

Abstract

The present thesis entitled *Cognitive-Emotional Configuration in pupils with high abilities* is divided into two sections; the theoretical section and the empirical section. The theoretical review has three chapters which follow the typical structure of this type of research.

Within the first chapter the researcher thought of interest to include the different giftedness' models: from the classical models of Marland (1972) and Renzulli (1978), to the more present approaches of professor Castello (Castelló and Batlle, 1998); who proposed a very specific typology to understand the cognitive complexity of the gifted or/and talented.

A section of the research has focused on the two approaches within the field of high abilities which have been more studied and criticised since the 80s. These approaches are the Triarchic intelligence by Robert Sternberg (1982) and the Multiple Intelligences proposed by Gardner (1983).

In the first chapter, the researcher has included the approach used in the UK for the study and educational provision of gifted pupils. This approach includes the identification criteria, the general procedures followed with the diversity of gifted, and some national initiatives such as institutions or associations interested in giftedness, which the researcher had the opportunity to visit during her stay in the United Kingdom (University of Warwick academic course 2004-2005).

The second chapter focuses on the analysis of different research projects that aimed to study the personality traits of gifted pupils, establishing different comparisons with non gifted pupils. The studies carried out regarding problems in social adjustment and the different and often contradictory results are also enclosed. For example, there are studies which support the idea that gifted pupils, specially extremely gifted pupils have greater problems of social adjustment; while other

studies contradict this and suggest that gifted pupils have in fact a normal adjustment when compared to non gifted. However, there seems to be a consensus and a certain empirical support that suggests pupils with high verbal talents have poorer social relationships than pupils with mathematical talents.

The researcher has synthesised the monographic entitled Social, Emotional issues, Underachievement of gifted and talented students (Moon, 2004). This has allowed her to analyse the different studies both quantitative and qualitative which emphasise the different variables of adjustment problems, relations between equals, depression, stress, anxiety and loneliness.

The third chapter focuses on the study of emotional intelligence in relation to giftedness. The classical studies of Dabrowski and Piechowski (1977) are put forward, which suggest a certain social and emotional imbalance. Also, the studies by Terman are discussed, who by the 1920s, began a series of research studies aiming to evaluate the social and personal balance of individuals identified as gifted. The pioneering work of Terman et al. (Burks, Jensen and Terman, 1930; Terman, 1925; Terman and Oden, 1947) and, later on Hollingworth (1942) concluded that individuals with cognitive abilities above average also obtained superior averages in physical and social aspects and psychological balance.

When the theory of emotional intelligence by Goleman (1995) came to life, a series of studies were carried out aiming to design evaluation instruments of emotional intelligence which included social intelligence and imbalance problems. The researcher will comment on the different theories and instruments which are used to evaluate the emotional intelligence; such as those by Bar-On (1997, 200 and 2004), or Mayer and Salovey (1997).

The last section of the chapter entails the analysis of the three biggest scientific studies about emotional intelligence and giftedness. It seems of interest to comment in depth about studies hoping to better understand the emotional complexity which is suggested by the authors. However, these models have not been used in the present study, due to the unavailability of measure instruments. It must also be highlighted, that the researcher already has data about evaluation of emotional intelligence according to the models generated from 1990, which are dealt with in other studies.

The second section of this study includes three chapters referred to the identification process, the analysis of cognitive profiles in pupils identified as gifted or talented and the socio-emotional study of these pupils. Chapter four focuses on an in-depth description of the process of pre identification, where teachers play a fundamental role. It consists in a “screening” in order to select pupils who according

to teacher's judgements comply with the characteristics by Renzulli related to creativity, high achievement and task commitment.

This first screening allowed the researcher to select pupils who complied with the requirements previously mentioned and to initiate a study of the cognitive and creative profiles of these pupils, using BADyG (Battery of Differential and General Aptitude (Yuste, Martínez and Gálvez, 1998; Yuste, 2001) and the TTCT (Test of Creative Thinking, Torrance 1974). As well as the study of each profile and the characteristics of the different talents, the researcher has also included some guidance for intervention. The sample of participants is described and it is analysed with regards to gender, age and education level. The different instruments used in the study are described and also the techniques used for data analysis.

The fifth chapter focuses on the analysis of results from the empirical study. Teachers' perceptions with regards to high ability pupils which refer to motivation, creativity and achievement are commented on. Pupils' profiles that have been identified as gifted and/or talented are described, according to the typology previously mentioned. The different profiles have allowed the researcher not only to define a simple proposal for the study of the cognitive configuration of high abilities, but also to devise some action points.

The sixth chapter entails the analysis of data from the study regarding characteristics of emotional intelligence, personality, adaptation and socialisation. This chapter has two objectives: a) to present results from the descriptive analysis regarding the characteristics previously cited and b) to present results from the inferential analysis to study the differences of these characteristics with regards to the education level, gender and type of exceptionality (giftedness and/or talented).

Empirical work

The objective is to study the cognitive-emotional configuration of pupils with high abilities from the Community of Murcia in order to produce a framework for a suitable educational response according to the cognitive profile of pupils.

Empirical Objectives

1. To analyse the efficacy of observations' scales for teachers in the identification of gifted pupils.
2. To identify pupils with high abilities from the different schools of the region of Murcia.

3. To study and characterise the typology that pupils identified as having high abilities belong to, according to the theoretical model followed.
4. To explore and describe personality traits, emotional intelligence, socialisation and adaptation (personal, school, social and family) of pupils with high abilities.
5. To analyse personality traits, emotional intelligence, socialisation and adaptation (personal, school, social and family) of pupils with high abilities with regards to gender, education cycle and intellectual profile.

Method

The objective is to describe the sample of pupils and education centres that have contributed in the research. The instruments and their characteristics are analysed.

Sample

The participants invited to take part in the first screening were teachers and pupils of 467 schools in the region of Murcia (372 state schools and 95 private schools). Such schools had 123.616 pupils enrolled, (37.236 in nursery education and 86.380 in primary education).

The participants with whom we start our study are 505 who after a process of screening are reduced to 187 pupils; 129 boys and 58 girls. Their ages are between 5 and 12, with 92% of them attending primary education and 8% attending the 3rd level of nursery.

Instruments

The main objective is to describe different the instruments used in this study. We have several phases in the research.

Phase First: Preidentification

Teacher's Checklist

Teachers' nomination scale is based on Renzulli' theory, the main objective is to assess the three main characteristics of giftedness: Above average ability, task

commitment and Creativity. It is a Likert like scale, oriented to tutor teachers, made of 28 items: 10 items measures the characteristics referred to the inherent motivation (for example: gets involve in what really interest him, he/she is persistent in doing the task); 10 items value the general delivery (for example: includes concepts and numeric relations to advanced for his/her age; has a rich and elaborated vocabulary); 8 items oriented to evaluate the creativity abilities, such as: fluency, flexibility, elaboration and originality (for example: generate great amount of ideas, solve unusual problems through different approaches). This teacher's nomination scale is based on Renzulli theory.

The teachers answered the items with answers ranging from 1 to 4, representing the characteristics of variability in the following answers: 1) In complete disagreement or never happen what is part of the item, 2) In some disagreement or almost never happen what is part of the item, 3) In big agreement or almost happening what is part of the item, 4) In full agreement or always happen what is part of the item.

The results show that the checklist includes the psychometric characteristics required for this kind of instruments: of Cronbach equal to .90 (Prieto, Parra, Ferrándiz and Sánchez, 2004).

Kaufman's Test of Intelligence (K-BIT)

It is a brief, individually administered screener of verbal and nonverbal. The scales have some benefits, that is: is quick, easily administered by a wide range of personnel and nonverbal test is ideal for non-readers, the hearing impaired and learning disabled. A well-respected, popular measure of verbal and nonverbal intelligence. Quick and easy to use, the Kaufman Brief Intelligence Test (K-BIT) provides results you can count on. By measuring two distinct cognitive functions through two subtests, K-BIT gives a balanced assessment.

Vocabulary and Matrices Subtests:

The Vocabulary Subtest (Verbal) contains Expressive Vocabulary and Definitions. It measures crystallized thinking-knowledge of words and their meanings.

The Matrices Subtest (Nonverbal) measures fluid thinking-the ability to solve new problems through perceiving relationships and completing analogies.

All Matrices items contain pictures and abstract designs rather than words so nonverbal ability can be assessed even when language skills are limited. And if there is a significant disparity between verbal and nonverbal scores, K-BIT provides valuable

insight. For example, a low score on Verbal and a high score on Nonverbal might suggest a language problem rather than low intelligence. Convenient, fast administration.

As with other intelligence tests, someone with expertise must interpret K-BIT. But because administration and scoring are simple and objective, a trained professional or paraprofessional can give the test in just 15 to 30 minutes. All test items and responses are contained in a handy easel.

Meets a wide range of needs:

- Obtaining a quick estimate of intelligence.
- Estimating an individual's verbal versus nonverbal intelligence
- Re-evaluating the intellectual status of a child or adult who previously received thorough cognitive assessment
- Screening to identify students who may benefit from enrichment or gifted programs
- Obtaining a quick estimate of the intellectual ability of adults in institutional settings, such as prisons, group homes, rehabilitation clinics, or mental health centres

Second Phase: Identification

IQ test

For the identification, we have used two tests which have allowed us to identify pupils with high abilities: for the cognitive area we have used the Battery of Differential and General Aptitudes (BADyG) and for creativity, we have used the Torrance Test of Creative Thinking, which we proceed to describe.

The aim of the Intelligence Test (BADyG) is to assess the following abilities: mental ability non verbal, numeric quantitative concepts, reasoning with figures, information, puzzles, graphic vocabulary, audio perception or word reproduction and perception, and coordination motor graph, analogical relations, numeric problems, logical matrixes, numerical calculus, complex verbal orders, rotated figures, immediate memory, alterations in writing and discrimination of differences (Yuste et al., 2001). This test allow us to find out the IQ referred to the general intelligence of the pupils,

also partial scores regarding verbal factors, numerical factors, spatial factors and logical factors.

The Torrance Test of creative thinking

The objective of the TTCT is to evaluate the creativity of children and adolescents. This test entails two subtests, (verbal and figurative) each of which has two forms (A and B). Pupils give different responses to verbal and figurative stimulus; these are marked according to the fluency (number of ideas); flexibility (variety in the perspectives represented in the ideas); originality (statistical infrequency) and elaboration (of ideas beyond what is required by the stimulus). In the present study we have used the test of figurative expression which aims to evaluate the level of imagination through drawings. It entails three subtests: a) compose a drawing, b) finish a drawing and c) compose different drawing parting from parallel lines (Torrance, 1974).

In the first of the subtest (composing a drawing), the child is asked to carry out a drawing parting from a given form which consist in a colored and adhesive piece of paper. We must mention that if the child does not give a title to his/her drawing, this will not be given a score. The objective is to give a finality to something which previously had no finality. The abilities evaluated with this first subtest are: a) originality, which consists in considering novelty responses, no familiar and unusual; and b) elaboration, referring to the quantity of detail which the child has added to his/her drawing to make it prettier.

The second subtest, finishing a drawing consist in drawing 10 pictures from some given outlines, these drawings must be given a title. In this case we evaluate elaboration (the number of details added to the drawing), originality (unusual, unconventional responses), flexibility (variety of categories in the responses) and in a lesser degree, fluency (number of drawings finished and with a given title).

The third and last subtest, parallel lines, consists of 30 pairs of parallel lines. The objective is to carry out as many drawings as possible using the 30 pairs of lines. It measures the fluency (aptitude to make multiple associations from a single stimulus); flexibility, originality and elaboration (Torrance, 1974, 1984).

*Third Phase***Early School Personality Questionnaire (ESPQ)**

Early School Personality Questionnaire (ESPQ) is a personality test designed for children ages 6-8. It was developed using Raymond Cattell's factor analytic techniques and may be used to diagnose emotional and conduct disorders, and provide information to teachers about emotional factors that affect classroom performance for individual students. The test may be administered in groups and is made up of 160 multiple choice questions with two response options each that ask the child to identify what his response would be in various situations, specify preferences for leisure activities, and describe his emotional responses. The resulting personality profile is broken down into the following thirteen scales: Reserved vs. Warmhearted; Dull vs. Bright; Affected by Feelings vs. Emotionally Stable; Undemonstrative vs. Excitable; Obedient vs. Dominant; Sober vs. Enthusiastic; Disregards Rules vs. Conscientious; Shy vs. Venturesome; Tough-minded vs. Tender minded; Vigorous vs. Doubting; Forthright vs. Shrewd; Self-assured vs. Guilt-prone; and Relaxed vs. Tense. Finally, scores on the thirteen factors are collapsed into four second-order factors: Extraversion, Anxiety, Tough Poise, and Independence (Coan and Cattell, 1990) .

Children's Personality Questionnaire (CPQ)

The Children's Personality Questionnaire (CPQ) is a standardized personality measure for children ages 8-12. It was designed to help educators identify children in need of special help, to increase the accuracy of estimates of scholastic promise and creativity, to assess candidates for s cholarships, to aid school and occupational counsellors as they guide individuals towards a career, and to measure the success of treatment programs on troubled children. The questionnaire targets 14 dimensions of personality taken from a factor analysis of personality performed by Porter and Cattell (1950, 1990). High-achieving students had higher scores on emotional stability, venturesome ness, and self-confidence. This questionnaire assesses the same factors than the ESPQ.

Adaptation Test

The objective of the questionnaire is to value the following factors: a) personal disarrange, aiming to value pessimistic thoughts of the individual and the degree of neuroticism; lack of adaptation at school, aiming to value the lack of adjustment at school; c) lack of adaptation in the family, aiming to value the interactions and social

relations within the family; and d) lack of adaptation socially which aims to value the difficulties encountered by the pupil in establishing social relationships within the school context (Hernández and Hernández, 2002).

Aptitudes Socialization Battery

The objective is to study parents and teachers' perceptions in relation to their children and pupils. The dimensions evaluated are: leadership, joviality, social sensitivity, self control respect, stubbornness- aggressiveness, apathy- withdrawal, anxiety-shyness and social (Silva and Martorell, 1989)

Leadership; it detects aspects of leadership in a positive connotation, adaptive and agglutinating.

Social sensitivity; evaluates the degree of consideration and preoccupation of the person towards others, in particular towards those with problems of rejection and who feel are left behind.

Self-control-respect; sense of responsibility and self-criticism are valued, and generally assuming a mature role in interpersonal relationships.

Aggressiveness-stubbornness, it detects various aspects of imposing conduct, disturbed and often antisocial.

Apathy-withdrawn; it appreciates social withdrawal, introversion and in some extreme cases, isolation.

Anxiety-shyness; it measures various aspects related to anxiety and shyness in social relationships.

Socialization scale; *it* offers a global vision of the social adaptation degree of the pupil according to parents and teachers' judgements.

Emotional Intelligence Questionnaire

The objective of the Emotional Intelligence Questionnaire by Chiriboga and Franco (2002) is to value the following dimensions: self-control; empathy, and social abilities.

Self awareness: it is the ability to recognise and understand ones own strengths, weaknesses, state of mind, emotions and impulses, and also to understand the effect that these might have in others.

Self-control: it is the ability to control ones own emotions and impulses to adequate them to ones objective, the ability to be responsible for ones own acts, the ability to think before acting and avoiding premature judgements.

Emotional exploitation: it is the ability to be in a state of continues search and persistence of objectives, facing problems and finding solutions.

Empathy: it is the ability to understand the needs, feelings and problems of others, putting oneself in their places, also the ability to respond correctly to emotional reactions.

Social abilities: it is the ability to manage relationships with others, being able to persuade and influence others.

Results

In total there were 187 pupils with high abilities detected in the screening phase carried out by teachers. However, 25 pupils are not recorded when the psychometric tests are applied (Battery of General and Differential Aptitudes, BADyG, Yuste, Martínez and Gálvez, 1998 and Test of Creative Thinking of Torrance, 1974). So, the total amount of Gifted and Talented (G and T) are 162 pupils.

With regards to the simple talent, we must highlight that mathematical talent had the highest number 21 pupils with such a talent, had high representation resources and they had great ability to manipulate quantitative and numerical information. Mathematical talent is a combination of the willingness to experiment, and persistence; it is not merely a skill in manipulation. By working on problems, this talent can develop their ability in both mathematical thinking and problem solving. This talent refers to an unusually high ability to understand mathematical ideas and to reason mathematically, rather than just a high ability to do arithmetic computations or get top marks in mathematics (Miller, 1990). When considering mathematical talent, many people place too much emphasis on computational skill or high ability in replicating taught mathematical procedures. So, our findings are according to the results obtained from the different researchers, who found the following characteristics: an intense curiosity about numeric information; an unusual quickness in learning, understanding, and applying mathematical ideas; a high ability to think and work abstractly and the ability to see mathematical patterns and relationships; an unusual ability to think and work with mathematical problems in flexible, creative ways rather than in a stereotype fashion; and an unusual ability to transfer learning to new, untaught mathematical situations (Stanley, 1977; Stanley, Keating, and Fox, 1974; Chang, 1985; Stanley and Benbow, 1986).

This talent was followed by the simple verbal talent three children who manifested the capacity of representation and manipulation of linguistic material; this aptitude can be applied to multiple areas of the school context. For example, verbal talent has a facility with language in its broad forms — reading, writing, speaking and listening. Among general behaviours, the verbal talented manifestations are: children read well, they read avidly and at an advanced level in comparison to others of their age. They often read early—arriving at school already well ahead of their classmates and eager to continue their progress rather than be slowed down by a curriculum that delivers small measured bites of reading. Verbally talented children also have an advanced vocabulary that is evident in their writing, and this vocabulary may also manifest itself in the children's oral language, sometimes resulting in teasing, but often alerting other bright students to commonalities (Gardner, 1983; Benbow and Minor, 1990; Castelló and Batlle, 1998; Thompson and Thompson, 1996; Thompson, 2002).

Creative talent is reflected in four children, these pupils give unusual solutions to problems and their productions are original and productive (Prieto, Parra, Ferrando, Ferrándiz, Bermejo and Sánchez, in press). Within the simple talent there are two children corresponds to the logical talent; they show an extraordinary potential for reasoning and for working processing and representing ambiguous and diffuse information. Finally, one child shows the profile of the simple spatial talent, he shows great capacity to perceive internal and external images, to transform them, modify them and to decode graphic information (Prieto, Ferrnado, Sánchez, Bermejo and Parra, in press).

With regards to multiple talents, they were twenty three pupils identified. This type of talent is the result of the combination of two or more simple talents (for example verbal-mathematical, creative-logical or any of the possible combinations). Pupils' intellectual aptitudes and performance was very high. Depending on the areas in which they stand out we could have somebody with a verbal-mathematical talent whose high capacity of recourses could be reflected on their linguistic ability and on the tasks that involve working with numbers, representations and complex reasoning.

With regards to complex talents, we have found nine figurative talents, which manifest a great capacity for logical reasoning and for activities that require visual spatial representation. For example, logical talent shows critical thinking, which involves a number of processes: seeking clarity, establishing and making inferences and relationships methodologically; taking into account the total situation; being open minded; having things clear and seeking clarity; dealing in an orderly manner with parts of a complex whole, seeking alternatives. The cognitive configuration is very similar to the creative talent, but the logical talent works with higher resources; with

the influence of both the cultural and scholastic parameters. In regards to academic situations we can emphasise that logical talent almost certainly succeeds if the task implies or uses deductive and inductive reasoning, and of course the manipulation of abstract concepts that require a precise definition. They reject ambiguous or opened-ended situations, thus they display a certain mental rigidity when they apply it to the norms or rules; this rigidity leads to difficulties in social interaction. Academically, it doesn't present any problems of importance, but the difficulties that they may meet in their peer group are because of this lack in the ability to respond to rules and norms (Castelló and Batlle, 1998).

Within the category of complex talent, we have also found sixteen pupils show who academic talent, with verbal type aptitudes, logical and memory process; all of this abilities that are promoted in the school context. For example, the academic talent produces high quality outcomes; shows intense interest to specific topics; demonstrates advanced-sophisticated knowledge; learns easily and shows a high mental organisation (Castelló and Batlle, 1998; Flanagan and Arancibia, 2005).

The type of talent which was predominant was the conglomerated talent (seventy two children). We could have different combinations of complex and simple talents and/or multiple ones (some of the combinations could be as followed: complex talent academic-talent simple creative, complex talent figurative-talent simple mathematical, artistic complex talent figurative-talent simple verbal). These types of talents show extraordinary abilities in the majority of their intellectual resources, in the typology previously presented the scores obtained in the different psychometric tests can be observed.

We must finally highlight that the gifted pupils were eleven children. These pupils show great abilities regarding utilizing their cognitive resources. The percentage is low because giftedness requires generality and having high capacities to use them in different areas or fields, whereas talent implies specificity and this requires having high abilities within a field or concrete area of knowledge. The cognitive profile of our gifted children is their high level of flexibility, this means that they have an enormous capacity to manage and process any type of information. They enjoy complex tasks and situations that imply utilising different intellectual resources. They are students that take a delight in both complex as well as abstract tasks which require using different resources. In the regular school or classroom the gifted do not get very high performance results, because they have their own interests and motivations, that are not always the same as those asked for by the standard education system. The gifted, are students that rarely have interaction problems, because they manage both their

social and emotional intelligence very well (Castelló and Batlle, 1998; Prieto, Parra, Ferrando, Ferrándiz, Bermejo and Sánchez, C. in press)

TYPOLGY		5 years	6-8 years	8-10 years	10-12 years	
Simple talents	Verbal talent			3		
	Mathematical talent	2	11	3	5	
	Logical talent		1		1	
	Creative talent		3		1	
	Spatial talent			1		
Multiple talent			9	5	9	
Complex talents	Figurative talent	3	5	2	1	
	Academic talent	2	2	10	2	
Conglomerated Talent		6	21	27	17	
Gifted		1	8	1	1	
Non exceptional : Selected by teacher nomination or K-bit But Not selected by IQ test or Creative test		1	10	6	8	25
TOTAL		15	70	58	44	187

With regards to emotional intelligence, the data shows that the levels of emotional intelligence are high. There is no difference between genders or with regards to the cognitive profile of children (talented and gifted). There are neither differences with regards to education level.

The data regarding personality factors show punctuation within the average. There are significant differences with regards to the education cycle and the typology. For example, in the nursery cycle pupils show a tendency towards the simple pole whereas pupils from primary are situated in the opposite pole which is called astute; gifted pupils have a higher punctuation than those with simple talents.

Significant differences by gender can be appreciated, girls tend to be situated towards the poles (enthusiastic, enterprising, extrovert and excitable), and boys in the

contrary tend to be situated towards negative poles (temperate, embarrassed, introversion and calm).

With regards to the adaptation of the pupils, the data shows they are adapted. Results from the statistic analysis suggest there is no significant difference according to gender or education cycle. However, there are differences which are statistically significant according to type of exceptionality, which suggest that gifted pupils have superior punctuation with a tendency to have a lack of adaptation.

With regards to parents' perception of their children socialisation we must highlight the following:

- a) Parents manifest a different perception according to exceptionality (gifted and/or talented). Conglomerated (multiple) talents are perceived as more sociable than single talents.
- b) Parents have a different perception according to gender only in the following variables: leadership, social sensitivity and self-control respect. Differences favour girls.
- c) The data indicates that parents do not perceive socialisation different when referring to the education cycle.

With regards to teachers perception of pupils' socialization the following must be highlighted:

- a) Teachers do not perceive socialization to be different depending on the intellectual profile of pupils (gifted and/or talented)
- b) Teachers do not show differences in their perception regarding socialisation according to educational cycle.
- c) Teachers have different perceptions with regards to gender in the following variables: joviality, social sensitivity, self-control respect, and apathy-withdrawal and anxiety shyness. These differences favour girls.

And finally we make some conclusions. The results of the study allow us to make the following conclusions:

First, the model used in the identification is useful and rigorous. It is the first time that for the identification of gifted, the Region of Murcia has used a sole model adapted to a common language.

Secondly, the model and exhaustive analysis carried out of gifted and talented pupils allow us to establish some intervention actions for teachers:

- a) For gifted pupils, teachers should consider complex and abstract tasks that should involve the use of creativity in the different dimensions: flow, flexibility, originality and elaboration. These pupils did not present important problems but their cognitive complexity could evolve into motivational problems.
- b) For academic talents, teachers should consider topics and tasks of curriculum breadth; as their learning rhythm can be very high. Also, the teacher should take into consideration possible interaction problems within the classroom.
- c) For artistic-figurative talents, teachers should include tasks that entail the use of representation and/or expression abilities (Gardner, Feldman y Krechevsky 1998; Gagné, 1991; Castello and Batlle, 1998).
- d) For verbal talents, activities should be directed towards information access that requires codifying and decoding complex information (Campbell et al, 1996; Castello and Batlle, 1998; Prieto and Ballester, 2003).
- e) The intervention for mathematical talents should aim to provide complex activities and problems to satisfy the complex thinking of the mathematical talent (Stanley, Keating and Fox, 1974; Bartkovich and George, 1980; Chang, 1985, Castello and Batlle, 1998).
- f) With regards to logical talents, teachers should incorporate tasks related to the domain of conceptual categories, logical series: graphic, verbal and numerical, that requires a high level of abstraction (Armstrong, 1994; Weiner, 2000; Prieto and Ballester, 2003; Castelló and Batlle, 1098).
- g) The intervention for the creative talent should consider the six resources proposed by Sternberg: tasks that require the use of basic knowledge and redefinition of the activity, which also require the use of insight, following the intellectual styles, using also personality traits and motivation in high ability pupils; all of this should be considered within the context where the teacher favours creativity (Sternberg and Lubart, 1995; Bermejo, 1995).

Thirdly, with regards to emotional and personality problems the present study brings a theoretical and empirical framework which helps to explore in depth, the complex topic of personality traits and how these traits are manifested in high ability pupils. It is not clear whether gifted and talented pupils have specific personality problems; however, it would be necessary to enlarge the sample and perhaps explore more in depth the statistic results carried out.

Fourth, parents and teachers' perception with regards to the socialisation of their children/pupils, does not suggest the existence of disparity in criteria.

Finally, the researcher does not want to end the study without acknowledging the following: on one hand, the great help given by teachers who have pre identified with precision those pupils who stand out at school; on the other hand, it seems strange that the majority of the pre identified pupils are high achievers, as it has been noted a great number of academic talents.

The teacher has helped us to detect high ability pupils or it has been detected a great discrepancy between teachers and parents.

Generally, both parents and teachers perceive an optimal socialisation of high ability pupils who have been valued.