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Differences in socio-emotional competencies between high-ability students and typically-developing students

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Introduction: Social and emotional competencies play a fundamental role in students' overall development.

Methods: This study aims to analyze possible differences in socio-emotional skills between high-ability students and students with typical development, using differential quantitative research between subjects. From a sample of 143 students, of whom 51 were identified as having high abilities, differences in socio-emotional skills dimensions were explored using a brief self-developed questionnaire to assess their satisfaction with interactions with peers, along with the instrument "For me it is easy": Social and Emotional Skills Assessment Scale for Children and Adolescents.

Results: The results indicated that high-ability schoolchildren exhibited greater dissatisfaction in the choice of friends, the education they received at school, sports and motor skills, and social relationships with friends. The results from the second instrument generally indicated that high-ability students had lower mean scores in the dimensions evaluated, a difference that was statistically significant in the emotional regulation dimension compared to their typically-developing peers.

Discussion: This study highlights the importance of an inclusive educational approach that considers the specific social–emotional needs of high-ability students, promoting specific intervention strategies.

KEYWORDS

high-ability students, socio-emotional competencies, inclusive education, gender, emotional regulation

1 Introduction

The adaptive behavior people demonstrate is essential for integrating into a community. Currently, we find ourselves in a society that is constantly changing, which requires people to be able to adapt to the particular circumstances of each point in time (Solé, 2020; Massó, 2021). School, along with other contexts such as family and peer groups, are generally accepted as influencing these adjustment processes (Mendonça et al., 2020; Domínguez et al., 2022; Peebles et al., 2023), influence these adjustment processes promoting people's educational, social and cultural inclusion (Arnaiz, 2019; Reyes-Parra et al., 2020; Vázquez et al., 2020).

Teachers are key to these adaptation processes (González-Gil et al., 2019; Fernández-Berrocal, 2021; Pérez-Gutiérrez et al., 2021; Falla et al., 2022).

Over recent decades, various theories have examined what factors could influence this adjustment of the person to their environment. One example is the Theory of Mind, a theoretical model that focuses on people's ability to attribute states of mind—such as beliefs, knowledge and emotions—to themselves and to others (Premack and Woodruff, 1978), central aspects of intelligent behavior. Another example is Sternberg's (1984) Triarchic Theory of Intelligence, one element of which is its contextual sub-theory, relating intelligence to the external world of the person and referring to the practical intelligence or capacity necessary to adapt to the demands of the social context and promote the development of their interests and abilities. In addition, there is Gardner's (1983) Theory of Multiple Intelligences, which highlights the essential role of interpersonal and intrapersonal intelligence and the role of the environment in enhancing both. And finally, Theories on Emotional Intelligence (references include: Salovey and Mayer, 1990; Goleman, 1995; Bar-On, 1997), which influence the role of this construct in the subject's own self-knowledge and adaptation to the demands of the environment in which the construct develops.

Social and emotional competencies make it easier for a person to interact effectively with others and to regulate their own emotions. It is worth noting that interpersonal relationships are closely connected to emotional manifestations (Cooper and Brownell, 2020; Hayat et al., 2020; Lizárraga-Ontiveros, 2022; López, 2022), hence their joint consideration in the present study. One reason for the importance of these skills is because demonstrating them promotes the construction of healthy relationships with others, allowing people to work as a team, make decisions in accordance with the demands of the environment, and maintenance of democratic and peaceful citizenship. The essential aspects of these competencies include empathy—the ability to understand and feel the emotions of others, assertiveness—the ability to understand and feel emotions and maintain balanced and fluid communication with other people, conflict resolution—the ability to identify a problem and be able to reach a solution that is beneficial to all parties involved, decision making—the ability to analyze a situation and choose the best option, self-control—the ability to manage our own emotions and behaviors in unforeseen or difficult situations, and motivation—the ability to set goals and work on them with determination and effort.

These social and emotional aspects are essential in the development of students with high intellectual capacity, and may potentially be elements that differentiate them from other students without such a diagnosis (Rocha et al., 2020; Abdulla-Alabbasi et al., 2021; Casino-García et al., 2021; Ogurlu, 2021). Within the field of high abilities, there are models that reflect the importance of social and emotional aspects in these students' development, aspects that have traditionally received little attention in the field of high intellectual abilities (Ivarsson, 2023). One model worth mentioning is the Triadic Interdependence Model from Mönks and van Boxtel (1988) because it considers the contexts surrounding these students as key to their overall development, these contexts being school, the family and the peer group. These are key groups in the socialization process for these schoolchildren. Another is Gagné's (2004) Differentiated Model of Giftedness and Talent, which includes the socio-affective domain among the domains of ability or aptitude. It is also worth noting Ziegler's (2005) Actiotope Model, which emphasizes the importance of the dynamic interaction between the individual and the environment to explain the development of high abilities and talent. Finally, there is the Tripartite Model from Pfeiffer (2015), in which those underlying environmental conditions are particularly important in the development of high capacities.

Students with superior abilities develop a different way of understanding the world around them, which sometimes leads to difficulties and problems in managing the demands required by their environment. This causes life dissatisfaction, not liking who they are or how they have to be with those around them. Many of these students' characteristics have a direct impact on their social and emotional competencies, which makes them different from their peer group (Stoltz et al., 2020; Hébert, 2021; Mahmood and Ahmad, 2022), although it is worth remembering that there is research indicating high-ability students' equivalent or greater adjustment in these areas (Borges et al., 2011, 2016; Rodríguez-Naveiras et al., 2019; Quintero-Rodríguez et al., 2021). These competencies could influence their educational needs, but may also have a psychosocial impact. Therefore, socio-affective aspects, as well as cognitive aspects, should also be the object of study and educational attention (Hernández-Lastiri et al., 2019; Valadez et al., 2020). Teachers should be aware of the importance of these competencies in providing individualized education to these students (García-Perales and Almeida, 2019; Ezzani et al., 2021; García-Perales and Jiménez-Fernández, 2022; Torrente et al., 2022).

These competencies may manifest in a variety of ways, such as a large vocabulary, excellent understanding of the situations around them, a strict sense of justice, a preference for the company of adults and older students, high sensitivity, complaints about repetitiveness and routine, being demanding of themselves, perfectionism, and a preference for individual rather than group work. These manifestations may be elements that make them feel unlike others. On the other hand, it is important to be aware that these students may not exhibit differences from their peers in these competencies, for example in emotional understanding (Quintero-Rodríguez et al., 2021), even demonstrating better emotional and social adjustment, which is a case of inferring mental states (Quintero-Rodríguez et al., 2021).

These characteristics, together with other circumstances such as a lack of motivational challenges in teaching and learning processes, a lack of family stimulation, or poor collaboration and communication between school and family, could affect these children's personal and social well-being, which may lead to difficulties in the academic transition between educational stages (Piske et al., 2022; Rocha et al., 2022). Academic adjustment is a significant challenge for these students (Snikkers-Mommer et al., 2024). They often find that the usual classroom content does not adequately meet their educational needs, or may result in disinterest and lack of motivation. Students with high abilities have different educational attitudes and needs to their typically-developing peers (Rodríguez-Naveiras et al., 2024). In this regard, one example relates to an important part of children's development—physical activity and sports. The myth of high-ability students is that they are less physically able and are worse at sports (Borges et al., 2011, 2016). However, this is currently being rigorously examined to verify whether there are differences between the regular population and the high-ability population (Ferriz-Valero et al., 2023).

Furthermore, in analyzing these students' social and emotional competencies, there could be variables that may have an impact on their performance in the contexts that surround them. In this regard,

research that indicates that gender (Swiatek and Lupkowski-Shoplik, 2000; Olszewski-Kubilius and Turner, 2002; García-Perales et al., 2019; Martínez et al., 2019; Çitil and Özkubat, 2020; Abdulla-Alabbasi et al., 2021; Aroca-Aroca, 2022; Betancourt et al., 2022; Tsai, 2023; Bozkurt and Ayık, 2024), academic performance (Fernández-Lasarte et al., 2019; García-Perales and Almeida, 2019; Pulido-Acosta and Herrera-Clavero, 2019; Morillo-Guerrero, 2022), age (Abdulla-Alabbasi et al., 2021) and school year (Tsai, 2023), are personal variables that may influence these competencies in students. In addition, there are other contextual variables that could also have an impact, such as factors derived from the family environment (Márquez-Cervantes and Gaeta-González, 2018; Papadopoulos, 2020) or the school environment itself (Cassullo and García, 2015; Cejudo and López-Delgado, 2017; Puertas-Molero et al., 2020).

The present study examines the socio-emotional competencies of students with high abilities, a currently prominent and "controversial" topic due to the disparity of results from different studies about how these competencies develop and manifest in these students—as outlined above. In short, the objective of the present study was to analyze possible associations in social and emotional competencies between students with high intellectual abilities and typically-developing students without such a diagnosis. To examine the results more deeply, student gender was used as a possible modulating variable.

2 Materials and methods

2.1 Participants

Data for the present study were collected from 143 students in the second and third cycle of compulsory education, aged between 10 and 15 years old ($M = 11.94$; SD = 1.56). Their distribution by age was as follows: 10 years old, 36 students or 25.2%; 11 years old, 26 students or 18.2%; 12 years old, 25 students or 17.5%; 13 years old, 23 students or 16.1%; 14 years old, 21 students or 14.7%; and 15 years old, 12 students or 8.4%.

These students were grouped according to prior identification of High-Ability Students (HAS; $N = 51$) and Students with Typical Development (STD; $N = 92$). The first group was mostly male students (84%), the majority of whom were in the third cycle of compulsory education (55%). There was a similar pattern in the typically-developing students, which was mainly made up of male students (60%) in the third cycle of compulsory education (55%; Table 1).

The identified participants were cognitively evaluated using the Wechsler Intelligence Scale for Children – WISC-III and the Raven's Colored Progressive Matrices (CPM-P), considering an IQ equal to or greater than 130—putting them in the top percentile, generally the top 2% in relation to the general population. Creativity was assessed using the Torrance Test of Creative Thinking (TTCT) to assess fluency, originality and elaboration, with results in the top percentile considered. In addition, interests, characteristics and abilities were assessed using the questionnaires from the Battery of Instruments for Signaling Gifted and Talented Students (BISAST/T) (Almeida et al., 2002), with versions for students, teachers, and families—also considering the top percentile. Students' learning, leadership, creativity and motivation characteristics were assessed using the Gifted Student Behavioral Characteristics Assessment Scale (EACCAS), adapted for the Portuguese population (Pereira, 1998), also considering the upper percentile. According to Pfeiffer (2015), a top percentile (generally 95 or above) is often used as a criterion to identify high abilities, which is consistent with the practice of considering multiple criteria in addition to IQ to identify high-ability students (Pfeiffer, 2015, 2018).

TABLE 1 Sociodemographic data of the sample.

Variable	Category	HAS ($N = 51$)	STD ($N = 92$)
Gender	Male	43 (84%)	55 (59.8%)
	Female	8 (16%)	37 (40.2%)
Stage of compulsory education	2° cycle	23 (45%)	41 (44.6%)
	3° cycle	28 (55%)	51 (55.4%)
Type of school	Public	33 (65%)	0 (0%)
	Private	18 (35%)	92 (100%)

Source: Authors' own work.

2.2 Instruments

Two instruments were used for this study. First, a sociodemographic questionnaire, an instrument created exclusively for the study, not validated, for collecting information about the sample in relation to the characteristics of their social environments: if they had friends (Yes or No) and how they chose them (Mostly associated with interests, social characteristics, physical characteristics, emotional characteristics or cognitive/intellectual characteristics), satisfaction with the education they received at school, satisfaction with education from the family, satisfaction with self-concept and personal self-esteem, satisfaction with sporting and motor skills, satisfaction with the ability to learn school content, satisfaction with social relationships with friends, and satisfaction with the opportunities that the social environment provides. Responses to the seven questions related to satisfaction were given using a Likert-type scale with the following categories: Very Bad (VB), Bad (B), Reasonable (R), Good (G) or Very Good (VG).

The second instrument was the "It's easy for me" scale: Social and Emotional Skills Assessment Scale for Children and Adolescents (EACSE-CA, Portuguese version; Gaspar and Matos, 2015). This instrument was designed to analyze personal and social skills, as well as the degree of healthy development of children and adolescents. It has 43 items, which in addition to providing results from the full scale, examines 5 social and personal dimensions, which are Skills Basics, Problem Solving, Emotional Regulation, Interpersonal Relationships and Goal Setting. In the Portuguese population, the instrument exhibits good psychometric properties for the full scale ($\alpha = 0.917$), as well as the dimensions analyzed (between $\alpha = 0.869$ and $\alpha = 0.619$; Gaspar and Matos, 2015).

2.3 Procedures

Participants in this study were selected from the 2nd and 3rd cycle of compulsory education in two different contexts. For the high-ability students, data were collected from the National Association for the Study and Intervention of Giftedness (ANEIS). For the typically-developing

sample of students, data was collected from a private school, with selection being the responsibility of school management and the Psychology and Guidance Service (SPO). The students identified by the school with high abilities were part of the ANEIS Enrichment Program in Domains of Aptitude, Interests and Socialization (PEDAIS), thus integrating the sample of high-ability students.

Several studies continue to indicate that an IQ of 130 is a widely accepted criterion for identifying high abilities (e.g., Fernández et al., 2017). This value is used to select students for high ability programs, recognizing their unique needs and potential. However, high abilities must be seen beyond IQ and need to include creativity and involvement with the task (motivation). Educational programs for high abilities should support both "scholastic high abilities" (measured by IQ and academic performance) and "productive and creative high abilities," which involves the development of original ideas and the practical application of knowledge (Reis and Renzulli, 2018).

After obtaining informed consent and permission from the school and participants' legal guardians or families, the instruments selected for the study were applied, with the aim of responding to the main study objective.

2.4 Data analysis

The data were analyzed using inferential statistics. Cramer's V was calculated to determine if there relationships in socio-emotional aspects of daily life between the two groups. To determine whether there were differences between the groups in the EACSE-CA scale, a MANOVA was performed together with descriptive statistics, Box's test of the equality of covariance matrices, Levene's test, Pillai's trace, and univariate tests. Statistical analysis was done using SPSS version 28.0 (IBM Corporation, Armonk, NY, United States).

3 Results

The results are presented based on the two instruments applied. Table 2 shows the results from the sociodemographic questionnaire about aspects of interest in their daily life.

In addition to the sociodemographic data of the sample, it was also possible to understand the degree of association between the categorical variables under analysis, especially in the social field. The results clearly indicate an association in relation to the basic characteristics by which students choose their friends (Cramer's $V = 0.421$; $p < 0.001$), with high-ability students caring more about social components and typically-developing students caring more about physical characteristics. There was also a difference in satisfaction with the education received at school (Cramer's $V = 0.378$; $p < 0.001$), with high-ability students identifying less support than their typically-developing peers, and in relation to their sporting skills (Cramer' $V = 0.356$; $p = < 0.01$), with high-ability students scoring lower. There was also a marginally significant difference in the satisfaction felt in relationships with peers (Cramer's $V = 0.256$; $p = < 0.05$), where typically-developing students had higher scores.

Secondly, inter-subject differences were analyzed using the EACSE-CA questionnaire. A MANOVA was performed to determine whether there were differences in social skills in terms of gender and intellectual capacity. Descriptive statistics (means and standard deviations) for each group are shown in Table 3.

Table 3 shows differences in the means between students in three of the dimensions evaluated: between boys in Problem resolution and Basic skills, and between both genders in the two groups in Emotional regulation. Box's test of equality of covariance matrices was significant [Box's $M = 84.16$; F (25, 2421.13); $p = 0.007$]. Homoscedasticity was checked for all factors, using Levene's test (see Table 4).

According to Levene's test, the assumption of homogeneity of variance holds. Pillai's trace was used to test the differences between groups. The results are shown in Table 5. The test was only significant for group (high ability – typically developing students), with a medium effect size.

Given that there was only a significant effect due to ability (high ability – typical development), the univariate values for each of the social competence factors are presented in Table 6. Only emotional regulation was significant, $p = 0.009$. It was lower in the high ability group, with a medium effect size.

4 Discussion

The social competencies of people with high abilities is a topic that has been analyzed since almost the beginning of research in this field, but it is still an important subject to study, as can be deduced from the results obtained here. According to Piske et al. (2022), these socio-emotional skills refer to an individual's ability to understand, express and regulate their own emotions, as well as the ability to engage in healthy and meaningful interpersonal relationships. Such skills are fundamental for personal and social development and include skills such as empathy, self-esteem, resilience and the ability to deal with stress and pressure. For high-ability students, developing these skills can be particularly important in promoting emotional and social well-being and facing challenges that arise throughout life.

On the one hand, results about various social aspects did not indicate conclusive relationships. These included aspects such as having friends, satisfaction with the care provided by their families or, with in terms of personal adjustment, satisfaction with their self-esteem, and opportunities offered by the social environment. On the other hand, there did seem to be a relationship between high abilities and satisfaction with peer relationships, where high-ability students seemed to differ more in their assessment than the group of typically-developing students.

There was a different pattern with school activities. The school environment appears to have a considerable impact on high-ability students' well-being and quality of life. This subjective well-being in the school context even interferes with academic performance and social relationships (Casino-García et al., 2021). And given that socio-emotional skills are significantly associated with high-ability students' happiness and academic engagement, promoting socio-emotional development can have a positive impact on their well-being and academic success, making it crucial that education for those with high abilities includes the development of social–emotional skills to meet their needs (Rinn, 2018).

One distinct theme is related to satisfaction with sports skills, which typically-developing students scored higher. This study demonstrates the importance of further inquiry in this aspect, proving whether physical activity is a variable in what makes typical and highly able students different. Therefore, intervention with these students must focus on their

TABLE 2 Socio-emotional data.

Question	Category	HAS ($N = 51$)	STD ($N = 92$)	Cramer's V
Have friends	Yes	48 (94.1%)	91 (98.9%)	−0.139
	No	3 (5.9%)	1 (1.1%)	
Choice of friends	Mostly associated with interests	4 (7.8%)	1 (1.1%)	0.421***
	Mostly associated with social characteristics	30 (58.8%)	23 (25%)	
	Mostly associated with physical characteristics	8 (15.7%)	46 (50%)	
	Mostly associated with emotional characteristics	6 (11.8%)	13 (14.1%)	
	Mostly associated with cognitive/intellectual characteristics	3 (5.9%)	9 (9.8%)	
Satisfaction with the education received at school	VB	0 (0%)	0 (0%)	0.378***
	B	2 (3.9%)	1 (1.1%)	
	R	12 (23.5%)	4 (4.3%)	
	G	20 (39.2%)	25 (27.2%)	
	VG	17 (33.3%)	62 (67.4%)	
Satisfaction with the care provided by my family	VB	0 (0%)	0 (0%)	0.213
	B	0 (0%)	1 (1.1%)	
	R	6 (11.8%)	3 (3.3%)	
	G	13 (25.5%)	16 (17.4%)	
	VG	32 (62.7%)	72 (78.3%)	
Satisfaction with self-concept and personal self-esteem	VB	2 (3.9%)	2 (2.2%)	0.086
	B	4 (7.8%)	11 (12%)	
	R	8 (15.7%)	14 (15.2%)	
	G	22 (43.1%)	36 (39.1%)	
	VG	15 (29.4%)	29 (31.5%)	
Satisfaction with sports and motor skills	VB	1 (2%)	1 (1.1%)	0.356**
	B	7 (13.7%)	0 (0%)	
	R	11 (21.6%)	10 (10.9%)	
	G	13 (25.5%)	35 (38%)	
	VG	19 (37.3%)	46 (50%)	
Satisfaction with the ability to learn school content	VB	0 (0%)	0 (0%)	0.196
	B	0 (0%)	2 (2.2%)	
	R	2 (3.9%)	12 (13%)	
	G	18 (35.3%)	36 (39.1%)	
	VG	31 (60.8%)	42 (45.7%)	
Satisfaction with social relationships with peers	VB	1 (2%)	0 (0%)	0.256*
	B	2 (3.9%)	1 (1.1%)	
	R	6 (11.8%)	8 (8.7%)	
	G	22 (43.1%)	25 (27.2%)	
	VG	20 (39.2%)	58 (63%)	
Satisfaction with the opportunities that the social environment provides	VB	1 (2%)	1 (1.1%)	0.243
	B	4 (7.8%)	0 (0%)	
	R	7 (13.7%)	10 (10.9%)	
	G	21 (41.2%)	39 (42.4%)	
	VG	18 (35.3%)	42 (45.7%)	

Source: Authors' own work. *** $p < 0.001$. ** $p < 0.01$. * $p < 0.05$.

TABLE 3 Descriptive statistics by group: means and standard deviations.

Groups	Problem resolution	Basic skills	Emotional regulation	Relationships	Definition of objectives
HAS					
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Boys	53.00 (10.12)	31.42 (5.53)	22.60 (5.77)	30.21 (5.35)	17.63 (3.73)
Girls	53.87 (10.53)	32.50 (5.93)	21.38 (6.87)	31.00 (6.28)	16.25 (5.52)
STD					
Boys	56.60 (10.10)	34.38 (4.63)	25.80 (4.57)	31.25 (4.43)	17.09 (4.42)
Girls	53.00 (10.53)	33.22 (5.31)	24.22 (4.84)	30.78 (4.42)	17.11 (3.58)

Source: Authors' own work.

TABLE 4 Test for equality of error variances.

Competencies	Levene	Df.1	Df.2	*p*
Problem resolution	0.709	3	139	0.548
Basic skills	0.429	3	139	0.732
Emotional regulation	1.686	3	139	0.173
Relationships	1.132	3	139	0.338
Definition of objectives	1.540	3	139	0.207

Source: Authors' own work.

TABLE 5 Multivariate contrasts of gender, ability and interaction.

Effect	Pillai trace	*F* (5, 135)	*p*	η^2 partial
Ability	0.008	2.596	0.028	0.088
Gender	0.025	0.679	0.640	0.025
Interaction	0.018	0.485	0.787	0.018

Source Authors' own work.

TABLE 6 Univariate contrasts for competencies.

Competencies	Mean square	*F* (1, 139)	*p*	η^2 partial
Problem resolution	38.38	0.348	0.556	0.002
Basic skills	69.99	2.626	0.107	0.019
Emotional regulation	188.36	7.081	0.009	0.048
Relationships	3.104	0.138	0.710	0.001
Definition of objectives	0.533	0.032	0.858	0.001

Source: Authors' own work.

overall development—in addition to personal and academic skills and respective curricular enrichment strategies—and include motor skills and sporting aspects. This means that intervention in high abilities must be as broad as possible, encompassing the educational, school and also personal guidance, creating a collaborative group that involves family members, teachers, psychology services and other health professionals. This teamwork will help improve high-ability students' well-being and psychological adjustment (Al-Hamdan et al., 2017; Yaman and Sökmez, 2020; García-Martínez et al., 2021).

The results in relation to social competences indicated no differences between genders, which must be seen from a positive perspective. Boys and girls are equal in terms of social competence; although other studies have indicated higher levels of emotional competencies and emotional regulation in girls (Yassini and Mehrdad, 2014). When comparing groups based on exhibiting high abilities or not, the only significant difference was in emotional regulation, with higher scores for typically-developing students. This appears to be supported by other research (e.g., Çitil and Özkubat, 2020). Emotional regulation in children with high intellectual abilities is an important, complex topic. These students often experience emotions more intensely and may be highly sensitive to the feelings of others, which could lead to stronger emotional reactions to everyday situations. Additionally, greater self-awareness and a strong sense of justice could also impact their emotional regulation.

Hence, it is important to highlight that high-ability students demonstrate a level of hypersensitivity and critical analysis that is more developed than expected for their age group. These characteristics can trigger a more intense experience of certain social situations, as well as stronger emotional intensity than these children and young people can manage, leading them to be different to others. Freeman (2006) highlighted the existence of a greater risk of problems related to social development and respective skills in high-ability students, with the main reasons being difficulties in social relationships with peers (Bain et al., 2006). Winter (2017) also recognized that people with high intellectual abilities have experiences that differ from the norm and can struggle in the face of incomprehension from their teachers and peers—elements that are important for emotional stability—that may have emotional and social consequences.

Other studies have concluded that there is no difference between the two groups of students in these skills. Shechtman and Silektor (2012) noted that students with high abilities did not show a greater predisposition to social and emotional vulnerability than their peers. Clark (2012) highlighted that high-ability students had more emotional regulation and a better defined internal locus of control than typically-developing students. These children are expected to be more sociable, autonomous, exhibit greater emotional stability, and be more confident (Mahmood and Ahmad, 2022). However, for this to be noticeable, society needs to provide the conditions in which these skills can manifest. Rinn and Majority (2018) noted that the environment surrounding high-ability students can be the main factor that triggers social and emotional issues, and so is one of the main focuses of intervention to minimize the underlying risks hat could compromise the development of this student group.

The most important limitation of this study is the sample size, especially the high-ability sample. Given that it is estimated that the distribution of intelligence suggests high abilities in 10% of the

population, studies with this group tend to suffer from this problem, with the consequent difficulties in terms of generalization of the results. Hence, it is important to carry out studies that allow us to elucidate the extent to which these students present imbalances on a personal and social level. It is not only about advancing our knowledge but also, more importantly, giving them the educational response they need based on their abilities. In this way, as a proposal for future research, we will seek to pair samples to homogenize the compared groups, increasing the number of students with high abilities and making it possible to replicate the results achieved in the present study, integrating a validation process of the sociodemographic questionnaire.

5 Conclusion

High-ability children differ from their typically developing peers in their psychological, emotional, behavioral and cognitive characteristics (Mahmood and Ahmad, 2022). Such differences could mean discrepancies in how they experience certain social occurrences (Rinn and Majority, 2018), which may trigger reactions and actions that others might misinterpret (Mahmood and Ahmad, 2022). Being different is still seen as a problem by today's society, making these children and young people who have more intense experience of stimuli more vulnerable to criticism, isolation and increased pressure to smother their innate characteristics in favor of what is expected in their environment. This environment encompasses the family, school and their peers.

The ANEIS program meant that the high-ability students in the present study were able to contact peers who exhibited similar characteristics, which may be why the results were no different to the typically-developing student group. Within this program, students stress that it differs from other places as it is an environment in which they feel understood, not judged, and where they can be themselves without running the risk of being made fun of or judged for the characteristics that distinguish them from their peers. Many of these characteristics are associated with the way they perceive the world, with a more critical analysis and a strong sense of justice, in which their hypersensitivity is taken into account when analyzing their experiences.

Dabrowski's (1972) theory of personality development—where he emphasizes the emotional component in the development of human potential—stressed that more people with high abilities have a higher level of over-excitability, resulting in a more intense experience of the stimuli that surround them, presenting a greater predisposition toward higher levels of empathy, self-awareness, awareness of others and altruistic behavior. We believe this underscores an urgent need for action with society in general in order for people to have a better understanding that these students' characteristics are not problematic, but rather different from other children. This would help reduce the vulnerability still visible today in the emotional and social field of high-ability students.

Finally, there is a need for teacher training to include this topic (Sánchez-Escobedo et al., 2020; Akgül, 2021) so that they feel more secure identifying, monitoring and intervening with these students. There is a similar need for activities to promote social awareness in family members, other educational agents, and health professionals. In conclusion, it is key to promote more holistic intervention with these children and young people, focusing on more comprehensive, healthy development. Social and emotional competencies are essential for personal growth and adaptation in society.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The requirement of ethical approval was waived by the Instituto Superior de Ciências Educativas do Douro (ISCE DOURO) for the studies involving humans because the participating students are enrolled in a private educational center in which the ANEIS carries out diagnosis and educational intervention. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

AR: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. ÁB: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. RG-P: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. AA: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

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