understanding and measuring student engagement in school: The results of an international study from 12 countries. *School Psychology Quarterly*, *29*(2), 213-232. https://doi.org/10.1037/spq0000057

Law, D., & Meyer, J. (2011). Initial investigation of Hong Kong post-secondary students' learning patterns. *Quality Assurance in Education*, *19*(4), 335-356. https://doi.org/10.1108/09684881111170069

Lawson, M. A., & Lawson, H. A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research, 83*(3), 432–479. https://doi.org/10.3102/0034654313480891

Lee, J.-S. (2013). The relationship between student engagement and academic performance: Is it a myth or reality? *The Journal of Educational Research, 107*(3), 177–185. https://doi.org/10.1080/00220671.2013.807491

Lei, H., Cui, Y., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal, 46*(3), 517–528. https://doi.org/10.2224/sbp.7054

Lemke-Westcott, T., & Johnson, B. (2012). Different Cultures and Learning Styles Matter in a Canadian University with Middle Eastern students. *Literacy Information and Computer Education Journal*, 863-871.

Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*(1), 233-247.

Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*(1), 233-247. https://doi.org/10.1037/a0021307

Libbey, H. P. (2004). Measuring students' relationship to school: Attachment, bonding, connectedness, and engagement. *Journal of School Health, 74*(7), 274-283. https://doi.org/10.1111/j.1746-1561.2004.tb08284.x

Lindblom-Ylänne, S., & Lonka, K. (1999). Individual ways of interacting with the learning environment: Are they related to study success? *Learning and Instruction, 9*(1), 1-18.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. Journal of the American Statistical Association, 83(404), 1198–1202.

Lloyd, S. H. (2007). An exploratory study of the relationship between in-training examination percentiles of anesthesiology residents and the Vermunt Inventory of Learning Styles (Doctoral dissertation, Kansas State University). Department of Educational Leadership, College of Education, Kansas State University.

Lonka, K., Olkinuora, E., & Mäkinen, J. (2004). Aspects and prospects of measuring studying and learning in higher education. *Educational Psychology Review, 16*(4), 301–323. https://doi.org/10.1007/s10648-004-0002-1

Loyens, S. M. M., Magda, J., & Rikers, R. M. J. P. (2008). Self-Directed Learning in Problem-Based Learning and its Relationships with Self-Regulated Learning. Educational Psychology Review, *20*(4), 411-427. https://doi.org/10.1007/s10648-008-9082-7

Lycke, K., Strømsø, H., & Grøttum, P. (2006). Tracing the tutor role in problem-based learning and PBLonline. In M. Savin-Baden & K. Wilkie (Eds.), *Problem-based learning online* (pp. 45-60). Open University Press.

Jansen, R. S., Van Leeuwen, A., Janssen, J., Jak, S., & Kester, L. (2019). Self-regulated learning partially mediates the effect of self-regulated learning interventions on achievement in higher education: A meta-analysis. *Educational Research Review, 28*, 100292. https://doi.org/10.1016/j.edurev.2019.100292

Macfarlane, B., & Tomlinson, M. (2017). Critical and alternative perspectives on student engagement. *Higher Education Policy, 30*(1), 1–4. https://doi.org/10.1057/s41307-016-0026-4

Mahboob, A., & Elyas, T. (2014). English in the Kingdom of Saudi Arabia. *World Englishes, 33*(2), 306-306. https://doi.org/10.1111/weng.12073

Manwaring, K., Larsen, R., Graham, C., Henrie, C., & Halverson, L. (2017). Investigating student engagement in blended learning settings using experience sampling and structural equation modeling. *The Internet and Higher Education, 35*, 21-33. https://doi.org/10.1016/j.iheduc.2017.06.002

Marambe, K. N., Vermunt, J. D., & Boshuizen, H. P. (2012). A cross-cultural comparison of student learning patterns in higher education. *Higher Education*, *64*(3), 299-316.

Marambe, K., Athuraliya, T., Vermunt, J., & Boshuizen, H. (2007). A comparison of learning strategies, orientations, and conceptions of learning of first-year medical students in a traditional and an innovative curriculum. *Annals of the Academy of Medicine, Singapore*, *36*(9), 751-755. https://doi.org/10.47102/annals-acadmedsg.V36N9p751

Marenco-Escuderos, A. D., Restrepo, D., & Rambal-Rivaldo, L. (2024). El rol del contexto educativo digital vs presencial en perfiles de *engagement* académico: estudio comparativo durante y post confinamiento. *Revista de Investigación Educativa*, *42*(1), 61-77. https://doi.org/10.6018/rie.54537

Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*, *37*(1), 153-184.

Martínez-Fernández, J. R. (2019). El modelo patrones de aprendizaje: Estado actual, reflexiones y perspectivas desde el territorio de Iberoamérica. *Revista Colombiana de Educación*, (77), 227-244. https://doi.org/10.17227/rce.num77-9953

Martínez-Fernández, J. R., García-Ravidá, L. B., & Mumbardó Adams, C. (2019). Latin American undergraduates and learning patterns in the transition to higher education: an exploratory study in Colombia. Electronic Journal of Research in Educational Psychology, 17(3), 561

Martínez-Fernández, J. R., & García-Ravida, L. (2012). Patrones de aprendizaje en estudiantes universitarios del Máster en Educación Secundaria: Variables personales y contextuales relacionadas. *Profesorado, 16*(1), 165-182. http://hdl.handle.net/10481/22996

Martínez-Fernández, J. R., & Vermunt, J. D. (2015). A cross-cultural analysis of the patterns of learning and academic performance of Spanish and Latin-American undergraduates. *Studies in Higher Education, 40*(2), 278–295. https://doi.org/10.1080/03075079.2013.823934

Martínez-Fernández, J. R., García-Orriols, J., & García-Ravidá, L. B. (2015). Inventario de Patrones de Aprendizaje – ILP. Grupo de Investigación PAFIU. Universitat Autònoma de Barcelona, España.

Martínez-Fernández, J. R., & García-Orriols, J. (2017). ILP_60_HE_ES_shortversion.

Martínez-Fernández, J. R., García-Ravidá, L., González Velázquez, L., Gutiérrez-Braojos, C., Poggioli, L., Ramírez Otálvaro, P., & Telleria, M. B. (2009). *Inventario de los estilos de aprendizaje en educación superior [Spanish version of the Inventory of Learning Styles-ILS]*. Universitat Autònoma de Barcelona. (Unpublished).

Marton, F., & Säljö, R. (1976). On qualitative differences in learning: 1. Outcome and process. *British Journal of Educational Psychology, 46,* 4–11. doi:10.1111/j.2044-8279.1976.tb02980.x.

McKinley, J. (1983). Training for effective collaborative learning. *New Directions for Continuing Education*, (19), 13-22.

McPartland, J. M. (1994). Dropout prevention in theory and practice. In R. J. Rossi (Ed.), *Schools and students at risk: Context and framework for positive change* (pp. 255-276). Teachers College Press.

Mengjie, L., Noordin, N., Lilliati, I., & Abdrahim, N. (2023). Relationship between student engagement and academic achievement in college English education for non-English majors in China. *International Journal of Learning, Teaching and Educational Research*, *22*, 203-232. https://doi.org/10.26803/ijlter.22.8.12

Moreira, P. A. S., Machado Vaz, F., Dias, P. C., & Petracchi, P. (2009). Psychometric properties of the Portuguese version of the Student Engagement Instrument. *Canadian Journal of School Psychology*, *24*(4), 303–317. https://doi.org/10.1177/0829573509346680

Moubayed, A., Injadat, M., Shami, A., & Lutfiyya, H. (2018). Relationship between student engagement and performance in e-learning environment using association rules. *1-6*. https://doi.org/10.1109/EDUNINE.2018.8451005

Murray, C., & Greenberg, M. T. (2000). Children's relationship with teachers and bonds with school. An investigation of patterns and correlates in middle childhood. *Journal of School Psychology*, *38*(5), 423–445. https://doi.org/10.1016/S0022-4405(00)00034-0

National Research Council and Institute of Medicine. (2004). *Engaging schools: Fostering high school students' motivation to learn.* The National Academies Press. https://doi.org/10.17226/10421

Negash, T. T., Eshete, T. M., & Hanago, G. A. (2022). Students' learning approaches as a factor of academic achievement at selected public universities: A cross-sectional study. *Frontiers in Education, 7*, 965573. https://doi.org/10.3389/feduc.2022.965573

Nepal, R., & Rogerson, A. (2020). From theory to practice of promoting student engagement in business and law-related disciplines: The case of undergraduate economics education. *Education Sciences, 10*(8), Article 205. https://doi.org/10.3390/educsci10080205.

Nieminen, T., Asmi, A., Dal Maso, M., Aalto, P., Keronen, P., Petäjä, T., Kulmala, M., & Kerminen, V.-M. (2014). Trends in atmospheric new-particle formation: 16 years of observations in a boreal-forest environment. *Boreal Environment Research, 19*(2), 191-214.

Oxford Bibliographies. (n.d.). Academic achievement. Retrieved from http://www.oxfordbibliographies.com

Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using SPSS program* (6th ed.). McGraw-Hill Education.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research*. Jossey-Bass.

Pask, G. (1976). Conversational techniques in the study and practice of education. Br. J. educ. Psychol., 46, 12-25.

Pekrun, R., Lichtenfeld, S., Marsh, H., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic performance: Longitudinal models of reciprocal effects. *Child Development, 88*(5), 1653-1670. https://doi.org/10.1111/cdev.12704

Pietarinen, J., Soini, T., & Pyhalto, K. (2014). Students' emotional and cognitive engagement as the determinants of well-being and achievement in school. *International Journal of Educational Research, 67*, 40–51.

Pilotti, M., Alkuhayli, H., & Al Ghazo, R. (2022). Memorization practice and academic success in Saudi undergraduate students. *Learning and Teaching in Higher Education: Gulf Perspectives, 18*(1), 19-31. https://doi.org/10.1108/LTHE-08-2020-0030

Pintrich, P., Smith, D., Garcia, T., & McKeachie, W. (1991). *A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. The Regents of the University of Michigan.

Prat-Sala, M., & Redford, P. (2010). The interplay between motivation, self-efficacy, and approaches to studying. *British Journal of Educational Psychology, 80*(2), 283–305. https://doi.org/10.1348/000709909X480563

Public Authority for Civil Information (PACI). (2018). *Public Authority for Civil Information*. Retrieved December 2, 2019, from http://www.paci.gov.kw/en/

Quaye, S. J., & Harper, S. R. (2014). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations.* Routledge.

Ramezani, G., Norouzi, A., Arabshahi, S. K. S., Sohrabi, Z., Zazoli, A. Z., Saravani, S., & Pourbairamian, G. (2022). Study of medical students' learning approaches and their association with academic performance and problem-solving styles. *Journal of Education and Health Promotion, 11*, 252. https://doi.org/10.4103/jehp.jehp_900_21

Reschly, A. L., Appleton, J. J., & Pohl, A. (2014). Student engagement in school as a multidimensional construct: An exploration of its relation to dropout. *Prevention Science, 15*(1), 76-89. https://doi.org/10.1007/s11121-012-0320-y

Reschly, A., & Christenson, S. L. (2006). Promoting school completion. In G. Bear & K. Minke (Eds.), *Children's needs III: Understanding and addressing the developmental needs of children* (pp. 103-113). National Association of School Psychologists.

Ridge, N., Kippels, S., & Shami, S. (2015). *Private education in the United Arab Emirates and Qatar: Implications and challenges*. Al Qasimi Foundation. https://doi.org/10.18502/aqf.0113

Robb, M. K. (2014). *Factors that influence cognitive engagement and academic success of pre-licensure baccalaureate millennial nursing students* (Publication No. 12345) [Doctoral dissertation, Indiana University of Pennsylvania]. Indiana University of Pennsylvania Repository.

Robb, M. K. (2014). *Factors that influence cognitive engagement and academic success of pre-licensure baccalaureate millennial nursing students* (Publication No. 70909650) [Doctoral Dissertation, Indiana University of Pennsylvania]. Semantic Scholar.

Rocha, M., & Ventura, M. (2011). Vermunt's Learning Styles: Searching for Portuguese College student's functioning. Review of Learning Styles, *8*(8), 46-70.

Rodriguez, J., & Boutakidis, L. P. (2013). The Association between School Engagement and Achievement across Three Generations of Mexican American Students. *Association of Mexican-American Educators Journal*, *7*(1), 5-12.

Rodríguez-Fernández, A., Ramos-Díaz, E., Fernández-Zabala, A., Goñi, E., Esnaola, I., & Goñi, A. (2016). Contextual and psychological variables in a descriptive model of

subjective well-being and school engagement. *International journal of clinical and health psychology: IJCHP*, *16*(2), 166–174. https://doi.org/10.1016/j.ijchp.2016.01.003

Rogers, C. R. (1983). Freedom to Learn for the 80s. Columbus, OH: Charles E. Merrill Publishing Company.

Russell, V. J., Ainley, M., & Frydenberg, E. (2005). *Schooling issues digest: Student motivation and engagement.* Department of Education, Skills and Employment. Retrieved November 9, 2005, from http://www.dest.gov.au/sectors/school_education/publications_resources/schooling_issues_digest/schooling_issues_digest_motivation_engagement.htm

Saad, W. (2019). *Building Kuwait's Future Human Capital for the Knowledge-Based Economy*. Kuwait Public Policy Center.

Santos, A., Simões, C., Melo, M., dos Santos, M., Freitas, I., Branquinho, C., Cefai, C., & Arriaga, P. (2023). A systematic review of the association between social and emotional competencies and student engagement in youth. *Educational Review*. https://doi.org/10.1016/j.edurev.2023.100535

Sæle, R., Dahl, T., Sørlie, T., & Friborg, O. (2017). Relationships between learning approach, procrastination and academic achievement amongst first-year university students. *Higher Education, 74*. https://doi.org/10.1007/s10734-016-0075-z

Sakiz, H., Özdaş, F., Göksu, İ., & Ekinci, A. (2021). A longitudinal analysis of academic achievement and its correlates in higher education. *SAGE Open, 11*(1). https://doi.org/10.1177/21582440211007362

Säljö, R. (1979). Learning in the learner's perspective: I. Some commonsense conceptions. Report from the Department of Education, University of Göteborg, No. 76.

Schaufeli, W. B., Salanova, M., González-Romá, V., et al. (2002). The measurement of engagement and burnout: A two sample confirmatory factor analytic approach. *Journal of Happiness Studies, 3*, 71-92. https://doi.org/10.1023/A:1015630930326

Schmeck, R., & Cercy, S. (1991). The revised Inventory of Learning Processes. *Educational Psychology, 11*, 343-362. https://doi.org/10.1080/0144341910110310

Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: A systematic review of meta-analyses. *Psychological Bulletin, 143*(6), 565-600. https://doi.org/10.1037/bul0000098

Schnitzler, K., Holzberger, D., & Seidel, T. (2021). All better than being disengaged: Student engagement patterns and their relations to academic self-concept and achievement. *European Journal of Psychology of Education, 36*, 627-652. https://doi.org/10.1007/s10212-020-00500-6

Sedaghat, M., Abedin, A., Hejazi Moughari, E., & Hassanabadi, H. (2011). Motivation, cognitive engagement, and academic achievement. *Procedia - Social and Behavioral Sciences, 15*, 2406-2410. https://doi.org/10.1016/j.sbspro.2011.04.117

Sesmiyanti, S. (2018). Student's cognitive engagement in learning process. *Journal Polingua: Scientific Journal of Linguistics, Literature and Education, 5*(2), 48-51. https://doi.org/10.30630/polingua.v5i2.34

Shuell, T. J. (1986). Cognitive Conceptions of Learning. Review of Educational Research, 56(4), 411-436. https://doi.org/10.3102/00346543056004411

Siddiek, Dr. Ahmed. (2012). Higher Education in the Arab World & Challenges of Labor Market. International Journal of Business and Social Science) - May 2012.

Sinclair, M., Christenson, S., Lehr, C., & Anderson, A. (2014). Facilitating student engagement: Lessons learned from Check & Connect longitudinal studies. *The California School Psychologist, 8*(1), 29-41. https://doi.org/10.1007/BF03340894

Skinner, E., & Belmont, M. (1993). Motivation in the classroom: Reciprocal effects of teacher behavior and student engagement across the school year. *Journal of Educational Psychology, 85*(4), 571-581. https://doi.org/10.1037/0022-0663.85.4.571

Skinner, E., Furrer, C., Marchand, G., & Kindermann, T. (2008). Engagement and disaffection in the classroom: Part of a larger motivational dynamic? *Journal of Educational Psychology, 100*(4), 765–781. https://doi.org/10.1037/a0012840

Smith, L., Krass, I., Sainsbury, E., & Rose, G. (2010). Pharmacy students' approaches to learning in undergraduate and graduate entry programs. *American Journal of Pharmaceutical Education, 74*(6), 106. https://doi.org/10.5688/aj7406106

Song, L., & Callahan, J. L. (2017). An empirical examination of the validity and reliability of the Student Engagement Instrument (SEI) with undergraduate students. *Journal of College Student Development, 58*(4), 542-548.

Song, Y., & Vermunt, J. D. (2021). A comparative study of learning patterns of secondary school, high school, and college students. *Studies in Educational Evaluation, 68*, [100958]. https://doi.org/10.1016/j.stueduc.2020.100958

Struyven, K., Dochy, F., Janssens, S., & Gielen, S. (2006). On the dynamics of students' approaches to learning: The effects of the teaching/learning environment. *Learning and Instruction, 16*, 279-294. https://doi.org/10.1016/j.learninstruc.2006.07.001

Sukor, R., Fauzi, A., Nor-Khaizura, M.-A.-R., & A. H., Farawahida. (2021). Relationship between students' engagement with academic performance among non-food science students enrolled in food science course. *Journal of Turkish Science Education, 18,* 638-648. https://doi.org/10.36681/tused.2021.95

Tait, H., & Entwistle, N. J. (1996). Identifying students at risk through ineffective study strategies. *Higher Education, 31*(1), 99-111.

Tait, H., Entwistle, N. J., & McCune, V. (1998). ASSIST: a re-conceptualisation of the Approaches to Studying Inventory. In C.Rust (Ed.), Improving students as learners (pp. 262-271). Oxford: Oxford Brookes University, Centre for Staff and Learning Development.

Tait, H., Entwistle, N. J., & McCune, V. (1998). ASSIST: A reconceptualisation of the Approaches to Studying Inventory. In *Improving students as learners* (pp. 262-271).

Tan, K. A. A. (2012). *Learning patterns of engineering students in a Singapore tertiary education context and the implications for continuing education in the field of engineering* [Doctoral dissertation, Durham University]. Durham E-Theses Online. http://etheses.dur.ac.uk/4933/

Tanaka, J. S. (1987). How big is big enough? Sample size and goodness of fit in structural equation models with latent variables. *Child Development, 58,* 134-146. https://doi.org/10.2307/1130296

The Report: Kuwait. (2019). *Oxford Business Group.* Retrieved from https://oxfordbusinessgroup.com/reports/kuwait/2019-report

Thomas, L. (2012). *Building student engagement and belonging in Higher Education at a time of change*. Paul Hamlyn Foundation.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis: Understanding concepts and applications.* American Psychological Association. https://doi.org/10.1037/10694-000

Tinto, V. (2012). Enhancing student success: Taking the classroom success seriously. *The International Journal of the First Year in Higher Education, 3*. https://doi.org/10.5204/intjfyhe.v3i1.119

Tomaszewski, W., Xiang, N., & Western, M. (2020). Student engagement as a mediator of the effects of socio-economic status on academic performance among secondary school students in Australia. *British Educational Research Journal, 46*(3), 610-630. https://doi.org/10.1002/berj.3599

Topal, K., Sarıkaya, Ö., Basturk, R., & Buke, A. (2015). Do students' styles of learning affect how they adapt to learning methods and to the learning environment? *Marmara Medical Journal, 28*(2), 81-89. https://doi.org/10.5472/MMJoa.2802.04

Trochim, William. (2007). The Research Methods Knowledge Base.

Ulmanen, S., Soini, T., Pietarinen, J., & Pyhältö, K. (2016). Students' experiences of the development of emotional engagement. *International Journal of Educational Research, 79*, 86–96. https://doi.org/10.1016/j.ijer.2016.06.003

Van de Ven, M. (2017). Approaches to learning and academic achievement. Centre for Education and Learning. https://www.educationandlearning.nl/news/approaches-to-learning-an-academic-achievement

Van der Veken, J., Valcke, M., Muijtjens, A., De Maeseneer, J., & Derese, A. (2008). The potential of the inventory of learning styles to study students' learning patterns in

three types of medical curricula. *Medical Teacher*, *30*(9–10), 863–869. https://doi.org/10.1080/01421590802141167

Van Gyn, G., & Wild, P. (2013). Monitoring student engagement in first year engineering. *Proceedings of the Canadian Engineering Education Association*, Paper 144. doi:10.24908/pceea.v0i0.4886

Van Rossum, E. J., Deijkers, R., & Hamer, R. (1985). Students' learning conceptions and their interpretation of significant educational concepts. *Higher Education*, *14*(6), 617–641. https://doi.org/10.1007/BF00136501

Vázquez, S. (2009). Rendimiento académico y patrones de aprendizaje en estudiantes de ingeniería. *Ingeniería y Universidad*, *13*(1), 105-136.

Vermetten, Y. J., Lodewijks, H. G., & Vermunt, J. D. (2001). The role of personality traits and goal orientations in strategy use. *Contemporary Educational Psychology*, *26*(2), 149–170. https://doi.org/10.1006/ceps.1999.1042

Vermetten, Y., Vermunt, J., & Lodewijks, H. (1999). A longitudinal perspective on learning strategies in higher education: Different viewpoints towards development. *British Journal of Educational Psychology*, *69*(2), 221-242.

Vermunt, J. D. (1998). The regulation of constructive learning processes. *British Journal of Educational Psychology*, *68*(2), 149–171. https://doi.org/10.1111/j.2044-8279.1998.tb01281.x

Vermunt, J. D. (2020). Surveys and retrospective self-reports to measure strategies and strategic processing. In D. L. Dinsmore, L. K. Fryer, & M. M. Parkinson (Eds.), *Handbook of strategies and strategic processing* (pp. 259-274). Routledge. https://doi.org/10.4324/9780429423635-16

Vermunt, J. D. H. M., & Van Rijswijk, F. A. W. M. (1988). Analysis and development of students' skill in self-regulated learning. *Higher Education, 17*, 647–682. https://doi.org/10.1007/BF00143780

Vermunt, J. D., and Verloop, N. (1999). Congruence and friction between learning and teaching. Learn. Instr. 9: 257–280.

Vermunt, J. D., & Donche, V. (2017). A learning patterns perspective on student learning in higher education: State of the art and moving forward. *Educational Psychology Review, 29*, 269-299. https://doi.org/10.1007/s10648-017-9414-6

Vermunt, J. D., & Vermetten, Y. J. (2004). Patterns in student learning: Relationships between learning strategies, conceptions of learning, and learning orientations. *Educational Psychology Review, 16*(4), 359–384. https://doi.org/10.1007/s10648-004-0005-y

Vermunt, J. D., Bronkhorst, L. H., & Martínez-Fernández, J. R. (2014). The dimensionality of student learning patterns in different cultures. In D. Gijbels, V. Donche, J. T. E. Richardson, & J. D. Vermunt (Eds.), *Learning patterns in higher education: Dimensions and research perspectives* (p. 33-55). Routledge. https://doi.org/10.4324/9781315885438

Vermunt, J.D. (2005) Relations between Student Learning Patterns and Personal and Contextual Factors and Academic Performance. Higher Education, 49, 205-234. http://dx.doi.org/10.1007/s10734-004-6664-2

Vermunt, J.D.H.M. (1996) Metacognitive, Cognitive and Affective Aspects of Learning Styles and Strategies: A Phenomenographic Analysis. Higher Education, *31*, 25-50. http://dx.doi.org/10.1007/BF00129106

Viladrich, C., Angulo-Brunet, A., & Doval, E. (2017). A journey around alpha and omega to estimate internal consistency reliability. *Anales de Psicología, 33*(3), 755–782. https://doi.org/10.6018/analesps.33.3.268401

Waldrop, D., Reschly, A., Fraysier, K., & Appleton, J. (2018). Measuring the engagement of college students: Administration format, structure, and validity of the Student Engagement Instrument–College. *Measurement and Evaluation in Counseling and Development, 52*(2), 90–107. https://doi.org/10.1080/07481756.2018.1497429

Wang, M.-T., & Degol, J. L. (2016). School climate: A review of the construct, measurement, and impact on student outcomes. *Educational Psychology Review, 28*(2), 315–352. https://doi.org/10.1007/s10648-015-9319-1

Wang, M.-T., & Eccles, J. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction, 28*, 12–23. https://doi.org/10.1016/j.learninstruc.2013.04.002

Wara, E., Aloka, P., & Odongo, B. (2018). Relationship between cognitive engagement and academic achievement among Kenyan secondary school students. *Mediterranean Journal of Social Sciences, 9*(2), 61-72. https://doi.org/10.2478/mjss-2018-0026

Wara, E., Aloka, P., & Odongo, B. (2018). Relationship between cognitive engagement and academic achievement among Kenyan secondary school students. *Mediterranean Journal of Social Sciences, 9*, 61-72. https://doi.org/10.2478/mjss-2018-0026

Weiss, C. C., & García, E. (2015). Student engagement and academic performance in Mexico: Evidence and puzzles from PISA. *Comparative Education Review, 59*(2), 305–331. https://doi.org/10.1086/680170

Weiss, C. C., & García, E. (2015). Student engagement and academic performance in Mexico: Evidence and puzzles from PISA. *Comparative Education Review, 59*(2), 305-331. https://doi.org/10.1086/680170

Wen, C., Zhang, W., Li, D. P., Yu, C. F., & Dai, W. Z. (2010). *初中生感恩与学业成就的关系:学习投入的中介作用* [Relationship between junior students' gratitude and academic achievement: With academic engagement as the mediator]. *Psychological Development and Education, 26*(6), 598-605.

Wentzel, K. R. (2012). Teacher-student relationships and adolescent competence at school. In *Interpersonal relationships in education* (Vol. 3, pp. 19-35). SensePublishers. https://doi.org/10.1007/978-94-6091-939-8_2

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, *35*(3), 193-202. https://doi.org/10.1016/j.cedpsych.2010.03.002

Weyns, T., Colpin, H., De Laet, S., Verschueren, K., & Van Leeuwen, K. (2018). Teacher support, peer acceptance, and engagement in the classroom: A three-wave longitudinal study in late childhood. *Journal of Youth and Adolescence, 47*(6), 1139-1150. https://doi.org/10.1007/s10964-017-0774-5

Willms, J. D. (2003). *Student engagement at school: A sense of belonging and participation: Results from PISA 2000*. OECD Publishing. https://doi.org/10.1787/9789264018938-en

Yang, S., & Pu, R. (2022). The effects of contextual factors, self-efficacy, and motivation on learners' adaptability to blended learning in college English: A structural equation

modeling approach. *Frontiers in Psychology*, *13*, 847342. https://doi.org/10.3389/fpsyg.2022.847342

Yidana, M., Arthur, F., & Ababio, B. (2022). Teachers' application of multiple intelligences approach in teaching economics. *Education Research International*, *2022*, Article 2875555. https://doi.org/10.1155/2022/2875555

Yousef, D. (2021). Learning style instruments in Arab countries: An analysis of existing literature. *European Journal of Training and Development*. Advance online publication. https://doi.org/10.1108/EJTD-06-2020-0112

Yu, L., Shek, D. T. L., & Zhu, X. (2018). The Influence of Personal Well-Being on Learning Achievement in University Students Over Time: Mediating or Moderating Effects of Internal and External University Engagement. *Frontiers in psychology*, *8*, 2287. https://doi.org/10.3389/fpsyg.2017.02287

Zawya. (2023, June 1). Kuwait lags behind Gulf, globally in education quality. Zawya. https://www.zawya.com/en/world/middle-east/kuwait-lags-behind-gulf-globally-in-education-quality-ko5n6yx8

Zepke, N. (2015). Student engagement research: Thinking beyond the mainstream. *Higher Education Research & Development*, *34*(6), 1311-1323. https://doi.org/10.1080/07294360.2015.1024635

Zepke, N. (2017). Student engagement in neo-liberal times: What is missing? *Higher Education Research & Development*, *37*(2), 433-446. https://doi.org/10.1080/07294360.2017.1370440

Zhang, Z. (2020). Learner engagement and language learning: A narrative inquiry of a successful language learner. *The Language Learning Journal.* Advance online publication. https://doi.org/10.1080/09571736.2020.1786712

Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice, 41*(2), 64-70. https://doi.org/10.1207/s15430421tip4102_2

ANNEXES

Annex 1: Manuscript of the first study

Assessing Student Engagement and its Predictive Validity for Academic Achievement among Arab Undergraduates in Kuwait

Evaluación del compromiso de los estudiantes y su validez predictiva para el rendimiento académico entre los estudiantes universitarios árabes de Kuwait

Abstract

The importance of engagement in higher education is one of the variables with a clear weight in the relationship with academic success, hence the increased interest it has generated in educational research over the last two decades. However, from an intercultural point of view towards learning processes and educational psychology in general, we need broader samples that include less explored territories like Middle Eastern countries. OBJECTIVE: In this respect, this study aimed to evaluate the predictive validity of the Student Engagement Instrument (SEI) concerning the GPA among Arab undergraduates. METHOD: The participants are 392 students of the Business- Engineering program in Kuwait. CFA examined the construct validity of the SEI and two factors (cognitive and emotional), with Cronbach's alpha values ranging from .62 to .78., are defined. Next, a linear regression analysis was used to investigate the relationship between student engagement and GPA. RESULTS: The results showed that while cognitive engagement is a significant predictor of GPA, emotional engagement is not significant in explaining the GPA. DISCUSSION: The cross-cultural validity of the SEI for assessing student engagement is discussed, with particular reference to emotional engagement.

*Keywords***:** Student engagement, Academic achievement, Arab undergraduates, Cognitive engagement, Emotional engagement.

Resumen

La importancia del compromiso en la enseñanza superior es una de las variables con un peso claro en la relación con el éxito académico, de allí el mayor interés que ha generado en la investigación educativa durante las dos últimas décadas. Sin embargo, desde un punto de vista intercultural hacia los procesos de aprendizaje y la psicología educativa en general, necesitamos estudios que incluyan territorios menos explorados como los países de Oriente Medio. OBJETIVO: En este sentido, el presente estudio tiene como objetivo evaluar la validez predictiva del *Student Engagement Instrument* (SEI) en relación con el GPA entre estudiantes universitarios árabes. MÉTODO: Los participantes son 392 estudiantes del programa de Ingeniería Empresarial en Kuwait. El AFC examinó la validez de constructo del SEI y se definen dos factores (cognitivo y emocional), con valores alfa de Cronbach que oscilan entre .62 y .78. A continuación, se utilizó un análisis de regresión lineal para investigar la relación entre el compromiso de los estudiantes y el GPA. RESULTADOS: Los resultados muestran que mientras que el compromiso cognitivo es un predictor significativo del GPA, el compromiso emocional no es significativo para explicar el GPA. DISCUSIÓN: Se discute la validez intercultural del SEI para evaluar el compromiso de los estudiantes, con particular referencia al compromiso emocional.

Palabras clave: Compromiso del estudiante, compromiso académico, universitarios árabes, compromiso cognitivo, compromiso emocional.

Introduction

Longly, engagement has come to be seen as valuable for higher education, and during the last two decades, there has been an increase in its popularity in research. A primary reason for such interest is that engagement is a pivotal contributor to learning and academic success (Casanova et al., 2024; Fredricks et al., 2016; Nepal & Rogerson, 2020). Several studies proved a positive relationship between student engagement and desired academic outcomes (Lei et al., 2018; Moubayed et al., 2018). In some summaries, engagement is outstanding because it unequivocally connects to student performance, and "its role can no longer be questioned" (Thomas, 2012).

Besides academic performance, engagement prominently correlates to qualitative learning outcomes, enjoyment and satisfaction with the scholar institutions, psychological health and well-being, self-efficacy, and persistence during years of study, and positively affects student's career perceptions (Delfino, 2019; Eccles & Wang, 2012; Heng, 2014; Hoff & Lopus, 2014; Lee, 2013; Quaye & Harper, 2014). In this respect, Macfarlane (2015) argues, "if students are engaged as learners, they are more likely to complete their studies, obtain better degree results, and gain life skills suitable for the employment market" (p. 346).

While the essential impact of engagement on academic performance is unquestionable, there is ongoing debate regarding the precise nature of this relationship, as multiple studies present controversial outcomes (Boulton et al., 2019; Zepke, 2015). One reason for the vagueness of the relationship of engagement with academic success is the learning context (Kahu, 2013; Lam et al., 2014; Marenco-Escuderos, et al., 2024); because the authors consider that student learning and engagement are not context-free. More research is needed to understand how student engagement affects achievement beyond what we already know. The study of student engagement has been of great interest to researchers, who recognize that engagement is a construct that is closely tied to the educational context. Despite efforts to develop measures of engagement from various theoretical perspectives and across different samples and educational contexts, most of the research in this area has been conducted in Northern America, Western Europe, Asia and Australia. This has resulted in limited research on engagement in other regions, such as the Middle East, with Kuwait being an understudied context. Moreover, due to both conceptual variations and limited contextual settings, these measures are often prone to limitations when comparing their psychometric properties (Lam et al., 2014). Notably, researchers and educators recognize the need for psychometrically valid measures of student engagement that are designed to capture the nuances of engagement in different contexts. A psychometrically valid measure of student engagement would enable targeted interventions to take place before students become entirely disengaged while offering a developmental perspective on student engagement (Christenson & Reschly, 2012).

To address the gap, we adopted a well-known measure of the construct of engagement: The Student Engagement Instrument (SEI) as outlined by Betts et al., (2010) within the context of college students in Kuwait. In this sense, we aim to provide instrumental validity and contextual information for a more inclusive analysis of learning processes.

Student Engagement

In a broad view, student engagement is a complex construct used to identify what students do, think, and feel when learning (Zepke, 2017, p. 433), involving participation during educational activities (Lei et al., 2018). Its definition varies widely within and across different types of engagement. However, there is an agreement among researchers that engagement is

multifaceted and most commonly comprises three dimensions, such as behavioral, emotional, and cognitive factors (Ben-Eliyahu et al., 2018; Eccles, 2016; Kahu, 2013, Lam et al., 2014; Zepke, 2015; 2017). *Behavioral engagement* refers to a student's active involvement in learning activities vital for academic continuity and success. Specifically, it encompasses positive conduct, inclusion in learning, and participation in curricular activities. *Emotional engagement* involves students' emotional reactions (e.g., enjoyment and satisfaction) towards teachers, peers, academic work, and school. Research indicates that positive emotions help students develop a sense of belonging, connectedness, and identification with the school, thereby enhancing their engagement (Appleton et al., 2008; Ulmanen et al., 2016). On the other hand, *cognitive engagement* relates to students' approaches to learning and their understanding of the learning process.

In their model of engagement, Appleton et al. (2006, 2008) proposed a four-component engagement construct adding *academic engagement*, which describes students' time on tasks, credits earned, achievements, and school completion. Regarding methodological approach, Betts and colleagues (2010) believed the best way to depict cognitive and emotional engagement is by self-reporting instruments. Therefore, upon such taxonomy, a Likert-like scale was developed to investigate students' perceptions and feelings toward learning: Student Engagement Instrument (SEI; Appleton et al., 2006, 2008; Betts et al., 2010). Since then, the SEI has been widely used for the evaluation of the cognitive and emotional engagement of students across levels and educational contexts.

Multiple studies have generally found the SEI to be reliable and valid. For instance, in a study conducted by Appleton et al. (2008), it was found that the SEI showed strong internal consistency and reliability based on the re-test procedure. Besides, they found that the SEI could discriminate between highly engaged students and those who were not. Song and Callahan (2017) found that the SEI had a stable two-factor structure (emotional and cognitive engagement) and good internal consistency (Cronbach's alpha ranging from .77 to .87). Additionally, the authors found that the SEI was able to discern between students with different levels of academic achievement. Waldrop and colleagues (2018) found that the SEI had good internal consistency (Cronbach's alpha ranging from .81 to .93) and was a valid measure of student engagement in undergraduates.

Finally, there has been disagreement regarding the dimension to which the indicators correspond suggesting that dimensions of engagement can even be co-dependent. Lawson and Lawson (2013) state that *effort* and *persistence* are considered cognitive constructs rather than behavioral constructs because they "represent cognitive dispositions toward activity rather than an activity unto itself" (p. 34). Järvelä et al. (2016) argue that *interaction* itself is both dimensionally cognitive and emotional as it includes student collaboration. Similarly, cognitively engaged individuals who value learning tend to enjoy learning activities more than those who do not, and they perceive higher levels of social support while attending school (Waldrop et al., 2018).

Engagement and Academic Achievement

Several authors suggest that student engagement predicts academic performance (Gerber et al., 2013; Hoff & Lopus, 2014; Pietarinen & Pyhalto, 2014; Tomaszewski et al., 2020). Still, research findings regarding the relationship between student engagement and academic performance differ based on the type of engagement.

Emotional engagement describes the student's feelings toward school, learning activities, connectedness, and belonging. Grier-Reed et al. (2012) found emotional engagement to predict first-year college students' academic outcomes significantly. Using the SEI instrument some authors (Appleton et al., 2008; Betts et al., 2010) found the outstanding role of relationships (Peer Support and Teacher-Student Relationships) in predicting GPA. Peer support was a controlling factor for students' career decisions and self-efficacy, stressing its role during the college's adjustment process (Wentzel et al., 2010). Surprisingly, Heng (2014) found no impact of peer support on academic achievement, as the correlation was insignificant.

The student-teacher relationship had a moderately positive effect on academic achievement among Cambodian students, but no such effect was found among Mexican students (Heng, 2014; Weiss & García, 2015). The s*ense of belonging and connectedness* as a fundamental concept of emotional engagement is often the sole influencing factor in academic performance (Günuç & Kuzu, 2014). Likewise, Lee (2013) found emotional engagement statistically meaningful in predicting students' reading performance. The sense of belonging alone was necessary to lead to better academic performance. In addition, findings show students' *sense of connectedness* with school and subjects to be crucial for a higher GPA over time (Li & Lerner, 2011; Weiss & García, 2015).

These results are supported by another comparative study of engagement among international and American students revealing that students enrolled in a supportive campus with qualitative relationships and a sense of belonging tend to have better academic performance (Korobova & Starobin, 2015). Hassaskhah et al., (2013) investigated the role of internal forms of engagement in academic performance among Iranian students. Findings revealed that emotional and cognitive engagement have a predicting role in academic performance throughout college studies. However, emotional engagement reaches its peak during the second year, which is the best time to investigate its relationship with GPA. The findings align with Gonyea (2006) suggesting that the first year of college is too soon to investigate engagement and outcomes. However, recent research supported overall engagement's role in academic performance throughout the study years (Casanova et al., 2024; Delfino, 2019).

On the other hand, cognitive engagement has often been found to have a tremendous role in academic performance (Greene, 2015). It contains traits such as being self-regulated, giving value to learning, striving to understand complicated matters of learning subjects, developing skills, and being flexible in problem-solving (Fredricks et al., 2004; 2016). Various studies have found cognitive engagement to predict academic achievement significantly and suggest that school-based teacher counselors use cognitive behavioral therapy to enhance students' cognitive skills (Wara et al., 2018). In addition, cognitive engagement positively correlates with the student's GPA (Robb, 2014; Rodriguez & Boutakidis, 2013). However, Doğan (2015) found the correlation between cognitive engagement and academic performance as moderate, and Christenson and Reschly (2012) even considered it vague and claimed the need for further investigation.

Finally, although there is an agreement that good engagement improves academic performance, it is not a universal finding. For example, Zepke (2017) says that the correlation between engagement and academic performance may not always be present and is often weak. Therefore, further consideration of these disagreements represents an area for future research that matches the current study's scope.

To sum up, there is a general agreement among researchers that student engagement is associated with academic success; but probably in a different way. While recognizing the previous findings, we believe a need exists to clarify the nature of the relationship between academic engagement (especially cognitive and emotional) and academic success. Moreover, there is scarce literature about students in Middle Eastern countries. We, therefore, sought to comprehend the connection between cognitive/emotional engagement and students' GPA using the Student Engagement Instrument. In order to achieve this, we first analyzed the psychometric properties of the SEI running the confirmatory analysis. This would contribute to the current interest in research in constructing a testable working model of student engagement; and we defined two research questions:

1. What is the factor configuration of the SEI among undergraduate students in Kuwait?
2. How much do cognitive and emotional engagement explain academic performance?

Method

Study Design and Participants

Informed consent was obtained from the participants, students from private universities in Kuwait, before their voluntary response to the questionnaire. A total of 392 participants answered the questionnaire. 225 students were female (57.4%), and 167 (42.6%) were male. The mean age was 20 years old (SD= 1.92). They were attending their first or second year of undergraduate studies in Business-Engineering. Students attending their very first semester were excluded from the research, as no data for their GPA was available. Incomplete questionnaires were removed from the database. The majority of students (95%) were Kuwaiti, and all of them were Arab. Students were asked to note their gender, age, as well as their current GPA. However, in order to ensure accuracy of the self-reported data, the information about their GPA was verified through the college administration system.

Student Engagement Instrument

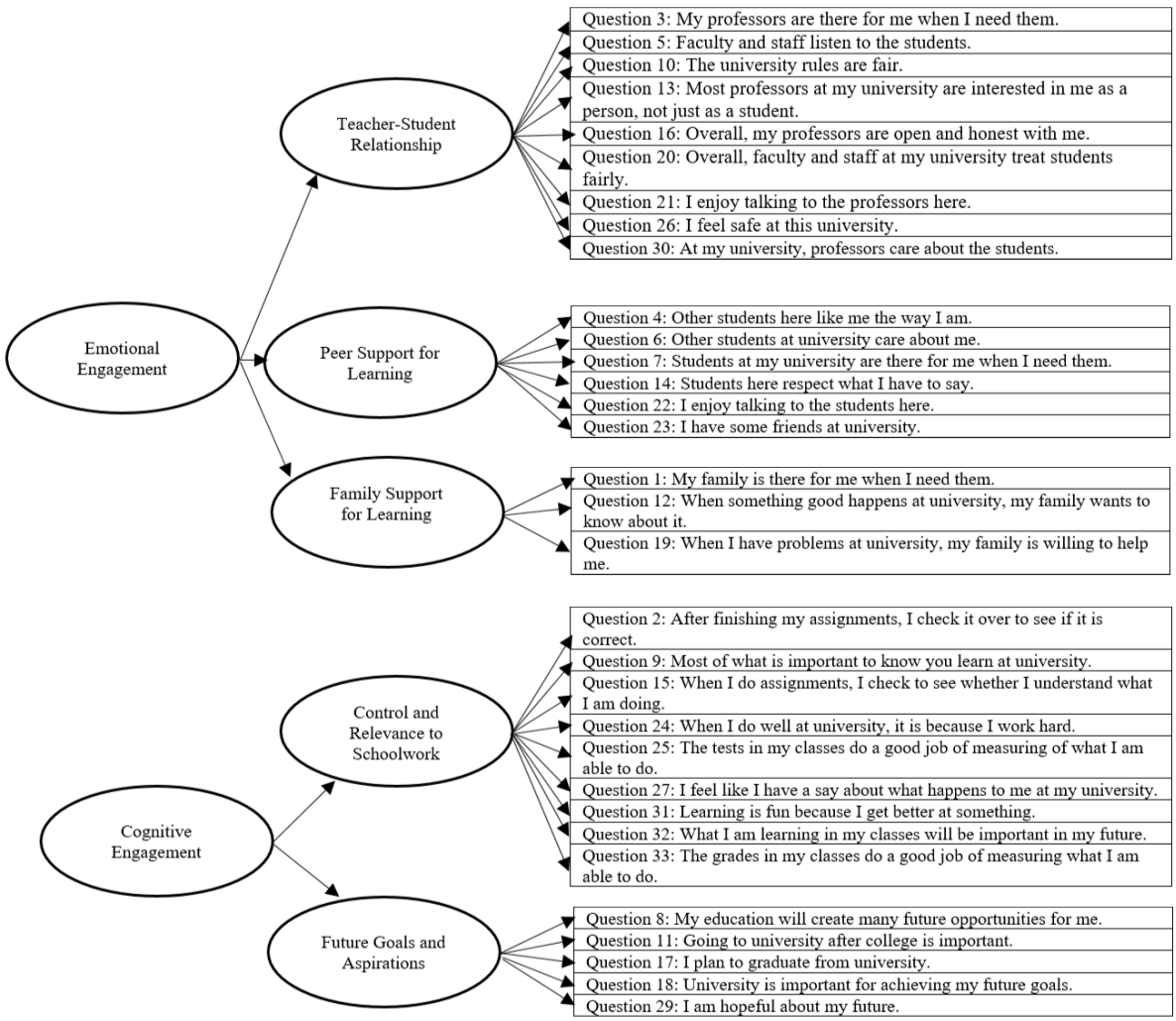
Student Engagement Instrument (SEI) was used in order to identify students' emotional and cognitive engagement. The instrument consists of five subscales where three of them (teacher-student relationships -TSR-, peer support for learning -PSL-, and family support for learning -FSL-) compromise the emotional engagement factor. These subscales contain 20 items related to students' interactions with their teachers, peers, and family members. They indicate students' sense of belonging and connectedness with the university and the learning environment.

Subscales of control and relevance to schoolwork (CRS) and future goals and aspirations (FGA) compromise the cognitive engagement factor. They include 13 items about students' perceptions of learning, their control over study works, and the relevance perceived between learning activities and their future goals. All 33 items were rated on a four-point Likert-type scale. Figure 1 represents the structure of SEI as for the Betts and colleagues (2010) revision of the instrument.

Academic Achievement

The GPA scale in Kuwait ranges from 0 to 4. Students reported the GPAs they had when responding to the questionnaire, and this was corroborated by the administration. No inconsistencies were found.

Figure 1
Student Engagement Model



Note. Adapted from Waldrop et al. (2018), p. 6.

Procedure

Consent was obtained from the university to ask students to participate voluntarily in research. Once students agreed to participate, questionnaires were completed during their general education classes on a paper-and-pencil administration in a 16-minutes approx. Incomplete and damaged questionnaires were excluded from the data.

Results

Factor Structure of SEI

In order to analyse the factor structure of the SEI, confirmatory factor analysis (CFA) was performed using the maximum likelihood estimation method. The data were treated as ordered categorical rather than continuous, as the Likert scale used in the questionnaire was

ordinal in nature. This approach is recommended when the assumption of normality is violated or when the scale is ordinal, as treating ordinal data as continuous can lead to biased estimates (Flora & Curran, 2005). The use of CFA allowed for the examination of the hypothesized factor structure and the identification of any model misfit.

Model fit was established by using a combination of three categories of fit indexes; absolute, incremental, and parsimonious fit. The absolute fit statistics used in this study included the Root Mean Square of Error Approximation (RMSEA: Browne & Cudeck, 1993) and Goodness of Fit Index (GFI: Jöreskog & Sörbom, 1981). The minimum Discrepancy of Shi-Square value (Chi-Square) was ignored as the sample size of the current study is greater than 200 (*N*= 392) (Graziano et al., 1996). For the incremental fit category used to test the worst possible structure model, two indexes were included: Adjusted Goodness of Fit (AGFI: Tanaka, 1987) and Comparative Fit Indexes (CFI: Bentler, 1990). As for the parsimonious fit, the Chi Square/Degrees of Freedom (Chisq/df) was used to determine the degrees of freedom of the model fit.

The factor structure analysis was done in two orders. The initial analysis showed fit indexes to have an acceptable but unsatisfactory fit. Therefore, six items were removed using modification indices to identify problematic issues to improve the model fit. Among the six questions removed, three were for the TSR subscale, one for the PSL, and three for CRSW. The reasons for the deletion of the items are primarily substantive. Three of the deleted questions were in consecutive order in the questionnaire. This suggests that there may have been redundancy in the questions or that they were measuring a different construct than the intended factor. Other questions may not have been well-designed or worded, leading to ambiguity or confusion among respondents. For instance, "I feel safe at college" can be interpreted in different ways, such as physical or psychological safety. As seen in Figure 2, all loadings of remaining items on their targeted factors were statistically significant and neared the .3 cutoff values. According to Field (2013), "items with factor loading less than above .3 may not be deleted from the model if the fitness indexes for the measurement model have already achieved the required level, as shown in Table 1" (p. 676).

Table 1
Categories, name indexes, cut-off values, and the index values of the first-order factor analysis of SEI after modification indices

Category	Index	Threshold	Value
Absolute fit	RMSEA	< .08	.07
	GFI	> .9	.88
Incremental fit	AGFI	> .9	.85
	CFI	> .9	.9
Parsimonious fit	ChiSq/df (cmin/df)	< 3	2.478

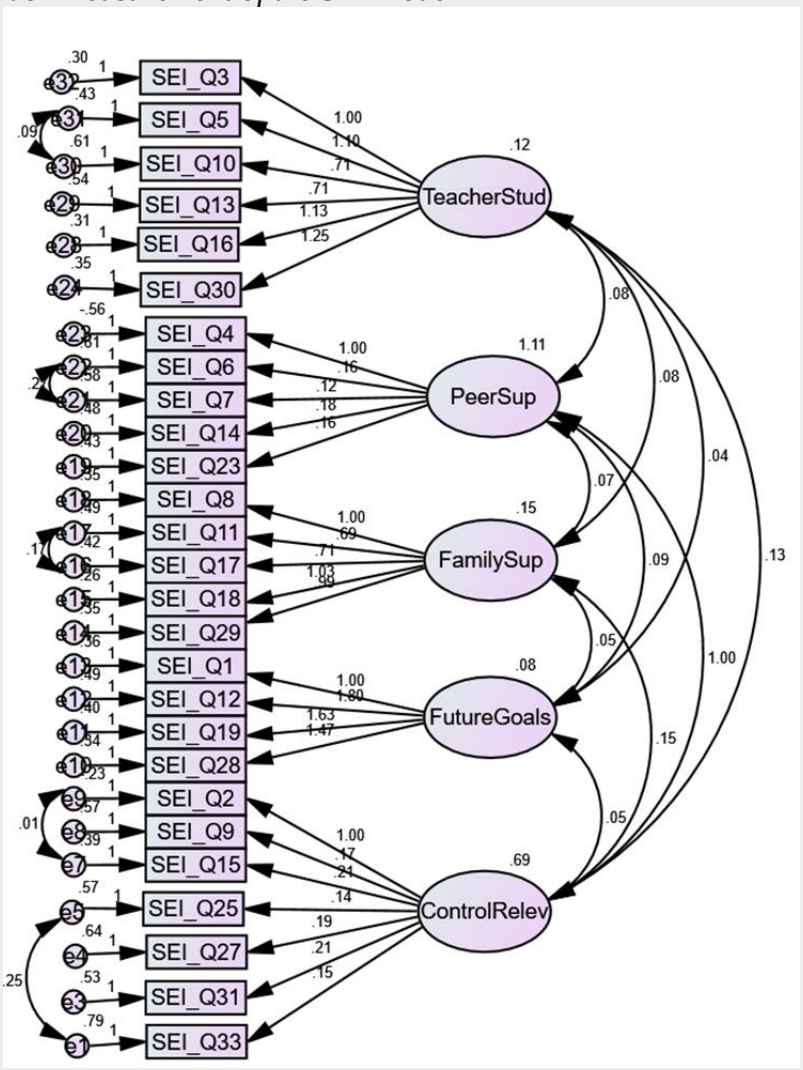
Second Order Factor

The SEI model has a hierarchical factor structure, which was tested. The results of the second-order factor structure are presented in Figure 3, and the model fit statistics of the second-order factor are presented in Table 2. The second-order model showed the criteria with a better model fitting compared to the first-order model. The GFI and the AGFI had

better index values than the first-order factor: .912 (> .9) and .9 (> .9), respectively. Other indicators were also achieved: .035, .91, and 1.479 for RMSEA, CFI, and cmin/df, respectively. The path coefficients for each student engagement dimension in the hierarchical model were .58 for cognitive engagement and .56 for emotional engagement.

Figure 2

First-order Measurement of the SEI Model



Note: Latent constructs are shown in ellipses, and observed variables are shown in rectangles. After modification indices, the following items were removed: 20, 21, 22, 24, 26, and 32.

Table 2

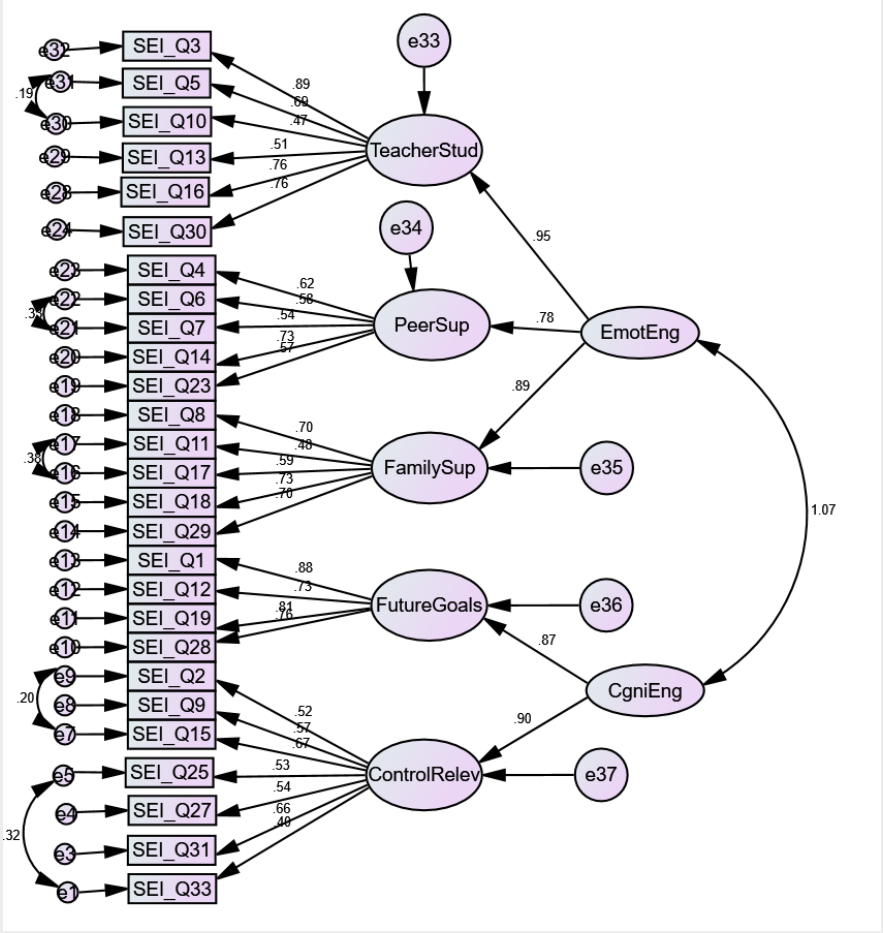
Categories, name indexes, cut-off values, and the index values of the second-order factor analysis of SEI

Category	Index	Threshold	Value
Absolute fit	RMSEA	< .08	.035
	GFI	> .9	.912
Incremental fit	AGFI	> .9	.9
	CFI	> .9	.91
Parsimonious fit	ChiSq/df (cmin/df)	< 3	1.479

Finally, we calculated coefficient alphas (α) for the overall internal consistency and each depicted subscale of the model. Literature supports the use of Cronbach's alpha over other reliability tests for studies done in education and psychology areas and, specifically, if the nature of the data is categorical (such as in this study's case) (Viladrich et al., 2017). Each subscale showed acceptable fit (range α = .62 to .78). In this study, the overall Cronbach's alpha is a valuable coefficient that indicates the internal consistency of both factors depicted and their subscales. The overall score was high (α = .87), suggesting that dimensions of engagement are codependent.

Figure 3

Second-order Factor Analysis of the SEI Model



Student Engagement and GPA

To address the second research question, the study employed a linear regression analysis. First, we conducted the test of mutlicollinearity between each pair of variables to be involved in the regression analysis. Table 3 represents the correlation coefficients between variables and Table 4 represents the tolerance and the variance inflation factor (VIF) values of the variables predicting students' GPA. The VIF with values greater than 1 indicating some degree of collinearity, but in acceptable range (Kline, 2011).

Table 3
Correlations among types of engagement, sub-scales and GPA (N= 392)

	GPA	CRSW	FGA	PSL	FSL	TSR	Emotional
CRSW	.171**						
FGA	.191**	.522**					
PSL	.133*	.232**	.219**				
FSL	.049	.277**	.282**	.299**			
TSR	.115*	.492**	.392**	.464**	.258**		
Emotional	.129*	.432**	.375**	.781**	.737**	.721**	
Cognitive	.208**	.857**	.887**	.258**	.320**	.480**	.461**

As it can be seen in Table 3, although there are significant relationships among types of engagement, their subscales and GPA, a high level of correlation is not calculated between variables (r_{yY} > .9). Both types of engagement - cognitive and emotional - exhibit a positive correlation with GPA, with cognitive engagement demonstrating a stronger correlation (r = .208) than emotional engagement (r = .129). Regarding subscales of emotional engagement, TSR was found to have a meaningful relationship with GPA (r = .115), while FSL did not exhibit a meaningful relationship. However, subscales of cognitive engagement - FGA (r = .191) and CRSW (r = .171) - demonstrated a higher level of statistical meaningfulness with GPA.

Additionally, the tolerance and VIF values for the variables to be involved in regression analysis are suggested to be in acceptable limits. In this respect, the tolerance value of each variable was higher than .1 as suggested in literature to conduct regression analyses and the VIF value must be lower than 10 (Kline, 2011).

Table 4
Tolerance and VIF values for cognitive and emotional engagement

Types of Engagement	Collinearity Statistics	
	Tolerance	VIF
Cognitive Engagement	.788	1.478
Emotional Engagement	.798	1.269

Table 4 indicates that there was no evidence of mutlicollinearity among the predictor variables. This allowed us to proceed with the linear regression analysis, which was conducted to determine the predictive value of emotional and cognitive engagement on students' GPA. The analysis employed the enter method and the results are presented in Table 5.

Table 5
Linear regression analysis of cognitive and emotional engagement on students' GPAs

	Predictor variable					
		B	SE *B*	β	t	*p*
Model	(Constant)	1.466	.364		4.024	0
	Cognitive Engagement	.337	.105	.189	3.215	0

Note: Dependent Variable: College student GPA
R =.212; R^2 = .085; F = 8.209, p < .000, B= unstandardized beta, β=standardized beta

In order to determine whether the model was useful, ANOVA test was run. As the ρ- value of F test for the model fit results was significant (F = 8.209, p < .05) showed the model to be significant and applicable. However, among the predictor variables, cognitive engagement was found to be the one variable to predict the students' GPA (B= .38) as the emotional engagement was found to be not statistically important (B= .08, t= 1.157, p > .05).

Discussion

In this study, we explored the psychometric properties of the Student Engagement Instrument on a sample of Arab college students. Then, we used the revised measure to investigate the predicting role of engagement on GPA. The findings and their relevant discussion are as follows.

RQ1: What is the factor configuration of the SEI among undergraduate students in Kuwait?

Confirmatory factor analysis was used to establish a model with the closest fit to the data of undergraduates in Kuwait. Initial fit indexes showed an acceptable fit. Results confirmed a two-factor structure of the SEI with five sub-factors. Among the five subscales depicted, three comprehended the factor of emotional engagement and the other two cognitive engagement. Six questions were removed from the original model. The model fit improved significantly. The internal reliability of the instrument was satisfactory according other authors (Grier-Reed et al., 2012; Moreira et al., 2009). Betts and colleagues (2010) revised the model confirming five subscales. Similarly, Karim and Abd Hamid (2016) investigation among Malaysian students showed a six-scale model adding *connectedness* as a separate construct.

The findings from the current study suggest that a revised version of the SEI can be utilized to evaluate cognitive and emotional engagement among Arab undergraduates in Kuwait. This study also found the SEI to be reliable for undergraduate students in Kuwait, albeit with a few revisions. Hence, the current research contributes to the common interest in developing an international measure of engagement (Christensen & Reschly, 2012).

RQ2: How much do cognitive and emotional engagement explain academic performance?

As for the study's second research question, correlation and linear regression analysis were used to explore the relationship and the predicting role of emotional and cognitive engagement on achievement (GPA). Cognitive engagement was found to have a significant positive correlation with GPA, with the sub-factor of Future Goals and Aspirations having a more robust correlation than Control and Relevance to Schoolwork. It should be noted that this correlation is weak (Zepke, 2015; 2017). Regarding emotional engagement, Peer Support was found to have a positive correlation with GPA as opposed to Teacher-Student Relationships, which had a weak correlation, and Family Support, which was insignificant. Cognitive engagement was found to significantly positively predict GPA. However, emotional engagement does not explain the variance in GPA in line with other authors (Greene, 2015; Heng, 2014; Tomaszewski et al., 2020; Wara et al., 2018). In the same vein, a meta-analysis by Freeman and colleagues (2014) looked at the relationship between cognitive engagement and academic achievement across a number of studies. The authors found that higher levels of cognitive engagement were consistently associated with better academic outcomes. Apparently, being cognitively engaged enables students to participate in and control learning activities. Students, who find meaning and relevance to schoolwork and

assignments, tend to engage more. Studies show positive conceptions of learning lead students to deep learning practices which, in turn, would increase chances for higher academic outcomes. Cognitive engagement assumes students to have goals and aspirations for their studies and therefore put more efforts in purposeful academic activities. As one might think, those with clear goals regarding their future education tend to put in more effort. As mentioned by Kutlu and Kartal (2018, p. 10), "most hard-working students will concentrate fully on their academic exercises, with an eye on their future careers".

Unlike cognitive engagement, emotional engagement did not affect students' academic outcomes. From the perspective of this study, emotional engagement comprehends relationships with the institution, teachers, peers, and the support from family. It explains a sense of belonging and connectedness with the school. Emotionally engaged students perceive themselves as involved, understood, and treated as humans rather than students, feel rules to be fair, and feel heard and accepted by peers, staff, and teachers. While there is ample evidence to suggest that emotional engagement can have a positive impact on students' academic performance, there are studies that suggest that emotional engagement may not have a significant impact on students' academic achievement (Doğan, 2015; Heng, 2014; Kutlu & Kartal, 2018; Rodrigues & Boutakidis, 2013).

Results on emotional engagement can be addressed to instrumental and contextual factors. One contextual factor relates to years of study of participants. Most of the current research, as is the case with the current study, includes first-year students. The first year is a difficult time for students due to the challenges of adapting to a new learning environment alongside significant changes in other areas of life. This year is a time of adjusting, exploring, experimenting with relationships, and understanding the institution's culture. For these reasons, measuring engagement among first-year students can be challenging. A review (Kuh et al., 2008) found that first-year students often experience a period of transition and that their college engagement level can fluctuate during this time. Tinto (2012) concedes that many first-year students struggle to find a sense of belonging and engagement in college, particularly during their transition to the new academic and social environment.

Thus, from an instrumental point of view, to narrow it down, a student may not correctly report to statements such as "college/university rules are fair" as his perceptions of fairness are still to cultivate. In other items, students report on whether they feel "treated as humans rather than just as students by teachers and staff." Such feelings might take time to clarify for a young learner transitioning from high school to university. Therefore, investigating engagement, especially emotional engagement, during the first-year of studies might not be beneficial to the overall interest of researchers. As Macfarlane and Tomlinson say, "the first year it's too early to investigate emotional engagement" (2017, p. 18).

Secondly, types of engagement are not separate constructs; they can overlap and interact with each other. They are not mutually exclusive and can influence each other in complex ways. One can even say that *emotional* and *cognitive* are just two sides of the same construct. Indeed, a student who is emotionally engaged will be more active in learning activities, have better academic results, have positive feedback, and get even more emotionally involved with the school and peers. According to Wen et al. (2010), "engagement has the following model; emotional engagement →cognitive engagement →behavioral engagement →academic achievement→ emotional engagement" (p. 15). The model illustrates interconnections between different forms of engagement, and that emotional engagement is a prerequisite for cognitive engagement and academic achievement. Rather than obvious and explicit, the role

of emotional engagement is indirect. For example, Grier-Reed et al. (2012) found emotional engagement to affect students' GPAs through learning perceptions. In another study (Pekrun et al., 2017), emotional engagement promotes deep learning and the development of key competencies, such as critical thinking, problem-solving, and communication skills which lead to better results. In the same vein, Casanova and colleagues (2024) state that more engaged students have a higher self-efficacy perspective and engage in deeper processing.

In sum, the type of engagement still seems to be an issue that requires a broader and deeper theoretical, contextual and instrumental discussion. In this way, it will be possible to explain more clearly the contradictory studies from a cross-cultural analysis. In this sense, and in agreement with Kahu (2013), Lam et al., (2014), and Marenco-Escuderos et al. (2024), it seems that engagement is definitely not a context-free issue.

Conclusion and Limitations

In conclusion, this study highlights three important findings. Firstly, there is a need for further investigation of student engagement across different educational contexts and cultures. The current lack of clarity and ambiguity in the existing literature indicates that more work is necessary to develop context-dependent tools to measure engagement accurately. Secondly, the study underscores the crucial role of cognitive engagement in students' academic success. Students who find learning activities meaningful and relevant tend to be more engaged and perform better academically. Therefore, instructors can promote active learning to encourage deep learning, and institutions can design programs to help students connect their learning to real-world issues and develop a sense of purpose and connection to their communities. This way, students are more likely to perform better. Lastly, the study indicates that a lack of belonging or connectedness with the university, teachers, and staff does not necessarily mean a lack of emotional engagement. Rather, it provides an opportunity to foster students' feelings and connectedness with their environment.

While this study offers valuable insights, it is important to acknowledge its limitations. Firstly, the participants were exclusively from private universities in Kuwait and all majoring in Business-Engineering programs. Therefore, it may not be possible to generalize the findings to other cohorts. Furthermore, Engineering students tend to express fewer positive views and feelings about their learning experience, which may have influenced the study's results on emotional engagement (Van Gyn & Wild, 2013). Future studies could examine whether these findings extend to other disciplines.

Finally, it is worth noting that this study examined the relationship between student engagement and academic achievement concurrently. To gain a better understanding of the exact trajectory of this relationship, conducting a longitudinal study that tracks engagement from the first to the second year would produce valuable insights.

Disclosure statement
The authors report there are no competing interests to declare.

Data availability statement
The data that support the findings of this study are available from the author upon reasonable request. Due to the sensitive nature of the data, restrictions apply to the public sharing of the dataset.

Requests for data access can be directed to Laureta Seitaj at Laureta.Seitaj@autonoma.cat

Acknowledgements

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The study was conducted by the authors without external financial support.

Author contributions

J. Reinaldo Martínez-Fernández: Writing-review and editing.

References

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*, 427–445.

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*, 369–386.

Ben-Eliyahu, A., Moore, D., Dorph, R., & Schunn, C. D. (2018). Investigating the multidimensionality of engagement: Affective, behavioral, and cognitive engagement across science activities and contexts. *Contemporary Educational Psychology, 53*, 87–105. https://doi.org/10.1016/j.cedpsych.2018.01.002

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238–246. https://doi.org/10.1037/0033-2909.107.2.238

Betts, J. E., Appleton, J. J., Reschly, A. L., Christenson, S. L., & Huebner, E. S. (2010). A study of the factorial invariance of the Student Engagement Instrument (SEI): Results from middle and high school students. *School Psychology Quarterly, 25*(2), 84–93. https://doi.org/10.1037/a0020259

Boulton, C. A., Hughes, E., Kent, C., Smith, J. R., & Williams, H. T. P. (2019). Student engagement and wellbeing over time at a higher education institution. *PLoS ONE, 14*(11), Article e0225770. https://doi.org/10.1371/journal.pone.0225770

Browne, M. W., & Cudeck, R. (1992). Alternative Ways of Assessing Model Fit. Sociological Methods & Research, 21(2), 230-258. https://doi.org/10.1177/0049124192021002005

Casanova, J. R., Sinval, J., & Almeida, L. S. (2024). Academic success, engagement and self-efficacy of first-year university students: personal variables and first-semester performance. *Anales de Psicología, 40*(1), 44-53. https://doi.org/10.6018/analesps.479151

Christenson, S. L., Reschly, A. L., & Wylie, C. (2012). *Handbook of research on student engagement*. Springer.

Delfino, A. (2019). Student engagement and academic performance of students of Partido State University. *Asian Journal of University Education, 15*, 42-55. https://doi.org/10.24191/ajue.v15i3.05

Doğan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*(3), 553–561. https://doi.org/10.1080/09720073.2015.11891759.

Eccles, J., & Wang, M.-T. (2012). Part I commentary: So what is student engagement anyway? In S. Christenson, A. Reschly, & C. Wylie (Eds.), *Handbook of research on*

student engagement (pp. 133-145). Springer. https://doi.org/10.1007/978-1-4614-2018-7_6

Field, A. (2013). *Discovering statistics using IBM SPSS Statistics: And sex and drugs and rock 'n' roll* (4th ed.). Sage.

Flora, D., & Curran, P. (2005). An empirical evaluation of alternative methods of estimation for confirmatory factor analysis with ordinal data. *Psychological Methods, 9*(4), 466-491. https://doi.org/10.1037/1082-989X.9.4.466

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and Instruction, 43*, 1–4.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America, 111*(23), 8410-8415. https://doi.org/10.1073/pnas.1319030111

Gerber, C., Mans-Kemp, N., & Schlechter, A. F. (2013). Investigating the moderating effect of student engagement on academic performance. *Acta Academica, 45*, 256-274.

Gonyea, R. M. (2006, May). *The relationship between student engagement and selected desirable outcomes in the first year of college*. Paper presented at the 46th Annual Association for Institution Research Forum, Chicago, IL, United States. Retrieved from http://nsse.iub.edu/pdf/research_papers/gonyea_air2006.pdf

Greene, B. A. (2015). Measuring cognitive engagement with self-report scales: Reflections from over 20 years of research. *Educational Psychologist, 50*(1), 14– 30. https://doi.org/10.1080/00461520.2014.989230

Grier-Reed, T., Appleton, J., Rodriguez, M., Ganuza, Z., & Reschly, A. (2012). Exploring the Student Engagement Instrument and career perceptions with college students. *Journal of Educational and Developmental Psychology, 2*(2), 85. https://doi.org/10.5539/jedp.v2n2p85

Günuç, S., & Kuzu, A. (2015). Student engagement scale: Development, reliability and validity. *Assessment & Evaluation in Higher Education, 40*(4), 587-610. https://doi.org/10.1080/02602938.2014.938019

Graziano, W. G., Jensen-Campbell, L. A., & Hair, E. C. (1996). Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology, 70*(4), 820–835. https://doi.org/10.1037/0022-3514.70.4.820

Hassaskhah, J., Khanzadeh, A., & Mohamad Zade, S. (2013). The relationship between internal forms of engagement (cognitive-affective) and academic success across years of study. *Issues in Language Teaching, 1*(2), 251-272.

Heng, K. (2014). The relationships between student engagement and the academic achievement of first-year university students in Cambodia. *The Asia-Pacific Education Researcher, 23*(2), 179–189. https://doi.org/10.1007/s40299-013-0095-8

Hoff, J., & Lopus, J. S. (2014, January). Does student engagement affect student achievement in high school economics classes? Paper presented at the Annual Meetings of the Allied Social Science Association, Philadelphia, PA, United States.

Järvelä, S., Järvenoja, H., Malmberg, J., Isohätälä, J., & Sobocinski, M. (2016). How do types of interaction and phases of self-regulated learning set a stage for collaborative engagement? *Learning and Instruction, 43*, 39–51. https://doi.org/10.1016/j.learninstruc.2016.01.005

Jöreskog, K. G., & Sörbom, D. (1981). *LISREL V: Analysis of linear structural relationships by maximum likelihood and least squares methods* (Research Report 81-8). University of Uppsala, Department of Statistics.
Kahu, E. R. (2013). Framing student engagement in higher education. *Studies in Higher Education, 38*(5), 758–773. https://doi.org/10.1080/03075079.2011.598505
Karim, M., & Abd Hamid, H. (2016). Factor structure of the Student Engagement Instrument among Malaysian undergraduates. *Jurnal Psikologi Malaysia, 30*, 1-12.
Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.
Korobova, N., & Starobin, S. (2015). A comparative study of student engagement, satisfaction, and academic success among international and American Students. *Journal of International Students, 5*, 72-85.
Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *Journal of Higher Education, 79*(5), 540–563.
Kutlu, O., & Kula Kartal, S. (2018). Examining the relationships among school engagement, quality of school life and academic achievement of university students. *Electronic International Journal of Education, Arts, and Science (EIJEAS), 4*(8). Retrieved from http://www.eijeas.com/index.php/EIJEAS/article/view/124
Lam, S.-F., Jimerson, S., Wong, B., Kikas, E., Shin, H., Veiga, F., Hatzichristou, C., Polychroni, F., Cefai, C., Negovan, V., Stanculescu, E., Yang, H., Liu, Y., Basnett, J., Duck, R., Farrell, P., Nelson, B., & Zollneritsch, J. (2014). Understanding and measuring student engagement in school: The results of an international study from 12 countries. *School Psychology Quarterly, 29*(2), 213-232. https://doi.org/10.1037/spq0000057
Lawson, M. A., & Lawson, H. A. (2013). New conceptual frameworks for student engagement research, policy, and practice. *Review of Educational Research, 83*(3), 432–479. https://doi.org/10.3102/0034654313480891
Lee, J.-S. (2013). The relationship between student engagement and academic performance: Is it a myth or reality? *The Journal of Educational Research, 107*(3), 177–185. https://doi.org/10.1080/00220671.2013.807491
Lei, H., Cui, Y., & Zhou, W. (2018). Relationships between student engagement and academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal, 46*(3), 517–528. https://doi.org/10.2224/sbp.7054
Li, Y., & Lerner, R. M. (2011). Trajectories of school engagement during adolescence: Implications for grades, depression, delinquency, and substance use. *Developmental Psychology, 47*(1), 233-247.
Macfarlane, B. (2015). Student performativity in higher education: Converting learning as a private space into a public performance. *Higher Education Research and Development, 34*(2), 338–350.
Macfarlane, B., & Tomlinson, M. (2017). Critical and alternative perspectives on student engagement. *Higher Education Policy, 30*(1), 1–4. https://doi.org/10.1057/s41307-016-0026-4
Marenco-Escuderos, A. D., Restrepo, D., & Rambal-Rivaldo, L. (2024). El rol del contexto educativo digital vs presencial en perfiles de *engagement* académico: estudio comparativo durante y post confinamiento. *Revista de Investigación Educativa, 42*(1), 61-77. https://doi.org/10.6018/rie.54537
Moreira, P. A. S., Machado Vaz, F., Dias, P. C., & Petracchi, P. (2009). Psychometric properties of the Portuguese version of the Student Engagement Instrument. *Canadian Journal of School Psychology, 24*(4), 303–317. https://doi.org/10.1177/0829573509346680

Moubayed, A., Injadat, M., Shami, A., & Lutfiyya, H. (2018). Relationship between student engagement and performance in e-learning environment using association rules. *1-6*. https://doi.org/10.1109/EDUNINE.2018.8451005

Nepal, R., & Rogerson, A. (2020). From theory to practice of promoting student engagement in business and law-related disciplines: The case of undergraduate economics education. *Education Sciences, 10*(8), Article 205. https://doi.org/10.3390/educsci10080205.

Pekrun, R., Lichtenfeld, S., Marsh, H., Murayama, K., & Goetz, T. (2017). Achievement emotions and academic performance: Longitudinal models of reciprocal effects. *Child Development, 88*(5), 1653-1670. https://doi.org/10.1111/cdev.12704

Pietarinen, J., Soini, T., & Pyhalto, K. (2014). Students' emotional and cognitive engagement as the determinants of well-being and achievement in school. *International Journal of Educational Research, 67*, 40–51.

Quaye, S. J., & Harper, S. R. (2014). *Student engagement in higher education: Theoretical perspectives and practical approaches for diverse populations.* Routledge.

Robb, M. K. (2014). *Factors that influence cognitive engagement and academic success of pre-licensure baccalaureate millennial nursing students* (Publication No. 70909650) [Doctoral Dissertation, Indiana University of Pennsylvania]. Semantic Scholar.

Rodriguez, J., & Boutakidis, L. P. (2013). The Association between School Engagement and Achievement across Three Generations of Mexican American Students. *Association of Mexican-American Educators Journal, 7*(1), 5-12.

Song, L., & Callahan, J. L. (2017). An empirical examination of the validity and reliability of the Student Engagement Instrument (SEI) with undergraduate students. *Journal of College Student Development, 58*(4), 542-548.

Tanaka, J. S. (1987). How big is big enough? Sample size and goodness of fit in structural equation models with latent variables. *Child Development, 58*, 134-146. https://doi.org/10.2307/1130296

Thomas, L. (2012). *Building student engagement and belonging in Higher Education at a time of change*. Paul Hamlyn Foundation.

Tomaszewski, W., Xiang, N., & Western, M. (2020). Student engagement as a mediator of the effects of socio-economic status on academic performance among secondary school students in Australia. *British Educational Research Journal, 46*(3), 610-630. https://doi.org/10.1002/berj.3599

Tinto, V. (2012). Enhancing student success: Taking the classroom success seriously. *The International Journal of the First Year in Higher Education, 3*. https://doi.org/10.5204/intjfyhe.v3i1.119

Ulmanen, S., Soini, T., Pietarinen, J., & Pyhältö, K. (2016). Students' experiences of the development of emotional engagement. *International Journal of Educational Research, 79*, 86–96. https://doi.org/10.1016/j.ijer.2016.06.003

Van Gyn, G., & Wild, P. (2013). Monitoring student engagement in first year engineering. *Proceedings of the Canadian Engineering Education Association,* Paper 144. doi:10.24908/pceea.v0i0.4886

Viladrich, C., Angulo-Brunet, A., & Doval, E. (2017). A journey around alpha and omega to estimate internal consistency reliability. *Anales de Psicología, 33*(3), 755–782. https://doi.org/10.6018/analesps.33.3.268401

Waldrop, D., Reschly, A., Fraysier, K., & Appleton, J. (2018). Measuring the engagement of college students: Administration format, structure, and validity of the Student Engagement Instrument–College. *Measurement and Evaluation in Counseling and Development, 52*(2), 90–107. https://doi.org/10.1080/07481756.2018.1497429

Wara, E., Aloka, P., & Odongo, B. (2018). Relationship between cognitive engagement and academic achievement among Kenyan secondary school students. *Mediterranean Journal of Social Sciences, 9*, 61-72. https://doi.org/10.2478/mjss-2018-0026

Weiss, C. C., & García, E. (2015). Student engagement and academic performance in Mexico: Evidence and puzzles from PISA. *Comparative Education Review, 59*(2), 305–331. https://doi.org/10.1086/680170

Wen, C., Zhang, W., Li, D. P., Yu, C. F., & Dai, W. Z. (2010). *初中生感恩与学业成就的关系:学习投入的中介作用* [Relationship between junior students' gratitude and academic achievement: With academic engagement as the mediator]. *Psychological Development and Education*, *26*(6), 598-605.

Wentzel, K. R., Battle, A., Russell, S. L., & Looney, L. B. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, *35*(3), 193–202. https://doi.org/10.1016/j.cedpsych.2010.03.002

Zepke, N. (2015). Student engagement research: Thinking beyond the mainstream. *Higher Education Research & Development, 34*(6), 1311-1323. https://doi.org/10.1080/07294360.2015.1024635

Zepke, N. (2017). Student engagement in neo-liberal times: What is missing? *Higher Education Research & Development, 37*(2), 433-446. https://doi.org/10.1080/07294360.2017.1370440

Annex 2: Manuscript of second study with the acceptance letter and reviewers' comments

Learning: Research and Practice - Decision on Manuscript ID RLRP-2023-0107.R1

Learning: Research and Practice

To:Laureta Seitaj

Sun 6/30/2024 3:07 AM

29-Jun-2024

Dear Dr Laureta Seitaj:

Ref: Learning Patterns among Arab College Students: The Relationship with Academic Achievement and the Moderating Role of Cognitive Engagement

Our reviewers have now considered your paper and have recommended publication in Learning: Research and Practice. We are pleased to accept your paper in its current form which will now be forwarded to the publisher for copy editing and typesetting. The reviewer comments are included at the bottom of this letter.

You will receive proofs for checking, and instructions for transfer of copyright in due course.

The publisher also requests that proofs are checked through the publisher's tracking system and returned within 48 hours of receipt.

Thank you for your contribution to Learning: Research and Practice and we look forward to you being part of our learning community. We also hope you would consider LRP for future submissions and/or encourage others to submit to us.

Sincerely,
Dr Michael Tan
Associate Editor, Learning: Research and Practice
Website: https://www.tandfonline.com/toc/rlrp20/current

Reviewers comments

234091364 (Learning: Research and Practice) A revise decision has been made on your submission

Dear Dr Laureta Seitaj:

Your manuscript entitled "Learning Patterns among Arab College Students: The Relationship with GPA and the Moderating Role of Cognitive Engagement", which you submitted to Learning: Research and Practice, has been reviewed. The reviewer comments are included at the bottom of this letter.

The reviewer(s) finds some potential in your manuscript and would like to see some revisions made to it before proceeding to the next step. Please respond to the reviewer(s)' comments and revise your manuscript accordingly.

When you revise your manuscript please highlight the changes you make in the manuscript by using the track changes mode in MS Word or by using bold or colored text.

To submit a revision, go to https://rp.tandfonline.com/submission/flow?submissionId=234091364&step=1. If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript.

If you have any questions or technical issues, please contact the journal's editorial office at learning.journal@nie.edu.sg.

IMPORTANT: Your original files are available to you when you upload your revised manuscript. Please delete any redundant files before completing the submission.

Because we are trying to facilitate timely publication of manuscripts submitted to Learning: Research and Practice, your revised manuscript should be uploaded by 19-May-2024. If it is not possible for you to submit your revision by this date, we may have to consider your paper as a new submission.

Once again, thank you for submitting your manuscript to Learning: Research and Practice and I look forward to receiving your revision.

Sincerely,

Dr Michael Tan

Associate Editor, Learning: Research and Practice

Website: https://www.tandfonline.com/toc/rlrp20/current

Reviewer(s)' Comments to Author:

Reviewer: 1

Comments to the Author

Dear authors,

Thank you for the opportunity to review a nice manuscript which covers important topic of learning strategies used by undergraduate students and gives an outlook to how different measures might work in different cultural context.

Although I like the manuscript in general, I have a few concerns that need to be addressed:

Major:

1. Please elaborate more on the validity of used measures and possible explanations for low values. You do not state who was doing the translations and how accurate those were. Could it be possible that some translations were confusing or just some statements in the questionnaires were confusing because of a different cultural context (e.g., items on emotional engagement).

2. Connected to this: on page 27 (line 3-6) you mention that one of the strengths of this study is extending research beyond Europe and United States, but you do not elaborate about possible differences you expect or have found, which actually would be very beneficial.

3. The paper needs proofreading (less for the language itself, which is easy to understand and follow; but more for following APA guidelines for in-text citations, references, reporting statistical values, etc.).

4. Some definitions are missing references, it is not clear if they are your own definitions or the ones taken from other papers: e.g., cognitive engagement on p.3 l.37 as well as learning patterns themselves (maybe a Table similar to table 1 would be helpful with a heading stating where

definitions are coming from).

5. Discussion. I would expect more connections made between your results and previous literature on the topic. Maybe also considering the cultural context. The implications also need some elaboration (being very specific, what the intervention could or should be)

6. It would be more beneficial to end with a conclusions and outlook/further research and not with limitations.

Minor:

on page 12 (line 36) you are reporting a Cronbach Alpha greater than 1, which should not be possible. Might be a typo or something went wrong in the analysis.

Reviewer: 2

Comments to the Author

The topic is attractive. Below are my specific comments.

1. It is suggested to use achievement performance to replace GPA. It is rare to use GAP in the paper title.

2. Introduction

1) Please add references for the statement of : Academic achievement is a relevant goal of higher education, and research has shown that learning patterns and cognitive engagement are key predictors of academic success.

2) Please add some overall pic of the status of the related studies about this topic in the beginning. And highlight the research gap from reviewing the existing studies.

3) Please add references when you are describing the definitions.

3. Please add a section of data analysis on how did you analyze data from three instruments.

4. Specific subheadings are need to highlight your key findings. the current heading title is too general.

Manuscript

Title: Learning Patterns among Arab College Students: The Relationship with Academic Achievement and the Moderating Role of Cognitive Engagement

Laureta Seitaj[a] and J. Reinaldo Martínez-Fernández[b]

[a]PAFIU Research Group, Psychology of Communication and Change, Autonomous University of Barcelona, 08193 Bellaterra, Barcelona, Spain https://orcid.org/0000-0003-2919-7890 Laureta.Seitaj@autonoma.cat

[b]PAFIU Research Group, Psychology of Communication and Change, Autonomous University of Barcelona, 08193 Bellaterra, Barcelona, Spain https://orcid.org/0000-0002-1233-7386 JoseReinaldo.Martinez@uab.cat

Abstract: This study explored the learning patterns of undergraduate students in Kuwait using Vermunt's model and investigated the relationships between these patterns, cognitive engagement, and academic achievement. The ILS was used to identify the learning patterns of 563 university students. The three identified learning patterns were *active, passive, and undirected*, with the passive pattern being the most prevalent among Kuwaiti undergraduates. Active learners used self- and external regulation strategies and managed their learning actively, while passive learners studied for tests to find a job and had idealistic learning expectations. The undirected pattern characterized students who did not have a specific learning strategy and required cooperation for learning. The study found that active and passive patterns were positively correlated with academic achievement. Moreover, cognitive engagement was found to moderate the relationship between learning patterns and academic achievement, with a stronger effect observed for passive learners. The study emphasizes the need to shift teaching practices in Kuwait towards problem-based learning to foster critical thinking and highlights the cultural gap between students and teachers.

Keywords: Learning patterns, Cognitive engagement, academic achievement, Undergraduates, Kuwait.

Introduction

Academic achievement is a relevant goal of higher education, and research has shown that learning patterns and cognitive engagement are key predictors of academic success (Doğan, 2015; Martínez-Fernández, 2019; Vermunt, 2005). In this respect, learning patterns refer to students' approaches to learning tasks and their strategies to process and understand information (Vermunt 1998; 2020), while cognitive engagement refers to the extent to which students invest their time and energy in learning activities and their willingness to engage in the learning process actively (Fredricks et al., 2004). For that reason, understanding how these factors interact and impact academic achievement is essential for developing effective educational practices and policies.

In relation to learning patterns, research has found that learners, who approach learning from a constructivist perspective, are intrinsically motivated, and use self-regulation strategies while learning activate deep cognitive processing. This approach is known as

meaning directed pattern (MD). Whereas, learners with a conception of learning based on obtaining blocks of information, certificate-oriented, and dependent on external regulation activate surface processing: an approach known as reproduction directed pattern (RD). Consequently, an MD pattern is related to better academic results, in contrast to the RD pattern (Chotitham et al., 2014; Vermunt, 2005). However, it appears that engagement seems to add to the significant positive effect to the deep processing on learning outcomes (Martínez-Fernández & Vermunt, 2015).

Research on learning patterns can be enhanced by incorporating findings from studies on cognitive engagement. Cognitive engagement refers to the extent to which students invest their time and energy in learning activities and their willingness to actively engage in the learning process (Kuh et al., 2008). Students who are cognitively engaged in learning typically achieve better academic results than those who are less engaged (Wang & Eccles, 2013). However, the optimal combination of engagement and learning patterns remains a topic for inquiry. Engagement combined with external regulation is likely to have less impact than the engagement combined with self-regulation. This query underpins the grounds of the current study.

Understanding the interaction between learning patterns and cognitive engagement is crucial for academic success. Research in this area is scarce, particularly among Arab college students. This study aims to fill this gap by exploring the learning patterns and academic achievement of Arab college students in Kuwait while also examining the moderating effect of engagement, specifically cognitive engagement. The choice of Kuwait as a location for this study due to its emphasis on rote learning and memorization, which may affect students' learning habits and consequently their academic performance (Al-Nouri, 2019). Investigating these factors, this study will contribute to the literature on academic success, provide insights into educational practices and policies in the region, and potentially influence broader educational strategies.

Learning Patterns

Until roughly twenty years ago, most of the research on student learning focused primarily on cognitive processing strategies and motivation as seen in Student Approaches to Learning frameworks in the United Kingdom and Australasia. In North America, the focus was on metacognitive skills (i.e., Self-regulated learning). However, Vermunt and Vermetten (2004) proposed a more integrated framework called the *learning pattern perspective* that encompasses the aforementioned research areas. This framework consists of four interconnected dimensions that characterize student learning: *cognitive processing strategies, regulation strategies, conceptions of learning, and learning orientations.*

Cognitive processing strategies describe the methods students use to process information to acquire knowledge, understanding, and skills. These strategies include activities like repeating, memorizing, analysing information, as well as relating information from several sources. *Regulation strategies* reflect students' sense of metacognition when planning, monitoring, steering, and evaluating learning processes. The strategies can be internal, guided externally, or a combination of both.

Conceptions of learning reflect students' beliefs and views about learning, and teaching. For instance, one student may perceive learning as a construction process that gives meaning to a particular experience, whereas another student may view it as the process by which specific information is absorbed into memory. *Learning orientations* refer to aims, motives, goals, and concerns that students have regarding their studies. Some students may be

guided by the prospect of having a career, while others may be oriented toward learning itself and the satisfaction its achievement brings.

These four dimensions-cognitive processing strategies, regulation strategies, conceptions of learning, and learning orientations- represent what occurs during learning and give the process a wholesome meaning. However, these elements are not isolated; they interconnect forming a *pattern* with an internal coherence (Vermunt, 1998; 2020).

The systematic work of Vermunt and colleagues (Vermunt, 1998; Vermunt & Vermetten, 2004; Vermunt, 2005, 2020; Vermunt & Donche, 2017) has operationalized the diagnostic instrument of *the Inventory of the Learning patterns of Students (ILS).* The ILS detects the relationships between dimensions of learning, thereby coordinating the concept of a *learning pattern*. Table 1 displays the conceptualization of the ILS with the patterns of learning (vertical) and their corresponding subscales across each dimension (horizontal).

Table 1

The Distribution of Learning Components by Learning Patterns (adapted by Vermunt & Donche, 2017)

	Meaning Directed (MD)	Application Directed (AD)	Reproduction Directed (RD)	Undirected (UD)
Conceptions of learning	Construction of knowledge	Use of knowledge	Intake of knowledge	Being stimulated and cooperation
Orientations of learning	Personal interest	Vocation	Certificate and self-evaluation	Ambivalent
Regulation strategies	Self-regulation	Self- and external regulation	External regulation	Lack of regulation
Processing strategies	Deep processing	Concrete processing	Step-by-step analysis	Very scarce

Since its conceptualization, the ILS has been applied for various purposes concerning students in higher education. This research aims to bring two primary domains of applicability: the dimensionality of ILS and its relationships with academic achievement.

Dimensionality of Learning Patterns

The origins of using ILS inventory were in European countries (Vermunt & Donche, 2017). Studies in higher education contexts showed a consistent structure of the instrument through structural analysis. Results revealed the emergence of four learning patterns: meaning-directed (MD), application-directed (AD), reproduction-directed (RD), and undirected (UD) (Donche & Van Petegem, 2009; Lonka et al., 2004; Vermunt, 1998).

Meaning-directed learning represents a deep approach to learning in which students attempt to grasp knowledge and implement it in different contexts. Learners with the MD pattern combine constructive learning conception with a personal interest and their actively deep processing and self-regulation strategies. They study the content using critical, organizational, and analytical skills. These students tend to be efficient and responsible for their learning.

Application-directed learning comprehends looking for associations between knowledge and its practical use. Students who prevail in AD use concrete processing strategies. They can be externally or self-regulated during their learning and tend to be vocationally motivated. The AD and MD patterns comprehend a deep approach toward learning.

In contrast, *reproduction-directed* learning activates stepwise-processing strategies centered on memorization and repetition. Students in this category are typically externally regulated, perceive learning as an intake of knowledge rather than constructing or using knowledge, with their primary aim of passing exams and tests.

Finally, *undirected learning* comprehends difficulties in knowledge processing. Students with this pattern tend to rely strongly on teachers' directions and peer cooperation. They do not imply an explicit form of regulation, see education as stimulating, and display ambivalence in their learning The RD is a learning pattern with characteristics of a surface approach toward learning, and the UD is an inadequate pattern because of this type of profile.

Cross-cultural research on learning patterns has highlighted significant variations in the dimensionality of the ILS (Asikainen & Gijbels, 2017). For instance, it was observed that a number of processing and regulation scales, particularly those associated with meaning-directed learning, often cluster on a single factor (Marambe et al., 2012; Martínez-Fernández, 2019). This pattern is labelled as *active* as it contains subscales of processing and regulation without motivations and conceptions of learning. *A passive-idealist pattern was observed* in which all conceptions of learning were associated in one factor and did not include scales from other dimensions (Ajisuksmo & Vermunt, 1999; Marambe et al., 2012). RD and UD patterns were evident in all cases, while the AD pattern was only identified in the Netherlands and Finland. Furthermore, in some instances, such as in Mexico, Venezuela, and Sri Lanka, several scales related to learning orientation showed high readings on a single factor which was perceived as a *passive-motivational learning pattern* (Martínez-Fernández, 2019).

These findings suggest that is possible that culture produces differences in beliefs and in learning strategies suggesting further inquiry about Vermunt' s original model (Hederich & Camargo, 2019).

Learning Patterns and Academic Achievement

Numerous studies have indicated correlations between students' learning patterns and academic success (Karagiannopoulou & Entwistle, 2019). Among learning patterns, those characterized by the deep approach and regulation strategies, such as application-directed and meaning-directed, were positively correlated with higher grades (García-Ravidá, 2017). AD, which focuses on practical skills and knowledge, has been linked positively to academic success, and it is more common among students in vocational education. Meanwhile, the MD pattern has been shown to enhance positive academic outcomes for social sciences and humanities students, as these fields emphasize theoretical concepts and ideas (Gijbels et al., 2019). A study by Ramezani et al. (2022) with students in Iran found that those who employed the deep learning approaches had higher GPAs than those who employed other learning patterns. Lindblom-Ylanne and Lonka (1999) found a positive correlation between meaning-directed learning and academic success among medical students in preclinical and clinical studies. This positive relationship between deep learning approaches and academic achievement is consistent, extending to first-year undergraduate students (Negash, et al., 2022; Saele et al., 2017).

On the other hand, as one might expect, a surface approach to learning typically leads to lower academic achievement (Prat-Sala & Redford, 2010). For instance, a study by Hasnor et al. (2013) found that education students in Malaysia who engaged in reproduction-directed learning had lower academic achievement to their peers in meaning-directed learning, a result echoed by Lindblom-Ylanne and Lonka (1999). As for the undirected pattern, one review by Hong and Kinoshita (2014) suggested that students with this pattern might struggle with time management, motivation, and study skills, adversely affecting their academic achievement. A

multi-level analysis study with Danish students found that their end-of-semester grade point averages were negatively associated to surface approach (Herrmann et al., 2017). Likewise, Vega-Martínez et al., (2023) find that students with a UD pattern are the most maladaptive, with low performance related to higher levels of academic stress, lack of coping strategies and low effort in their tasks.

However, the following studies present controversial findings. Pilotti et al. (2022) found memorization and recitation positively affected the GPA of Saudi students implying that learning activities related to such practices might be beneficial. Ahmed and Ahmad (2017) found that Pakistani students benefited from the surface approach, particularly memorization, in achieving higher GPAs. Vermunt (2005) noted that the RD pattern might help students to pass tests and exams, potentially supporting their GPA. Moreover, D'cruz and Rajaratnam (2018) indicated that surface learning patterns were not negatively related to academic achievement, indicating the complexity of these relationships and underscoring the necessity for further research (Van de Ven, 2017).

Furthermore, studies have shown that learning patterns are related to and influenced by various factors. These factors range from personal ones such as age, gender, prior education, personality, and academic orientation (Gamage et al., 2021; Kim et al., 2015; Vermunt, 2005; Vermunt & Donche, 2017) to contextual factors such as teaching methods, perception of the learning environment, and disciplinary differences (Vermunt & Donche, 2017; Yang & Pu, 2022). Notably, the impact of students' cognitive engagement on learning patterns remains underexplored an area this study intends to investigate.

Cognitive Engagement

Student engagement is a complex concept that includes students' dedication to and involvement in academic and school-related activities (Christensen et al., 2012; Fredricks et al., 2004; Reschly et al., 2014). As an interactive process between students and their environment, engagement facilitates understanding of the underlying causes and outcomes of student cognition, behavior, and emotions in educational settings. Its significance lies in promoting academic performance, persistence, retention, and achievement (Appleton et al., 2006; Fredricks et al., 2004; Gunuc & Kuzu, 2015). Various factors affect engagement, high levels of which associate with resilience, graduation, reduced health risks, and socio-emotional well-being (Christensen et al., 2012; Finn & Zimmer, 2012; Fredricks et al., 2004). Academically engaged students typically have higher GPAs and more course credits compared to less-engaged peers. Ketonen et al. (2016) found that disengaged students often show lack of interest in learning or feel uncertain about their career path, whereas engaged students have clear career choices.

A widely accepted concept of student engagement is that it is a multifaceted construct with three distinct components: cognitive, behavioral, and emotional (Gunuc & Kuzu, 2015; Grier-Reed et al., 2012; Wang & Eccles, 2013). Cognitive engagement, specifically, relates to students' willingness to try to understand complex concepts and master challenging skills (Fredricks et al., 2004). Associated constructs include academic self-efficacy, concentration, motivation, self-regulation, and critical thinking (Reschly et al., 2014; Schneider & Preckel, 2017). It comprehends students' self-efficacy and the perception of learning tasks as meaningful (Greene et al., 2004). Other cognitive engagement indicators include self-regulation, motivation, effort regulation, and persistence (Reschly et al., 2014). Significant relationships exists between cognitive engagement and academic achievement (Sukor et al., 2012; Wara et al., 2018), with some studies showing cognitive engagement as a predictor of academic performance (Adva, 2016; Doğan, 2015).

What are the gaps in the literature reviewed? What are we missing?

Despite the research conducted on learning patterns and cognitive engagement, there are still gaps that this study aims to tackle. Firstly, while existing literature delves into the connection between learning patterns and academic success across cultural settings, there is a lack of research focusing on Arab undergraduate students, particularly in Gulf countries like Kuwait. This gap is significant due to the dynamics and cultural influences in this region that can significantly impact students learning behaviors and outcomes.

Secondly, most studies have yet to thoroughly explore the role of engagement in relation to learning patterns and academic achievement. Although some research suggests that cognitive engagement plays a role in improving performance, the specific interaction between different learning patterns and cognitive engagement has not been extensively studied in environments characterized by high-rote learning and memorization practices, such as those found in Kuwait.

Lastly, existing research predominantly centers around European, American, and Asian contexts, leaving a void in understanding how learning patterns manifest and affect academic success in Middle Eastern settings. This study aims to bridge these gaps by investigating how learning patterns, cognitive engagement, and GPA interplay among undergraduates in Kuwait. The findings could offer insights leading to customized educational approaches and interventions tailored for similar contexts.

Therefore, this research investigated whether students' cognitive engagement moderates the relationship between learning patterns and GPA of Arab undergraduates in Kuwait. The research questions are:

R.Q.1: What learning patterns do these students employ based on the Vermunt model?

R.Q.2: What is the relationship between learning patterns, cognitive engagement, and GPA among Arab undergraduates in Kuwait?

R.Q.3: Does students' cognitive engagement moderate the relationship between learning patterns and GPA?

Method

Study design and participants

The research was conducted during the 2021-2022 and 2022-2023 academic years at private universities in Kuwait. A total of 563 undergraduate students from various disciplines participated in the study. They were informed about the purpose of the research and agreed to report on their details, such as their full name, university identification number, age, gender, major of study, and GPA. Appropriate measures were taken to ensure this information's confidentiality and ethical use.

Students' age varied from 18 to 44 years old, with an average age of 21.5 years. Female students accounted for 71.8 percent of the total number, and male students constituted 28.2 percent. All participants were of Arab ethnicity (Kuwait and other GCC countries).

Instruments

Inventory of Learning patterns of Students (ILS)

This study used the English short version of the ILS developed by Martínez-Fernández & García-Orriols (2015; based on Vermunt, 1998). It aims to better understand how students' study and perceive their learning. The instrument compromises 60 items which

are organized in two parts. Part A includes the study activities student's employee, and includes two learning dimensions: processing strategies and regulation strategies. Part B includes questions about study motives and comprised the other two dimensions: learning orientations and conceptions of learning. Questions are scored via five-point Likert-like rating.

Translation

The participants in this research have English as their formal language of college studies, while, for most of them, the first language is Arabic. However, we conducted a pilot study to identify potential language barriers in the questionnaire. In the fall semester of 2020, seven students were asked to answer the self-reporting ILS. Students were randomly selected from various classes. We noticed that five out of seven students needed assistance when completing the questionnaire. Assistance was primarily needed in translating, clarifying, and explaining words throughout the questionnaire. For example, the word "map" in question number 38 was unclear to students regarding its meaning and context. In another example, the "sheer interest" in question number 29 was asked twice to clarify its meaning. Therefore, we decided to translate the ILS into Arabic.

A back-and-forth translation was employed. Initially, two English professors with Arabic as their native language translated the instrument into Arabic. Then, two other professors, proficient in English and Arabic, tested the Arabic version by translating it back to English. After thorough discussions, a final version of the Arabic version was established.

However, based on the experience teaching students in Kuwait, we often found that even for Arab students, English remains the language of comfort. This is likely due to their upbringing in mixed-culture families and education in English. Therefore, it was decided to provide the participants with both the English and Arabic versions of the instrument.

Table 2

A Sample Question of ILP after Translation

N	Statement البيانات	Entirely disagree لا أوافق تماما	Mostly disagree في الغالب لا أوافق	Undecided غير محدد	Mostly agree أوافق في الغالب	Entirely Agree أوافق تمامًا
1	To me, learning means to understand and deal with the problem from all sides, even the ones that I do not know. بالنسبة لي ، التعلم يعني فهم المشكلة والتعامل معها من جميع الجوانب ، حتى تلك التي لا أعرفها.	1	2	3	4	5

Student Engagement Instrument (SEI)

Students' cognitive engagement was depicted using the Student Engagement Instrument (SEI) based on the Appleton et al. model (2006; 2008). The SEI consists of 33 items which students report to about their perceptions about learning, future goals and aspirations, relationships with teachers and peers, control and relevance over assignments, and level of connectedness with the institution. These items comprehend five factors of engagement: Control and Relevance to School Work (CRSW), Future Goals and Aspirations

(FGA), Teacher-Student Relationships (TSR), Peer Support for Learning (PSL) and Family Support for Learning (FSL). The factors of CRSW and FGA compromise cognitive engagement and, the other three factors: TSR, PSL, and FSL, the emotional engagement.

To ensure consistency in the study design, the translation process applied to the ILS instrument was also used for the SEI.

Table 3

A Sample Question of the SEI after Translation

Statement البيانات	**Entirely disagree** لا أوافق تماما	**Disagree** في الغالب لا أوافق	**Mostly agree** أوافق في	**Entirely Agree** أوافق تمامًا
1. My teachers and professors are there for me when I need them. معلمينى وأساتذتي موجودون من أجلي عندما أحتاج إليهم.	1	2	3	4

Analysis

Firstly, the reliability of the ILS among undergraduate students in the Arab context was evaluated using Cronbach's alphas for each sub-scale. In addition, assumptions of normal distribution were tested. As shown in Table 4, Cronbach's alphas for the scales of learning patterns were acceptable in rank. However, lower values were obtained *for intake of knowledge* (.43) and *personally interested* (.50). The subscale *certificate oriented* (.31) did not show good reliability and was excluded from further analysis. The rest of the subscales had a reliability range from .60 to .76. The relatively low number (3) of items for each sub-scale can explain the somewhat low Cronbach's alpha coefficients. Indeed, subscales with the highest reliability (i.e., external regulation .76) include six items. However, overall, the results indicate good internal reliability (Pallant, 2016) of ILS and its suitability to work with Arab undergraduates in Kuwait.

About the normality test, Skewness and Kurtosis were calculated using the descriptive statistics function. The Skewness ranged from -1.03 to .15, and the Kurtosis -.52 to 1.96. The data suggest that the distribution is approximately normal, with no significant deviation from a normal distribution (George & Mallery, 2010).

Table 4

Descriptive Statistics and Cronbach's Alphas for the Subscales of the Dimensions of Learning Patterns (ILS; Vermunt, 1998, 2020) (N = 563)

Dimensions of learning and subscales	Mean	SD	Skew	Ku	α
Processing strategies					
Deep processing	3.21	.75	-.35	-.17	.72
Stepwise processing	3.38	.78	-.37	-.01	.70
Concrete processing	3.42	.84	-.36	-.12	.69
Regulating strategies					
Self-regulation	3.38	.75	-.52	.13	.69
External regulation	3.71	.69	-.72	.88	.76
Lack of regulation	2.79	.90	.05	-.52	.62
Conceptions of learning					
Construction of knowledge	3.95	.68	-.81	1.7	.63
Intake of knowledge	3.57	.68	-.30	.03	.43
Use of Knowledge	4.12	.64	-.97	1.65	.65
Stimulating education	3.98	.67	-.62	.42	.60
Cooperative learning	3.34	.82	-.41	.02	.67
Orientations to learning					
Personally interested	3.81	.65	-.75	1.35	.50
Self-test oriented	3.89	.69	-.65	.90	.63
Vocation oriented	4.14	.67	-1.03	1.96	.67
Ambivalent learning	3.09	.75	.15	.01	.65
Certificate oriented	3.69	.65	-.50	.92	.31

As for the second instrument, SEI, the study used AMOS version 26.0 to validate the model fit of the instrument through confirmation factor analysis (CFA). It established the model fit using a combination of three categories of fit indexes namely, absolute, incremental, and parsimonious fit. The absolute fit statistics used in this study were the Root Mean Square of Error Approximation (RMSEA) and Goodness of Fit Index (GFI). The minimum Discrepancy of the Chi-Square value (Chi-Square) was ignored as the sample size of the current study is greater than 200 (*N*= 563) (Hair et al., 1998). Two indexes were included in the incremental fit category used to test the worst possible structure model: Adjusted Goodness of Fit (AGFI) and Comparative Fit Indexes (CFI). As for the parsimonious fit, the Chi-Square/Degrees of Freedom (ChiSq/df) determined degrees of freedom of the model fit.

The initial analysis showed fit indexes to have acceptable fit but not satisfactory. Therefore, by applying the modification indices, the model improved. Eight items were removed from the original version of the SEI. Among the items removed, seven described emotional engagement and one cognitive engagement. The deletions were based on substance, with some items possibly being redundant or measuring different constructs. Ambiguity in question wording may have caused confusion, exemplified by unclear references in certain items. After modification, the model reached more favourable fit indices. The RMSEA, GFI, AGFI, CFI, and ChiSq/df indexes were achieved: .07, .88, .85, .90, and 2.48, respectively.

Regarding cognitive engagement, two sub-scales were depicted from the analysis; Future Goals and Aspirations (FGA) and Control and Relevance to Schoolwork (CRSW).

Cronbach's alphas for these subscales were calculated to estimate whether the SEI was reliable regarding students' cognitive engagement in the Arab context. Subsequently, data showed the SEI to have a good fit. The means, standard deviations, Skewness, Kurtosis, and Cronbach's alphas for subscales cognitive engagement are given in Table 5.

Table 5

Descriptive Statistics and Cronbach's Alphas for Cognitive Engagement and Subscales Based on the SEI Model (based on Betts et al., 2010) (N = 563)

		No. of items	Mean	*SD*	*Skew*	Ku	α
Cognitive engagement		11	3.34	.37	-1.2	4.61	.76
	Control and relevance to schoolwork (CRSW)	7	3.14	.42	-.62	-.55	.68
	Future goals and aspirations (FGA)	4	3.5	.49	-1.17	2.4	.67

Academic Achievement

Grade Point Average (GPA) indicated students' academic achievement. Students reported their GPA two times throughout the study on a 4.0 scale. However, the information was verified in the administration system of the university. The minimum GPA value among the study sample was .67 and the highest was 4.0. The average was 2.93.

Procedure

Both instruments were distributed in English and Arabic version. The SEI was the first instrument to be distributed to students during classes in elective courses. In a similar administration, the ILS was distributed a week later. Once all the questionnaires were collected, they were paired for each student using their full name and university identification number. Complete data were collected for five hundred and sixty-three students (*N*= 563).

Results

Dimensionality of Learning Patterns

The existing body of research is controversial regarding the factor structure of ILS (Song & Vermunt, 2021). Therefore, the present study tested the dimensionality of the instrument for the Arab sample. The principal component analysis with Promax Kaiser Normalization as a rotation method depicted three factors. These factors accounted for 50.94 percent of the total variance. The Kaiser-Meyer-Olkin test (KMO) of appropriateness was achieved (.84), and Bartlett's test of Sphericity was significant.

Table 6

KMO and Bartlett's Test of ILP

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.843
Bartlett's Test of Sphericity	Approx. Chi-Square	2343.686
	df.	105
	Sig.	0

Table 7 presents the factor loading of the ILS scales on three extracted and rotated factors. Factor 1 was loaded with subscales of processing and regulating strategies, therefore grouping a set of actions toward learning with no connection to the belief components. This pattern can be seen as an *active* pattern. Students with this pattern engage in various processing strategies and use both external and self-regulation for their learning but do not conceptualize or idealize learning.

The subscales of learning orientations and conceptions of learning are loaded in Factor 2. These subscales create a *passive* pattern, as there is no exhibition of processing or regulation strategies. Personal interest has a good saturation in factor (.69) which shows a tendency to relate to learning personally. Factor 3 captures high loadings of ambivalent learning (.83) and lack of regulation (.72) combined with cooperative learning (.36) and intake of knowledge (.33). These scales show an *undirected* pattern, as students do not imply a specific way of engagement and are unable to regulate their learning.

Table 7

Factor Loadings of ILS Scales in a 3-factor Solution for Arab Undergraduates

	Factor 1 (Active)	Factor 2 (Passive)	Factor 3 (Undirected)
Stepwise processing	.83		
Deep processing	.83		
Self-regulation	.76		
Concrete processing	.73		
External regulation	.59		
Use of knowledge		.81	
Vocation oriented		.74	
Personally interested		.69	
Self-test directed		.66	
Stimulating education		.57	
Construction of knowledge		.47	
Ambivalent learning			.83
Lack of regulation			.72
Cooperative learning			.36
Intake of knowledge			.33

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.[a]
a. Rotation converged in 5 iterations.

Table 8 displays the descriptive data of the depicted factors for the study's sample. The data allow us to identify the dominant learning pattern. As seen, the *passive pattern* has the highest mean score (~4.0).

Table 8

Descriptive Data of Extracted Patterns for Undergraduates in Kuwait (N=563)

	Min	Max	Mean	*SD*
Active	1	4.93	3.43	.60
Passive	1	4.93	3.99	.48
Undirected	1.25	4.58	3.20	.48

Learning Patterns, Cognitive Engagement and GPA

The Pearson product-moment correlation assessed the relationships between the depicted learning patterns, cognitive engagement, and GPA.

Table 9

Correlation Matrix of GPA, Learning Patterns, and Cognitive Engagement

	GPA	Cognitive	Active	Passive
Cognitive	.248**			
Active	.336**	.478**		
Passive	.329**	.472**	.462**	
UD	-.133**	.117**	.287**	.153**

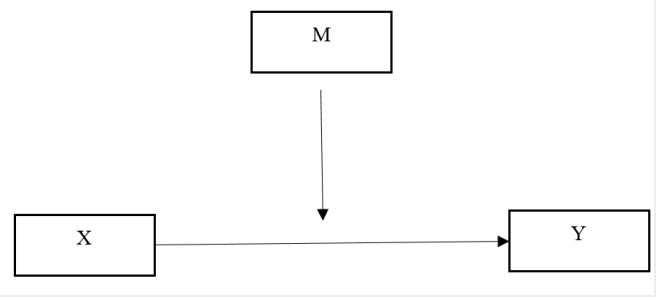
** Correlation is significant at the 0.01 level (2-tailed).

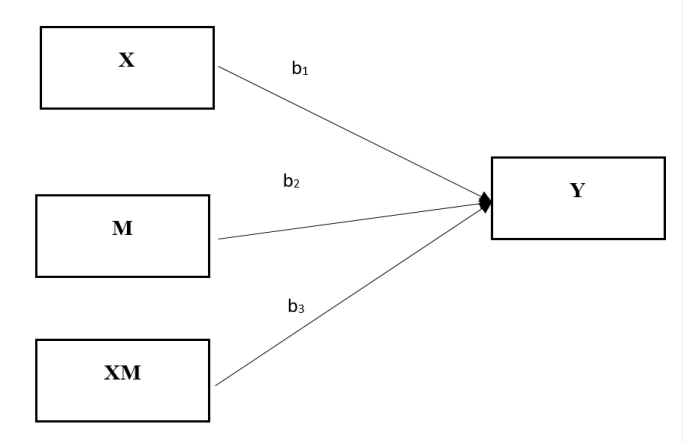
As seen in Table 9, GPA had a moderate positive correlation with active pattern (r = .34; p= .002) and cognitive engagement (r = .25; p< .01). Similarly, the passive pattern was positively correlated with cognitive engagement (r = .47; p< .01) and GPA (r = .33; p= .004). The undirected pattern showed a weak negative correlation with students' GPA (r =-.13; p= .003). Regarding the cognitive engagement, the undirected pattern showed a weaker connection with cognitive engagement (r = .12; p= .005) when compared with the other two patterns. The correlational analysis indicated inter-correlations exist between learning patterns, cognitive engagement, and GPA, suggesting moderating effects among factors.

The third study's research question aimed to test whether there was a moderating effect of cognitive engagement on the association of learning patterns with students' GPAs. The Process Macro of Hayes (Hayes, 2018) was used for this purpose, which is an extension tool for the SPSS Statistical package 26.0. The Process Macro conducts multiple regression analysis by centering the values, creating the interaction term, and running the analysis with the interaction term. Figure 1 represents the conceptual framework of Hayes's Macro Process Model 1.

Figure 1

Conceptual and Statistical Diagram of Simple Moderation (Model 1: Adapted from Hayes, 2018)





Conditional effect of X on Y = $b_1 + b_3M$

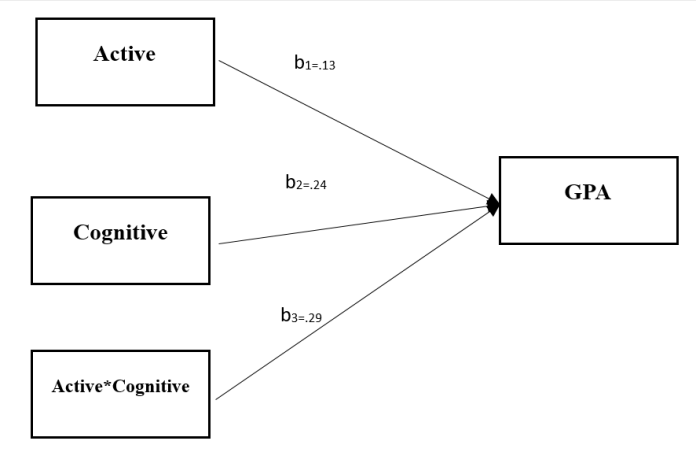
The analysis was run separately for each pattern.

Active Pattern, Cognitive Engagement, and GPA

Firstly, the study tested whether cognitive engagement (Cognitive) moderated the effect of the active pattern (AP) on students' GPAs. Both indirect and direct impacts of cognitive engagement and active patterns on GPA were found to be significant. The direct effect of the *active pattern* on GPA was positive and significant (B = .13, SE= .57, p = .02). The direct effect of cognitive engagement on GPA was also positive and significant (B = .23, SE = .08, p< .00), indicating that a higher cognitive engagement affects students' GPA. The indirect effect of cognitive engagement on GPA was also positive and significant: B = .23, SE = .077, β =.07, p = .00 <.05. The results showed that cognitive engagement has positive moderating effect on students' GPA through active habits of learning. In other words, the interaction of cognitive engagement with active learning significantly affect students' academic achievement. Moreover, the model with the interaction term (Cognitive*Active) accounted for significant variance in GPAs: R^2 =.14 (Figure 2).

Figure 2

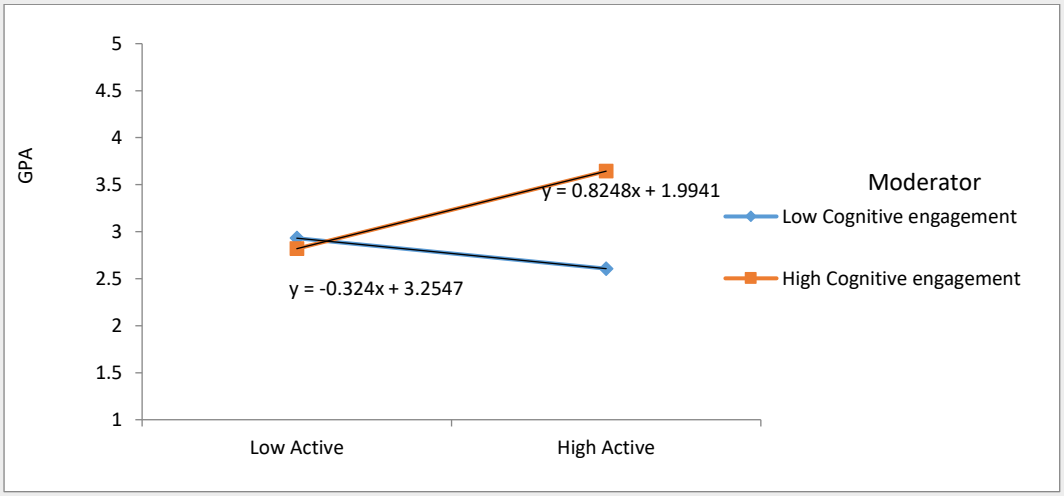
Conditional Effect of the Active Pattern on GPA with Cognitive Engagement as a Moderator



To further investigate the moderation effect, the study analyzed the simple slopes. The results are shown in Figure 3. As can be seen, the line is much steeper for high cognitive engagement; this indicates that at a high level of cognitive engagement, the impact of active patterns on a students' GPA is more substantial. In other words, as the level of cognitive engagement increased, the effect of active patterns on GPA increased as well.

Figure 3

The Plot of the Simple Slope Analysis for the Moderator Variable Cognitive Engagement (Active Pattern as the Independent Variable)

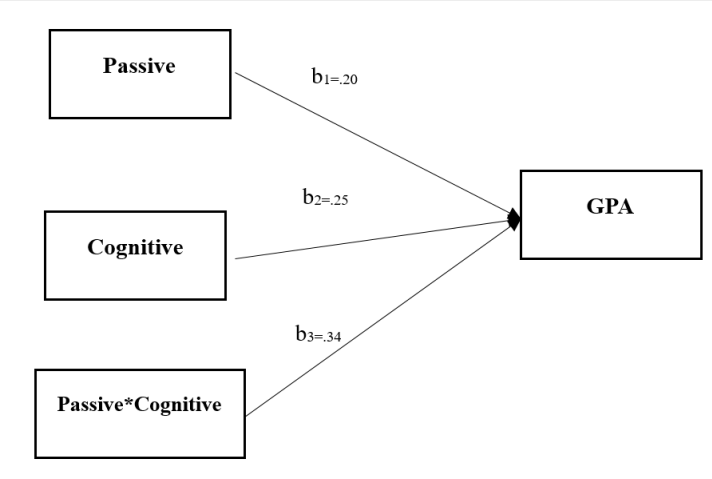


Passive Pattern: Cognitive Engagement and GPA

Cognitive engagement moderated the relationship between *passive pattern* and GPA: B =.34, SE =.10, β =.08, p =.00, indicating that the interaction term (Cognitive*Passive) was significant. The direct effect of the *passive pattern* on GPA was significant: B =.20, SE =.07, p =.04. The second path of the immediate effect of cognitive engagement on GPA was significant as well: B =.25, SE =.08, p =.00 (Figure 4). These results showed the model with the interaction term (Cognitive*Passive) was statistically significant, accounting for 15% of the variance in students' GPAs (R^2 =.15).

Figure 4

Conditional Effect of the Passive Pattern on GPA as Cognitive Engagement as Moderator

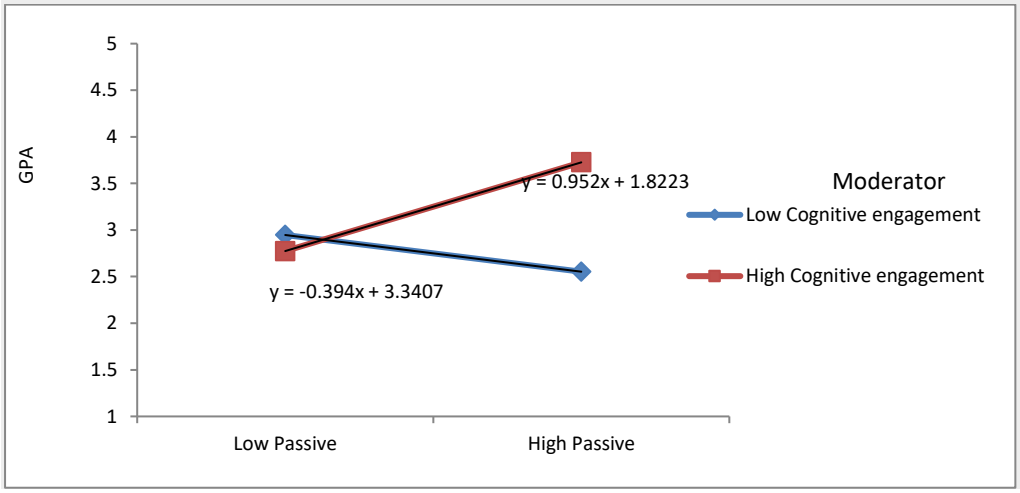


Simple slopes analysis revealed that cognitive engagement strengthens the relationship between the passive learning pattern and students' GPAs. In other words, when the cognitive engagement of the student increases, the effect of the passive pattern in learning on his GPA will also increase (Figure 5).

To sum up, the interaction of cognitive engagement with both passive and active learning patterns significantly moderated the relationship between the patterns and GPAs. Noteworthy mentioning that the interaction term, including the passive pattern (Passive*Cognitive), had a greater impact on the GPA when compared with the other interaction (Active*Cognitive).

Figure 5

The Plot of the Simple Slope Analysis for the Moderator Variable Cognitive Engagement (Passive Pattern as the Independent Variable)



Undirected Pattern: Cognitive Engagement and GPA

The analysis did not reveal a moderating effect of cognitive engagement on the relationship between undirected patterns and GPA. The model including the interaction term (Cognitive*Undirected) was statistically insignificant (B =.20, SE =.12, p =.12) However, both direct paths were statistically significant: B =-.20, SE =.60, p =.00, B =.30, SE =.08, p =.00 for Undirected GPA and Cognitive _ GPA, respectively.

Discussion

This study aimed to (1) depict students' learning patterns of undergraduates in Kuwait based on Vermunt's' model, (2) inquire on the relationship between learning patterns, cognitive engagement, and GPA; and (3) determine if cognitive engagement moderates the relationship between these learning patterns and GPA.

Learning Patterns of Arab Undergraduates

The study used the ILS inventory, for which it first tested its reliability and dimensionality. Results showed that the ILS, based on the Vermunt model (1998, 2020), was a reliable instrument to depict students' learning patterns, with alphas being in an acceptable range. Further structure analysis revealed a different configuration of the learning patterns from the original model suggested by Vermunt (1998). Three learning patterns were displayed, namely *active, passive, and undirected*.

These results are supported by recent literature. For example, an *active pattern* characterized mainly by regulation and processing strategies was found among Chinese, Spanish, and Latin-American students (Martínez-Fernández & Vermunt, 2015; Song & Vermunt, 2021). Students prevailing in the *active pattern* use external and internal regulation strategies to succeed in their learning. They actively manage their learning while being cautious and receptive to external feedback. For example, a student that sets goals and monitors his learning can update and progress while receiving feedback from the teacher and his peers (Donche et al., 2014). In addition, the use of processing strategies that are both deep and step-wise tells about the existence of mixed methods of teaching. Evidently, teaching these students shifts from the teacher's activity to the student's active behavior, emplacing both teacher and student-centered approaches. Therefore, a student perceives that success is achieved by being active no matter how to approach learning.

Regarding the *passive pattern*, similar results were found among Sri Lankan and Indonesian students (Marambe et al., 2012). A passive pattern, for this study, comprehends a combination of learning motivations and conceptions with no regulation or processing strategies. Students study for tests with the final goal of completing their studies to find a job. Therefore, they think education has to be stimulating. The students may not be proactive but are idealistic and have expectations for their learning. Highly structured teaching might induce passive learning, as well-defined and structured courses leave little space for independent learning (Loyens et al., 2008). That said, this pattern might guarantee students' academic achievement in a high-regulated learning environment.

The *undirected pattern* depicted in this study is very similar to the original configuration proposed by Vermunt (1998, 2020). The *undirected pattern*, characterized by

high loadings of ambivalent learning and lack of regulation, displays a pattern in which students do not use one specific way of learning. These students need cooperation and think of education as the intake of knowledge rather than the construction of it.

Finally, for the study's first question, the pattern used mainly by Kuwaiti undergraduates was the *passive pattern*, with a relatively high mean scoring compared to the other two patterns. Other studies have found the passive (or passive-idealistic) pattern dominant among Chinese, Sri Lanka, and Indonesian students (Marambe et al., 2012; Song & Vermunt, 2021). Traditional teaching practices such as lecture-based instructions and highly structured curricula with little space for independent learning might induce the passive approach. Indeed, rote learning and traditional teaching methods are predominant in Gulf countries, especially Kuwait. In their book, Mahboob and Elyas (2017) mention that one main challenge of Kuwait's educational system is the shift from traditional teaching methods to problem-based learning to promote critical thinking. Ideally, students are expected to engage in class and activities requiring critical thinking, deep processing, and understanding. When this does not happen, students might experience conflict between learning anticipations and strategies needed to cope with tests and examinations.

Another possible explanation of the dominant passive pattern for Arab undergraduates in Kuwait might be the year of studies. Most of the participants in the current study were in their first year of studies. Amid various changes and challenges, the use of explicit processing strategies is a process that takes time. Moreover, the lack of regulation among first-year students is expected as they still need to be habituated to the learning environment.

A noteworthy factor potentially contributing to the prevalent passive learning pattern among Kuwaiti students is the composition of the teaching workforce. According to the Kuwait Education Sector Report (2021), only 1.8% of teachers in private universities/schools in Kuwait are Kuwaitis, while the remaining 98.2% are non-Kuwaitis (p. 15). This suggests the possibility of a cultural gap between students and teachers. As Hofstede (1986) noted, ‘The teacher-student interaction is an archetypal pair... deeply rooted in culture, (which) ...produces fundamental problems between both parties...(such as)...differences in cognitive abilities between parties’ (p. 303). The cultural gap presents the risk of conflict between teachers' teaching methods and their students' cultural expectations, leading the latter group to disengage and adopt a more superficial approach to learning.

Learning Patterns, Engagement, and GPA

As for the second research question, this study showed correlations between learning patterns, cognitive engagement, and GPA. Positive correlations were found between cognitive engagement and both of these learning patterns. While active learning is expected to correlate with cognitive engagement, the fact that the passive pattern also correlates with cognitive engagement is counterintuitive. This phenomenon may be attributed to the cognitive engagement framework employed in this study, which encompasses perceptions and motivations for learning. Cognitively engaged students consider learning essential for their future goals and careers, and therefore, they view assignments and schoolwork as relevant to their educational aspirations. In other words, cognitive engagement reflects students' attitudes toward learning rather than their behavior, much like the passive pattern.

Regarding GPA, both the *active* and *passive* patterns are positively connected to it. This result is not new to the existing literature (Song & Vermunt, 2021). Indeed, the passive pattern connecting to academic achievement challenges the "myth" in which the active pattern is considered the only "desired" one for academic success. Students may succeed in

their learning in very personal varying ways. Passive learners might still be engaged in retaining and processing information. However, the result brought by this study about the passive pattern and GPA shows the need for further investigation of the issue.

The *undirected* pattern, on the other hand, had a weak negative correlation with the GPA. Based on the original model of Vermunt (1998), the expectancy is that the undirected pattern must strongly negatively correlate with academic success as it is labeled as an "undesired" pattern. Nevertheless, in many studies, the relationship between UD and academic results is unclear (Hederich & Camargo, 2019). This might be addressed to the nature of the UD pattern. It emphasizes the lack of regulation and processing strategies. However, a question is posed: is the lack of the processing and regulation strategies or the inconsistency of using them that determines the undirected pattern?

The Moderating Role of Cognitive Engagement

As for the last aim, this study found that cognitive engagement moderates the relationship between the active and passive patterns and students' GPAs among Arab undergraduates. The positive impact of the active and passive patterns on GPAs deepens with the presence of cognitive engagement. Of the two interaction models, the one including the passive pattern and the cognitive engagement was found to have higher significance. The presence of cognitive engagement better serves those students who prevail in passive learning. Thus, this study suggests that educators and policymakers should focus on enhancing students' cognitive engagement to support their academic achievement, particularly among those who adopt passive learning patterns. It also highlights the importance of considering students' learning patterns and cognitive engagement when designing educational programs and policies.

Contributions and Limitations

This paper seems to be the first to depict students' learning patterns using Vermunt's model and find relationships with GPA for Arab undergraduates in Kuwait. Moreover, it explores the moderating role of cognitive engagement in the relationship between learning patterns and GPA, contributing to the existing literature.

This study’s findings stress the critical interplay between learning patterns, cognitive engagement, and academic achievement among Arab students. It contributes to the existing literature regarding learning patterns, particularly Vermunt’s framework. As noted, the dominance of passive learning among the study participants aligns with prior studies conducted in other contexts where rote learning and memorization are prevalent (Al-Nouri, 2019; Mahboob & Elyas, 2014).

Moreover, the positive relationship between passive learning and academic achievement contradicts the existing literature in Western educational research. As often found, active learning is positively associated with academic achievement and is labeled as the “desired” pattern (Aji & Khan, 2019; Karagiannopoulou & Entwistle, 2019; Vermunt, 2005). This finding suggests that the effectiveness of learning patterns varies across cultural contexts. Students conditioned by teaching practices and their learning expectations have found their way to academic success. Apparently, in contrast to students in other settings, i.e., Dutch students (Vermunt & Donche, 2017), passive learning guarantees performance for Arab students.

Furthermore, the study highlights the role of engagement, showing that cognitive engagement can greatly improve academic results even in passive learning environments. This discovery aligns with research indicating that cognitive engagement plays a role in academic success across different educational settings (Fredricks et al., 2004; Wang & Eccles, 2013). The significance of engagement in this study indicates that boosting engagement in educational systems emphasizing memorization-based learning could help counteract some of the drawbacks of passive learning.

By filling the gap in the literature regarding the application of Vermunt's model in an Arab context and exploring the role of cognitive engagement, this study provides valuable insights into understanding learning patterns and their impact on academic achievement among Arab undergraduates. These findings have implications for educational practices and interventions to enhance learning strategies and promote higher academic performance in similar contexts.

However, this study does not come without limitations:

1. The study had a sample size of only 563 undergraduate students, which may not represent Kuwait's entire undergraduate population.

2. The study relied on self-reported data from the participants, which may be inaccurate. Participants may not have responded truthfully, and social desirability bias may have influenced them.

3. The study only investigated the relationship between learning patterns, engagement, and GPA. Other factors influencing students' learning patterns and engagement, such as teaching methods, curriculum design, and socio-economic background, were not considered. Therefore, it would be of great interest to conduct the research considering other factors in learning patterns – academic achievement configuration.

Despite the limitations, this study has some practical implications when it comes the educational system in Kuwait.

Future implications

The study found that Kuwaiti undergraduates tend to employ passive learning. Although there is no action, they are cognitively engaged while learning. These students tend to perform better in their academic scores but not as well as those who employ active learning.

The cultural setting of Kuwait may contribute to adopting passive learning approaches. Traditional teaching methods that remain prevalent might not effectively stimulate engagement and promote active learning approaches. Consequently, educational strategies in Kuwait should focus on reshaping the landscape to foster thinking, problem-solving skills, and active participation. To achieve this goal, implementing the following interventions could be beneficial:

- Incorporate active learning techniques; Utilize teaching methodologies that encourage student involvement through problem-solving tasks, group discussions, and case studies. These strategies help transition from teacher-centered to student-centered learning models by engaging students and fostering an environment conducive to active learning.

- Curriculum reform: Update the curriculum to incorporate stimulating content that challenges students to think critically and apply their knowledge in practical situations. Project-based tasks and collaborative activities can further boost engagement.

- Cultural sensitivity in teaching: Acknowledge and bridge the cultural differences between students and educators. Teaching strategies should be adaptable to the backdrop.

- Foster the teacher-student relationships; Cultivate relationships between teachers and students to establish a learning setting that promotes active participation and open communication.

Geolocation

This research study was conducted in Kuwait, a country located in the north eastern part of the Arabian Peninsula.

Data availability statement

The data that support the findings of this study are available from the authors upon reasonable request.

Disclosure statement

The authors reported no potential conflict of interest.

Laureta Seitaj is a teaching faculty at the American International University in Kuwait. She is part of PAFIU research group at Autonomous University of Barcelona, Spain, where she is conducting her Doctoral studies. Her research interest includes academic engagement of undergraduates, learning strategies, achievement and learning habits.

J. Reinaldo Martínez-Fernández is an Associate Professor at Autonomous University of Barcelona, Spain. Since 2011, he leads the PAFIU research group that analyses learning conceptions, motivations and learning strategies at different levels of the academic trajectory.

References

Adva, H. J. (2016). *The relationship between student engagement and academic achievement* [Doctoral dissertation, University of Auckland]. University of Auckland Repository.

Ahmed, A., & Ahmed, N. (2017). Comparative analysis of rote learning on high and low achievers in graduate and undergraduate programs. *Journal of Education and Educational Development, 4*(1), 111-129.

Aji, A. A., & Khan, J. (2019). The impact of active learning on students' academic performance. *Open Journal of Social Sciences, 7*, 204-211. https://doi.org/10.4236/jss.2019.73017

Ajisuksmo, C., & Vermunt, J. (1999). Learning styles and self-regulation of learning at university: An Indonesian study. *Asia Pacific Journal of Education, 19*, 45-59. https://doi.org/10.1080/0218879990190205

Al-Nouri, R. M. (2019). Why are Kuwaiti students weak in the English language? *Multi-Knowledge Electronic Comprehensive Journal for Education and Science Publications (MECSJ),* (26).

Appleton, J. J., Christenson, S. L., & Furlong, M. J. (2008). Student engagement with school: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*(5), 369-386. https://doi.org/10.1002/pits.20303

Appleton, J. J., Christenson, S. L., Kim, D., & Reschly, A. L. (2006). Measuring cognitive and psychological engagement: Validation of the student engagement instrument. *Journal of School Psychology, 44*(5), 427-445. https://doi.org/10.1016/j.jsp.2006.04.002

Asikainen, H., & Gijbels, D. (2017). Do students develop towards more deep approaches to learning during studies? A systematic review on the development of students' deep and surface approaches to learning in higher education. *Educational Psychology Review, 29*, 1-30. https://doi.org/10.1007/s10648-017-9406-6

Chotitham, S., Wongwanich, S., & Wiratchai, N. (2014). Deep learning and its effects on achievement. *Procedia - Social and Behavioral Sciences, 116*. https://doi.org/10.1016/j.sbspro.2014.01.754

Christensen, L. L., Reschly, A. L., & Wylie, C. (Eds.). (2012). *Handbook of research on student engagement*. Springer.

D'cruz, S. M., & Rajaratnam, N. (2018). Study of the learning approaches of medical students before and after clinical posting in a medical college in South India. *Int. J. Sci. Study, 6*, 95-98.

Doğan, U. (2015). Student engagement, academic self-efficacy, and academic motivation as predictors of academic performance. *The Anthropologist, 20*, 553-561. https://doi.org/10.1080/09720073.2015.11891759

Donche, V., & Van Petegem, P. (2009). The development of learning patterns of student teachers: A cross-sectional and longitudinal study. *Higher Education, 57*(4), 463-475.

Donche, V., Coertjens, L., van Daal, T., De Mayer, S., Van Petegem, P. (2014). Understanding differences in student learning and academic achievement in first year higher education. An integrated research perspective. In D. Gijbels, V. Donche, J. Richardson, & J. Vermunt (eds.), Learning Patterns in Higher Education. Dimensions and Research Perspectives (pp. 214- 231). Routledge

Finn, J. D., & Zimmer, K. S. (2012). Student engagement: What is it? Why does it matter? In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 97-131). Springer.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59-109. https://doi.org/10.3102/00346543074001059

Gamage, K. A. A., Dehideniya, D. M. S. C. P. K., & Ekanayake, S. Y. (2021). The role of personal values in learning approaches and student achievements. *Behavioral Sciences (Basel, Switzerland), 11*(7), 102. https://doi.org/10.3390/bs11070102

García-Ravidá, L. B. (2017). *Patrones de aprendizaje en universitarios Latinoamericanos: dimensión cultural e implicaciones educativas* [Doctoral dissertation, Universitat Autònoma de Barcelona]. Repository of Universitat Autònoma de Barcelona.

George, D., & Mallery, M. (2010). *SPSS for Windows step by step: A simple guide and reference, 17.0 update* (10th Ed.). Boston: Pearson.

Greene, B. A., Miller, R. B., Crowson, H. M., Duke, B. L., & Akey, K. L. (2004). Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology, 29*(4), 462-482. https://doi.org/10.1016/j.cedpsych.2004.01.006

Grier-Reed, T. L., Appleton, J. J., Rodriguez, G., & Pohl, A. (2012). Student engagement in high school: Facilitating transitions and increasing achievement. In S. L. Christenson, A. L. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 3-20). Springer.

Gunuc, S., & Kuzu, A. (2015). Exploring the relationship between academic engagement and burnout among undergraduate students: A pilot study. *International Journal of Higher Education, 4*(2), 1-10. https://doi.org/10.5430/ijhe.v4n2p1

Hair, J. F., Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Multivariate data analysis* (5th Ed.). Prentice Hall.

Hasnor, H. N., Ahmad, Z., & Nordin, N. (2013). The relationship between learning approaches and academic achievement among Intec students, UiTM Shah Alam. *Procedia - Social and Behavioral Sciences, 90*, 178-186. https://doi.org/10.1016/j.sbspro.2013.07.080

Hayes, A. F. (2018). *An introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd Ed.). Guilford Press.

Hederich, C., & Camargo, A. (2019). Critical review of J. Vermunt's learning patterns model.

Herrmann, K., McCune, V., & Bager-Elsborg, A. (2017). Approaches to learning as predictors of academic achievement: Results from a large scale, multi-level analysis. *Högre utbildning, 7*. https://doi.org/10.23865/hu.v7.905

Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of Intercultural Relations, 10*(3), 301–320. https://doi.org/10.1016/0147-1767(86)90015-5

Hong, J. C., & Kinoshita, M. (2014). An exploratory study of Japanese university students' learning profiles: Implications for teaching and learning. *Asian Journal of Education and E-Learning, 2*(4), 242-250.

Karagiannopoulou, E., & Entwistle, N. (2019). Students' learning characteristics, perceptions of small-group university teaching, and understanding through a "meeting of minds". *Frontiers in Psychology, 10*, 444. https://doi.org/10.3389/fpsyg.2019.00444

Ketonen, E. E., Dietz, S., & Kelly, J. R. (2016). The relationship between academic engagement and achievement in high-poverty schools. *Journal of Educational Research, 109*(1), 1-11. https://doi.org/10.1080/00220671.2014.917260

Kim, D.-H., Wang, C., Ahn, H. S., & Bong, M. (2015). English language learners' self-efficacy profiles and relationship with self-regulated learning strategies. *Learning and Individual Differences, 38*, 136–142. https://doi.org/10.1016/j.lindif.2015.01.016

Kuh, G., Cruce, T., Shoup, R., Kinzie, J., & Gonyea, R. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education, 79*, 540-563. https://doi.org/10.1353/jhe.0.0019

Kuwait Education Sector Report: Industry Analysis for the Academic Year 2019/2020. (2021, July).

Lindblom-Ylänne, S., & Lonka, K. (1999). Individual ways of interacting with the learning environment – Are they related to study success? *Learning and Instruction, 9*, 1–18.

Lonka, K., Olkinuora, E., & Mäkinen, J. (2004). Aspects and prospects of measuring studying and learning in higher education. *Educational Psychology Review, 16*(4), 301–323. https://doi.org/10.1007/s10648-004-0002-1

Loyens, S. M. M., Magda, J., & Rikers, R. M. J. P. (2008). Self-Directed Learning in Problem-Based Learning and its Relationships with Self-Regulated Learning. Educational Psychology Review, *20*(4), 411-427. https://doi.org/10.1007/s10648-008-9082-7

Mahboob, A., & Elyas, T. (2014). English in the Kingdom of Saudi Arabia. *World Englishes, 33*. https://doi.org/10.1111/weng.12073

Marambe, K. N., Vermunt, J. D., & Boshuizen, H. P. (2012). A cross-cultural comparison of student learning patterns in higher education. *Higher Education, 64*(3), 299-316.

Martínez-Fernández, J. R. (2019). El modelo de patrones de aprendizaje: estado actual, reflexiones y perspectivas desde el territorio de Iberoamérica. *Revista Colombiana de Educación, 77*, 227-244.

Martínez-Fernández, J. R., García-Orriols, J., & García-Ravidá, L. B. (2015). Inventario de Patrones de Aprendizaje – ILP. Grupo de Investigación PAFIU. Universitat Autònoma de Barcelona, España.

Negash, T. T., Eshete, T. M., & Hanago, G. A. (2022). Students' learning approaches as a factor of academic achievement at selected public universities: A cross-sectional study. *Frontiers in Education, 7*, 965573. https://doi.org/10.3389/feduc.2022.965573

Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using SPSS program* (6th ed.). McGraw-Hill Education.

Pilotti, M., Alkuhayli, H., & Al Ghazo, R. (2022). Memorization practice and academic success in Saudi undergraduate students. *Learning and Teaching in Higher Education: Gulf Perspectives, 18*(1), 19-31. https://doi.org/10.1108/LTHE-08-2020-0030

Prat-Sala, M., & Redford, P. (2010). The interplay between motivation, self-efficacy, and approaches to studying. *British Journal of Educational Psychology, 80*(2), 283–305. https://doi.org/10.1348/000709909X480563

Ramezani, G., Norouzi, A., Arabshahi, S. K. S., Sohrabi, Z., Zazoli, A. Z., Saravani, S., & Pourbairamian, G. (2022). Study of medical students' learning approaches and their association with academic performance and problem-solving styles. *Journal of Education and Health Promotion, 11*, 252. https://doi.org/10.4103/jehp.jehp_900_21

Reschly, A. L., Appleton, J. J., & Pohl, A. (2014). Student engagement in school as a multidimensional construct: An exploration of its relation to dropout. *Prevention Science, 15*(1), 76-89. https://doi.org/10.1007/s11121-012-0320-y

Sæle, R., Dahl, T., Sørlie, T., & Friborg, O. (2017). Relationships between learning approach, procrastination and academic achievement amongst first-year university students. *Higher Education, 74*. https://doi.org/10.1007/s10734-016-0075-z

Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: A systematic review of meta-analyses. *Psychological Bulletin, 143*(6), 565-600. https://doi.org/10.1037/bul0000098

Song, Y., & Vermunt, J. D. (2021). A comparative study of learning patterns of secondary school, high school, and college students. *Studies in Educational Evaluation, 68*, [100958]. https://doi.org/10.1016/j.stueduc.2020.100958

Sukor, R., Fauzi, A., Nor-Khaizura, M.-A.-R., & A. H., Farawahida. (2021). Relationship between students' engagement with academic performance among non-food science students enrolled in food science course. *Journal of Turkish Science Education, 18*, 638-648. https://doi.org/10.36681/tused.2021.95

Van de Ven, M. (2017). Approaches to learning and academic achievement. Centre for Education and Learning. https://www.educationandlearning.nl/news/approaches-to-learning-an-academic-achievement

Vega-Martínez, A., Martínez Pons, M., & Martínez-Fernández, J. R. (2023). Patrones de aprendizaje, factores socio-familiares, memoria y rendimiento académico en jóvenes tutelados. *Pedagogía Social. Revista Interuniversitaria, 43*, 121-132. https://doi.org/10.7179/PSRI_2023.43.08

Vermunt, J. D. (1998). The regulation of constructive learning processes. *British Journal of Educational Psychology, 68*, 149–171.

Vermunt, J. D. (2004). Relationship between students' learning styles and their academic achievement in different courses. *British Journal of Educational Psychology, 74*(3), 327-340. https://doi.org/10.1348/000709904773839879

Vermunt, J. D. (2005). Relations between student learning patterns and personal and contextual factors and academic performance. *Higher Education, 49*, 205–234.

Vermunt, J. D. (2020). Surveys and retrospective self-reports to measure strategies and strategic processing. In D. L. Dinsmore, L. K. Fryer, & M. M. Parkinson (Eds.), *Handbook of strategies and strategic processing* (pp. 259-274). Routledge. https://doi.org/10.4324/9780429423635-16

Vermunt, J. D., & Donche, V. (2017). A learning patterns perspective on student learning in higher education: State of the art and moving forward. *Educational Psychology Review, 29*, 269.

Vermunt, J. D., & Vermetten, Y. J. (2004). Patterns in student learning: Relationships between learning strategies, conceptions of learning, and learning orientations. *Educational Psychology Review, 16*(4), 359–384. https://doi.org/10.1007/s10648-004-0005-y

Wang, M.-T., & Eccles, J. (2013). School context, achievement motivation, and academic engagement: A longitudinal study of school engagement using a multidimensional perspective. *Learning and Instruction, 28*, 12–23. https://doi.org/10.1016/j.learninstruc.2013.04.002

Wara, E., Aloka, P., & Odongo, B. (2018). Relationship between cognitive engagement and academic achievement among Kenyan secondary school students. *Mediterranean Journal of Social Sciences, 9*, 61-72. https://doi.org/10.2478/mjss-2018-0026

Yang, S., & Pu, R. (2022). The effects of contextual factors, self-efficacy, and motivation on learners' adaptability to blended learning in college English: A structural equation modeling approach. *Frontiers in Psychology, 13*, 847342. https://doi.org/10.3389/fpsyg.2022.847342

Annex 3: The ILP in English and Arabic

Inventory of Learning Patterns (ILP)

Short Version

The Inventory of Learning Patterns (ILP) was developed to gain clearer insight into how students go about their studies and how they perceive their own learning. The ILP consists of a list of statements on study strategies, motives and attitudes.

How to complete the inventory?

The ILP is comprised of two parts: A and B. Each part consists of a list of statements concerning Higher Education studies and studying. You are requested to indicate to what extent each statement applies to you. You can express your view by circling a number on a scale from 1 to 5.

Bear in mind that this list has nothing to do with right or wrong answers. Every person has his own ideas, opinions and study habits. The aim is to gain an insight into your own study habits and your personal view of studying and education. This means that an honest answer is automatically a correct answer. The purpose of the ILP is to identify individual views, motives and learning activities.

Important

Read each statement carefully and then indicate to what extent it applies to you by circling the relevant number.

Before starting to answer to the questions, indicate your gender and the your current GPA at the best of your knowledge.

Student ID: ☐

Gender: ☐ **Male** ☐ **Female** **GPA:** _____

PART A: OPINIONS ABOUT STUDY

N	Statement البيانات	Entirely disagree لا أوافق تماما	Mostly disagree في الغالب لا أوافق	Undecided غير محدد	Mostly agree أوافق في الغالب	Entirely Agree أوافق تمامًا
1	To me, learning means to understand and deal with the problem from all sides, even the ones that I do not know. بالنسبة لي ، التعلم يعني فهم المشكلة والتعامل معها من جميع الجوانب ، حتى تلك التي لا أعرفها.	1	2	3	4	5
2	The things I learn have to be useful for solving practical problems. يجب أن تكون الأشياء التي أتعلمها مفيدة في حل المشكلات العملية.	1	2	3	4	5
3	To me, learning is making sure that I can repeat the information that I learned in the courses. بالنسبة لي ، التعلم هو التأكد من أنني أستطيع تكرار المعلومات التي تعلمتها في الدورات.	1	2	3	4	5
4	When I have difficulty in particular topics, I prefer to ask other students for help. عندما أجد صعوبة في فهم موضوعات معينة ، أفضل أن أطلب المساعدة من الطلاب الآخرين.	1	2	3	4	5
5	When I have difficulty understanding something, the teacher should encourage me to find a solution by myself. عندما أجد صعوبة في فهم شيء ما ، يجب على المعلم أن يشجعني على إيجاد حل بنفسي.	1	2	3	4	5
6	I should try to think up examples with the study materials of my own accord. يجب أن أحاول التفكير في أمثلة بمواد الدراسة من أرائى.	1	2	3	4	5
7	To me, learning means acquiring knowledge that I can use in everyday life. بالنسبة لي ، التعلم يعني اكتساب المعرفة التي يمكنني استخدامها في الحياة اليومية	1	2	3	4	5
8	I should memorize definitions and other facts on my own. يجب أن أحتفظ التعريفات والحقائق الأخرى بمفردي.	1	2	3	4	5
9	I consider it important to be directed by other students as to how to study. أعتبر أنه من المهم أن يتم توجيه الطلاب الآخرين لكيفية الدراسة.	1	2	3	4	5
10	The teacher should encourage me to reflect on the way I study and how to develop my way of studying. يجب أن يشجعني المعلم على التفكير في الطريقة التي أدرس بها وكيفية تطوير طريقتي في الدراسة.	1	2	3	4	5
11	In order to learn, I have to summarize in my own words what the subject matter means. لكي أتعلم ، يجب أن ألخص بأسلوبى الخاص ما يعنيه الموضوع.	1	2	3	4	5
12	To me, learning means trying to remember the subject matter, I am given. بالنسبة لي ، التعليم يعني: محاولة تذكير الموضوع الذي حصلت عليه.	1	2	3	4	5
13	The teacher should motivate and encourage me. يجب على المعلم أن يحفزني ويشجعني.	1	2	3	4	5

14	When I prepare myself for an exam, I prefer to do so together with other students. عندما أقوم بتجهيز نفسي للإمتحان ، أفضل القيام بذلك مع طلاب آخرين.	1	2	3	4	5
15	To me, learning is providing myself with information that I can use immediately or in the longer term. بالنسبة لي ، التعلم هو تزويد نفسي بالمعلومات التي يمكنني استخدامها على الفور أو على المدى الطويل.	1	2	3	4	5
16	I do these studies because I like to learn and to study. أقوم بهذه الدراسات لأنني أحب التعلم والدراسة.	1	2	3	4	5
17	I want to show others that I am capable of successfully doing a higher education program. أريد أن أظهر للآخرين بأنني قادر على القيام ببرنامج تعليمي عالي بنجاح.	1	2	3	4	5
18	What I want to acquire above all through my studies is professional skill. ما أريد اكتسابه قبل كل شيء من خلال دراستي هو مهارة مهنية.	1	2	3	4	5
19	I have little confidence in my study capacities. لدي القليل من الثقة في قدراتي الدراسية.	1	2	3	4	5
20	I aim at achieving my study goals. أهدف إلى تحقيق أهدافى الدراسية.	1	2	3	4	5
21	I want to discover my own qualities, the things I am capable and incapable of. أريد أن أكتشف صفاتي الخاصة ، الأشياء التي أنا قادر عليها وغير قادرة عليها.	1	2	3	4	5
22	I wonder whether these studies are worth all the effort. أتساءل عما إذا كانت تلك الدراسات تستحق كل هذا الجهد.	1	2	3	4	5
23	Overall, I study to pass the exam. بشكل عام ، أنا أدرس لاجتياز الاختبار.	1	2	3	4	5
24	I doubt whether this type of education is the right type of education for me. أشك فيما إذا كان هذا النوع من التعليم هو النوع المناسب لي من التعليم.	1	2	3	4	5
25	I want to test myself to see whether I am capable of doing studies in higher education. أريد اختبار نفسي لمعرفة ما إذا كنت قادرًا على إجراء دراسات في التعليم العالي.	1	2	3	4	5
26	When I have a choice, I choose courses that suit my personal interests. عندما يكون لدي خيار ، أختار الدورات التي تناسب اهتماماتي الشخصية.	1	2	3	4	5
27	When I have a choice, I choose courses that seem useful to me for my present or future profession. عندما يكون لدي خيار ، أختار الدورات التي تبدو مفيدة لي في مهنتي الحالية أو المستقبلية.	1	2	3	4	5
28	To me, written proof of having passed an exam represents something of value in itself. بالنسبة لي ، يمثل الإثبات الخطى على اجتياز الاختبار شيئًا ذا قيمة في حد ذاته.	1	2	3	4	5
29	I do these studies out of sheer interest in the topics that are dealt with. أقوم بهذه الدراسات من باب الاهتمام المطلق بالمواضيع التي يتم التعامل معها.	1	2	3	4	5
30	The main goal I do my studies, is to prepare myself for a profession. الهدف الرئيسي الذي أقوم به هو إعداد نفسي لمهنة.	1	2	3	4	5

PART B: STUDY ACTIVITIES

	Statement البيانات	Seldom/ Never نادرا / أبدا	Sometimes بعض الأحيان	Regularly بانتظام	Often غالبا	Almost always دائما
31	I draw my own conclusions based on the data that are presented in a course. أستوحى استنتجاتي الخاصة على أساس البيانات المقدمة في الدورة.	1	2	3	4	5
32	I memorize the meaning of every concept that is unfamiliar to me. أحتفظ بمعنى كل مفهوم غير مألوف بالنسبة لي.	1	2	3	4	5
33	I study in details. أنا أدرس بالتفصيل.	1	2	3	4	5
34	I use what I learn from a course in my activities outside my studies. أستخدم ما أتعلمه من الكورس في مهامي خارج دراستي.	1	2	3	4	5
35	I try to relate new subject matter to knowledge I already have about the topic concerned. أحاول ربط موضوع جديد بالمعرفة التي لدي بالفعل حول الموضوع المعني.	1	2	3	4	5
36	I compare my view of a course topic with the views of the authors of the textbook used in that course. أقارن وجهة نظري لموضوع الكورس بآراء مؤلفي الكتاب المدرسي المستخدم في تلك الكورس.	1	2	3	4	5
37	I analyze the separate components of a theory step by step. أقوم بتحليل العناصر المنفصلة للنظرية خطوة بخطوة.	1	2	3	4	5
38	I try to map an overall picture of a course for myself. أحاول رسم صورة شاملة للكورس بنفسي.	1	2	3	4	5
39	I repeat the main parts of the subject matter until I know them by heart. أكرر الأجزاء الرئيسية من الموضوع حتى أعرفها عن ظهر قلب.	1	2	3	4	5
40	I try to discover the similarities and differences between the theories that are dealt with in a course. أحاول اكتشاف أوجه التشابه والاختلاف بين النظريات التي يتم تناولها في الدورة التدريبية.	1	2	3	4	5
41	I do not move to the next chapter until I have mastered the present chapter in details. لا أنتقل إلى الفصل التالي حتى أتقن الفصل الحالي بالتفصيل.	1	2	3	4	5
42	I memorize definitions as literally as possible. أحفظ التعريفات حرفيا قدر الإمكان.	1	2	3	4	5
43	I try to interpret events in everyday reality with the help of the knowledge I have acquired in a course. أحاول تفسير الأحداث في الواقع اليومي بمساعدة المعرفة التي اكتسبتها في الكورس.	1	2	3	4	5
44	I pay specific attention to those parts of a course that have practical use. إنني أولي اهتمامًا خاصًا للأجزاء العملية من الدورة التدريبية.	1	2	3	4	5

45	I try to be critical of the interpretations of experts. أحاول أن أنتقد تفسيرات الخبراء.	1	2	3	4	5
46	I study according to the instructions given in the study materials or provided by the teacher. أنا أدرس حسب التعليمات الواردة في المواد الدراسية أو التي يقدمها المعلم.	1	2	3	4	5
47	In addition to the syllabus, I study other literature related to the content of the course. بالإضافة إلى المنهج الدراسي ، أقوم بدراسة المؤلفات الأخرى المتعلقة بمحتوى الدورة.	1	2	3	4	5
48	When I start reading a new chapter or article, I first think about the best way to study it. عندما أبدأ في قراءة فصل أو مقال جديد ، أفكر أولاً في أفضل طريقة لدراسته.	1	2	3	4	5
49	I realize that it is not clear to me what I have to remember and what I do not have to remember. أدرك أنه ليس من الواضح بالنسبة لي ما يجب أن أتذكره وما لا يجب أن أتذكره.	1	2	3	4	5
50	If I do not understand a study text well, I try to find other literature about the subject concerned. إذا لم أفهم نصًا دراسيًا جيدًا ، أحاول العثور على مؤلفات أخرى حول الموضوع المعني.	1	2	3	4	5
51	I use the directions and the course objectives given by the teacher to know exactly what to do. أستخدم التوجيهات وأهداف الدورة التي قدمها المعلم لمعرفة بالضبط ما يجب القيام به.	1	2	3	4	5
52	When I have difficulty grasping a particular piece of subject matter, I try to analyze why it is difficult for me. عندما أجد صعوبة في استيعاب موضوع معين ، أحاول تحليل سبب صعوبة ذلك بالنسبة لي.	1	2	3	4	5
53	I test my learning progress solely by completing the questions, tasks and exercises provided by the teacher or the textbook. أختبر تقدمي في التعلم فقط من خلال إكمال الأسئلة والمهام والتمارين التي يقدمها المعلم أو الكتاب المدرسي.	1	2	3	4	5
54	I notice that the study instructions that are given are not very clear to me. ألاحظ أن تعليمات الدراسة المقدمة ليست واضحة جدًا بالنسبة لي.	1	2	3	4	5
55	To test my learning progress when I have studied a textbook, I try to formulate the main points in my own words. لاختبار تقدمي في التعلم عندما أدرس كتابًا مدرسيًا ، أحاول صياغة النقاط الرئيسية بكلماتي الخاصة.	1	2	3	4	5
56	I add something to the subject matter from other sources. أقوم بإضافة شيء إلى الموضوع من مصادر أخرى.	1	2	3	4	5
57	I learn everything exactly as I find it in the textbooks. أتعلم كل شيء بالضبط كما أجده في الكتب المدرسية.	1	2	3	4	5
58	I believe that the introductions, objectives, instructions, assignments and test items given by the teacher are necessary guidelines for my studies. أعتقد أن المقدمات والأهداف والتعليمات والواجبات وعناصر الاختبار التي قدمها المعلم هي إرشادات ضرورية	1	2	3	4	5

	لدراستي.					
59	I realize that I miss someone to depend on in case of difficulties. **أدرك أنني أفتقد شخصًا أعتمد عليه في حالة الصعوبات.**	1	2	3	4	5
60	If I am able to complete successfully all the assignments, I believe that I fully understand the course. **إذا تمكنت من إكمال جميع المهام بنجاح ، فأنا أعتقد أنني أفهم الدورة التدريبية تمامًا.**	1	2	3	4	5

Annex 4: The SEI in English and Arabic

Student Engagement Instrument (SEI)

College Version

The Student Engagement Instrument (SEI) is a brief 33-item self-reporting survey that measures students' cognitive and emotional engagement in their education. It consists of statements that depict your emotional connections and the mental aspects of your engagement.

Important

Read each statement carefully and then indicate to what extent it applies to you by circling the relevant number.

Statement	Strongly Disagree لا أوافق بشدة	Disagree تعارض	Agree يوافق	Strongly Agree موافق بشدة
1. My family are there for me when I need them. عائلتي موجودة من أجلي عندما أحتاج إليهم.	1	2	3	4
2. After finishing my assignments, I check it over again to see if it is correct. بعد الانتهاء من مهامي ، أتحقق منها مرة أخرى لمعرفة ما إذا كانت صحيحة.	1	2	3	4
3. My teachers and professors are there for me when I need them. معلمينى وأساتذتي موجودون من أجلي عندما أحتاج إليهم.	1	2	3	4
4. Other students here accept me the way I am. يقبلني الطلاب الآخرون هنا كما أنا.	1	2	3	4
5. Teachers and staff at my university listen to the students. يستمع المعلمون والموظفون في جامعتي إلى الطلاب.	1	2	3	4
6. Other students at university care about me. الطلاب الآخرون في الجامعة يهتمون بي.	1	2	3	4
7. Other students at my university are there for me when I need them. الطلاب الآخرون في جامعتي موجودون من أجلي عندما أحتاجهم.	1	2	3	4
8. My education will create many future opportunities for me. سيجعل تعليمي العديد من الفرص المستقبلية بالنسبة لي.	1	2	3	4
9. Most of what is important to know, you learn at university. معظم ما هو مهم أن تعرفه هو أن تتعلمه في الجامعة.	1	2	3	4
10. The university rules are fair.	1	2	3	4

قواعد الجامعة عادلة.				
11. Continuing my education after this university is important. من المهم مواصلة دراستي بعد هذه الجامعة.	1	2	3	4
12. When something good or bad happens at university, my family wants to know about it. عندما يحدث شيء جيد أو سيء في الجامعة ، فإن عائلتي تريد أن تعرف عنه.	1	2	3	4
13. Most teachers and professors at my university are interested in me as a person, not just as a student. يهتم معظم المعلمين والأساتذة في جامعتي بي كشخص وليس كطالب فقط.	1	2	3	4
14. Students here respect what I have to say. الطلاب هنا يحترمون ما يجب أن أقوله.	1	2	3	4
15. When I have assignments, I check to see to if I understand what I am doing. عندما يكون لدي مهام ، أتحقق لمعرفة ما إذا كنت أفهم ما أفعله.	1	2	3	4
16. Overall, my teachers and professors are open and honest with me. بشكل عام ، معلمينى وأساتذتي منفتحون وصادقون معي.	1	2	3	4
17. I plan to continue my education after the university. أخطط لمواصلة دراستي بعد الجامعة.	1	2	3	4
18. College is important for achieving my future goals. الكلية مهمة لتحقيق أهدافي المستقبلية.	1	2	3	4
19. When I have problems at university, my family are willing to help me. عندما أواجه مشاكل في الجامعة ، فإن عائلتي مستعدة لمساعدتي.	1	2	3	4
20. Overall, teachers and staff at my college treat students fairly. .	1	2	3	4
21. I enjoy talking to the teachers here. أنا أستمتع بالتحدث إلى المعلمين هنا.	1	2	3	4
22. I enjoy talking to the students here. أنا أستمتع بالتحدث إلى الطلاب هنا.	1	2	3	4
23. I have some friends at university. لدي بعض الأصدقاء في الجامعة.	1	2	3	4
24. When I do well in university, it is because I work hard. عندما أبلي بلاءً حسناً في الجامعة ، فهذا لأنني أعمل بجد.	1	2	3	4
25. The exams in my classes are a good tool of evaluating my skills. الامتحانات في فصولي هي أداة جيدة لتقييم مهاراتي.	1	2	3	4
26. I feel safe at university. أشعر بالأمان في الجامعة.	1	2	3	4
27. I feel like I want to share with others what happens to me in university. أشعر أنني أريد أن أشارك الآخرين ما يحدث لي في الجامعة.	1	2	3	4
28. My family want me to keep trying when things are tough at university.	1	2	3	4

أسرتي تريدني أن أستمر في المحاولة عندما تكون الأمور صعبة في الجامعة.				
29. I am hopeful about my future. أنا متفائل بشأن مستقبلي.	1	2	3	4
30. At my university, teachers and professors care about students. في جامعتي ، يهتم المعلمون والأساتذة بالطلاب.	1	2	3	4
31. Learning is fun because I get better at something. التعلم ممتع لأنني أتحسن في شيء ما.	1	2	3	4
32. What I am learning in my classes will be important in my future. ما أتعلمه في صفي سيكون مهمًا في مستقبلي.	1	2	3	4
33. My grades reflect what I'm able to do. تعكس درجاتي ما يمكنني القيام به.	1	2	3	4