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Adaptation Analysis in Students With High Mathematical Ability: Preliminary Work in the Field of Giftedness

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ABSTRACT

This study focuses on the child adaptation processes of a group of 22 students who were identified in academic year 2011/12 as having high mathematical ability. The subjects' schooling and adaptation were tracked over six school years, with a specific psycho-pedagogical evaluation test in the final year to assess their adaptation via various analytical dimensions. The results demonstrate the influence of variables related to repeating school years and academic performance on adaptation. There was also evidence of the in-fluence of diagnoses of giftedness and the type of school on adaptation, but no influence related to gender or school environment. Monitoring students' educational transition is essential for their personal and academic futures. The most capable students should be part of a comprehensive approach to diversity and inclusion for all. The academic progress of the students in our sample indicates that there is educational practices must be improved for this student.

Keywords: high mathematical ability, adaptation, academic performance, gender

INTRODUCTION

We are immersed in a constantly changing society that requires its members to continually adapt. Changes in the economic and social model demand innovation, commitment, creativity and the ability to improve. Schools have a fundamental role in this challenge, encouraging their students' personal and academic progress from multidimensional approaches guided by generalizing what they learn into their day-to-day lives (Bolívar et al., 2017; Valle & Manso, 2013). Applying what students have learned into everyday life is a basic premise of competency-based learning (Ramírez-Díaz, 2020). It stands to reason that a competency-based training system should incorporate systems and methodologies which encourage that integration into student evaluation (Bizarro & Sucari, 2019; Fortea, 2019).

This competency work permeates all elements of the curriculum with a view to training individuals to function autonomously and freely in their social and cultural environment. In this regard, educational inclusion and attention to the diversity of students' abilities contribute to this integration and contextual adaptation. This means that one central tenet of pedagogical action considers the particularities and potentials of each student (García-Vallès, 2020). For the most capable students this is crucial, and educators should be aware of each student's context and how that affects their personal and social well-being (Secanilla, 2019a).

Students with high intellectual abilities require adapted and individualized school practices (Kim, 2016). As Jiménez and García-Perales (2013, p. 22) indicated, "they are a natural part of human diversity and need to be trained in an equitable school, with and for everyone, that is capable of promoting excellent performance". Consequently, schools should include specific actions in response to those students' distinctive characteristics (Almeida & Oliveira, 2010; Hernández & Gutiérrez, 2014; Rodríguez-Naveiras & Borges, 2020; Tourón, 2019), paying special attention to their inclusion and their progress throughout the different educational stages (Veas et al., 2018). These students' specific characteristics include psychological characteristics (Ramiro et al., 2016), including adaptive characteristics (Gómez-León, 2020), a fundamental construct for this study.

Child adaptation may be defined as (García-Perales, 2018, p. 139):

> The combination of factors affecting individuals' abilities to integrate and operate in the contexts surrounding them, considering their distinctive characteristics and any changing conditions that might arise requiring them to adapt to their new circumstances.

Satisfaction with one's own life helps to prevent adjustment disorders such as anxiety (García-Escalera et al., 2020), problems of self-esteem (Schoeps et al., 2019), and problems during adolescence that increase from the age of 12 to 18 years old (Pulido &

Herrera, 2019). Proper child adaptation affects children's physical, mental, and social well-being and with it how they think and act about their own lives, influencing their school performance (Obergriesser & Stoeger, 2015). Avoiding disorders requires a positive understanding of adolescence (Viejo et al., 2018), having education an important role in its prevention. Therefore, paying proper attention to these factors may help reinforce educational processes that are aimed at the overall development of students. In addition, appropriate integration of these students into the school helps them to adapt to the cognitive and social demands required (Rodríguez-Fernández el al., 2016) producing better school performance (Raasch et al. 2016).

In Spain, the regulatory framework for education aims to ensure students' comprehensive development. At the national level the legislation for the improvement of educational quality [Ley Orgánica 8/2013, 9th December, para la Mejora de la Calidad Educativa (LOMCE)] states that "educational administrations will have the necessary means for all students to achieve maximum personal, intellectual, social and emotional development" (Ministerio de Educación, Cultura y Deporte, 2013, p. 39), specifying that:

> Behind people's talents are the values that support them, the attitudes that drive them, the competencies that embody them, and the knowledge that builds them. The challenge of a democratic society is to create the conditions so that all students can acquire and express their talents, in short, the commitment to quality education as support for equality and social justice (Ministerio de Educación, Cultura y Deporte, 2013, p. 3).

The regional education legislation in Castilla-La Mancha, where this study took place [Ley 7/2010, 20th July, de Educación], stresses education which is adapted to all its citizens. More specifically, the regulations setting out the curriculum for compulsory and higher secondary education [Decreto 40/2015, 15th June], which is the educational stage our study participants were in, specifies the need to modify the elements of the curriculum "to the specific features of the social and cultural context of its citizens in order to adapt education as far as possible to their interests, needs, and expectations, with the aim of comprehensive student development" (Junta de Comunidades de Castilla-La Mancha, 2015, p. 18874). This conceptualization is similar to that existing in other Spanish regions.

Various studies have shown that the individualization of teaching and learning processes promotes educational inclusion and fuller student self-determination (Muñoz-Cantero et al., 2018). It is possibly more significant in secondary education, since sometimes the objective of adapting teaching goals to student "possibilities" is not achieved (Arnaiz & Martínez, 2018). Academic and professional decision-making is nurtured by modifying these processes be-tween levels and educational stages. Individualization is even more important in students with higher abilities, who in many cases "transit" through the education system without their potential being recognized. Only a very small percentage of students are identified as highly able, just 0.42% in 2017/18 in Spain as a whole and 0.14% in Castilla-La Mancha (Ministerio de Educación y Formación Profesional, 2021).

Our study aims to use an ex post facto quantitative approach to show the adaptation levels of 22 students who were diagnosed as having high mathematical ability in academic year 2011/12. Their academic progress was tracked over the subsequent six years, considering various personal and contextual variables. We had the following specific objectives:

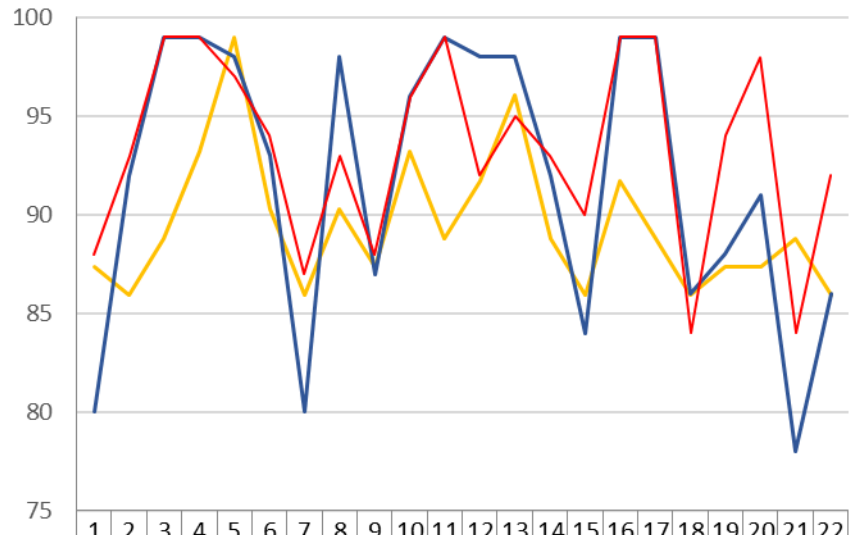
> Show the levels of child adaptation in students diagnosed with high mathematical ability (Multifactorial Self-Assessment Child Adaptation Test (TAMAI)).
>
> Examine the influence of personal variables (average academic performance, gender, diagnosed giftedness and repetition of school year) on these students' adaptation.
>
> Assess the influence of contextual variables (environment and type of school) on these students' adaptation.

METHOD

The sample consisted of 22 students who were in the 5th year of primary education, 10-11 years old, and diagnosed with high mathematical ability in the 2011/12 school year. They were selected from a stratified sample of 712 schoolchildren that was representative of the population in that level of schooling in the province of Albacete (Castilla-La Mancha, Spain), equivalent to 17.94% of that population.

High mathematical ability was determined using the Mathematical Competence Assessment Battery (BECOMA, scores in level 7: between 59 and 68 points) and the Differential and General Aptitudes Battery-E3 (BADyG-E3, mean percentile score of 92 and mean IQ of 141. None of the students who scored less than 59 points in the BECOMA test scored more than 80 in the BADyG-E3). Testing was replicated in 2017/18 using the BADyG-S (mean centile score of 89 and mean IQ of 134). In this academic year, 20 students were doing the first year of Baccalaureate (higher secondary education prior to university, usually at 17-18 years old) and two students were in the 4th year of Compulsory Secondary Education (Pre-Baccalaureate Education), all of the students were aged 16-17 years old. Fourteen of the students were boys (63.64%) and eight were girls (36.36%). At the two testing timepoints in the study, school years 2011/12 and 2017/18, none of the 22 students were taking part in enrichment programs, had flexible curricula, or other similar treatment.

The students' percentile scores in the three diagnostic instruments listed are shown in **Figure 1**, with the BECOMA score being given numerically. BADyG-E3 and BADyG-S were used to profile the selected sample through the BECOMA.



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
BECOMA	87	86	89	93	99	90	86	90	87	93	89	92	96	89	86	92	89	86	87	87	89	86
BADyG-E3	80	92	99	99	98	93	80	98	87	96	99	98	98	92	84	99	99	86	88	91	78	86
BADyG-S	88	93	99	99	97	94	87	93	88	96	99	92	95	93	90	99	99	84	94	98	84	92

Figure 1. Student percentile scores in the mathematical aptitude tests

The main study variables were:

- TAMAI test. The Multifactor Self-Assessment Child Adaptation Test is an instrument for assessing students´ levels of adaptation. It was applied in full and is explained in depth in the following section.
- Average Academic Performance. Likert scale with a score ranging from 1 to 5, equivalent to Fail: 1; Acceptable: 2; Good: 3; Notable: 4 and Outstanding: 5. Average academic performance was recorded in June 2018, average value of the entire academic year.
- Gender: Male or Female.
- Diagnosis of giftedness. Existence of a diagnosis by guidance counsellor attending the participating school: Yes or No.
- Repetition. The student has repeated a grade at least one school year: Yes or No.
- School environment: Urban or Rural.
- School type: Public (State-funded) or Private (concerted teaching, schools receive some state funding but have more academic independence than fully state-funded schools).

The instrument used to select the 22 students with high mathematical ability in school year 2011/12 was the Mathematical Competence Assessment Battery (BECOMA). The BECOMA test has 34 items with possible scores of 0, 1, and 2 divided between 6 factors:

1. Factor 1: Successions, 6 items (17.65% of the battery). This includes deducing a number sequence that follows a given pattern or training rule, in which the number order is important for the solution.
2. Factor 2: Graphical structuring, 9 items (26.47% of the battery). This consists of interpreting and organizing graphical information, identifying possible regularities and assessing their importance and the possibility of generalizing to other mathematical content.
3. Factor 3: Parts of the whole, 7 items (20.59% of the battery). This covers arithmetical calculations using numbers and measurements that can be split into parts such as units, dozens, hundreds, meters, centimeters etc.
4. Factor 4: Problem solving, 4 items (11.76% of the battery). These covers producing and solving problems based on given data involving higher mental abilities.
5. Factor 5: Ten, one hundred, one thousand, 5 items (14.71% of the battery). This includes segmentation of numbers into parts from natural exponent base 10 powers.
6. Factor 6: Decomposition and properties, 3 items (8.82% of the battery). This consists of appropriately organizing numbers using a variety of content and mathematical algorithms.

Table 1 shows the students' mean scores and standard deviation for each item and factor, in order to show the results based on the instrument structure .

Table 1. Mean and standard deviation in the BECOMA test from students at performance level 7

Factor/Items	M	SD
F1: Successions		
IT 14	2.00	.00
IT 15	1.95	.21
IT 16	2.00	.00
IT 17	2.00	.00
IT 18	1.59	.67
IT 19	1.41	.73
Total Factor	10.95	1.25
F2: Graphical structuring		
IT 1	1.86	.47
IT 2	1.55	.86
IT 3	1.95	.21
IT 4	1.91	.43
IT 12	2.00	.00
IT 13	2.00	.00
IT 28	1.27	.83
IT 29	1.77	.43
IT 30	1.82	.40
Total Factor	16.14	1.36
F3: Parts at all		
IT 20	1.91	.43
IT 21	1.82	.50
IT 22	1.91	.43
IT 23	2.00	.00
IT 24	1.86	.35
IT 25	1.91	.29
IT 26	1.64	.66
Total Factor	13.05	1.17
F4: Problem solving		
IT 31	2.00	.00
IT 32	1.91	.29
IT 33	1.86	.35
IT 34	1.41	.73
Total Factor	7.18	.96
F5: Ten, one hundred, one thousand		
IT 5	1.86	.47
IT 9	1.86	.47
IT 10	1.77	.43
IT 11	1.23	.61
IT 27	1.68	.65
Total Factor	8.41	1.10
F6: Decomposition and properties		
IT 6	1.86	.35
IT 7	2.00	.00
IT 8	1.86	.35
Total Factor	5.73	.63
Total Battery	**61.45**	**2.41**

Other instruments used in the study were:

- BADyG-E3 (applied in school year 2011/12) and BADyG-S (applied in school year 2017/18). Mathematical ability is measured by the Numerical Series (Rn) and Numerical Problems (Sn) subtests in both instruments. The subtests offer centile scores and IQ. We used scores and centile scores from both subtests, and calculated a mean score and mean centile. These instruments are psycho-pedagogical tests that offer cognitive profiles on general intelligence and numerical, verbal, spatial and logical factors, memory, attention and speed and efficiency in execution. Regarding its statistical validation, for the BADyG-E3, the Cronbach Alpha, Spearman-Brown and Guttman indices reached indices above .95; in the case of BADyG-S, above .93.
- Multifactor Children's Adaptation Self-Assessment Test (TAMAI). This is an instrument designed to evaluate the level of adaptation based on the following dimensions: General Maladjustment, Personal Maladjustment, School Maladjustment, Social Maladjustment, Family Dissatisfaction, Dissatisfaction with Siblings, Suitable Educational Style (Father), Suitable Educational Style (Mother), Educational Discrepancy, Pro-Image, and Contradictions (Hernández-Guanir, 2015). The questionnaire consists of 175 items completed in-person, the responses are graded online, producing a report of graphically represented results and establishing percentiles between 1 and 99 grouped in 7 intervals: very low (1-5), low (6-20), medium-low (21-40), medium (41-60), medium-high (61-80), high (81-95) and very high (96-99). The percentile scores from very low to medium indicate that there are no significant issues of adaptation, the remaining percentiles

Table 2. TAMAI test results

Student	IG	IP	IE	IS	IF	IH	EP	EM	DE	PI	CO
1	3	2	3	2	1	1	2	2	1	1	1
2	2	2	2	1	1	1	1	1	1	1	1
3	1	2	1	1	1	1	3	3	1	1	1
4	4	3	4	1	1	1	3	3	1	1	1
5	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	2	1	1	1	1	1	1	1
7	2	2	2	2	1	1	1	1	1	1	1
8	4	4	4	1	1	1	2	2	1	1	1
9	1	1	1	1	1	1	3	3	1	1	1
10	2	1	2	2	1	1	2	2	1	1	1
11	1	1	1	1	1	1	2	1	1	4	1
12	1	1	1	1	1	1	2	1	1	1	1
13	2	2	2	1	1	1	2	2	1	1	1
14	3	2	2	3	2	1	2	2	1	1	1
15	2	2	1	1	2	1	2	2	2	1	1
16	1	1	1	2	1	1	1	1	1	1	1
17	3	2	2	3	1	1	1	1	1	1	1
18	4	3	4	2	1	1	1	1	1	1	1
19	2	2	1	2	1	1	3	3	1	1	1
20	2	2	2	1	1	1	2	2	1	1	1
21	2	2	1	1	2	2	2	2	2	1	1
22	3	3	2	3	4	1	3	2	1	1	2

Note:

1. General Maladjustment (IG), Personal Maladjustment (IP), School Maladjustment (IE), Social Maladjustment (IS), Family Dissatisfaction (IF), Dissatisfaction with Siblings (IH), Suitable Educational Style (Father) (EP), Suitable Educational Style (Mother) (EM), Educational Discrepancy (DE), Pro-Image (PI) and Contradictions (CO).
2. Levels of maladjustment: None/low (1), Moderate (2), High (3), Very high (4).

indicate increasing levels of problems of adaptation. To make interpretation simpler, low to medium scores were grouped together as a score of 1 (no/low levels of maladjustment), and the remaining three groups were coded as 2 (medium-high: moderate levels of maladjustment), 3 (high: high levels of maladjustment), and 4 (very high: very high levels of maladjustment). In terms of statistical validation, Cronbach Alpha and the split-half method both gave results above .85 (Hernández-Guanir, 2015).

- Form tutor's record. Each group of students is assigned a tutor teacher who coordinates the operation and development of the tutorial and guiding action of their group. This document was completed by each students' form teacher and collected the students' average academic performance, gender, whether they had been diagnosed as gifted, whether they had repeated a grade, and the school environment and type.

Prior to the study, the schools were contacted and asked to participate. We also contacted the students' families, informed them of the study and requested their agreement for their children to participate. The necessary authorizations have been collected following the institutional ethical considerations demanded at the time of the research. The participants' anonymity and the confidentiality of the results was ensured.

RESULTS

The results are presented based on the study objectives: to show the levels of child adaptation in students diagnosed with high mathematical ability, to examine the influence of personal variables on these students' adaptation, and to assess the influence of contextual variables on the students' adaptation.

Child Adaptation in Students Diagnosed with High Mathematical Ability

Table 2 shows the results of the results of TAMAI test:

It is worth noting the results from the TAMAI test from the students who had repeated a grade, students 4 and 8. They exhibited very high levels of general, personal, and school maladjustment and, along with student 18, indicated the greatest problems of adaptation. Various students indicated issues related to their parents' educational styles. With fathers, this was due to being overly protective, characterized by manifestation of feelings of fear and over-protectiveness. In contrast, issues with mothers' educational styles were generally characterized by overly personalized education, with little autonomy or freedom, and a lack of ap-propriate rules. Students 1, 7, 14, 18, and 22, whose performance was graded as Notable, reported high levels of general, personal, school, and social maladjustment.

The students who had been diagnosed as gifted (students 5, 6 and 16) did not exhibit problems of maladjustment or issues related to their parents' educational styles. Only 2 of the 3 reported significant social maladjustment. Students 15 and 21 indicated discrepancies be-tween their mothers' and fathers' educational styles. Student 11 was also notable for their high pro-image score. In fact, she is a student with a naive self-sufficient personality and exaggerated optimism who is trusting and follows existing social

Table 3. Descriptive statistics for each dimension of the TAMAI test

Dimensions	Min	Max	M	SD	Asym	Kurt
IG	1	4	2.14	1.04	.55	-.74
IP	1	4	1.91	.81	.76	.64
IE	1	4	1.86	1.04	1.14	.34
IS	1	3	1.59	.73	.85	-.54
IF	1	4	1.27	.70	3.18	11.17

Table 4. ANOVA based on average academic performance

Dimensions	F	p	Post Hoc
IG	4.74	.02	5<3
IP	4.63	.02	5<3
IE	4.82	.02	5<3
IS	1.30	.30	---
IF	.52	.60	---

Table 5. Chi-square test for dichotomous variables

Dimensions	Gender		Diagnosis of giftedness		Repeat year	
	Value	p	Value	p	Value	p
IG	4.69	.20	7.44	.06	13.93	.00
IP	5.16	.16	7.44	.06	13.93	.00
IE	1.94	.58	4.17	.24	13.93	.00
IS	1.99	.37	2.09	.35	1.83	.40
IF	.63	.73	.77	.68	.49	.78

norms and structures to an extreme degree, characteristics that her teaching team confirmed. The only contradictory results were from student 22, who gave different responses about their mother's and father's educational styles. Finally, it is worth noting that 17 of the 22 students answered yes to item 28 ("I would like teachers to be different"), 18 of the 22 answered yes to item 41 ("I get bored in class"), and 15 answered yes to item 54 ("I am usually told that I am restless"). In contrast 15 of the 22 answered no to item 78 ("Study and work quite a bit"), while 16 responded no to item 80 ("Normally I am attentive and applied").

Descriptive statistics for the dimensions used for comparison with the other study variables are given in **Table 3**.

As **Table 3** shows, the higher maladjustment scores 3 and 4 appeared in all of the dimensions of the TAMAI test, indicating high and very high levels of adaptation problems. The dimension with the highest mean was general maladjustment with a mean score of 2.14 (SD = 1.04), whereas family dissatisfaction was the dimension with the lowest mean, at 1.27 (SD = .70).

The Influence of Personal Variables on Student Adaptation

In this study we considered average academic performance, gender, whether students had been diagnosed as gifted, and whether they had repeated a grade. All of the students who had been diagnosed as gifted were graded as Outstanding in all subject areas. The gender distribution of the students was 14 boys (63.64%) and 8 girls (36.36%). The academic performance of the two students who had repeated was graded as good. Only 3 of the 22 students were diagnosed as gifted, at performance level 7, which is 13.63%. Two of the students repeated, one in the first year of compulsory secondary education (ESO), and one in the second year, both repeating students were in the fourth and final year of ESO at the second study timepoint.

In order to compare the results from the TAMAI test with these variables, we used an ANOVA for the ordinal variable mean academic performance and the chi square statistic for the dichotomous variables: gender, giftedness diagnosis, and repeated a grade. **Table 4** gives the results of the ANOVA for average academic performance.

The data in **Table 4** indicates statistically significant differences between groups 3 (grades of Good) and 5 (grades of Outstanding), students with grades of Good exhibited greater problems of adaptation than those with grades of Outstanding. In general maladjustment, personal and school maladjustment the significance was .02. Based on the Bonferroni post hoc test, academic performance appears to have had a notable impact on adaptation at school, the better the academic performance, the lower the levels of personal and school maladjustment. In contrast, although the differences were not significant, the lower the academic performance the lower the social maladjustment. In addition, students whose performance was graded Notable demonstrated higher levels of adaptation than those whose performance was graded Good or Outstanding.

The results for the comparison with the dichotomous variables using chi square are given in **Table 5**.

Table 5 shows statistically significant differences in the repetition variable for the general, personal, and school maladjustment dimensions, with a p value in all three cases of .00. Looking more deeply into the significance, in general and school maladjustment, the two repeating students were in the highest level for maladjustment (only one non-repeating student appeared in this level), and in personal maladjustment, one of the repeaters was in level 3, and the other in level 4 (there were 2 non-repeating students in level 3 and none in level 4). It is worth noting how close to significance the values for a diagnosis of giftedness were for the general and personal maladjustment dimensions, with p values for both of .06.

Table 6. Chi-square test for dichotomous variables

Dimensions	Environment		Type school	
	Value	p	Value	p
IG	3.85	.28	2.34	.50
IP	2.20	.53	2.93	.40
IE	3.85	.28	.52	.91
IS	1.83	.40	2.84	.24
IF	.49	.78	13.93	.00

The Influence of Context Variables on Student Adaptation

The context variables we considered were school environment and type. Twenty of the students were in urban schools (90.91%) while only 2 (9.09%) were in rural schools. There was the same distribution between public (90.91%) and private schools (9.09%).

Because these were dichotomous variables, we calculated the chi-square statistic. The results for each of the adaptation dimensions are given in **Table 6**.

The data in **Table 6** indicates statistical differences for the type school variable and the family maladjustment dimension. This is because the two students in private schools scored 2 and 4 in family maladjustment. There were only two students from public schools who had family maladjustment scores of 2 and none scored 4. There were no significant differences related to the school environment.

DISCUSSION

In this study, we examined child adaptation, in terms of general, personal, school, social, and family dimensions, in a group of 22 students who had been diagnosed as having high mathematical ability in the 2011/12 school year. Multiple variables can influence school performance (Villa & Sebastian, 2021). We also looked at the impact of personal and contextual variables on their adaptation.

In terms of our first objective, the results from the TAMAI test indicated that the two students who repeated a grade, students 4 and 8, had high levels of general, personal, and school maladjustment, whereas only one of the non-repeating students (student 18) had similarly high levels. It is important to highlight issues with parental teaching styles, with many students reporting fathers being overprotective and excessive personalization from mothers. Five students (1, 7, 14, 18, and 22) whose performances had been graded as notable exhibited high levels of general, personal, school, and social maladjustment. Students who had been diagnosed as gifted (5, 6, and 16) expressed few problems of maladjustment or issues with parental educational styles, and only two of the three indicated difficulties of social maladjustment. In general, we saw adaptation problems (with scores of either 3 or 4) in all of the dimensions of the TAMAI tests. Adaptive problems were more common in more capable students (Gómez-León, 2020; Rocha et al., 2020; García-Perales & Almeida, 2019; Kermarrec et al., 2020; Siaud-Facchin, 2014), which is an issue to bear in mind in their teaching and learning processes.

Impact of personal variables, there were students whose average academic performance was rated Good in all areas of the curriculum, only three of the students were diagnosed as gifted, and two students repeated one of their grades. The ANOVA for the variable average academic performance showed that students whose performance was graded as Good exhibited more difficulties of adaptation (general, personal, and school) than those whose performance was graded as Outstanding. It is essential to look into this issue more deeply with high-ability students given the impact of various factors on the relationship between performance and school adaptation: daily child stress (Martínez-Vicente et al., 2019), social self-perception and cognitive attributions (Martínez, 2009), behavioral and emotional problems (Del Barrio & Carrasco, 2016), self-efficacy and study habits (Cartagena, 2008), and parental styles and family characteristics (Montoya-Castilla et al., 2016; López-Martínez et al., 2019), among others.

Based on the chi-square statistic for the variable repeating a school year, we saw significant differences in the personal and school maladjustment dimensions, with repeating students exhibiting high levels of maladjustment. This is a concerning issue for the Spanish education system (Méndez & Cerezo, 2018). The results for the diagnosis of giftedness and the general and personal maladjustment dimensions gave values which approached significance, in line with other studies on adaptive processes in students with high intellectual abilities (García-Perales & Almeida, 2019). Finally, there were no significant differences in relation to gender, although that does not obviate the need to track future academic and professional progress (Furtado et al., 2021).

Our third objective was related to the contextual variables in terms of school environment or location and school type. The distribution, and therefore the descriptive statistics of the schools in both of these variables was the same. According to the chi-square statistic there were statistically significant differences related to school type in the family maladjustment dimension, the two students at private schools reported higher levels of family maladjustment. There were no statistically significant differences related to the school setting.

CONCLUSIONS

The essence of human beings is characterized by its multidimensionality, in other words, human nature is made up of combined structures that define and, in turn, differentiate each person (Elices et al., 2013; Rocha et al., 2020). It follows that adjusting these dimensions is essential in order to achieve a state of personal balance, key aspect for proper development in educational processes. Educational inclusion at any school based on student needs, including the needs of the most capable, is essential in order to prevent situations of vulnerability (Echeita, 2014) and ensure student well-being (Cross, 2021; Ramiro et al., 2016). The academic progression of the students who took part in this study shows that there is still a long way to go, such as the generalization of enrichment programs that fit their potentials.

In this study, we have noted the importance of school participation and intervention for students with high intellectual abilities in educational processes (Bailén, 2020; García-Perales, 2018; Lakin & Rambo-Hernandez, 2019). There was only a small sample available for the study, which is in line with the low prevalence of detected cases and which makes it more difficult to achieve representativeness and suitability in studies such as ours. This small sample is the main limitation of our study. As a future research proposal, we will seek to obtain a larger, more representative sample of children with higher abilities and compare their adaptation to similarly aged students with average abilities using the same instruments and variables of this research, as other studies have done (García-Perales & Almeida, 2019).

Despite these limitations the modern educational response to high potential requires thoughtful, collaborative debate from all those involved in educational work (Mollenkopf et al., 2021; Pfeiffer, 2017; Sánchez, 2017; Secanilla, 2019b). Continuity of the commitment to quality inclusive education is fundamental to any education system. The most capable students should be part of a comprehensive way of addressing diversity for all, within the framework of inclusive opportunity for mutual learning. In order to do this, it is essential to generalize the process of identifying potential. We should remember that only three of the children participating in this study were recognized as gifted.

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