Age-related variations in school satisfaction: The mediating role of school engagement

SERGIU BĂLȚĂTESCU* and ANI EMILIA CERNEA-RADU

Doctoral School of Sociology University of Oradea, Oradea, Romania

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ABSTRACT

The purpose of this study was to fill this research gap by investigating school engagement as a moderator between age and school satisfaction in children and adolescents. School satisfaction and engagement are key indicators of student well-being and academic outcomes. However, research has shown declining levels as students aged. This study tested the hypothesis that decreased school satisfaction with age was amplified by declining school engagement. Participants were 3,177 Romanian students aged 10–19 years. The results of the mediation analysis using Hayes’ regression method indicated that, while school satisfaction and engagement were positively correlated, age had a strong negative association. The interaction effect between age and school engagement significantly decreased school satisfaction. The findings show that engagement levels and satisfaction start high for 10–12 year-olds then decline. High school engagement was associated with greater school satisfaction, suggesting that it may have a protective effect. This study highlights the importance of fostering school engagement and satisfaction for children’s well-being. Promoting a stimulating and supportive school environment can enhance student interest, enjoyment, and outcomes.

KEYWORDS

student satisfaction, student engagement, adolescents, mediation analysis, child well-being, Romania

* Corresponding author: E-mail: bsergiu2@gmail.com
INTRODUCTION

This study investigated age-related variations in school satisfaction and explored the mediating role of school engagement. Considering the significant amount of time children and adolescents spend in school, environment is a key marker of their overall well-being. Schools can evoke joy and sorrow, shape aspirations, and nurture their dreams. Most importantly, they serve as powerful interactive spaces, in which peer and teacher relationships significantly influence the perception of school enjoyment.

Traditionally, the field of child well-being has relied solely on an adult perspective. Policy-makers, social services, and organisations derived their understanding of children’s well-being from adult opinions and assessments, neglecting the crucial voices of the “target group” themselves (Mortari & Mazzoni, 2009; O’Malley, Voight, & Izu, 2014). This has resulted in a significant disconnect between adult-constructed models of happiness and children’s actual lived experiences. Addressing this discrepancy necessitates incorporating children’s own perceptions and expectations into the understanding of what constitutes a good and happy childhood (Bălțătescu & Bacter, 2016).

Acknowledging the inherent limitations of relying solely on adult perspectives, contemporary research on children’s well-being has initiated a shift towards incorporating children’s self-evaluations. This recognition underscores the importance of considering children’s subjective experiences and viewpoints to obtain a more comprehensive understanding of their well-being. While their voices are now recognised and valued, this inclusion often remains restricted to specific aspects of personal life, excluding decision-making regarding the broader shaping of their lives. Traditionally, adults have taken the lead in formulating goals, guiding achievement, fostering health, and promoting social integration, which are often based on expectations and assumptions (Waters et al., 2022). It is crucial to strike a balance and reconcile the expectations and opinions of both adults and children in order to collaboratively achieve optimal well-being.

In recent decades, there has been growing emphasis on prioritising the perspectives of children and young people in research on school well-being. Recognising them as experts in their own lives, Attilane Ladnai (2019) explores ‘white pedagogy’ based on positive psychology principles, advocating for well-being education in schools to prevent and address depression, foster self-improvement, enhance learning efficiency, and encourage creative thinking. These principles form the basis for cultivating positive attitudes towards school, fostering enjoyment in learning, and achieving high levels of well-being. Ladnai proposed integrating positive psychological findings into pedagogy to enhance the learning process by promoting positive emotions, heightened engagement, improved relationships, enhanced meaning in life, and greater positive accomplishments, ultimately leading to overall well-being.

At first glance, when considering these factors in relation to adolescence, it is challenging to envision their realisation because of the prevailing portrayal of young people in recent years. As noted by Bálint (2014), reference materials and studies have often depicted adolescents as being delinquent, selfish, abusive, irresponsible, or deviant. In line with the promotion of positivism in education, the author aimed to debunk this negative stereotype, highlighting the significance of focusing on adolescents’ creative, moral, and identity-seeking aspects. They emphasise that adolescents are capable of actively constructing their subjective well-being.

A positive attitude towards the school environment manifests in behaviours such as conscientious homework preparation, dedicated time and resource allocation, intellectual curiosity,
and thirst for knowledge. These behaviours are likely to foster high levels of self-confidence, self-efficacy, and a sense of control over the learning environment. Additionally, research suggests that high school engagement serves as a protective factor against absenteeism and school detachment, promoting student compliance and identification with institutional norms and rules (Appleton, Christenson, & Furlong, 2008).

The right to education is considered a fundamental human right, as outlined in the International Convention on the Rights of the Child (UNICEF, 2024). The document mandates that every child be entitled to access an educational system that fosters holistic development of their talents and personalities, devoid of discrimination. Effective pedagogical approaches for children and adolescents encompass cultivating curiosity, fostering joy in learning, and promoting a positive school environment conducive to well-being.

The genesis of this research stems from the premise that declining levels of school satisfaction may be attributed to various factors, including the presence of school burnout, diminished levels of school engagement, and potential biases, such as social desirability in respondents’ assessments, which can skew the results. Previous research (Cernea-Radu, 2023) has explored the moderating impact of burnout on school satisfaction, revealing a negative correlation, wherein advancing age correlates with increased burnout levels and decreased school satisfaction. Although extensive research has been conducted on school satisfaction, school engagement, and age-related changes in educational experiences, a significant gap remains in our understanding of how these factors interact. Previous studies have independently examined the relationship between age and school satisfaction as well as age and school engagement. However, the complex interplay between these three variables, particularly the potential mediating role of school engagement in the age-school satisfaction relationship, has not been thoroughly investigated.

This study addresses this gap by exploring how age influences school satisfaction with a specific focus on the mediating role of school engagement. Understanding this dynamic is crucial, as it can provide valuable insights into why and how students’ satisfaction with school changes as they progress through their educational journey. Moreover, this research problem is particularly relevant given the inconsistent findings in previous literature regarding the relationship between age and school satisfaction, and the well-documented decline in school engagement as students age. Understanding these dynamics can provide valuable insights for developing effective educational interventions and improving the school experience for students of various ages.

The main research questions were as follows: What is the direct relationship between age and school satisfaction among students? How does the level of school engagement vary according to students’ ages? By examining this three-way relationship, we aimed to contribute to a more nuanced understanding of students’ educational experiences across different age groups, potentially informing more effective and age-appropriate educational strategies and interventions.

This study makes a significant contribution to the literature by exploring the mediating role of school engagement in the relationship between age and school satisfaction. While previous research has examined the relationships between these variables separately, our integrative approach offers a new and more nuanced perspective on the complex dynamics of school experience. Although studies such as Wang and Eccles (2012) have shown that school engagement tends to decrease with age, and Huebner and Gilman (2006) have reported a positive correlation between school satisfaction and age, our research is the first to explicitly examine the
mediating role of engagement in this relationship. Moreover, in contrast to Archambault, Janosz, Fallu, and Pagani (2009), who identified a general decrease in school engagement during adolescence, our study suggests that maintaining a high level of engagement can mitigate the negative effects of age on school satisfaction. This approach not only provides a deeper understanding of the factors influencing school satisfaction throughout adolescent development, but also has important practical implications for developing educational interventions aimed at improving the school experience for students of different ages.

**Satisfaction with school as a component of satisfaction with life**

School satisfaction can be viewed as a particular aspect within a wider framework of life satisfaction, a broader concept that encompasses individuals’ cognitive assessment of their lives as a whole. Subjective emotional experiences, which are characterised by pleasure or displeasure in response to life situations, represent another component that defines the “hedonic” dimension of well-being (Bâlţătescu, 2014).

The perceived quality of life framework provides a valuable model for understanding the construct of school satisfaction. Specifically, students’ satisfaction with school serves as an indicator of the emotional and cognitive components of their quality of life in the school environment. This measure is positively related to several crucial academic outcomes including motivation, achievement, and interest development (Vidić, 2021).

Tomyn and Cummins (2011) included satisfaction with school as one of the eight domains in the Personal Wellbeing Index–School Children, which aims to measure life satisfaction in children and adolescents. This index also covers health, standard of living, personal achievement, perceived security in the present, peer groups, future security, and interpersonal relationships. Significant correlations were observed between satisfaction with life and satisfaction with school (Bâlţătescu, 2009; Casas, Bâlţătescu, Bertran, González, & Hatos, 2013). In the Hungarian context, a study by Pikó and Hamvai (2010) revealed that students’ happiness in school and good academic performance can have a positive impact on their overall well-being during adolescence. In a more recent study, Pikó (2023) found that school satisfaction is a predictor of life satisfaction together with family and friend support, depression (negative relationship), self-rated socioeconomic status, religious attendance, and future orientation for children in public schools 11–18 years old.

Oishi, Diener, and Lucas (2007) discovered that middle school students who indicated the greatest satisfaction with their school environment tended to exhibit heightened satisfaction levels in their interactions with peers, family members, and teachers. School satisfaction has important implications for adult life. Research suggests that dissatisfaction can have negative consequences in the realm of relationships as it may lead individuals to focus more on the flaws of others. On the other hand, individuals who are highly content with their lives tend to have a more positive perspective of their partners (Murray, Holmes, & Griffin, 2003).

Adolescents tend to report lower levels of school satisfaction than younger children. According to Huebner et al. (2000), a significant proportion of high school students report dissatisfaction with their school experiences. Specifically, a quarter of the students expressed general dissatisfaction, while an additional 9% characterised their experiences as awful. In a study carried out by Bâlţătescu (2009) involving 1933 school adolescents grades 9 to 12 in Oradea, it was found that levels of school satisfaction declined as students progressed through
grades. The author suggests that this trend may be attributed to the emergence of gradual disengagement from school and the perpetuation of economic dependence on parents, which are specific features of Romanian society undergoing a transition to democracy and the market economy. Epstein and McPartland (1976) suggested that, during middle school, reduced attention from teachers and limited involvement in decision-making processes within the classroom may contribute to the decline in school satisfaction. Other potential factors that may influence the level of school satisfaction include aspects related to the school environment, such as overall school climate, quality of school experiences, perceived level of safety within the school, relationships with teachers and peers, academic performance, and parental support for academic tasks (Bosakova, MadarasovaGeckova, van Dijk, & Reijneveld, 2020; Kindermann, 2016).

Research conducted by Löfstedt et al. (2020) aimed to investigate trends in school satisfaction and school pressure among 15-year-old students in countries participating in the Health Behaviour in School-aged Children (HBSC) study between 2002 and 2018. The study found that despite variations across countries, school satisfaction generally increased among boys, whereas feelings of being pressured by schoolwork increased among girls. In the early 2000s, gender differences in school satisfaction were present in nearly half of the countries, with more girls than boys liking school. However, over the years, more boys began to express a preference for school, resulting in the disappearance of gender differences in school satisfaction in the majority of countries studied in 2017/2018. In the few countries where gender differences remained, there was no consistent pattern of higher school satisfaction among boys or girls.

Generally, it is worrying when students have low levels of satisfaction with school, because those who are highly dissatisfied with their school experiences often face a range of adjustment challenges similar to those faced by children with low levels of overall life satisfaction. These difficulties encompass externalised behavioural issues, such as problems with school performance and interpersonal relationships, substance use, and school dropout, as well as internalised behavioural problems, including suicidal ideation, depression, and psychosomatic symptoms (DeSantis King et al., 2006).

School engagement as a predictor of school satisfaction

Student engagement has been extensively studied between 2010 and 2020. Of the 13,528 sources identified between 2000 and 2020, 11,696 were published between 2010 and 2020 (Salmela-Aro & Upadyaya, 2020). Of these, 8,128 were concerned about student engagement in adolescence. School engagement is conceptualised as the result of a more general emerging trend towards positive psychology that focuses on human strengths and optimal functioning, rather than weaknesses and dysfunctions (Seligman & Csikszentmihalyi, 2000). Schaufeli, Martinez, Pinto, Salanova, and Bakker (2002), creators of the school engagement rating scale used in the present research, define the concept as a positive, satisfying, and work-related state of mind characterized by vigor, dedication, and absorption. Rather than a momentary and specific state, engagement refers to a more persistent and pervasive affective-cognitive state that is not focused on a specific object, event, individual, or behaviour. Vigour is characterised by high levels of energy and mental resilience while working, and by the willingness and ability to invest effort in one’s work. Dedication is characterised by a sense of meaning, excitement, inspiration, pride, and challenge. The final dimension of engagement, absorption, is characterised by being fully focused and happily engrossed in one’s work, whereby time passes quickly, and one feels carried
away by the workplace. Being fully absorbed in one’s work goes beyond just feeling efficient and approaching what has been called flow, a state of optimal experience characterized by focused attention, a clear mind, mind-body attunement, effortless concentration, complete control, loss of self-awareness, distortion of time, and intrinsic enjoyment.

The term “student engagement” encompasses a wide range of concepts such as classroom behaviours, emotional reactions, motivational beliefs, self-regulatory processes, metacognitive strategies, school belonging, and interactions with instructional materials (Fredricks, Hofkens, & Wang, 2019). Alrashidi, Phan, and Ngu (2016) characterized school engagement as a multifaceted concept that incorporates various aspects of motivation, cognition, and behaviour in students. The authors examined definitions of engagement from various sources, starting with the idea that engagement is the extent to which students are involved in academic and non-academic activities and also have a sense of belonging and value for educational goals (Audas & Willms, 2001), or the quality of students’ involvement and connection with the educational process, including activities, values, individuals, objectives, and environment (Kindermann, 2016). Kuh (2003, p. 25) defines the student engagement with school as “the time and energy students devote to educationally sound activities inside and outside of the classroom”.

A strong level of student engagement with school is linked to well-being, hope, and social competence (Demirci, 2020). Berki and Pikó (2021) noted in their study that low levels of physical activity and high levels of screen time, as well as alcohol and drug use, were associated with a high risk of depression among adolescents, leading to lower levels of school engagement. Săveanu and Pop (2017) identified four types of school engagement: behavioral, emotional, cognitive, and commitment to purpose. These types pertain to the interaction between students and the school institution and its staff, the emotional responses elicited by various aspects of the school environment, and encompass epistemological motivation and inherent effort in the process of self-realisation.

Da Fonseca, Santos, and Santos (2024) discovered strong connections between student engagement with school and a positive school climate, as well as parental involvement. Adolescents who belong to structured families with both parents typically perform better in assessments and attain higher grades (Hatos & Băltătescu, 2013). Olivier, Morin, Langlois, Tardif-Grenier, and Archambault (2020) found that deviant behaviour can be reduced when young people have a supportive school network that fosters emotional investment. Furthermore, a positive attitude towards school and education predicts adolescents’ subsequent motivation for self-fulfilment and participation in projects (Horanicova, Husarova, Gecková, De Winter, & Reijneveld, 2022).

The school, a pivotal institution in education and training with a unique mission and internal regulations, imparts value to individuals involved in the educational process. Attitudes towards school can range from favourable (positive) to unfavourable (negative). Considering the tripartite nature of attitudes (affective, behavioural, and cognitive), three analogous dimensions of engagement in school activities and life have been distinguished, and students of different ages demonstrate varying degrees of engagement (Appleton et al., 2008; Lam et al., 2014). These three dimensions are summarised in Fig. 1.

Băltătescu (2009) noted that student engagement with school, measured using a composite scale comprising four items (ability to learn when tasks are interesting, completion of daily homework, ability to study for tests or quizzes, ability to concentrate and pay attention in class), significantly and positively contributes to the variance in school satisfaction ($\beta = 0.09$).
This contribution remained significant even after accounting for factors such as self-esteem, school performance, school climate, perceived quality of teaching, and victimisation experiences in school.

As in the case of student satisfaction, a Gallup pool found that student engagement decreases continuously with grade level (Brenneman, 2016). Disengagement from school is one of the main sources of absenteeism and dropout, because it can cause students to feel dissatisfied and discouraged (Gubbels, Van Der Put, & Assink, 2019). Adolescents from low or middle socioeconomic backgrounds who lack support for their academic work, both within and outside of their families, tend to feel disinterested in school and education (Horanicova, Husarova, Gecková, et al., 2022). Research conducted by Izar-de-la-Fuente, Rodríguez-Fernández, Escalante, and Fernández-Lasarte (2023) revealed that social support has a significant influence on adolescents’ academic performance and promotes their active involvement in school.

In a study by Gutiérrez, Tomás, Romero, and Barrica (2017) involving students aged 14–22 years, student engagement with school emerged as a mediating factor in the relationship between familial and teacher support, perceived peer group support, and school satisfaction. These findings suggest that perceived social support from family and teachers predicts school engagement, which, in turn, predicts school satisfaction. However, a prior study by Elmore and Huebner (2010) proposed a reversed relationship, assuming that satisfaction with school predicts school engagement. Vidić (2021) showed that school engagement operates as a mediator in the connection between classroom climate and student satisfaction with school. Specifically, a positive classroom climate has a significant and positive impact on student engagement with school, leading to an improved sense of satisfaction with the school.

Overall, the evidence highlights the importance of promoting school engagement and positive attitudes towards education to enhance children and adolescents’ school satisfaction,
which in turn can have a significant impact on their well-being and educational outcomes (Horanicova, Husarova, Madarasova Geckova, de Winter, & Reijneveld, 2002). Wong et al. (2023) also showed that school engagement has a large average correlation with academic achievement and subjective well-being. The importance of creating positive relationships between students and schools stems from the results of initial research in this field. Students who dislike school underperform and adopt risky forms of behaviour (Epstein & McPartland, 1976). Students who perceive the school and classroom climate as positive are more motivated and perform better.

This study aimed to investigate changes in school satisfaction across different age groups and to explore the potential mediating role of school engagement. Although the search results did not explicitly address the specific relationship between age, school engagement, and school satisfaction, the literature widely acknowledges the role of school engagement as a mediator of student outcomes. Previous studies have emphasised the importance of school engagement as a mediator between social relationships and academic performance (Li, Qiu, & Sun, 2021). Moreover, there is a positive connection between emotional involvement in school and children’s well-being, which remains consistent even when controlling for factors such as age and gender in linear regression analysis (Thorsteinsen et al., 2021).

METHOD

The data analysed in this study were collected within the project xxx (anonymised). This research is largely based on the methodology of the global survey program Children’s Worlds, International Survey of Child Well-Being (ISCWeB) (Rees, Savahl, Lee, & Casas, 2020), in which Romania participated (Bălțătescu & Bacter, 2016, 2020). The instrument incorporated questions from waves 3 and 4 of the survey, including basic characteristics (age, gender, class, rural/urban setting of the school), family relationships, living conditions, economic situation of the family, perceived safety at home and at school, satisfaction with aspects before and during the coronavirus period, time use, school and relationships, and subjective well-being. In addition, we included three scales to measure school burnout, social desirability, and school engagement. The Utrecht Work Engagement Scale for Students (UWES-S) and School Satisfaction Scale—Children’s Worlds Version are presented in detail in the Instrument section.

We aimed to create a representative sample at the county level, consisting of 600 students in grades 4th, 6th, 8th, 10th and 12th, resulting in a total of approximately 3,000 students. The primary sampling unit was a class of students. The same method was used to prepare the samples. Data were requested and obtained from the responsible institutions, including the total number of pupils in each class and in each school in Bihor County and the number of pupils by level of schooling broken down by gender. The size of the sub-samples per class was proportional to the share of pupils learning at each level in the urban and rural settings. Thirty-two urban and rural schools participated in the survey, each labelled with a specific code. In the pre-testing phase, the questionnaire was administered in two classes per level (4th, 6th, 8th, 10th, and 12th) to identify possible errors in its administration, content, or understanding. However, this was not the case.

The primary aim of this study was to explore the connection between students’ age, academic engagement, and satisfaction with school, specifically for those enrolled in primary (4th grade), lower secondary (6th and 8th grades), and upper secondary (10th and 12th grades) education in
Bihor County, Romania. Our focus was to elucidate the moderating role of school engagement in shaping school satisfaction.

Research hypothesis

The negative association between age and satisfaction with school is moderated by the academic engagement.

Numerous studies have confirmed a positive relationship between school engagement and school satisfaction, that is, a high level of school engagement is associated with a high level of school satisfaction. However, it was established that both variables declined with age. In this study, we investigated whether school engagement plays a moderating role in the relationship between age and school satisfaction.

Participants

The study was conducted across 31 schools in Bihor County, with 18 schools located in urban areas accounting for 73.1% of pupils and 13 schools in rural areas comprising 26.9% of pupils. These are secondary, theoretical, technological, and vocational high schools. This study included 3,177 participants aged 10–19 years. Only three students were excluded from the database because they exceeded the age range: one 9-year-old student and two 20-year-old students. The average age was 14.27 (SD = 2.73). A total of 1,449 respondents were boys (46.6%) and 1,663 were girls (53.4%). The questionnaire was administered to students in the fourth, sixth, eighth, tenth, and twelfth grades in a physical, pencil-and-paper format.

Procedure

A collaboration agreement was signed between the University of Oradea, the Bihor County School Inspectorate (ISJ) and the Bihor County Centre for Educational Resources and Assistance (CJRAE), leading to the acquisition of a database from the ISJ containing the total number of pupils in each classroom and school across Bihor County. The inter-institutional collaboration protocol was complemented by written requests to each school, urging them to take part in the study and to allow the questionnaire to be administered. Approval was obtained from all parties involved. Each student who participated in the study was given a passive consent form to present to their parents. Failure to return this form signifies the parents’ consent for their children’s involvement in the study. We do not have data on the refusal rate but estimate it to be close to zero. This is because schools sign confidentiality agreements with parents at the beginning of the school year when parents agree to their pupils’ participation in studies, activities, and projects. Data collection occurred during a lull during the Covid-19 pandemic, spanning from March to May 2021, in face-to-face classroom settings.

The survey was conducted with the assistance of school counsellors who were responsible for that particular unit of work or in the absence of counsellors, a designated school representative. These educators, who functioned as operators, were previously trained in the research objectives and guidelines for administering the questionnaire.

Database

The responses to the questionnaires were entered, and the data were corrected and labelled. Students who exceeded the target age group were excluded from the study. Questionnaires with
missing responses to any item from the two target rating scales were excluded from statistical analysis. The data file was weighted based on factors such as urban-rural background, gender, and grade level.

The mediation hypothesis was tested using Hayes’ MACRO PROCESS algorithm (version 4.2) for linear regression, implemented in SPSS (Hayes, 2022). This type of analysis was used to explore the complex relationships between variables, including the direct and indirect effects of one variable on another.

Instrument

The questionnaire integrated elements from waves 3 and 4 of the Children’s Worlds Survey, to which three scales were added for the present research related to the assessment of school burnout, social desirability, and school engagement. The scales used in the present analysis were as follows:

- **The Utrecht Work Engagement Scale for Students** (UWES-S) (Schaufeli, Salanova, González-Romá, & Bakker, 2002) is the best-known and most widely used school engagement scale. The nine items were divided into three subscales: vigour (for example, *When I study, I feel like I am bursting with energy*.), dedication (e.g. *I find my studies to be full of meaning and purpose*), and absorption (for example, *When I am studying, I forget everything else around me*). A 7-point Likert scale was used to assess the items, where 1 means “Never” and 7 means “Always (Daily)”. The scale was translated and adapted to fit Romanian linguistic and cultural contexts by two separate translators. Any discrepancies between the translations were carefully analysed, and the final version was synthesised. Subsequently, the scale was retranslated into English and meticulously compared with the original version to identify and rectify potential translation errors. During the pre-testing phase in February 2021, the questionnaire was administered in urban areas in two classes per grade level (4th, 6th, 8th, 10th and 12th) to identify and correct potential errors in its administration, content, and comprehension.

- **The School Satisfaction Scale** used in the Children’s Worlds Study consists of six items to assess different aspects of school life (e.g. *How satisfied are you with your life as a student, the things you learned at school, and your relationship with your teachers?*). They were rated on a 10-point Likert scale, where 0 indicated “not at all satisfied” and 10 meant “totally satisfied”. The scale, initially implemented in the Children’s Worlds Study during Wave 2, underwent a similar translation and adaptation process for use in Romania. It was then applied to a national-level sample comprising children in the 4th \((N = 1,242)\) and 6th \((N = 1,355)\) grades (Bâlţătescu & Bacter, 2016).

The results on the sumative scales UWES-S and School Satisfaction were linearly transform to 0–100, where 0 means the lowest engagement/satisfaction and 100 means the highest engagement/satisfaction.

Through a factor analysis of the school satisfaction scale, a single eigenvalue factor was identified, accounting for 62.57% of the total variance. For the school engagement scale, the same analysis identified a single common factor that explained 54.38% of the variance. The Cronbach’s alpha coefficient of the six items that make up the school satisfaction rating scale has a value of 0.878, and in the case of the school engagement rating scale, which is composed of nine items, it is 0.889, which shows that both scales have a good reliability coefficient.
Table 1 shows the means and standard deviations of both the variables for each age group. Average levels of school engagement strongly decrease from 10 to 11 years old to 12–13 years old. These age groups correspond to the transition from primary (4th grade) to lower secondary (6th grade). The decrease in school satisfaction was smooth but continuous.

RESULTS

Overall, age was negatively correlated with both school engagement ($r = -0.369$) and school satisfaction ($r = -0.389$), which is consistent with previous findings (Băltătescu, 2009; Brennenman, 2016). Furthermore, in line with prior research, a strong correlation was found between school engagement and satisfaction ($r = 0.633$) (see Table 2).

One-way ANOVA showed significant differences in school satisfaction among the age groups ($F = 69.52, p < 0.01$). Games-Howell’s post hoc identified significant differences between most age groups, with some exceptions: Y10 and Y11 (diff(means) = -0.04, $p = 1.00$); Y12 and: Y13 (-0.24, $p = 1.00$), Y14 (2.81, $p = 0.558$), Y15 (4.48, $p = 0.130$); Y13 and: Y14 (3.05, $p = 0.348$), Y15 (4.73, $p = 0.061$); Y14 and: Y15 (1.67, $p = 0.988$), Y16 (3.51, $p = 0.1548$), Y17 (3.39, $p = 0.458$); Y15 and: Y16 (1.83, $p = 0.969$), Y17 (1.71, $p = 0.993$); Y16 and Y17 (-0.11, $p = 1.00$); Y16 and Y17 (2.81, $p = 0.558$), Y17 (3.39, $p = 0.458$); Y15 and: Y16 (1.83, $p = 0.969$), Y17 (1.71, $p = 0.993$); Y16 and Y17 (1.83, $p = 1.00$); Y18 and Y19 (2.67, $p = 0.933$). Most of the non-significant differences were observed between the closest age groups.

Table 1. Descriptives for school engagement and school satisfaction variables by age

<table>
<thead>
<tr>
<th>Age</th>
<th>School engagement</th>
<th>School satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>10 years</td>
<td>63.57</td>
<td>21.71</td>
</tr>
<tr>
<td>11 years</td>
<td>61.58</td>
<td>22.86</td>
</tr>
<tr>
<td>12 years</td>
<td>44.47</td>
<td>21.78</td>
</tr>
<tr>
<td>13 years</td>
<td>43.05</td>
<td>21.38</td>
</tr>
<tr>
<td>14 years</td>
<td>42.38</td>
<td>22.06</td>
</tr>
<tr>
<td>15 years</td>
<td>40.80</td>
<td>22.35</td>
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<tr>
<td>16 years</td>
<td>38.18</td>
<td>19.11</td>
</tr>
<tr>
<td>17 years</td>
<td>39.73</td>
<td>18.90</td>
</tr>
<tr>
<td>18 years</td>
<td>36.98</td>
<td>19.58</td>
</tr>
<tr>
<td>19 years</td>
<td>31.57</td>
<td>18.10</td>
</tr>
<tr>
<td>Total</td>
<td>44.89</td>
<td>23.04</td>
</tr>
</tbody>
</table>

Table 2. Matrix of correlations between age, school engagement and school satisfaction

<table>
<thead>
<tr>
<th>Age</th>
<th>School engagement</th>
<th>School satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>School engagement</td>
<td>-0.369**</td>
<td>-</td>
</tr>
<tr>
<td>School satisfaction</td>
<td>-0.389**</td>
<td>0.633**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).
Regarding school engagement, one-way ANOVA showed significant differences among the age groups (\( F = 75.31, p < 0.01 \)). Games-Howell’s post hoc identified significant differences between most age groups, with some exceptions: Y10 and Y11 (diff(means) = 1.99, \( p = 0.979 \)); Y12 and: Y13 (1.42, \( p = 0.998 \)), Y14 (2.09, \( p = 0.971 \)), Y15 (3.66, \( p = 0.692 \)), Y17 (4.74, \( p = 0.189 \)); Y13 and: Y14 (0.66, \( p = 1.00 \)), Y15 (2.24, \( p = 0.971 \)), Y17 (3.31, \( p = 0.601 \)); Y14 and: Y15 (1.57, \( p = 0.998 \)), Y16 (4.19, \( p = 0.120 \)), Y17 (2.64, \( p = 0.871 \)); Y15 and: Y16 (2.62, \( p = 0.888 \)); Y17 (1.07, \( p = 1.00 \)), Y18 (3.82, \( p = 0.511 \)); Y16 and: Y17 (−1.55, \( p = 0.991 \)), Y18 (1.20, \( p = 0.996 \)); Y18 and Y19 (5.41, \( p = 0.070 \)).

As in the case of school satisfaction, most non-significant differences were observed between the closest age groups. This can be explained by the fact that, at each grade level, age varies as follows: in the fourth grade, the age falls between 10 and 12 years, in the sixth grade between 11 and 14 years, in the eighth grade between 13 and 16 years, in the tenth grade between 15 and 18 years, and in the twelfth grade between 16 and 19 years. It is possible that, through the process of categorisation, they are accentuated by intra-group similarities and the class to be perceived as homogeneous (Thompson et al., 2020).

We hypothesised that decreasing levels of satisfaction with school as individuals age would be exacerbated by declining school engagement. Thus, we examined the extent to which school engagement acted as a mediating variable in the relationship between age (independent variable) and school satisfaction (dependent variable). Our findings revealed a positive correlation between school satisfaction and school engagement, suggesting that as school engagement increases, so does satisfaction with the school. However, the interaction effect between age and level of school engagement indicated a decrease in school satisfaction (\( p < 0.01 \)), \( N = 3,163 \) (see Table 3). Previous research has demonstrated a decline in school satisfaction with increasing age (Khan, Lee, & Horwood, 2022; Liu, Mei, Tian, & Huebner, 2016). This suggests that although satisfaction with school and school engagement are positively correlated, age emerges as a significant variable that negatively influences both variables when introduced into the analysis.

The coefficient of determination R-sq is 0.4299, indicating that approximately 43% of the variance in the data can be accounted for by the variables age, school engagement, and their

| Table 3. Regression matrix for school satisfaction by age and school engagement |
|---------------------------------|------------------|----------------|-----------------|------------------|------------------|
| Outcome variable: School satisfaction |
| Model Summary | R | R-sq | MSE | F | df1 | df2 | p |
| Model coeff | if | t | p | LLCI | ULCI |
| constant | 91.2028 | 3.1632 | 28.8328 | 0.0000 | 85.0008 | 97.4049 |
| Age | −2.4817 | 0.2128 | −11.6619 | 0.0000 | −2.8989 | −2.0644 |
| School engagement | 0.0846 | 0.0588 | 1.4378 | 0.1506 | −0.0308 | 0.2000 |
| Int_1 | 0.0276 | 0.0042 | 6.5790 | 0.0000 | 0.0194 | 0.0358 |
| Product Terms Key | Int_1: Age x School engagement |
interaction. The relationship between age and school satisfaction was positively moderated by the interaction term, which was statistically significant. Figure 2 illustrates this relationship, showing that, as students progress in age, their satisfaction with school decreases. Moreover, a high level of school engagement is linked to high levels of satisfaction with school.

At younger ages, the level of school engagement is higher and correlates with a higher level of satisfaction with school. As the child gets older, it can be seen that the levels of school engagement and satisfaction with school decrease; thus, at 18–19 years they are greatly reduced.

The interaction coefficient was statistically significant ($R = 0.0276, p = 0.01$), suggesting that the association between age and school satisfaction is contingent on the level of school engagement. However, the interaction effect explains only a small proportion of the variability in school satisfaction ($R^2 = 0.0042$), which indicates the likelihood that other variables not included in the research contribute to the decrease in school satisfaction. Although the research hypothesis was confirmed, this represents the first step in identifying other variables with moderating roles in age satisfaction with school relationships.

It is important to note that while these findings are statistically significant, they do not necessarily imply a causal relationship between the variables.

**DISCUSSION**

The focus of school involvement is the school community to which the pupils belong. The school is a place for learning. It is defined as an organisation made up of a collective of

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*Fig. 2. Relationship between age and satisfaction with school, moderated by school engagement*
individuals (e.g. students and teachers) who engage in school-related activities (social, work, and learning) (Wong & Liem, 2022). Based on this definition, private or public educational institutions, from primary schools to universities, are considered schools. Although researchers study the construct at the school level, students are likely to feel that they belong to a particular community within the school, feel attached to their peers and teachers, and identify strongly with the members of the class group. Students tend to engage in and identify with multiple sub-contexts within a school, each contributing to their perception of the school and overall sense of belonging (Knifsend, Bell, & Juvonen, 2017).

Our findings are consistent with those of previous studies. In a study by Weber and Harzer (2022) involving 300 students, the relationship between school satisfaction and enjoyment of learning, which was included in the scale used in our research, revealed positive correlations among these variables, all of which were associated with higher academic achievement. Another study conducted by Molinari and Grazia (2023) on 1,065 middle school students indicated a link between various educational practices that contribute to school satisfaction and student engagement in the learning environment. Students who were highly disengaged reported feeling significantly less enthusiasm and encouragement from teachers and perceived their classroom environment as less supportive than moderately disengaged students.

This study aimed to explore the role of school engagement as a moderator in the association between age and school satisfaction. Previous research has indicated a decline in the level of school engagement as individuals aged. A strong correlation exists between high levels of school engagement and increased school satisfaction, suggesting that the former may serve as a protective factor. In recent years, numerous hypotheses have emerged to explore the factors contributing to the decline in school and life satisfaction in general, with a focus on understanding psychological, social, and biological influences on well-being. The central contribution of this study lies in its innovative examination of school satisfaction, using school engagement as a predictive factor. We were unable to investigate the possible differences between theoretical and vocational school units regarding school engagement because we did not use this variable in the present study. However, age appears to be the most important factor in predicting school engagement, suggesting a need for educational interventions tailored to different age groups. Gender differences, although less pronounced, could justify personalised approaches for boys and girls. Additionally, the small differences between rural and urban environments could indicate the need for specific strategies for each type of community.

The originality of the study is that it is research from the perspective of children and adolescents, as revealed by themselves. Indeed, many results have been based on proxy reports by teachers (Kaar, 2022; Kumpunen, Shipway, Taylor, Aldiss, & Gibson, 2012). Research has shown that teachers and children focus on distinct issues when assessing their engagement. Teachers focus more on achievement, whereas students focus more on social aspects (Niia, Almqvist, Brunnberg, & Granlund, 2015). The results showed little variation between teacher ratings, whereas most of the children were rated with a high level of engagement.

Another distinctive aspect of this study is the sample size and the broad age range covered, spanning from 10 to 19 years, which facilitates the formulation of conclusions that enable the observation of progressive changes. Preliminary exploratory analysis revealed a notable threshold around the age of 12 years, indicating a pivotal point that transitions the child into a category of developmental change, a finding consistent with existing literature. The research findings demonstrated that between the ages of 10 and 12 years, scores on both school
engagement and school satisfaction assessments were comparable yet declined thereafter. While
the explanation is not exhaustive, as numerous factors contribute to variations in the levels of
satisfaction with school, the results contribute to the development of a plausible explanation:
burnout resulting from excessive or overly challenging academic demands beyond students’
capacity to manage leads to disengagement from the school environment and its associated
components. When this phenomenon takes root, students are more inclined to exhibit reluct-
tance to attend school, initiate steps towards absenteeism, and eventually gravitate towards
dropping out. Conversely, when the school environment becomes sufficiently appealing, the
likelihood of children and young people actively participating in and engaging in all aspects of
school increases. School satisfaction encompasses a blend of curricular and extracurricular
activities, interactive learning experiences, play-based learning, nurturing, and supportive
relationships among all school stakeholders, and, above all, safety within a violence-free envi-
ronment. Additionally, parental support and the establishment of a collaborative family-school-
community partnership further enhances these dynamics.

Decline in school engagement had a significant impact on school satisfaction. When students
exhibit low interest in school activities, they often feel disconnected from their peers and teach-
ers, leading to poor academic performance. As students progress through school, both school
engagement and satisfaction tend to decrease, potentially fostering feelings of marginalisation
and ultimately contributing to dropout rates. Protective factors, such as participation in extra-
curricular activities and initiatives aimed at fostering group cohesion, as well as the implemen-
tation of enjoyable teaching methods that ignite students’ enthusiasm for learning, can serve
as strategies for promoting school engagement and, consequently, enhancing overall school
satisfaction.

A key research enquiry addressed whether Romanian students experience overwhelming
academic demands that they become disengaged from school, consequently leading to a decrease
in their satisfaction with school. Given that the existing literature predominantly focuses on
disengagement during older age, we believe that solely examining adulthood in our investigation
would be overly simplistic. This approach presupposes that disengagement is primarily caused
by numerous and challenging demands. However, they overlook the multitude of factors that
contribute to this phenomenon, often in a synergistic manner. These factors include family
socioeconomic status and dynamics, interpersonal relationships developed within the school
environment with peers and teachers, feelings of insecurity both at home and at school, aca-
demic performance, and dissatisfaction with grades, as well as deficits in self-control and
emotional management. Of particular significance are the role of chronic stress and an individ-
ual’s inability to cope effectively with it emotionally. Consequently, it is plausible that an adult
displaying a lack of interest in their professional activities may have been a stressed student who
felt uncomfortable in the school environment, thereby perpetuating maladaptive emotional
coping strategies.

This study has several limitations, primarily stemming from its correlational approach rather
than a panel research design, which restricts its ability to test causal mechanisms. Although the
sample size is significant, it is restricted to students from only one county in northwest Romania.
Notably, the results may have been influenced by the national and regional characteristics
specific to this area. Additionally, data collection occurred during the pandemic, which is likely
to have influenced the findings. Field research was conducted in the spring of 2021, over a year
after the onset of the Covid-19 pandemic, during which students attended classes remotely from
home for an extended period in isolation. This may have contributed to the heightened desire among students to return to in-person classes, seek interaction with peers, and alleviate the sense of confinement experienced at home. Consequently, the reported enthusiasm to attend school describes the pandemic and immediate post-pandemic period. Another limitation of this study is that the scale used assessed the enjoyment of being at school and feelings towards school activities, while other aspects of school engagement were not addressed (e.g. assessment of cognitive, behavioural, social engagement, active contribution, and student initiative in the learning process). We preferred to use this scale, which is frequently employed in the literature, in the context of the research objectives to identify the contribution to the variation in students’ level of satisfaction with school (Schaufeli et al., 2002). A multi-method approach, combining different scales, and perhaps even qualitative methods, could provide a more complete and nuanced picture of school engagement among adolescents. Furthermore, the study measured satisfaction with school, which may have been inflated by the offsetting effects of isolation from home and self-study. In future research endeavours, additional variables will be introduced into the model, and the analysis will be enriched by incorporating averaging and moderation techniques. Hypotheses will be rigorously tested using structural equation modelling to account for statistical errors and explore causal relationships more comprehensively.

Another limitation of this study is its cross-sectional design. We believe that further longitudinal research is needed, involving other variables such as socio-demographic variables, personality factors, life experiences, and coping mechanisms, for example, that would allow for a faithful investigation of the variation in school engagement and satisfaction with school.

School engagement depends largely on interactions and connections between individual children and their environments. Thus, the study of engagement should be viewed as a multi-dimensional problem that differs across different environments and situations. This implies that the focus should be on creating satisfaction with the school environment, with all that it represents, to support the needs and abilities of children and adolescents.

CONCLUSIONS

In our study, we investigated the extent to which school engagement mediates the relationship between age and satisfaction with school, with the results confirming data from similar studies that there is a positive correlation between school satisfaction and school engagement. However, the interaction effect between age and level of school engagement indicated a decrease in satisfaction with school, with age emerging as a significant variable that negatively influenced both variables when entered into the analysis.

The correlational and transversal approaches, which narrowed the explanatory-causeal perimeter of the studied phenomenon, may have limited the accuracy of our results. However, this is part of a larger study on the influence of age on school satisfaction and satisfaction with life as a whole moderated by school engagement, academic burnout, and social desirability, which represents a new contribution to the literature. In this study, we focused only on school engagement as a predictor of satisfaction with school in adolescence, highlighting the need and importance of running programs to develop attraction to the school environment, which also refers to school climate, relationships with peers, teachers, school tasks, and a good family-school relationship.
Similarly to how an adult’s workplace is regarded as the primary source of satisfaction and resources, schools are considered equally significant for a child. Every change, event, success, and failure within the school environment contributes to variations in subjective well-being. Therefore, it is imperative to identify and implement interactive and engaging teaching-learning strategies and methods that enable students to enjoy coming to school and foster a sense of belonging where they feel heard and supported. Additionally, developing programs that teach children how to cultivate and sustain happiness throughout their lives could substantially contribute to building a healthier and happier society.

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