SOCIOEMOTIONAL SKILLS ARE FOR LIFE:

The relationship between sociomotional development and school achievement, learning strategies, subjective well-being, mental health, academic self- esteem, violence, bullying and school belonging

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SUMMARY

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SUMMARY

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PRESENTATION

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SUMMARY

Presentation

There is a growing concern among educators and researchers regarding the development of children and young people as independent and upright individuals that are capable of acting as change promoters in society, benefiting themselves and others. In line with this, educational public policies proposed in recent decades seek to emphasize, in their conceptions and actions, the holistic perspective of human beings.

A more holistic education represents this educational paradigm that aims at the development of the student in all his diverse and complex dimensions, breaking with reductionist views that fragment and privilege the intellectual or affective dimension[1]. Based on intentional practices that promote the overall development of the individual, it is expected that the school trajectory of each student includes the development of skills that favor their self-knowledge and protagonism in the various dimensions of life, such as the intrapersonal, environmental, social, cultural, economic and interpersonal dimensions.

Going through these dimensions, there is a wide range of protective factors capable of helping students during their career in the short and long term: **the benefits of socioemotional development.** This happens because, based on the perspective of comprehensive education, it is possible to intentionally promote the development of socioemotional skills that allow learning, interacting and developing problem-solving skills, but which also have effects that last and are significant throughout life.

In recent decades, several scientific studies have sought to map and understand socioemotional skills and the results achieved with the implementation of interventions and educational policies focused on their intentional development at school. It is known today, according to these studies, that socioemotional development plays an important role in promoting protective factors in various areas in the student's life. Longitudinal research, that is, studies that follow and study a group of people over the years, have shown

that those students who participated in socioemotional development programs showed improvement in academic performance, greater salaries when they become adults, better physical health indicators, mental and family health and reduction of behavioral and emotional problems[2-5]. That is, the intentional development of socioemotional skills contributed to the enhancement of the adaptive capacity of children and young people and their immediate interactions and was able to develop future benefits[6-9a]. This happens because socioemotional skills permeate different areas of life, favoring different gains when well developed.

Therefore, knowing more deeply the relationship between socioemotional skills and specific aspects of life can help in the elaboration of strategies in favor of the improvement of educational policies of a comprehensive education, considering, also, different needs and specificities. In this way, the outline of focused actions is enriched when, for example, a school network or a school aims to promote the mental health of its students, or when it seeks to reduce problems related to violence and bullying. In this sense, scientific knowledge aligns with evidence that should support the design of actions and policies.

However, it is worth considering that, due to the complexity of the relationships between socioemotional skills and protective and risk factors, it is necessary to consider indicators and evaluative processes within a context. Thus, it is possible to measure such aspects of life and investigate which socioemotional skills are more related to them, but it is necessary to understand how individual and social characteristics are articulated to these aspects in a given environment. This happens because each protective and risk factor is multifaceted and encompasses the interaction of socioemotional, biopsychosocial and sociocultural dimensions; in other words, they are multi-determined. So, when considering this approach, we welcome the perspective that school experiences vary from individual to individual, especially when thinking about aspects of social indicators of diversity, such as gender and race[10].

Thus, by knowing the set of specific socioemotional skills to work with

[a] To learn more, visit: *https://institutoayrtonsenna.org.br/app/uploads/2022/12/instituto-ayrton-senna-avaliacao-socioemocional-1.pdf.*

different protection and risk factors, by having adequate assessment tools and by considering the context in which students live in that moment, it will be possible for managers to enrich the monitoring, the planning and implementation of proposals that meet the unique demands of the school network or guide a customized approach in schools.

In this sense, eduLab21, the Laboratory of Sciences for Education at the Ayrton Senna Institute, has carried out research in this area since its foundation, aligned with educational scientists and other institutions around the world (such as the Organization for Cooperation and Economic Development [OECD][11]), in order to understand and discuss the processes and phenomena associated with protective and risk factors, and understanding them as multi-determined, as will be presented in *Chapter 1*. It is worth noting that the objective of the research carried out is not to establish causal or deterministic relationships, but rather to provide support to broaden the debate on comprehensive education and provide a greater scientific basis for decision-making in this field.

With the aim of moving forward and contributing to the studies already carried out, we deepened the study of the relationship between socioemotional skills and specific protective and risk factors of students of basic education in the Brazilian public school network,named here as the **benefits of socioemotional development**. The results of these studies will be presented in the following chapters, demonstrating how these phenomena are understood and which socioemotional skills can leverage such benefits. In this volume 1 of the collection, the following benefits are highlighted: **well-being** (*Chapter 2*), **school achievement** (*Chapter 3*), **school belonging** (*Chapter 4*), **mental health** (*Chapter 5*), **mitigation of school violence and bullying** (*Chapter 6*), **academic self-esteem** (*Chapter 7*) and **learning strategies** (*Chapter 8*).

We hope, with this document, to reach a wide and diverse audience, not just researchers and specialists in the subject. The objective is to share, in a direct language that is understandable to all, the knowledge that the Ayrton Senna Institute and eduLab21 have developed about socioemotional skills and their benefits. In addition to this material, we suggest the literature that supported our studies, such as the books and scientific articles listed in

Chapter *Want to know more?*. To learn more about the statistical analyses presented in the e-book, we suggest the Chapter *Do you want to know more about the data analyses presented in this e-book?*.

To remember: what are socioemotional skills?

Socioemocional skills are defined as individual characteristics that manifest themselves through consistent patterns of thoughts, feelings and behaviors and that are developed through formal and informal learning experiences. They are organized into a set of capabilities that help the individuals in managing their daily activities, understand their own needs and resources and addressing life's challenges, and they can affect important socioeconomic throughout life[12b] .

The English version of this ebook aims to broaden the scope of the content that is covered in this material, as part of our actions as UNESCO Chair in Education and Human Development, in support of the achievement of the Sustainable Development Goal on Education: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". Among the strategic approaches indicated for contributing to this goal is the "development of more consistent and comprehensive assessment systems to evaluate learning outcomes at critical points...", "...to reflect both cognitive and non-cognitive skills". We position this ebook, therefore, as a product of our efforts to apply comprehensive and systematized assessment systems for socioemotional skills, and the life outcomes related to them, at critical moments in reality, pre- and post-COVID-19 pandemic. Thus, through such assessments, we identify and inform school community and society about how the socioemotional trajectories of children and adolescents were affected during this period and how such skills can leverage aspects of life such as mental health and student well-being, aiming at a holistic approach to education - one that provides opportunities and seeks to guarantee development that considers the human being as a whole.

[b] To learn more, visit: *https://institutoayrtonsenna.org.br/app/uploads/2022/12/instituto-ayrton-senna-avaliacao-socioemocional-1.pdf*.

ABOUT OUR STUDIES

Ana Carla Crispim, Ana Carolina Zuanazzi, Catarina Possenti Sette

SUMMARY

About our studies

Knowing a phenomenon or the relationship between phenomena implies analyzing a set of observations and drawing conclusions about it. These conclusions, in turn, will be, to a greater or lesser extent, subject to generalization, systematization or replication. The method of production and analysis of data on the observed object has a direct impact on the quality of our conclusions and, consequently, on the knowledge produced and decisions taken based on them. Adopting investigative methods that bring together a set of information obtained from reliable sources and through rigorous and systematized means allows confronting information and expanding knowledge. Thus, we move from common sense or unsystematic knowledge to evidence-based knowledge.

In the educational context, as well as in others, evidence-based knowledge guides decision-making and enhances the best allocation of resources and the achievement of expected results. Therefore, there is a need for studies that consider both accumulated knowledge (that is, the gathering and consolidation of different studies) and the investigation of how phenomena are observed in certain contexts, considering their particularities.

In this document, we propose to this end by adopting a set of steps for research on the relationship between socioemotional skills and their benefits for students from school grades of middle school and high school. With this, we hope to consolidate the main findings from theoretical and empirical studies and test hypotheses using Brazilian instruments and datasets.

Important!

It is worth considering that this analysis does not intend to indicate the existence of an ideal score that should be achieved by all students and at the same moment in life. Such a conception would disregard developmental and individual singularities. Thus, this analyses refers to highlighting the importance of intentional work with socioemotional skills through the presentation of its relationship with life benefits.

To identify which socioemotional skills are associated with the benefits described in this e-book , the following steps were followed:

1. **Elaboration of theoretical hypotheses**, based on a literature review, considering studies that investigated the relationship between protective and risk factors and socioemotional skills.

2. **Empirical investigation of the correlations** between protective and risk factors and all the socioemotional skills included in the framework adopted by the Ayrton Senna Institute, based on data obtained through collaborations with various educational networks around the country.

3. **Investigation and identification of how much each socioemotional skill contributes to that benefit**, based on statistical analysis, such as linear regression. This type of analysis allows us to infer how much socioemotional skills can contribute to these benefits, for example.

Next, we will present the characteristics of the participants and the measures used in each investigation. In each chapter, we will present the hypotheses created about which socioemotional skills are most related to the protective and risk factors, how much each skill contributes empirically to that aspect of life and the discussion about each of those relations found.

Who are the participants in our studies?

This material will present studies carried out with school networks in the Southeast and Midwest regions of Brazil in 2019 and 2021. In one of the studies, 50,827 students from the school years of Middle and High School participated in 2019. In the second study, 110,994 students from the 5th and 9th grades of Elementary and Middle School and the 3rd grade of High School participated in the year 2019. In the third study, in 2021, participants were 694, 405 students in the 5th and 9th grades of Elementary and Middle School and the 3rd grade of High School. In these three studies, students' age varied between 10 and 18 years old and there was, in general, a balanced distribution of boys and girls, around 50% of respondents of each sex[c].

All students responded to the Senna instrument (a socioemotional skills measure, more below) and a specific set of instruments that assessed the benefits of socioemotional development. To distribute these instruments in a balanced way among the students, the BIB method was applied (i.e., Incomplete Balanced Blocks[13]). This method was adopted to prevent the same student from answering a very large set of items and, as a result, from getting tired or reducing their attention span during their assessment. Thus, the number of respondents per instrument may vary in the same study, depending on which sample and which benefit is being investigated.

How were socioemotional skills assessed?

For the assessment of socioemotional skills in the studies reported throughout the chapters of this e-book, the **Senna Instrument for assessing socioemotional skills[d]** was used.

The instrument consists of 162 statements about socioemotional skills, and students must answer how much that personal characteristic relates to

[c] Study 1: data collection in 2019, N = 50,827, 50.65% girls and 49.35% boys; study 2: data collection in 2019, N= 110,994, 49.91% girls and 50.09% boys; study 3: data collection in 2021, N = 694,405, 49.51% girls ,and 50.49% boys.

[d] Do you want to know more about the Senna instrument? Access here: *https://institutoayrtonsenna.org.br/app/uploads/2022/12/instituto-ayrton-senna-avaliacao-socioemocional-1.pdf*

them. There are also questions that investigate how capable respondents feel to exercise these same socioemotional skills, that is, the students' self-efficacy in exercising each skill. Each statement is answered on a scale with five response options ranging from "It has nothing to do with me" to "It has everything to do with me"[e].

How were the benefits of socioemotional development evaluated?

For the evaluation of these phenomena in the studies reported throughout the chapters, different instruments were used.

School belonging

To measure school belonging, a questionnaire was used that reflects aspects of the school environment, relationships with colleagues and teachers, as well as feelings of security and belonging. Students responded to sixteen statements in which they were asked to indicate how true they were to them (1 = Totally false, 2 = Slightly false, 3 = Neither true nor false, 4 = Slightly true, 5 = Totally true). Based on these responses, an indicator of school belonging was calculated using the Percent of Maximum Possible score method (called the POMP score). This indicator varies between 0 and 100; the closer to 100, the greater the student's feeling of belonging to school. The reliability of this instrument was $\alpha = 0.84$[f]. The correlation between the POMP score and the score calculated with the Item Response Theory[g] Partial Credits model was r = 0.98.

Subjective well-being

For the assessment of subjective well-being, The World Health Organization was used – Well-Being Index (WHO-5) – Brazilian version, which is an

[e] To learn more about the assessment of socioemotional skills and the Senna Instrument, visit: *https://institutoayrtonsenna.org.br/app/uploads/2022/12/instituto-ayrton-senna-avaliacao- socioemocional-1.pdf*

[f] Reliability of scores for all instruments in this ebook was calculated using Cronbach's Alpha (α).

[g] To learn more about Item Response Theory, we suggest reading Hutz, Bandeira, Trentini[14], Pasquali and Primi[15] and Pasquali[16]. These references can be found in the section "*Want to know more*?" of this ebook

internationally recognized tool to assess well-being. The instrument consists of five statements about how the student feels and evaluates themselves, considering issues such as feeling well-disposed, active and rested. Each statement is rated on a scale with six response options ranging from "Never" to "All the time". Based on these responses, an indicator of well-being was calculated using the Percent of Maximum Possible score method (called the POMP score). This indicator varies between 0 and 100; the closer to 100, the greater the student's feeling of well-being. The instrument's reliability was $\alpha = 0.80$. The correlation between the POMP score and the score calculated with the Item Response Theory Partial Credits model was $r = 0.99$

Mental health

Mental health was measured using an instrument adapted from the General Health Questionnaire (GHQ-12) – Brazilian version. The instrument is composed of twelve items that assess how much the person showed some behaviors, such as the ability to concentrate and make decisions or feel contented with their day-to-day activities. In one of the studies, responses were given on a scale with five options ranging from "Not at all" to "Totally". Based on these responses, a mental health indicator was calculated using the Percent of Maximum Possible score method (called the POMP score). This indicator varies between 0 and 100; the closer to 100, the more behaviors related to positive aspects of mental health are reported by students. The instrument's reliability was $\alpha = 0.80$. The correlation between the POMP score and the score calculated with the Item Response Theory Partial Credits model was $r = 0.99$.

School violence and bullying

To measure violence in the school context, students answered ten questions about violent behavior in the last thirty days. The questions are about behaviors related to physical fights between colleagues, indiscipline, being bullied and practicing bullying. All questions were answered with "Yes" or "No". For the analyses, a single violence index was developed based on the sum of "Yes" responses. That is, the score ranged from 0 (equivalent to no reported type of violent behavior) to 10 (equivalent to ten reported types of violent behavior). Thus, this indicator brings information about violent behaviors reported

and experienced by students in their school environment. The instrument's reliability was α = 0.75 for school violence and α = 0.76 for victims of bullying.

School achievement

The evaluation of school achievement was carried out based on the students' standardized grades, for the curricular components of Portuguese Language (the score varied between 87 and 416 points) and Mathematics (the score varies between 99 and 433 points). These grades were obtained in an state assessment carried out by school network.

Academic self-esteem

Academic self-esteem was assessed using seven items that dealt with the student's perception of their academic abilities. Students answered questions on a five-point scale ranging from "1 – Not at all. It has nothing to do with me" to "5 – Totally. It has everything to do with me". Based on these responses, an indicator of academic self-esteem was calculated using the Percent of Maximum Possible score method (called the POMP score). This indicator varies between 0 and 100; the closer to 100, the better the students' perception of their academic abilities. The reliability of this instrument was α = 0.76. The correlation between the POMP score and the score calculated with the Item Response Theory Partial Credits model was r= 0.99.

Learning strategies

The learning strategies were evaluated through twelve questions about the techniques that the students use to study. The questions were answered on a scale with four options ranging from "1 – Almost never" to "4 – Almost always". The instrument was built based on the Student Approach to Learning and adapted for a Brazilian version. From this instrument, scores are generated for memorization, effort and persistence, elaboration and monitoring strategies. Based on the responses, an indicator was calculated for each learning strategy using the Percent of Maximum Possible score method (called the POMP score). This indicator varies between 0 and 100; the closer to 100, the greater the frequency of use of the learning strategy by the student. The reliability of this instrument was satisfactory (α = 0.69 for monitoring, α = 0.73 for elaboration,

α = 0.71 for memorization and α = 0.72 for effort and persistence). The correlation between POMP scores and scores calculated with the Item Response Theory Partial Credits model was r = 0.99 for the four strategies.

How to understand the statistical results of each chapter?

Throughout the chapters, we will present the results of the studies and the relationships found between socioemotional skills and each protective or risk factor assessed. These results were obtained using statistical methods such as correlations and multiple linear regression. With these methods, one can understand how much each socioemotional skill is associated with each outcome and how much it can contribute to the exercise of such outcomes. So, to continue reading, it is important to clarify some concepts that we are going to user.

Statistics glossary

Variable: *is the attribute or element being measured. It can take on different values under different circumstances. For example: socioemotional skills, protective and risk factors.*

Correlation: *is a statistical procedure to understand how much two variables or two themes are related to each other. Correlation indicates the strength and direction of the association (or relationship) between two variables, but it does not show whether one element impacts the other. The direction is given by plus (+) and minus (–) signs, indicating whether the relationship is positive or negative, respectively. The correlation strength is given by values from –1 to +1. Values close to –1 indicate strong and negative relationships. Values close to 0 indicate that the relationship is weak or non-existent. Values close to +1 indicate strong and positive relationships. In this material, Pearson correlations are used.*

Association or positive relationship: *when two variables or elements are associated*

(or correlated) in a positive way, this means that, as the value of one of them grows, the value of the other also grows. Likewise, when the value of one of them decreases, the value of the other also decreases. For example, a positive association between stress tolerance and mental health indicates that the higher respondents' scores on stress tolerance, the higher their mental health scores.

Association or negative relationship: *when two variables or elements are associated (or correlated) in a negative way, this means that, as the value of one of them increases, the value of the other decreases. That is, there is an inverse relationship between the variables. For example, a negative relationship between empathy and bullying indicates that the higher the empathy scores, the lower the bullying scores.*

Linear regression: *is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable. It is similar to the correlation procedure; however, linear regression makes it possible to predict variables, that is, to understand how much the increase in a variable influences another variable, whereas correlation only presents the strength and direction of the relationship between –1 and +1. That is, linear regression allows knowing how much the value of the chosen variable increases or decreases when the value of another variable increases by 1 point (when using unstandardized estimates). Based on these results, we were able to infer, for example, whether, by increasing the development of skills such as empathy,there is a decrease in school violence reported by students.*

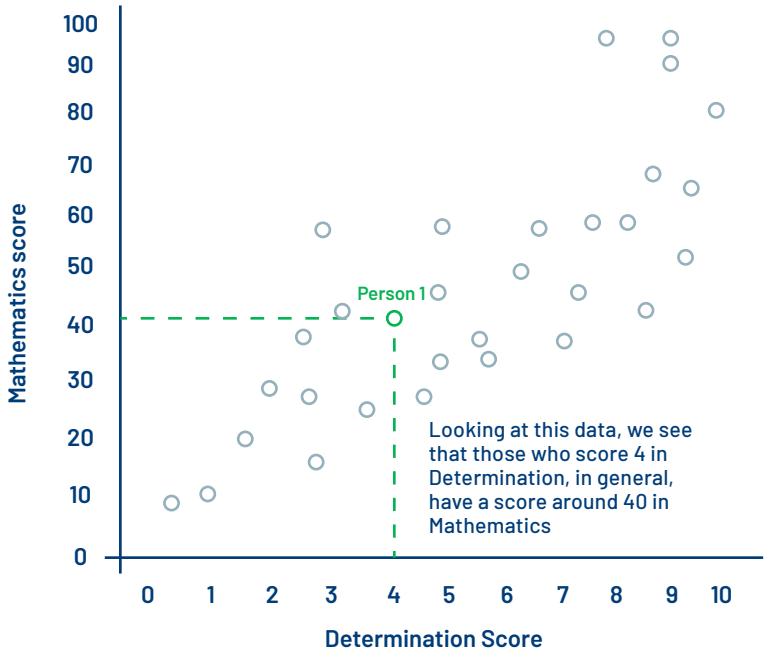
See: [17–19]

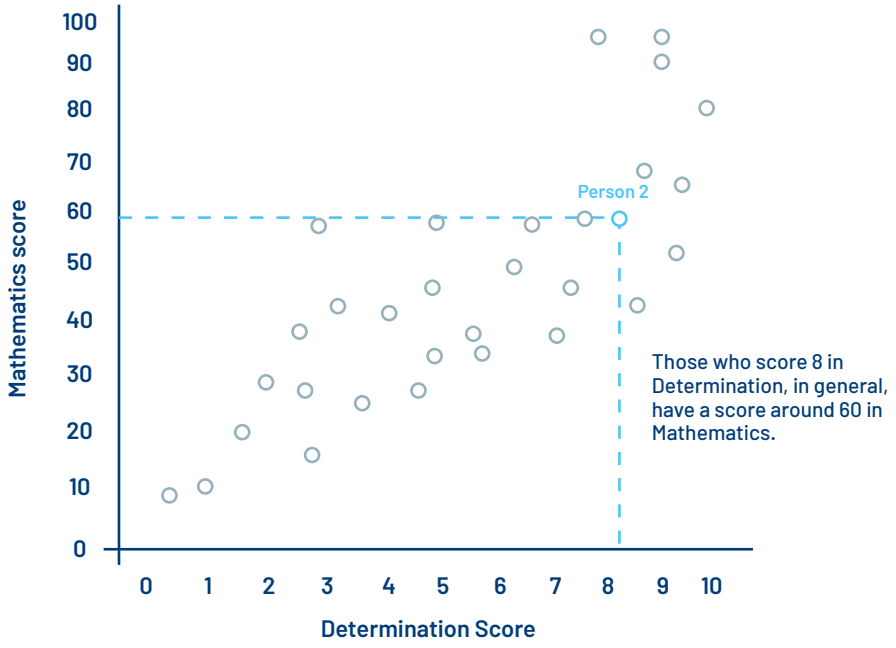
Let's see an example of how to interpret these analyses!

There are studies that indicate that self-management skills[h], such as being determined and persistent, are important for students' school life, as it helps them to persevere in the face of obstacles and achieve their goals and objectives. At school, students who are more determined have, in general, higher grades in Mathematics and Portuguese. To exemplify this type of analysis, we brought some fictitious data. See the figures below. Each circle represents a fictional student and their fictional Mathematics (vertical axis and Determination (horizontal axis) scores. The Mathematics score ranges from

[h] Do you want to remember what socio and emotional skills are? Access here: *https://institutoayrtonsenna.org.br/app/uploads/2022/12/instituto-ayrton-senna-avaliacao-socioemocional-1.pdf*

0 to 100. The determination score ranges from 0 to 10. **Person #1** has a score of 4 in determination and a score of 40 in Mathematics. **Person #2** scores around an 8 in determination and a score of 60 in Mathematics.





When looking at all the circles, there is a pattern: as determination scores increase, so do Mathematics scores. This means that these two constructs are positively associated, as the increase in one reflects the increase in the other. To find out how much the two themes are related, it is possible to arrange them graphically, as previously done, and perform correlation and linear regression analyses. In these fictitious data, based on Pearson's correlation formula, the calculated correlation is +0.82. That is, there is a strong and positive relationship between having high grades in Mathematics and reporting more determination. And, when doing linear regression based on these data, the result indicates that if a student increases his determination by 1 point (the determination score varies between 0 and 10), his score in Mathematics increases by 6.87 points (Mathematics scores range from 0 to 100). That is, from these data, it is understood that there is a strong relationship between both constructs and that the increase of 1 point in determination can increase around 6.87 points in Mathematics.

Important!

When these analyses are carried out with real data, it is necessary to consider that other issues, such as the context of life or socioeconomic conditions, can influence the protective and risk factors because these factors are multidetermined by a wider range of variables. Although associations were observed between socioemotional skills and protective and risk factors, it is worth considering that, as these are multifaceted, socioemotional skills contribute to a part of the whole, in the reported measures. In addition, other variables that were not included in the analyses can also affect the relationships studied. Therefore, caution is suggested in interpreting the results and it is recommended that complementary readings of other studies in the scientific literature are made, such as experimental studies, in order to understand and contextualize such results.

CHAPTER 01

Socioemotional skills, life outcomes and risk factors: considerations about the multidetermination of these phenomena

Danielly de Souza Oliveira, Ana Carla Crispim, Ana Carolina Zuanazzi, Cleidson Borges and Thaís Bertin Brandão

SUMMARY

Socioemotional skills, life outcomes and risk factors: considerations about the multidetermination of these phenomena

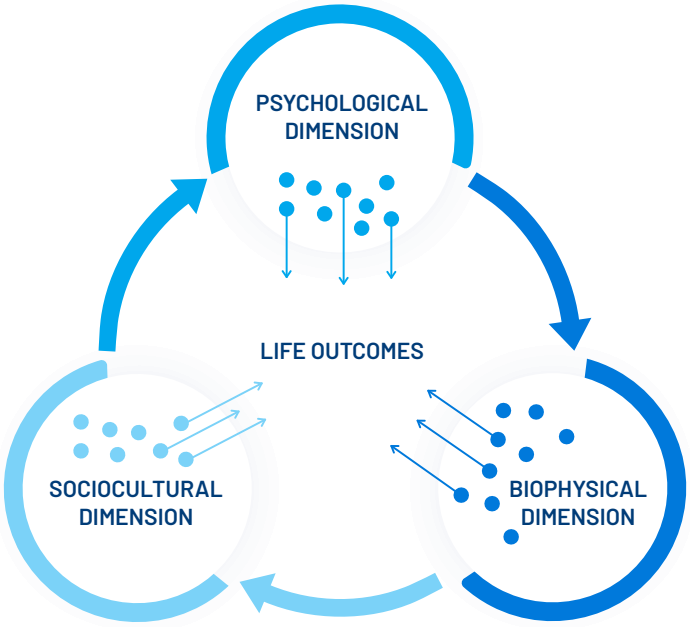
When evaluating an event, it is common that questions about the reason and the cause of the event happen, for example: "he practiced bullying because he is confrontational", "he did not have a good result because he is lazy". In these examples, the emphasis is on the occurrence of the behavior (practicing bullying or not having a good result), and not on the investigation for elements that explain the phenomenon in a contextualized way, such as: in which situation bullying occurs or does not occur, or when expected achievement results are obtained or not. In the school context, this type of view and explanation is simplistic and limits interventions and the implementation of adequate public policies, reducing the possibilities of understanding the phenomenon in an integral way.

When we go deeper to understand what favors the occurrence of behaviors or any other phenomena, such as the learning process, it is understood that it is necessary to consider other aspects that go beyond a reductionist view. For the student to learn about an academic subject, it is necessary to take into account his biological development; for example, a baby is not expected to be able to solve calculations, as their brain is still in development and there is knowledge acquisition process with prerequisites (such as understanding words and mathematical concepts, developing abstract reasoning). At the same time, it is necessary to consider intrapersonal aspects, such as resources that the student has to remain curious, deal with their own mistakes and challenges, deal with their emotions, be organized or motivated to perform an action. It is also critical to consider the context in which learning takes place; here, the context is multiple, ranging from objective issues such as the layout and quality of infrastructure in the classroom, school and neighborhood, to subjective elements such as beliefs, values and relationships that are established.

To understand this dynamic of human phenomena, one can think about these aspects with the aid of the dimensions didactically organized in psychological, sociocultural and biological for the comprehension of human development[20].

The psychological dimension integrates the mental or psychological processes related to the way each person constitutes themselves as an individual and behaves in the environments in which he lives. The sociocultural dimension brings together historical, social and cultural aspects, and contributes to the construction of practices of thinking, acting and feeling in a community[10]. Finally, the biological dimension encompasses both physical, biological and physiological elements. A representation of these dimensions can be found in Figure 1.

Figure 1. Dimensions and the multidetermination of life outcomes.



Source: developed by the authors based on Engel's proposal[20].

These three dimensions complement each other and contribute to understanding life outcomes. Returning to the example of learning and its various aspects, we can think that the psychological dimension contributes to understanding the functioning of cognitive and socioemotional aspects.

The sociocultural dimension contributes to understanding the relationships that take place in the environment in which learning takes place and how agents interact with each other to favor the learning process, as well as the factors that are related to the students' social, economic and cultural contexts. And the biological dimension contributes to the understanding of the biological and neurological development and maturation processes of each student. That is, each dimension makes an important contribution to understanding the same phenomenon. The understanding of a phenomenon in its complexity, in turn, favors the development and planning of actions in a more dynamic way and favors necessary adaptations that better meet the needs of a context. The implementation of public policies is also facilitated when they are oriented by a multi-determined view, given that it is possible to think about how to achieve an objective from different perspectives.

Several studies have shown the importance of a multi-determined perspective and the potential of actions that favor protective factors and the reduction of risk factors in the short, medium and long term.

Socioemotional skills have been systematically associated with the development of positive attitudes towards oneself and others, better interpersonal behavior and a reduction of conflict problems[2,21], greater adherence to prevention and treatment interventions in the context of health[22], better school learning indicators[23-26], greater class attendance[21] and a better school climate[27] (Want to know more about school belonging? *Click here* and learn more on chapter 5).

In addition to these benefits, socioemotional skills have been part of the debate about mitigating social inequalities[28]. It is important to highlight this debate because both socioemotional skills and their benefits need to be discussed considering differences in access to opportunities and social experiences, drawing the attention of scientific investigations to this problem and reinforcing the need to weigh social indicators of diversity when aspects of the school life are discussed.

What are social markers of difference?

According to Lins and colleagues[10] p.128, "[social indicators of diversity]" is a term used to refer to the various characteristics that we carry with us throughout our lives: gender, race, socioeconomic status, generation, region of origin, sexual orientation". It is a sociocultural concept that seeks to understand how different groups experience different social processes[29].

Expanding the debate: the benefits of socioemotional development and the inequalities in the educational context

In order to integrate this debate on the multi-determination of the benefits of socioemotional development, the concepts of social indicators of diversity and their influence on students' lives will be explored here. We will explore the influence of these social markers on students' trajectories, so that there is a more comprehensive understanding of these factors. Researchers who investigate the social indicators of diversity indicate that they can be used socially to evaluate people's experiences[10]. This reinforces the need to understand socioemotional development and its outcomes in a broader and socially contextualized way. For example, boys and girls have different perceptions of well-being in their lives[11], and young people from more vulnerable socioeconomic status have lower scores in national exams[30]. These data bring to light differences in learning opportunities and basic rights, which raises some questions: Why perceptions of subjective well-being differ between boys and girls? Why students from more vulnerable socioeconomic status present lower school achievement? What other social indicators of diversity might be influencing life outcomes? How can they reinforce these inequalities?

To answer these questions, studies such as the ones listed below have been carried out, which try to understand how much the social indicators of diversity and

inequality in opportunities influence students' school experiences. To contribute to this debate, here we highlight the relationships with gender, ethnicity/race and socioeconomic status. However, before analyzing the data, it is important to know the concepts that permeate this area of study. Shall we?

Glossary

Here, we will present concepts about sex, gender, race and socioeconomic status. These concepts are discussed in the literature and bring with them the theoretical perspectives of the authors.

Biological sex: *can be used as a reference of a person's body, either by the genital organ or the genetic or hormonal combination. In general, the female or male categories are used, for example. It is important to highlight that biological sex does not define gender identity*[10].

Gender identity: *this concept can be used in reference to categories of gender expression, such as cis man or transsexual woman, which go beyond the biological aspect. This concept brings information about how someone defines their identity and how they identify themselves socially*[31,32]*. It is important to highlight that this identity is part of an individual and social construction*[10].

Race: *is a concept used to identify people in relation to certain observable characteristics, such as skin color, facial features, hair texture, among others*[33,34]*, and is related to the cultural-ethnic aspect, generating groups or social categories. The Brazilian Institute of Geography and Statistics (IBGE), in its research on the Brazilian population, adopts the self-declaration methodology working with the following categories: white, black, brown, indigenous or asian (IBGE Educa*[35]*). It is important to note that other studies, in turn, work with different categories, and the black category might include those who identify themselves as black and brown*[36]*. Considering this debate, when referencing research that brings data on race issues, the prioritized nomenclature will follow the original publication and the choice of each author in the case of materials written in Brazilian Portuguese. For publications and works written in English, translations will be made.*

Socioeconomic status: *this indicator can be understood as an expression of a social and economic position that someone holds in society, including their material resources. This category goes beyond a monetary interpretation, and may include other variables in addition to family income, such as the mother's education, place of residence, among others.*

Considerations on the Brazilian racial classification

It is important to highlight that the concepts that guide the Brazilian racial classification were written in the 19th century, and have been been discussed mainly by black activists movements over the years. The use of reported skin color, for example, may seem to express neutral information, but in fact they are categories that also speak about processes of meaning and social hierarchy. The term "black", which has historically been loaded with pejorative connotations, has been re-signified thanks to the activists' movements of black people and entities in order to mark and affirm existing social categories and to denounce racism in Brazilian society[34].

What do we know about the influence of social indicators of diversity on socioemotional development benefits?

Table 1. Subjective well-being and its relationship with social indicators of diversity

The concept of subjective well-being involves how we feel, our satisfaction with life and how we evaluate our experiences.

What evidence is available about the relationship between subjective well-being and social indicators of diversity?

GENDER

According to international studies, girls tend to systematically report less subjective well-being compared to boys, especially during adolescence. This can be expressed through low self-esteem or the greater presence of feelings related to sadness, risk factors for the development of depressive and anxious symptoms.

Learn more with these studies: OCDE[11]; Currie et al[37]; Soto et al.[38]; Bedin and Sarriera[39]; Lizardi and Carregari[40].

Did you know? A recent study indicated that this perception of lower subjective well-being among girls was also reported during the Covid-19 pandemic. Girls reported experiencing negative emotions more frequently than boys during this period[41,42].

RACE

In international studies, adolescents who suffer some type of racial discrimination showed lower levels of subjective well-being. These effects become more evident in adolescence and are related to greater socioemotional distress and a greater propensity for depressive symptoms.

Learn more about this discussion in the studies by Umaña-Taylor[43] and Benner et al[44].

Did you know? According to research on human development, around the age of 10, children are already able to perceive discriminatory attitudes around them. And, during adolescence, young people demonstrate the ability to understand and articulate about these effects in the construction of their own racial and ethnic identity[43].

SOCIOECONOMIC STATUS

In a survey with Brazilian students and also students from other countries, it was observed that those who reported to be in a more vulnerable socioeconomic status reported lower levels of subjective well-being. This may be related to the lack of access to basic needs and rights, such as education and quality housing, which, consequently, affects the quality of life.

Learn more about the studies: OCDE11; Bedin and Sarriera[39].

Did you know? During the Covid-19 pandemic, a study found that Brazilian and European students who reported to be a more vulnerable socioeconomic status showed greater emotional vulnerability. This effect was greater for girls than boys, revealing the impact of the pandemic on pre-existing inequalities, both in terms of gender and socioeconomic status[41].

Table 2. School achievement and its relationship with social indicators of diversity

School achievement is defined as a set of educational measures established in relationship to the degree of learning that students present at a given moment.

What evidence is available about the relationship between school achievement and social indicators of diversity?

GENDER

In a survey by the Department of Education of the State of São Paulo in collaboration with eduLab21 in 2019, it was found that boys have a significantly higher average than girls in Mathematics grades. In Portuguese, girls performed significantly better than boys.

Learn more about this study at: *https://www.educacao.sp.gov.br/governo-de-sp-vai-realizar-mapeamento-inedito-sobre-competencias-socioemocionais-para-servidores-da-educacao/*.

Did you know? There is a common conception that boys perform better in areas related to Mathematics and girls perform better in languages. This representation is based on a social stereotype and ends up being perpetuated in more opportunities and incentives that, generally, boys and girls receive in these areas since they were young, inside and outside school. However, there is no biologically based scientific evidence to justify such conceptions. The effects of this stereotype appear in the different stages of life and are also perpetuated in the long term, such as in the decision of professions or higher education courses[45,46].

RACE

Researches with Brazilian students show that black students have, on average, a lower academic performance when compared to white students. The effects of this inequality are reflected in the reality of schooling and in the future of young black students. According to a report by the Indicator of Functional Literacy (INAF) in Brazil, white people have, on average, one more year of study than black people, and in 2016 there was an interval of more or less six years for a black person to reach the same level of education as a white person.

Learn more about this study at: *Instituto Paulo Montenegro & Instituto Ayrton Senna*[87]

Did you know? These levels of schooling and school achievement among black people are connected with issues of structural racism in Brazilian society. Part of the low schooling rates of young black people in the 21st century is linked to the effects of slavery (legally perpetuated between 1535 and 1888 in Brazil) and the consequent absence of public policies aimed at the economic and cultural integration of this portion of the population in order to repair the disparities generated by the slavery system[47]. The consequences of racism, therefore, are reflected even today in diverse dimensions of a black person's life, such as lack of access to adequate housing, health and education conditions. For example, in the discussion by Matijascic and Rolon[48] about school opportunities in Brazilian basic education, it is seen that, among students of the 9th year, white girls and boys have better results in Portuguese, followed by black girls and black boys. In Mathematics, white boys have higher scores, followed by white girls, black boys and black girls.

SOCIOECONOMIC STATUS

In research with students from Rio de Janeiro, it was observed that socioeconomic factors, such as financial income, influence school achievement. Students with better socioeconomic status performed better in the National High School Examination (Enem).

Learn more aout the studies: Nogueira[49]; Jaloto and Primi[30].

Did you know? In a study by the OCDE (2021), it was observed that socioemotional skills play an important role in school performance even when aspects of gender and economic status are statistically controlled. In this study, it was identified that, in the group of students who report the same gender and the same socioeconomic status, those who perceived themselves to be more socioemotionally developed had higher school performance scores.

Table 3. School belonging and its relationship with social markers of difference

School belonging can be understood as a set of perceptions and expectations that students have about their relation with school, from the physical environment to relationships with colleagues and educators). These perceptions stem from experiences lived in this context and the meanings attributed to them.

What evidence is available about the relationship between school belonging and social indicators of diversity?

GENDER

The results on school belonging and possible differences between genders are varied and dependent on the context of each culture and country. In studies that found differences in perceptions between boys and girls, it is seen that, during Elementary and Middle School, girls feel more connected with the school environment than boys. However, throughout high school, the feeling of belonging for girls decreases, while that for boys remains stable. At school, a low level of belonging can be expressed in students feeling less welcomed by the environment, which impairs the quality with which they establish bonds with their peers and teachers. In the long term, disengagement may be reflected in lower school performance indicators and higher school dropout rates

Learn more about the studies: OCDE[11]; Babakhani[50]; O'Neel and Fuligni[51].

RACE

The perception of racial discrimination itself affects different areas of students' lives, including their relationship with the school. In international surveys, it was found that the perception of this discrimination is associated with a lower sense of belonging to school and is something observed in different ethnic and racial groups of students, such as Latinos and African-Americans.

Learn more about the studies: Umaña-Taylor[43].

Did you know? In an American study, it was found that the greater the number of African-American students at school, the more these students reported feeling they belonged to that environment. This highlights the importance of representativeness in the school environment and the importance of public policies that guarantee equal opportunities and access to the school environment (Murphy & Zirkel, 2015).

SOCIOECONOMIC STATUS

In international surveys, it was observed that more vulnerable socioeconomic students tend to feel less connected with their school environment, while students that less vulnerable socioeconomic students feel more belonging and have better interpersonal relationships with their teachers.

Learn more about the studies: OCDE[11,52,53].

Did you know? In general, less vulnerable socioeconomic students agreed more with statements such as "I make friends easily at school" and disagreed more with statements such as "I feel lonely at school", showing that they have less impairment in the way they establish their relationships in the school environment. The differences were more discrepant among younger students.

Table 4. Mental health and its relationship with social indicators of diversity difference

Mental health can be understood based on the availability of personal resources (cognitive and socioemotional), cultural, interpersonal and adaptive capability of each one. Students that are struggling with their mental health can

manifest symptoms in their physical, emotional and social dimensions.

What evidence is available about the relationship between mental health and social indicators of diversity?

GENDER

According to data from national and international studies, girls tend to report more feelings of loneliness, anxiety, worry and symptoms of depression when compared to boys, especially during adolescence.

Learn more about the studies: PeNSE[54]; Thomas et al.[55]; Van Droogenbroeck et al[56]; De Fruyt et al[42].

Did you know? In the PenSE survey of2015, 22.3% of girls in the 9th grade of Middle School indicated feeling alone, while 10.2% of boys indicated the samefeeling54 . When asked about feeling some kind of preoccupation that made them lose sleep, 15.4% of the girls indicated that they felt that way, compared to 6.9% of the boys. This difference was also found during the Covid-19 pandemic. In a longitudinal research with Middle School students, it was seen that girls had a 17.9% drop in the mental health indicator between 2020 and 2021, while boys had a 6% drop[42].

RACE

Data from international surveys show that black people tend to report higher levels of stress compared to white people. In addition, they tend to report more symptoms of depression and somatization, which is associated with worse mental health indicators and worse school performance.

Learn more about the studies: Boardman e Alexander[57]; Walsemann et al.[58]; Umaña-Taylor[43].

SOCIOECONOMIC STATUS

In a literature review with international data, it was observed that more vulnerable socioeconomic students were two to three times more likely to present internalyzing or externalyzing behaviors, such as negative feelings or conduct problems.

Learn more about the studies: Reiss[59].

Did you know? The effects of socioeconomic status on mental health are stronger during childhood. However, they are also present throughout other stages of life, such as adolescence. Based on studies on social indicators of diversity, it is understood that this relation between socioeconomic status and mental health is complex and should be seen from an intersectional perspective, considering biological, psychological and social aspects, such as genetic components or deprivation of basic rights for full development[59].

Table 5. School violence and bullying e and their relationship with social indicators of diversity

Violence – whether threatened or real – can be defined as the intentional use of physical force or power against oneself, another person or group, which can lead to injury, death, psychological harm, deprivation or compromised development. *Bullying* is a type of violence that is perpetuated through physical, verbal or psychological aggression and through the dissemination of information and rumors that aim to make another person vulnerable.

What evidence is available about the relationship school violence and bullying and social indicators of diversity?

GENDER

National and international surveys show that boys report being bullied more than girls. While boys tend to be more exposed to physical aggression or isolation from a group, girls tend to be more victimized by peer harassment or gossip.

Learn more about the studies: OCDE[11]; Pigozi and Machado[60].

Did you know? In addition to *bullying* being characterized by different behaviors and formats for boys and girls, boys are twice as likely to be bullies. However, this does not mean that they are more aggressive, it means that they are more exposed to *bullying*[60]. This reinforces the need to promote interventions aimed at the intra and interpersonal development of all subjects involved in these events.

RACE

In a sample survey with Brazilian students who responded to the PeNSE 2015, it was observed that black students reported suffering more bullying. This result had already been found in a clipping from PeNSE 2012, in which black and asian students had a higher prevalence in reporting bullying. This exposure to bullying is associated with greater exposure to risk factors as well, such as symptoms of depression or stress[61,62].

Learn more about the studies: OCDE[11]; Malta et al.[63].

SOCIOECONOMIC STATUS

In an OCDE[11] study, socioeconomic vulnerability was associated with reports of *bullying* in some countries. In these countries, younger and more vulnerable socioeconomic students reported being more exposed to *bullying*. In Brazil, this result is also found. In an excerpt from the PeNSE 2015 survey, it was observed that younger boys, from public schools and more socio-economically vulnerable, were also more exposed to *bullying*.

Learn more about the studies: OCDE[11]; Malta et al.[63].

Table 6. Academic self-esteem and its relationship with social indicators of diversity

Academic self-esteem is defined as the student's perception of their own efforts and the consequences of these efforts in their studies.

What evidence is available about the relationship between academic self-esteem and social indicators of diversity?

GENDER

Girls tend to have lower scores in academic self-esteem when compared to boys[64]. Boys reported greater self-efficacy to succeed in activities [65].

Learn more about the studies: Artelt et al.[65]; Kuscuoglu and Hartas[64].

RACE AND ETHNICITY

Ethnic groups tend to differ in their perception of academic self-esteem, with minority groups reporting lower scores on academic self-esteem scales[66]. As proposed by Marsh and Martin (2011), the intentional promotion of academic self-esteem would be one of the central objectives of mitigating inequalities experienced by minority groups.

Learn more about the studies: Cvencek[66]; Marsh and Martin[67].

SOCIOECONOMIC STATUS

Students from less vulnerable socioeconomic status had higher scores in academic self-concepts and self-efficacy, whether in verbal, mathematical or general skills[65].

Learn more about the studies: Artelt[65].

Table 7. Learning strategies and their relationship with social indicators of diversity

Learning strategies concern the way students plan, execute and regulate their motivation and the preferences and strategies they employ in their studies. These strategies are related to the abilities to memorize contents (memorization strategies), to dedicate oneself to the maximum and remain resilient in the face of challenges (effort and persistence strategies), to relate new learning with previous knowledge (strategies of elaboration) and to monitor the learning process as new knowledge is acquired (monitoring strategies).

What evidence is available about the relationship between learning strategies and social indicators of diversity?

GENDER

According to research with OCDE countries, in most countries, girls made more use of monitoring and effort and persistence strategies, while boys made more use of elaboration strategies. That is, girls reported more strategies aimed at assessing their own learning process, while boys applied more strategies aimed at processing information[65].

Learn more about the studies: Artelt et al.[65].

Did you know? It is important to think that both boys and girls can benefit from learning strategies that are diverse and can be applied according to demands. For example, supporting girls to make more use of strategies aimed at deepening the acquired knowledge can help them to apply more elaboration strategies. Boys, on the other hand, can benefit from support to exercise learning planning and monitoring skills, favoring the use of monitoring strategies.

RACE

In a bibliographic search carried out by the authors of this chapter, certain studies on analyzing the differences between race and ethnicity observing the learning strategies were not found. This does not mean that there are no differences among these groups; it means, however, that these differences were not found in the research carried out by the authors of this chapter. Thus, it highlights the importance to keep mapping the social indicators of diversity with the aim to identify inequities and plan strategies for the mitigation of their effects.

SOCIOECONOMIC STATUS

In a study with OCDE data in 2001, it was found that students that were less vulnerable socioeconomic status tended to make more use of monitoring and preparation strategies than students that were from a more vulnerable socioeconomic status. This means that students from more vulnerable socioeconomic status contexts may need more support to exercise strategies that articulate new and previous knowledge, as well as in learning strategies to monitor their learning objectives in an active and intentional way[65].

Learn more about the studies: Artelt et al.[65].

Intersectionality as an essential element for the educational approach to socioemotional benefits

Intersectionality is a field of study that proposes that, when talking about social indicators of diversity, one should consider that there is an association and overlap between them, causing each person to experience the world in a specific way. According to this aspect, it is understood that the indicators can combine and generate complex identities, which allows a broader look at the different experiences. For example, one person might identify as female, heterosexual, and black, while another person might identify as female, white, and transgender; and each of these identities will have, in itself, a social and historical construction that will bring different experiences in accessing information, basic rights, human rights, among others[10].

This perspective allows a more detailed look at the challenges faced by each one and brings with it the relevance of the interdisciplinarity of approaches in order to have a more reliable view of reality. Intersectionality, then, comes as an essential element in interventions, helping to avoid monodetermined visions or monofocal solutions[68], that is, to prevent simplistic or superficial visions.

From the results presented in the tables, some questions can be asked, such as: What strategies can we apply to mitigate social inequalities? How can this data be used for better interventions in schools? Which strategies are more suitable?

This is a complex issue, which involves not only specific actions with school staff and students, but a systematic political and social effort. In this sense, public policies and actions based on scientific evidence are fundamental for data to be monitored, interventions proposed and solutions applied. The tables in this chapter bring data that exemplify the complexity of social indicators of diversity and how they influence different life aspects of each groupd. This is a panorama that can and should be transformed with educational, social and political actions.

Concluding...

The information presented here brings possibilities and considerations about the intentional work with protective and risk factors. This chapter presents a general understanding of the subject, but it does not extinguish the debate nor intends to do so. It offers a starting point for this discussion, understanding that socioemotional development is an effective strategy for the integral development of students and that other factors also need to be considered, such as social indicators of diversity.

Therefore, the objective of this chapter is to broaden the horizon and continue the dialogue on the subject, promoting new ways of looking at the benefits of socioemotional development in its multideterminants and its associated multideterminations, and strengthening the relevance of building scientific and practical knowledge. So, to continue the debate, below, we will address the benefits of socioemotional development: subjective well-being, school achievement, school belonging, mental health, mitigation of school violence and *bullying*, academic self-esteem and learning strategies, raising questions about their concepts, the relevance of studying them in the school environment and focusing on the contribution of socioemotional development for each one of them.

CHAPTER 02

Subjective well-being

Ana Carla Crispim, Ana Carolina Zuanazzi

SUMMARY

Subjective well-being

People's subjective/perceived well-being is a key element to be considered in a comprehensive educational proposal. According to data from OCDE countries, in 2020, one in eight people experienced more negative feelings than positive ones during the day, which highlights the importance of intentionally working on skills related to the intra-personal dimension. The results of work focused on expanding people's subjective well-being are related to various benefits in our society, such as better health levels, greater productivity and even greater frequency of prosocial behavior, such as cooperation between colleagues[69]. To start talking about this topic, it is important to first define it.

What is subjective well-being?

Subjective well-being refers to how people feel and perceive their lives. Although this concept is recurrently understood as synonymous with the feeling of happiness and the absence of negative feelings, it is broader and involves other factors that influence the way we feel, such as how satisfied we are with our lives and the evaluation that we make of our day-to-day experiences[70-73].

People who experience high levels of perceived well-being tend to report positive feelings in different spheres of life, such as personal, academic or professional. People who report lower levels of subjective well-being tend to have more negative feelings, such as sadness or anxiety, which is also reflected in less satisfactory evaluations of their life[52,70,72,74]. Therefore, when investigating subjective well-being, it is common to ask questions that promote reflection on how people feel about their lives and also about one or more recent events[70].

Why study subjective well-being in schools?

In a survey carried out by a school network, supported bythe Ayrton Senna Institute, it was observed that:

30%

of students reported that never or rarely feel cheerful or in good spirits*.

29%

of students reported that they rarely or never feel active and full of energy*.

34%

of students reported that they rarely or never feel that their day is filled with things that they are interested in*.

* Data from N = 1,941 students in Middle School and High School from a public network located in the Midwest region of Brazil. The survey was carried out in the year 2019.

The study of subjective well-being in schools involves the concept of integral development of students in basic education, mainly in relation to emotional and affective issues of the school experience. It is known that a better perception of subjective well-being is associated with better academic and socioemotional performance[2], and that a low perception of subjective well-being is associated with worse school performance[53].

Especially in adolescence, when young people are going through different transformations in the personal sphere, such as changes in their body, identity , or in their social circles, there is an expectation regarding the healthy development of their singularities in the face of new situations and demands[11,75]. It is known that, in early adolescence, the effects of these changes are associated with an increase in the levels of feelings related to anxiety and depression (behaviors linked to neuroticism[i], that is, low

[i] The personality trait that is related to low self-esteem and less adaptation of emotional regulation in the face of stressful situations.

emotional resilience) and lower levels of subjective well-being, especially among girls[38,76,77].

In the school experience, these effects are shown in some ways, both in intrapersonal aspects of the student and in the relationships between all school agents. For example, a greater perception of subjective well-being is associated with less test anxiety and greater optimism regarding one's own potential, which can positively affect school performance[11]. And this also has repercussions on the school environment as a whole. For example, in schools where there are reports of better interpersonal relationships and better bonds between everyone, the negative effects of bullying are smaller, demonstrating the importance of a welcoming environment for the healthy development of students[78].

This reinforces that subjective well-being, as well as other life outcomes can influence and be influenced by one or more factors, highlighting the need to build intervention strategies that understand these phenomena in a multi-determined way.

Can different groups experience subjective well-being in different ways?

The answer is yes, when considering groups of gender or socioeconomic conditions, for example[11]. As for gender, research shows that, in adolescence, girls tend to demonstrate more internalizing behaviors[j] and are at greater risk of symptoms of anxiety or depression, while boys are more prone to externalizing behaviors[k 37,38].

[j] Internalizing behaviors refer to behaviors such as feeling anxious, feeling depressed or, in more severe cases, behaviors related to self-harm.

[k] Externalizing behaviors refer to conflict behaviors, whether verbal or physical, and, in more serious cases, to aggressions related to the perpetration of bullying or vandalism.

Similarly, there are differences in subjective well-being when considering socioeconomic status. Students in socioeconomically more vulnerable conditions report lower subjective well-being, while students from socioeconomically less vulnerable contexts report feeling greater subjective well-being and more feelings of satisfaction with life[11].

Therefore, both in the discussion of gender and in that of socioeconomic status, or other social indicators of diversity, it is necessary to consider the plurality of requirements, representations, challenges and social protocols to which students are exposed throughout their lives and which make their school experiences diverse.

Therefore, subjective well-being is shown to be an important factor for the student's experience as a whole, including aspects of learning, emotional regulation and even optimism in relation to one's own abilities[11]. Therefore, it can be considered a pillar of investigation in school environments and in society, with a social impact in the orientation of comprehensive education strategies and as a parameter for the orientation of public policies[70,72].

In summary...

Higher levels of subjective well-being in students are associated with:

- *more optimistic perceptions of one's own potential;*
- *less anxiety in test situations or assessments;*
- *better school performance.*

How are socioemotional skills associated with subjective well- being?

Data from scientific studies show that aspects of subjective well-being and satisfaction with life are associated with skills related to emotional regulation, such as recognizing one's own feelings and managing them in everyday situations. This happens because subjective well-being is related to how people feel on a daily basis; it is associated with the experience of more positive feelings, such as enthusiasm and joy, and also with the ability to deal with more pessimistic feelings, such as excessive concern or anxiety[2,11,52].

Based on the socioemotional model adopted by the Ayrton Senna Institute, it is possible to highlight two important domains in the development of subjective well-being: emotional resilience and engaging with others. These domains reflect characteristics such as being able to deal with emotions such as anger, insecurity and anxiety and feeling energized, open to social interactions. Within these domains, three socioemotional skills stand out with a view to intentional work focused on subjective well-being:

- **self-confidence** (Emotional resilience domain);
- **enthusiasm** (Engaging with others domain);
- **stress modulation** (Emotional resilience domain).

Together, these socioemotional skills can help students to manage negative feelings that arise in the face of situations or challenges, as well as to build a more positive view of themselves, their abilities and their lives. Thus, each of these skills makes a unique contribution to helping students develop optimism, enthusiasm and a greater sense of subjective well-being.

In order to understand these contributions, data from 1,941 students who answered the Senna instrument and the instrument on subjective well-being called WHO-5 (OMS, 1998) were analyzed. The students had an average age of 14.2 years (with a variation[I] of around 2.04 years) and comprised 49.36% of

[I] This variation corresponds to the standard deviation value.

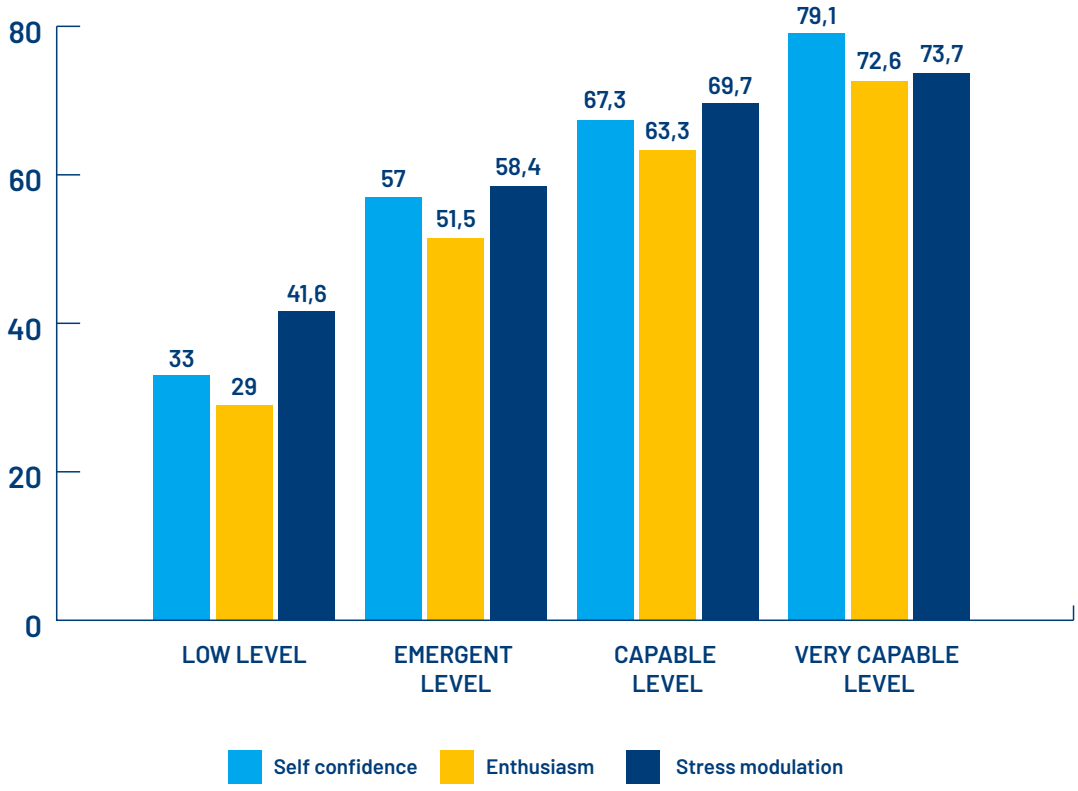
girls and 50.64% of boys. The relationship between socioemotional skills and subjective well-being was investigated using a statistical procedure called multiple linear regression[m]. This analysis allows verifying the unique contribution of each socioemotional skill in subjective well-being.

Based on the survey results, it is possible to say that, globally, self-confidence, enthusiasm and stress modulation helped to explain 38% of the variance in students' subjective well-being. In other words, it has been observed that higher levels of satisfaction with one's life, feelings of happiness and positive affect are linked to the experience of fewer emotions such as anxiety and sadness and greater energy to engage in activities of the life. This demonstrates the importance of the role of these socioemotional skills on subjective well-being, suggesting that they can be intentionally activated so that this outcome is promoted[79,80].

Figure 2 presents the average subjective well-being scores for each level of development in the socioemotional skills self-confidence, enthusiasm and stress modulation. More detailed and technical information about the results can be found ***here*** .

[m] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

Figure 2. Subjective well-being scores perceived by students according to the level of socioemotional development in self-confidence, enthusiasm and stress modulation



***Note**. Differences on the averages are significantly different. The well-being score is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the lower the perceived subjective well-being. The closer to 100, the greater the perceived subjective well-being.*
More details can be found here .

In general, it appears that the greater the socioemotional development in this set of skills, the higher the subjective well-being score perceived by students. For example, if we look at the relation between subjective well-being and stress modulation, we will see that at the "Low" level, the average score of students in subjective well-being was 41.6 points; the average subjective well- being score at the "Very capable" level is 73.7 points. This means that students who perceive themselves to be less developed in stress modulation are also the students who report lower subjective well-being. Students who perceive themselves to have more

resources related to stress modulation are the students who also report feeling more subjective well- being.

What is the contribution of each socioemotional skill to subjective well-being?

The self-confidence and stress modulation skills are part of the emotional resilience domain. This domain is related to the concept of regulating emotions that are considered negative, such as anxiety, stress or sadness. Enthusiasm, on the other hand, from the engaging with others domain, refers to concepts of motivation and interest directed at the external world, be it people or things. We discovered that, together, these skills can favor the student's perception of well- being, contributing to their learning, as well as to their quality of life. Shall we better understand how these three socioemotional skills can help in the development of subjective well-being?

Self-confidence: relates to the feeling of accomplishment with one's own life and with expectations and positive thoughts about oneself. Having this skill well developed means feeling safer and more comfortable with yourself. People who are self-confident tend to perceive life with greater optimism, which is related to a perception of better subjective well-being. Fear of failure can potentially trigger dissatisfaction with life and may be related to lack of confidence in one's own abilities[70,74]. Therefore, self-confidence can work as a factor that favors a more positive perception of life[2,11,71–73].

Stress modulation: refers to the ability to regulate anxiety and responses and behaviors presented in life situations, especially those considered adverse. Individuals with this more developed skill act more calmly in stressful situations, keeping calm to solve any problems. The results suggest that students who perceive themselves to be more capable of dealing with their feelings tend to be able to regulate emotions in adverse or stressful situations, such as tests and evaluations at school, or even conflicts; this, consequently, helps in relationships with peers and teachers[69,78].

Enthusiasm: involves concepts such as feeling excited about life. It is a competency that encompasses having energy and a positive attitude in everyday situations. This idea connects with the emotional component of- subjective well-being, that is, reporting feelings of joy and willingness to perform daily tasks, among others[2,11,69]. According to these results, students who perceive themselves to be more enthusiastic about life and with a more optimistic view tend to have greater subjective well-being.

Concluding...

The definitions of the three socioemotional skills most related to subjective well-being indicate that students who tend to have a higher perception of subjective well-being are those who have a positive view of themselves, as well as face life in a more optimistic way. This helps them cultivate good feelings and, when faced with challenges, remain calm and deal with them in a healthy way, in different areas of life, including school life. Knowing this relation contributes to the planning of actions on subjective well-being at school through socioemotional development. As well as other desired life results, it is emphasized that the development of socioemotional skills must be understood as one of the parts that make up the explanation of a phenomenon and, therefore, other aspects (personal, social, environmental) must be included in the development action planning.

CHAPTER 03

School achievement

Ana Carla Crispim, Ana Carolina Zuanazzi,
Priscila Carvalho de Castilho, Ricardo Primi, Gisele Alves

SUMMARY

School achievement

What is school achievement?

School achievement refers to educational measures established in relation to the degree of learning that students present at a given moment. Such measurements can be standardized (such as national tests) or non-standardized (such as assessments carried out periodically by teachers). These measures are frequently used to assess the academic proficiency of students in different school years, and through them it is possible to raise indicators of cognitive abilities.

Are intelligence and school achievement synonyms?

Although school performance is commoniy related to intelligence, school performance involves other capabilities, such as persistence, focus and discipline. Duckworth and Seligman[81] demonstrated that a student's capacity for self-discipline is approximately twice as related to their school performance as intelligence. That is, behaviors related to self-management, such as persistence, determination and concentration, are important elements for school performance. Belief in one's ability to learn (self-efficacy for learning) also plays a relevant role. An OECD[53] study concluded that believing in one's own potential was associated with motivation to perform tasks well. More specifically, the perception of self-efficacy for reading and performing mathematical activities was positively related to students' performance in reading and mathematics", That is, intelligence and school performance are related, but they are not synonymous, since better school performance is associated with other characteristics as well, such as self-management and belief in one's ability to learn.

Why study school achievement?

In a survey carried out by a state network, supported by the Ayrton Senna Institute, students were asked about their perception of school performance:

75%

of students partially or fully agreed that they get good grades in the Portuguese*.

62%

of students partially or fully agreed that they get good grades in Mathematics*.

69%

of students partially or fully agreed that they learn subjects quickly in Portuguese classes*.

*Data from N = 230,363 students enrolled in the 5th and 9th grades of Elementary and Middle school and 3rd grade of High School in a public network located in the Southeast region of Brazil. Survey carried out in the year of 2021.

A survey by the Secretary of Education of the State of São Paulo (2022) carried out in 2021 when returning to face-to-face classes after the most critical period of the pandemic found significant drops in school achievement indicators. Students in the 5th and 9th school years and in the 3rd year of High School showed decreases between 3.3% and 8.6% for Portuguese and between 4.5% and 9% for Mathematics. The value of these indicators for 2021 is similar to that found ten years ago for some school years, which represent a setback, drawing attention to the need for learning recovery actions to support students.

School achievement is seen as a predictor of life outcomes such as employability and professional success. Therefore, in addition to being an important outcome for students, it is a relevant indicator for education professionals and school managers. It brings inputs on the teaching and learning process and, consequently, its monitoring indicates possibilities of action and intervention for the school teams.

Because it is complex, this indicator can be influenced by several phenomena, such as the students' characteristics and skills, whether cognitive or socio-emotional (such as curiosity to learn, aspects of self-management and belief in one's own ability), or even the school environment (such as school climate).

When studying which socioemotional skills are related to school achievement, it was observed that amity and open-mindedness were associated with school performance in Portuguese, while self-management and emotional resilience were associated with performance in Mathematics[83,84]. In the international context, similar results are found: the skills of curiosity to learn (open-mindedness) and persistence (self-management) are more associated with performance in reading, mathematics and arts. These results reinforce the importance of cultivating intellectual curiosity among students and giving them tools to set their goals and achieve their goals, whether in their school demands or in their future[n].

Complementarily, the school climate is also an important factor for maintaining good school achievement indicators and for full development. Maxwell et al[85] show that, since the school environment is a plural environment and composed of different agents, such as students, teachers, managers and other collaborators, the perception of the school climate reported by the school staff (such as teachers and directors) is also associated with the academic performance of students. Thus, maintaining a friendly school climate tends to favor collaborative work and better school performance.

Thus, in the long term, both socioemotional development and the perception of the school environment are important allies for school achievement[83,86]. And these benefits can go beyond school achievement itself, as students who participated in socioemotional development programs had better grades in language areas, mathematics and social studies, but also showed better learning strategies and greater problem-solving skills[86].

[n] We are considering school climate as a construct conceptually close to the construct of belonging to school.

Inequalities in learning opportunities

The 2015 Inaf report noted that people whose mothers completed high school tend to have, on average, 5.4 more ears of schooling than people whose mothers did not complete elementary or middle school. In this same report, it was shown that white people have, on average, one more year of study than black people, and, in 2016, a blackperson would take, on average, six yearsto reach the same schooling as a white person[87]. Other differences can be seen in national level exams. In the Enem, in tests between 2013 and 2017, the scores of students from private schools were, on average, 18% higher than those of students from public schools, indicating that socioeconomic status can influence performance[49]. In the 2018 edition of Enem, being from a private school was associated with an increase of up to 83.9 points on the test compared to students from state schools[30].

In summary...

Higher levels of school achievement are associated with:

- *more learning strategies and problem-solving skills;*
- *development of self-management skills, open-mindedness and amity skills.*

How are socioemotional skills associated with school achievement?

In scientific research, evidence is found that students who perform well at school also have skills related to planning, concentration and persistence, in addition to fostering a more investigative mindset about new knowledge. This happens because school achievement is related to the way people study, apply strategies to achieve their academic goals and remain motivated during this process. Therefore, achieving good results in school achievement is associated with engaging in school activities, appreciating collaborative work and understanding how to manage your intrapersonal resources for studies.

Based on the socioemotional framework adopted by the Ayrton Senna Institute, it is possible to highlight three important domains for satisfactory school achievement: open-mindedness, self-management and amity[83]. These skills are associated with good school achievement as they help students to engage in their studies, to learn organization and planning strategies and to persist in achieving their goals. Within these domains, seven socioemotional skills stand out with a view to work aimed at improving school achievement:

- **curiosity to learn** (open-mindedness domain);
- **determination** (self-management domain);
- **focus** (self-management domain);
- **persistence** (self-management domain);
- **responsibility** (self-management domain);
- **respect for others** (amity domain);
- **empathy** (amity domain).

Together, these socioemotional skills can help students to seek new knowledge, to have a greater sense of responsibility and commitment in relation to their studies and to remain focused on their goals. In addition, they can contribute to demonstrating greater understanding and respect for the needs and emotions of colleagues, valuing collaborative work.

To understand these contributions, data from around 95,000 students from a public school in Southeast Brazil who responded to the Senna Instrument were analyzed. The students had an average age of 14 (with a variation[o] of around 2.6 years) and were composed of 49.9% girls and 50.1% boys. In this investigation, the relationship between the Portuguese and Mathematics scores of students in a standardized assessment and all the socioemotional

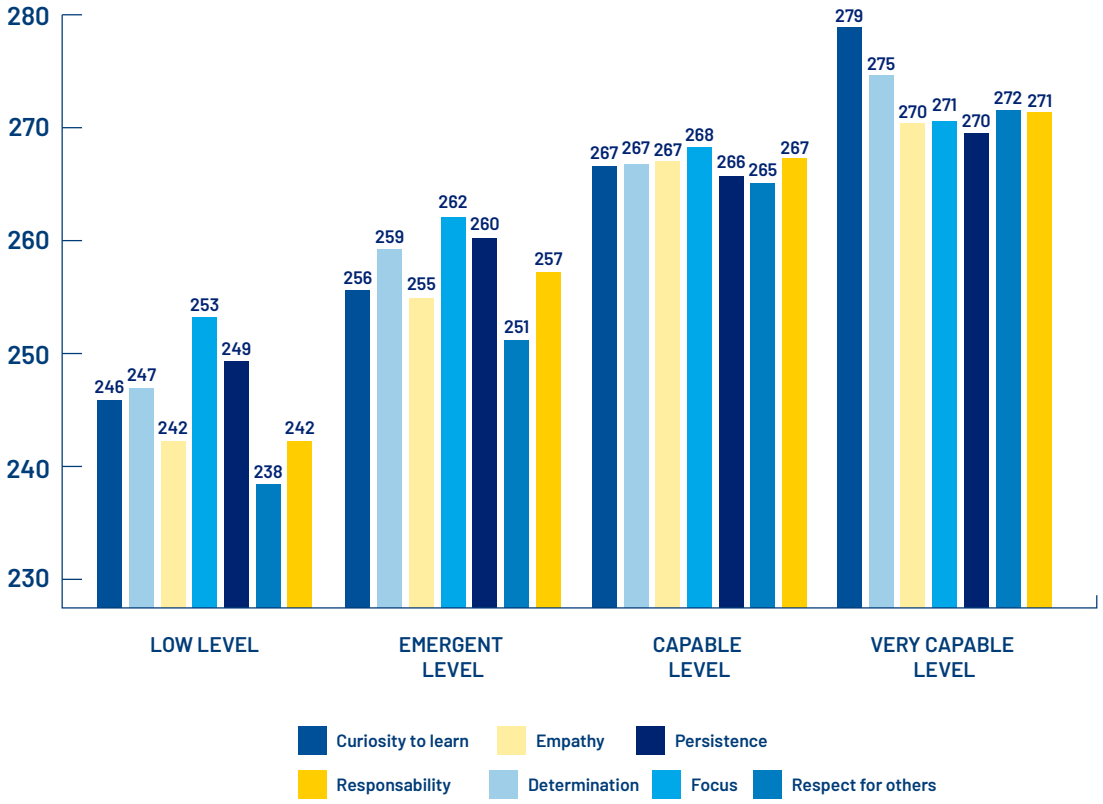
[o] This variation corresponds to the standard deviation value.

skills of the framework adopted by the Ayrton Senna Institute were explored through a statistical analysis called correlation.

Based on the research results, it is possible to say that curiosity to learn, determination, empathy, focus, persistence, respect for others and responsibility were positively related to school achievement. In other words, in this research it was observed that the academic performance of students is linked to their ability to remain focused in pursuit of their objectives and goals, to maintain a commitment to themselves and to remain engaged in the search for new knowledge. This demonstrates an important role of these socioemotional skills on school performance, suggesting that they can be intentionally activated so that such benefits are promoted.

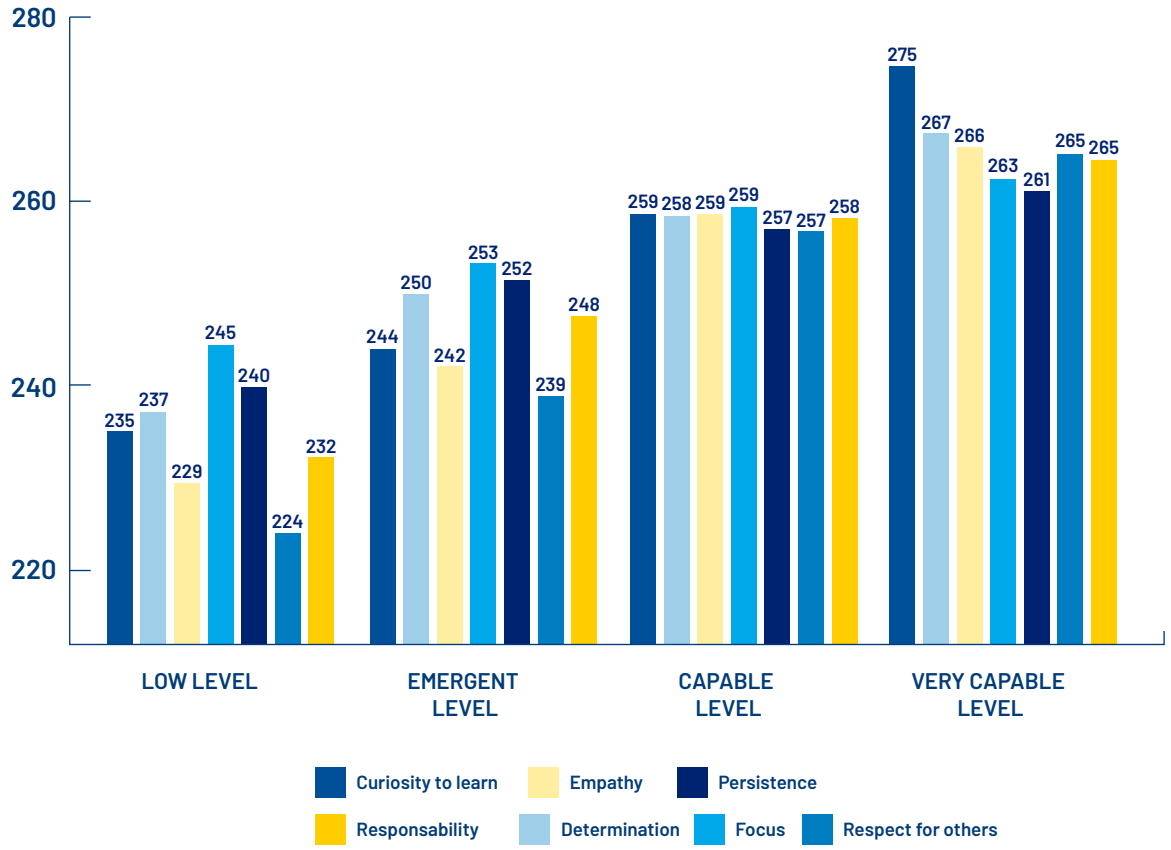
The contribution of each socioemotional skill to school achievement can be seen in Figures 3 and 4, which show the average scores of school performance in Portugueseand Mathematics of students in relation to the level of development in the seven socioemotional skills listed. More detailed and technical information about the results can be found ***here*** .

Figure 3. Performance in Mathematics of students according to the level of socioemotional development in the skills curiosity to learn, determination, empathy, focus, persistence, respect for others and responsibility



Note. *Differences on the averages are significantly different. The Mathematics score is presented on the original scale, ranging from 0 to 433 points. More details can be found here.*

Figure 4. Portuguese language performance of students according to the level of socioemotional development in the skills curiosity to learn, determination, empathy, focus, persistence, respect for others and responsibility



Note. *Differences on the averages are significantly different. The Portuguese score is presented on the original scale, ranging from 0 to 416 points. More details can be found* ***here****.*

In general, it is possible to see that the greater the socioemotional development in this set of skills, the higher the proficiency score of students in Portuguese and Mathematics. For example, in Figure 3, on the relation between proficiency in Mathematics and socioemotional skills, it can be seen that, at the level of "Low" curiosity to learn, the average score of students was 246 points; the average score on curiosity to learn at the "Very capable" level was 279 points. This means that students who perceived less developed in curiosity to learn are also the students who had lower school

achievement in Mathematics. The students who perceived themselves as having more resources related to curiosity to learn were the students who also performed better in Mathematics.

What is the contribution of socioemotional skills to school achievement?

The results of this analysis indicated that school achievement is more related to skills of three domains: self-management, open-mindedness and amity. The intentional work and together with these skills can help in the elaboration of study strategies, in the search for new knowledge and also in the exchange between colleagues, favoring a cooperative environment. Shall we better understand how these three socioemotional domains help in school performance?

Open-mindedness: in a previous study by eduLab21[p], it was identified that, when raising the level of socioemotional development of open-mindedness (from low to high level), the gain in learning in Portuguese was equivalent to approximately 5.5 months and the gain in learning in Mathematics, of 3 months. The development of the curiosity to learn skill reinforces the student's protagonism, since it works with the learning of new ideas and the interest in exploring new knowledge. This is related to a more investigative and critical mindset to understand ideas and situations, which is positively associated with school achievement due to the intellectual aspect of this exploration[11,84,88].

Self-management: the skills determination, focus, persistence and responsibility make up the self-management domain and are recurrently evaluated as important for school achievement[11,84,88]. In the eduLab21 study[9], the development of self-management (going from low to high level) corresponded to approximately 3.5 months of learning in Mathematics and 2.3 months in Portuguese. The development of these skills serves as a support for students to set ambitious goals for themselves, develop strategies to achieve them and manage to concentrate on tasks in the midst of distracting stimuli,

[p] In continuation of the empirical research presented in this chapter, eduLab21 carried out a study relating these three socioemotional domains with gains in learning in the Mathematics and Portuguese Language components. The scores (on standardized tests) of students with low and high socioemotional development in each domain were compared. Response notes of approx. 110,000 students.

reinforcing student protagonism[81]. With this, students assume a co-responsible and active role for their learning and continue their efforts even in the face of challenges.

Amity: empathy and respect skills were also associated with school achievement[84,88]. In the previous study carried out by eduLab21[9], the development of amity (going from low to high level) corresponded to approximately 4.6 months of learning in Mathematics and 5.8 months of learning in Portuguese. These skills refer to the way students relate to their peers and teachers, and therefore involve interpersonal relationships and care for the well-being of others. They connect with school achievement because they talk to the students' ability to identify, in a rich and adequate way, social aspects such as other people's feelings, work collaboratively with colleagues, follow the explanations made by the teacher and activities in interaction with colleagues, cooperatively and respectfully following the instructions of educators and other school professionals, contributing to the quality of relationships as a whole, which helps create a favorable environment for learning[85].

Learn more aout the study:

In an unpulished study by eduLab21 in partnership with Department of Education of the State of São Paulo, based on a sample that included around 110,000 students from the 5th and 9th school years and from the 3rd grade of High School, it was evaluated how the development of skills from open-mindedness, amity and self-management can help in learning gains in months in the Mathematics and Portuguese components.

Step 1 – Estimating multiple linear regression models for Portuguese and Mathematics: *pto identify how much each domain contributes to Portuguese and Mathematics grades in the School Performance Assessment System of the State of São Paulo (SARESP), values were derived from two multiple linear regressions. The first linear regression contained the SARESP Portuguese score variable as the predicted variable. The second linear regression contained the SARESP Mathematics score variable as the predicted variable. For both models, the following predictive*

variables were added: Senna's domains scores (open-mindedness, self-management, engaging with others, amity and emotional resilience), gender, age, grade, family income, mother's education and school where the student studied. After this step, it was possible to identify the evolution of the SARESP score over the months and years, with the number of months in a school year being considered as a reference (i.e. nine months).

Step 2 – Calculation of SARESP scores per month: *to identify the difference in SARESP scores between the 5th grade of Elementary School and the 3rd grade of High School, the B coefficient of the 3rd grade of High School was used, which reflects the difference in score in Portuguese and Mathematics between these series ($B_{school\ year}$). To identify the number of points gained each month in the SARESP score (Portuguese or Mathematics), the value of the $B_{school\ year}$ coefficient was divided by the difference in years between the school years, equivalent to 7 years of difference. And this value was divided by 9, the number of school months in each school year.*

Step 3 – Calculation of quartiles: *to calculate the quartiles, the difference between the 25th and 75th quartiles of each stanine score by socioemotional domain was calculated.*

Step 4 – Calculation of SARESP scores by domain: *the value referring to the quartiles difference of each domain was multiplied by the B coefficients of each domain, resulting in the number of points equivalent to Portuguese or Mathematics to the increase of each socioemotional domain.*

Step 5 – Calculation of months for Saresp scores according to each socioemotional domain: *the value of scores in SARESP per domain (results of step 4) was divided by the value of scores per month in Saresp (results of step 2) for Mathematics and Portuguese.*

Concluding...

The definitions of the three socioemotional domains most related to school achievement bring inputs that allow the elaboration of strategies for its improvement. They indicate that the search for new knowledge and self-management strategies are important allies to help students in their studies. The importance of a friendly and collaborative environment was also highlighted, so that students feel secure in exchanging experiences and knowledge with colleagues and teachers, as well as for the exercise and development of these skills to help them learn more about the learning opportunities in the school environment and to increase one's own academic proficiency. Thus, socioemotional skills are configured as one of the relevant components for school achievement. When planning intervention strategies to improve school achievement, one should observe which other elements (personal, social and environmental) contribute to the phenomenon.

CHAPTER 04

School belonging

Ana Carolina Zuanazzi, Ana Carla Crispim, Danielly de Souza Oliveira

SUMMARY

School belonging

What is school belonging?

The feeling or need to belong is a concept that can be understood from different angles (for example, Bowlby's attachment theory[89], Ryan and Deci's theory of self-determination[90] or Maslow's theory of need[91]. In summary, these theories define the belonging as the feeling of connection and the need to establish bonds that bring a sense of security to the individual.

Feeling belonging to a community can favor greater engagement and commitment with the group and with the activities carried out by it, promoting a greater sense of general well-being, trust between people and a better school climate. This feeling also favors a more positive overall development of the individual[90,92,93]. A person may feel the need to belong to different groups in life, be it the family group, groups with which they share interests, peers, school, among others.

When directed to the school environment, belonging is understood as a set of perceptions and expectations that the student has about their relationship with the school (from the physical environment to relationships with colleagues and educators). These perceptions stem from experiences lived in this context and the meanings attributed to them. Therefore, school belonging reflects social and psychological aspects of the school environment, such as a feeling of welcome among teachers and classmates, confidence in school professionals as mediators of conflicts and satisfaction for being part of this environment.

This notion of school belonging is in line with proposals from educators who understand learning and development as a social process, and not just an individual one. Various pedagogical practices – from new schools to the Freirian ones – are influenced by the understanding that we learn in the interaction with others and with the environment[94,95]. Therefore, the school

community in its entirety functions as an important space for building social relationships for individuals and offers unique opportunities for interaction and development.

Therefore, it is important to emphasize that students' school belonging is influenced by the different spheres of the school community: teachers, colleagues, management team and all employees. Each agent of the school organization has a fundamental role in the development of the student's belonging to the group. The perception of belonging is strengthened when the student feels that there is support and encouragement from teachers, their ideas are taken into account, there is acceptance and inclusion of colleagues, the physical environment is safe and welcoming, with fair and clear rules[96-98].

Why is evaluating school belonging important?

In a survey carried out by a school network, supported by the Ayrton Senna Institute, it was observed that:

52%

reported feeling little or no connection with adults at school*.

40%

said they feel that people at school care little or nothing about them*.

34%

of students said they felt none or little school belonging*.

*Data from N = 62,552 students in the 5th and 9th grades of Elementary and Middle School and 3rd grade of High School in a schoolnetwork located in the Southeast region of Brazil. The survey was carried out in 2019.

School belonging is considered a **protective factor** in the face of challenging situations found in the school environment and outside it.

A student who has a higher level of belonging to school has more resources to deal with adversities that may arise at school and in life. In the same study carried out by a state education network in 2019, with the support of edu-Lab21, and with students in the 5th and 9th school years and 3rd year of High School, it was observed that these experiences regarding school belonging varied between gender groups. Girls aged 14 reported less school belonging when compared to boys of the same age. This finding corroborates those found in other countries[50,51]. Explanations for this result may involve social and cultural representations (for example, encouraging participation in extracurricular activities) or even biopsychosocial ones (such as the transition to adolescence).

When looking at race groups, differences were also found. It was observed that black or asian students reported a lower perception of school belonging compared to white and brown students. Although there is still little consensus in the literature on this difference (for example, Murphy & Zirkel[99]; Burke & Kao[100]), it draws attention to how much issues about race also influence the process of identification and belonging to the school environment, requiring a strategies planning and interventions to address these issues in such an environment.

The feeling of belonging to school is fundamental for improving the student's cognitive and socioemotional development, reading levels and collaboration among students. Feeling belonging to a context is related to higher levels of self-esteem, belief in one's abilities, satisfaction with life, engagement in school activities and school achievement. Feeling part of the school environment is also related to lower levels of stress, fewer symptoms of depression, reduction in evasion and occurrences such as violence or bullying in schools[74,92,93,96,101,102]. That is, belonging to school is related to the development of positive and healthy aspects of the school experience and acts as a protective factor against issues such as bullying.

This theme is also seen as relevant by educators and educational organizations. When listening to school networks in recent years in different states of Brazil, the Ayrton Senna Institute found out that school belonging appeared as an important theme for assessment and intervention. Along with this,

organizations such as the OCDE have included this concept in their studies[74], which reinforces the importance that school belonging has in the international community and in different spheres of action.

In summary...

Greater sense of school belonging is associated with:

- *better school performance;*
- *more engagement in school activities;*
- *greater levels of self-esteem, belief in one's abilities and satisfaction with life;*
- *lower rates of bullying at school;*
- *lower stress levels;*
- *lower school dropout rates;*
- *fewer depression-related symptoms.*

How are socioemotional skills related to school belonging?

As seen, school belonging is related to interpersonal aspects (relationship with peers, teachers and community) and intrapersonal aspects (relationship with one's own feelings and thoughts). This occurs because the perception of belonging to school is related to the experiences, impressions and expectations that the student has in relation to colleagues, educators and the school environment as a whole. Thus, good levels of school belonging are associated with the construction and strengthening of feelings of connection with other people and the physical environment and with secure bonds[11,92,96,102].

Based on the socioemotional model adopted by the Ayrton Senna Institute, it is possible to highlight three domains with regard to the development of school belonging: emotional resilience, amity and engaging with others. They are related to our ability to deal with and regulate our emotions, the way we act and socialize with other people and our openness to social relationships. Within these domains, three skills stand out with a view to the

development of school belonging:

- **self-confidence** (emotional resilience domain);
- **trust** (amity domain);
- **social initiative** (engaging with others domain).

Together, these skills can help students maintain a positive self- esteem, build an optimistic view of people and the ability to communicate and feel comfortable in different groups. In this way, each of them contributes in a unique way so that students develop positive experiences at school and perceptions of better belonging to school.

Aiming to better understand these contributions more, 1,943 students who answered the Senna instrument and sixteen questions about the perception of belonging to school were studied. The students in this sample had an average age of 14.2 years (with a variation[q] of around 2 years) and were composed of 51.21% girls and 48.29%boys. The relation between socioemotional skills and school belonging was investigated using a statistical analysis called multiple linear regression[r]. This procedure aims to understand the unique way in which each of the three socioemotional skills mentioned above is related to school belonging.

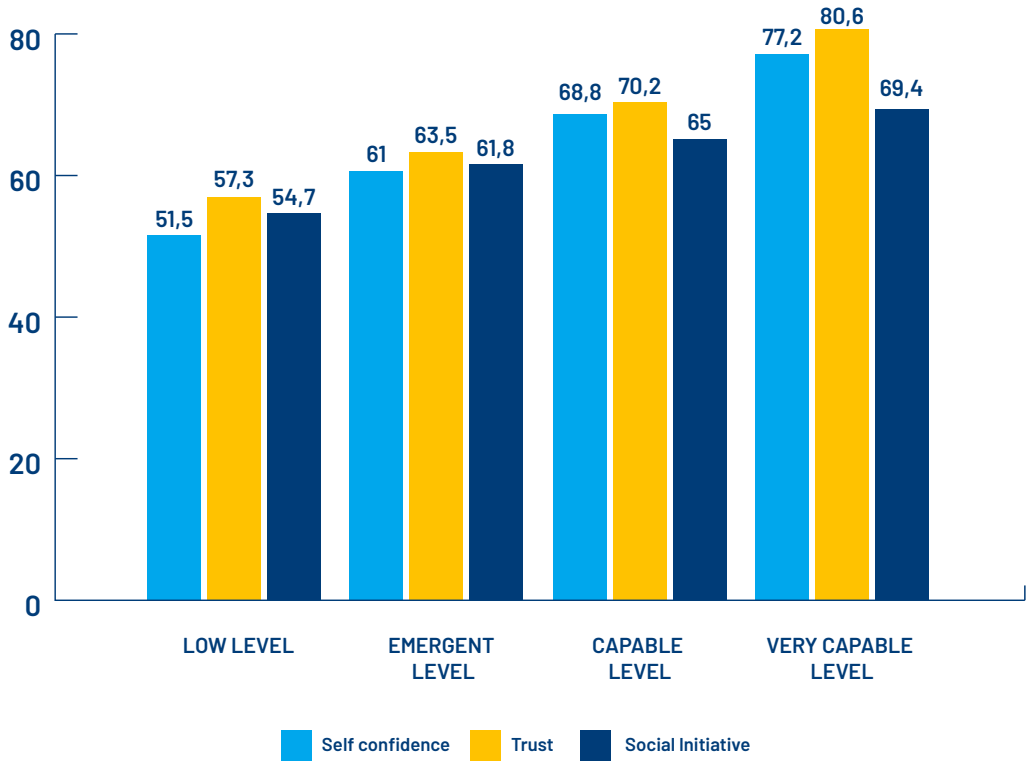
The results indicated that self-confidence, trust and social initiative help to explain, globally, 26% of the variance in school belonging. In other words, the perception of safety in the school environment and the establishment of good relationships at school are linked to how much students manage to develop positive expectations about themselves and others, appreciate social contact and create their support networks. This demonstrates the importance of the role of these socioemotional skills for school belonging, suggesting that such life outcomes can be promoted through their intentional development.

[q] This variation corresponds to the standard deviation value.

[r] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

The contribution of each socioemotional skill to school belonging can be seen in Figure 5, which presents the average scores in school belonging for each level of development in the three socioemotional skills listed. More detailed and technical information about the results can be found *here*.

Figure 5. Scores of school belonging perceived by students according to the level of socioemotional development in self-confidence, trust and social initiative



Note. *Differences on averages are significantly different. The school belonging scores are presented in POMP score, which varies between 0 and 100 points.The closer to 0, the lower the perceived school belonging. The closer to 100, the greater the perceived school belonging. More details can be found here.*

In general, it is possible to verify that the greater the socioemotional development in this set of skills, the higher the score of belonging to school perceived by the students. As an example, we have in Figure 5 the relationship

between school belonging and trust. At the Low level, the average score of students in school belonging was 57.3 points; the average score for school belonging at the "Very capable" level is 80.6 points. This shows us that students who perceive themselves to be less developed in terms of trust are also the students who report less belonging to school. Students who perceive themselves to have more resources related to trust are the students who also report greater school belonging.

What is the contribution of each socioemotional skill to school belonging?

Through the analyses, it was possible to verify that the skills self-confidence, trust and social initiative have a greater relationship with the perception of belonging to school. Self-confidence is part of the emotional resilience domain, which refers to the ability to regulate emotions such as anxiety, anger and sadness. Trust belongs to the amity domain, which brings together the abilities to socialize based on principles and feelings of compassion, justice, acceptance and affection. Finally, social initiative is part of the engagement with others domain and concerns interest and openness to the external world, people and things.

Together, these skills can strengthen students' belonging in school environments. Shall we better understand how these three socioemotional skills can help in a better perception of school belonging?

Self-confidence: relates to the ability to feel good about yourself and to maintain optimistic expectations about the future, even when things seem difficult or are not going so well. The self-confident student knows his capabilities and trusts his potential for overcoming. The capacity for self- confidence favors that the student does not worry excessively about his failures, disappointments and setbacks. It helps you to value yourself and feel accomplished with yourself, reducing recurrent negative thoughts.According to the results found, this ability is associated with the feeling of belonging to a group. Lack of self-confidence can cause withdrawal or inhibition in students, which makes it difficult to establish links with other people or the community, thus reducing their perception of belonging[74,92,102].

Trust: is the ability to develop positive expectations about people, as well as believe that they have good intentions in their actions and assume the best about them. Rather than being rude, stern, and critical with others, judging their actions, trust allows the student to forgive and give another chance. This does not mean adopting a naive or easy-to-take advantage attitude, as skill also involves knowing whom to trust. Trust, thus, favors proximity to important people in the student's life and the creation of affective bonds. With this, young people increase their support network, being able to count on significant people whenever they find themselves in a vulnerable situation11,74,92,93. Developing a support network within the school has everything to do with the perception of school belonging and, as we saw in the results of the mentioned study, the intentional work with this skill can favor the development of belonging.

Social initiative: refers to the ability to relate to and enjoy social contact with others, whether new or well-known people. By mobilizing it, the student becomes more skilled at teamwork, expressive communication and public speaking. It favors the deepening of relationships with known people and the establishment of connections with new people. It helps students communicate freely with others, enjoy time with peers, and feel comfortable in small and large groups. In addition, by being better able to approach others and meet interesting people, students are more likely to learn, grow and understand new and different things, favoring collaboration and creating bonds with their peers, for example[92,93].

Concluding...

The definitions of the three socioemotional skills most related to school belonging indicate that students who tend to have a greater perception of school belonging are those who demonstrate a positive view of themselves, face life in a more optimistic way, trust people around them and enjoy social contact. When he feels belonging to the school group, accepted by peers, respected and cared for by teachers, belonging to a safe and welcoming environment, the students, in turn, expresses trust and positive expectations in relation to the other, indicating that they are able to feel comfortable in different group settings and to be confident in themselves and their abilities. The data presented here serve as inputs for the development of strategies inside and outside the classroom and must be understood in association with other factors (personal, social and environmental) that contribute to the improvement of school belonging.

CHAPTER 05

Mental health

Ana Carolina Zuanazzi, Ana Carla Crispim, Danielly de Souza Oliveira, Catarina Sette, Felipe Valentini, Nelson Hauck Filho, Gisele Alves

SUMMARY

Mental health

What is mental health?

The term mental health is quite broad and comprehensive and is intrinsically involved with the perception of life in general. It can be understood as the personal resources, whether cognitive or emotional, interpersonal resources and the adaptive capacity that each person has to face of challenging situations[103,104]. The work with mental health in schools aims to develop the ability of children, young people and adults to adapt (that is, to experience their surroundings without harming themselves and those around them) and to act in a protagonist way, both at school and in other contexts of your life. This is a subject that has been extensively researched and is also of interest to managers who develop public health policies at all stages of life.

Damage to mental health can manifest itself in different ways, such as physical complaints (changes in sleep or difficulty relaxing), emotional complaints (feelings of sadness and uselessness, excessive worries) and social complaints (feelings of loneliness or lack of friends)[54,103,104]. In the long term, the frequency and intensity of these symptoms can result in impairments in adult life, including the presence of mental disorders[102,105,106].

Specifically in adolescence, there are characteristics that must be considered and can have consequences in the spaces where young people live, such as school and family. Adolescence is a period characterized by emotional volatility, that is, mood swings that may seem sudden. Therefore, being attentive to the mental health of young people in this period of transition in development, favoring young people to develop emotional, social and cognitive resources to deal with their challenges, enhancing positive outcomes in adult life, is an interesting strategy to prevent psychiatric disorders[54,107,108].

To reflect about mental health

It is interesting to note that, not so long ago, mental health was conceptualized as the absence of mental illness. However, currently, its conception goes far beyond that, also considering the different manifestations of the individual's perception of themselves and their abilities in the different areas of life. This broader conception of mental health, as a spectrum that involves quality of life, opens up possibilities for the development of prevention program for young people, adults and the elderly[104]. Furthermore, it expands the debate that, due to its complexity, it is a multidetermined phenomenon and, therefore, interventions must take into account its biological, psychological and social aspects.

Why study mental health in schools is important?

In a survey carried out by a school network, supported by the Ayrton Senna Institute, it was observed that:

19%

of students reported feeling completely drained or under pressure*.

23%

reported experiencing difficulties to facing their problems appropriately*.

33%

of students reported moderate or high difficulty concentrating on what they are doing*.

* Data from N = 226,722 students enrolled in the 5th and 9th grades of Elementary and Middle School and 3rd grade of High School in a public school network located in the Southeast region of Brazil. Survey carried out in the year 2021.

The perception of mental health is a frequently used indicator of quality of life, which considers, among others, the absence of symptoms of anxiety, depression and low self-esteem[103]. In the school context, it is an important indicator because it makes it possible to understand how students are feeling and dealing with obstacles in their lives. In a study with almost 700,000 students from a state education network supported by the Ayrton Senna Institute, carried out in 2021, shortly after the critical period of the Covid-19 pandemic and the resulting closure of schools as a health measure, it was identified that 69% of the evaluated students reported some symptoms of anxiety and depression at severe levels, such as difficulty sleeping, worries, sadness, incapacity. More details of this study can be seen ***here*** .

Like other indicators, mental health is strongly related to the effectiveness of cognitive and socioemotional learning processes[102,107-109]. Students who show more symptoms of psychopathology, such as emotional and behavioral issues (for example, anxiety, depression, aggressiveness and impulsivity), also show worse levels of school performance. This result remains even for those with higher levels of well-being, indicating that psychopathological symptoms are risk factors in the development of students[109].

A study carried out by the IBGE[54] identified that 16.4% of 9th grade students reported feelings of loneliness most of the time or always. The percentage of girls (22.3%) was twice as high as the percentage of boys (10,2%). After the pandemic, these numbers worsened. In a 2021 survey by the São Paulo state network, with the support of eduLab21, it was identified that 11% of students were feeling totally sad or depressed and 18.1% reported completely losing sleep because of worries[110]. These results are alarming. In a society characterized by by gender and social inequalities, identifying that this difference also happens at school becomesan urgent need for research to guide decision-making and the proposition of specific solutions that dialogue more deeply with the problem.

In order to study the relationship between the socioemotional skills and mental health, a researchers from a study carried out in Finland found that psychological characteristics such as curiosity, persistence, engagement and belonging act as protective factors for stress and burnout. High levels of stress and burnout can increase the chances of developing disorders such

as depression, as well as affect students' academic performance. Thus, this reinforces the importance of working on socioemotional aspects in schools, so that students remain engaged and can achieve their goals[102].

Therefore, one of the possible tools to be implemented with a view to preventing harm and improving mental health are intervention programs with socioemotional skills[s]. The intentional development of socioemotional skills gives students the opportunity to learn about resources and practice effective strategies to deal with vulnerable situations, both personal and social[3]. In this sense, analyzing the association between socioemotional skills and self-perception of mental health can favor a better understanding of the context and the elaboration of action plans aimed at strengthening this aspect of young people.

In summary...

Better perceptions of mental health are associated with:

- *better school performance;*
- *fewer symptoms related to psychopathologies (e.g. depression, anxiety, etc);*
- *lower levels of stress and burnout.*

How do socioemotional skills relate to mental health?

Scientific literature has shown that behaviors linked to good mental health are related to the ability to deal with one's emotions, the vitality to carry out day-to-day activities and the maintenance of interpersonal relationships based on principles of compassion and affection. This occurs because mental health is associated with the perception of life in general, which involves cognitive, psychological, interpersonal and socioemotional aspects[102,109].

Based on this information, it is possible to highlight four domains of

[s] The intentional development of social and emotional skills is an important ally in promoting higher levels of mental health. However, for action in cases related to low mental health indicators (such as depression), monitoring by specialized professionals is recommended.

socioemotional skills that are related to the development of mental health: emotional resilience, self-management, engaging with others and amity. These domains are related to the ability to manage one's own feelings, to mobilize energy and be motivated to carry out activities and to have interest and positive expectations about the people around. Within these domains, six socioemotional skills stand out for a intentional work focused on mental health:

- **self-confidence** (emotional resilience domain);
- **trust** (amity domain);
- **determination** (self-management domain);
- **enthusiasm** (engaging with others domain);
- **focus** (self-management domain);
- **stress modulation** (emotional resilience domain).

Together, these socioemotional skills can help students maintain a positive perception of themselves and their capabilities, regulate feelings of anger and remain calm in the face of challenging situations. In addition, they help students to exercise concentration and do their best in short- or long-term tasks, recognizing opportunities for teamwork and developing good expectations of other people.

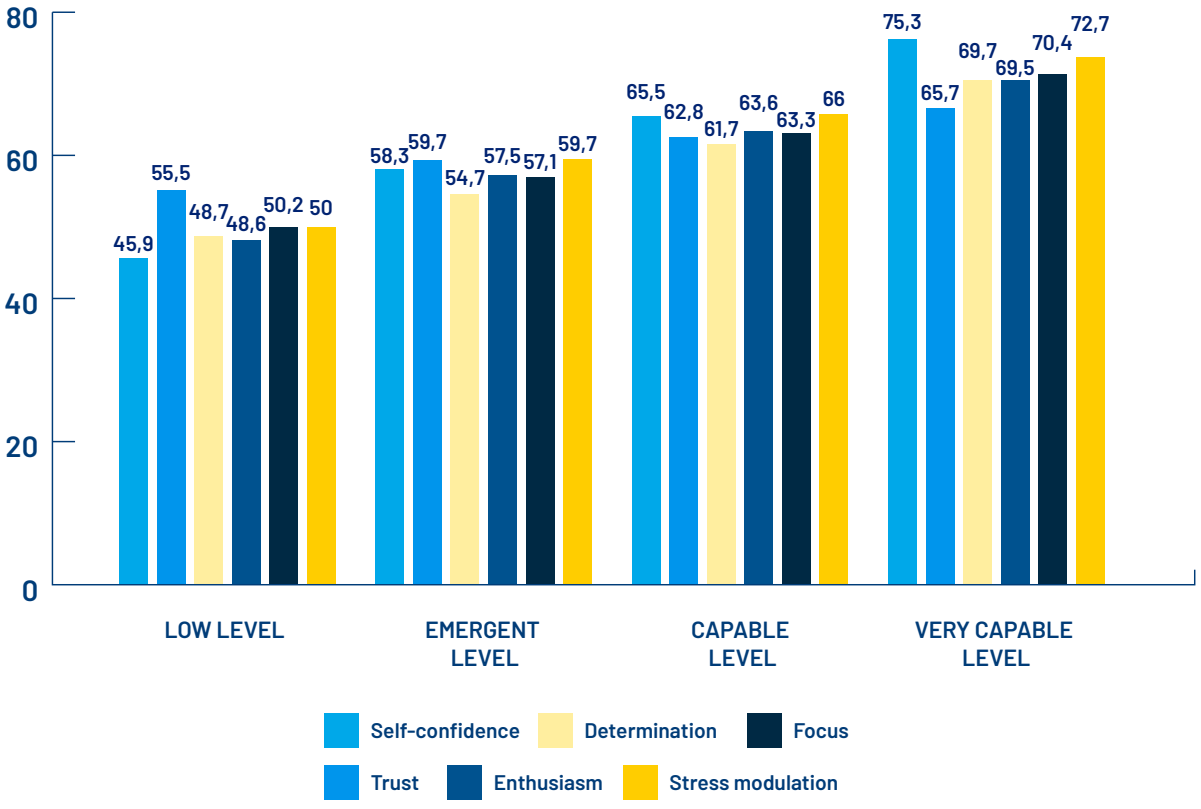
In order to better understand the relationship between socioemotional skills and mental health, data from 144,915 students were studied. In addition to the Sennainstrument, students answered questions about how often they felt or thought about behaviors related to their mental health. The students in this sample were in the 5th year (N = 36,393 students), 9th year (N = 57,732 students) and 3rd year of high school (N = 50,790 students) and were 51.25% girls and 48.75% boys. To investigate the unique contribution of each of the six socioemotional skills cited for mental health, a statistical analysis called multiple linear regression was performed[t].

[t] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

The results indicated that, overall, self-confidence, trust, determination, enthusiasm, focus and stress modulation helped to explain 39% of the variance in the students' perception of mental health. In other words, the way people feel, evaluate their lives and adapt to different contexts is linked to their perception of themselves, the way they manage stress and concerns and the motivation they have to carry out the tasks. This demonstrates that these socioemotional skills play an important role in mental health, suggesting that they can be intentionally triggered to promote more healthy behaviors.

The contribution of each socialemotional skill to mental health can be seen in Figure 6, which presents the average mental health scores for each level of development in the six socialemotional skills listed. More detailed and technical information about the results can be found *here* .

Figure 6. Perceived mental health scores by students according to level of socioemotional development in self-confidence, trust, determination, enthusiasm, focus and stress modulation.



Note. *Differences on the averages are significantly different. The mental health score is presentedin POMP score, which varies between 0 and 100 points. The closer to 0, the more damage students report on their mental health. The closer to 100, the better students' perceptions of mental health. More details can be found aqui .*

Thus, it is possible to verify that the greater the socioemotional development in this set of skills, the higher the perceived mental health score by the students. As an example, we have in Figure 6 the relation between mental health and self-confidence. At the "Low" level, the average score of students in mental health was 45.9 points; the average mental health score at the "Very capable" level was 75.3 points. This means that students who perceive themselves as under developed in self-confidence are also the students who report more damage to their mental health. Students who perceive themselves to have more resources related to self-confidence are students who also report better perceptions of mental health.

What is the contribution of each socioemotional skill to mental health?

Through the analyses, it was possible to verify that the skills self-confidence, trust, determination, enthusiasm, focus and stress modulation have a greater relationship with the perception of mental health. All skills had a significant and positive relation, that is, the increase in socioemotional skills is associated with an increase in the perception of mental health.

Self-confidence and stress modulation are part of the emotional resilience domain, which refers to the ability to regulate emotions such as anxiety, anger and sadness. Focus and determination belong to the self-management domain, which brings together the ability to stay focused and give your best. Enthusiasm is part of the engagement with others domain, which concerns interest and openness to the external world, people and things. Lastly, trust belongs to the amity domain, which brings together the abilities to socialize with other people based on principles and feelings of compassion, justice, acceptance and affection. Together, these skills make up, from the socioemotional point of view, what we also assess as the general mental health of students.

Shall we better understand how these six socioemotional skills can help in a better perception of mental health?

Self-confidence: eis related to how the student feels about who he is. Being self-confident means feeling good about yourself, maintaining positive expectations about the future, even when things don't seem to be going so well, dealing better with feelings of sadness. This skill helps the student to realize that it is not necessary to worry the whole time about his/her failures, disappointments and setbacks. More self confident people value themselves and feel fulfilled, reducing negative thoughts or excessive worries[105,109].

Stress modulation: concerns how the student deals with feelings related to anxiety and stress in the face of difficult everyday situations. Anxiety is one of the evaluated indicators of damage to mental health; therefore, the ability to tolerate stress and, with it, learn constructive ways to deal with everyday problems helps to avoid excessive concern about what may or may not happen and to feel capable of resolving adversities[105,109].

Focus: this competency is related to our concentration when performing a task. Without focus, we can lose track of what we're doing, forget what people tell us, and miss a task because of distractions. One of the symptoms associated with impairments in mental health is the difficulty to concentrate, which is in line with the results found here[102,103].

Determination: is the ability to set goals, be motivated and dedicate yourself fully to achieving them beyond expectations. Being determined requires effort and energy to face a task or achieve a goal. Damage to mental health is associated with difficulties in engaging in tasks and feeling motivated to do so, which is in line with the results presented[102,103].

Enthusiasm: talks about engaging with life in a positive, happy, affirmative way. It relates to the ability to be excited and passionate about daily activities and life. People with a higher level of enthusiasm face everyday life with energy, emotion and optimism. At school, enthusiasm helps students stay engaged and, consequently, face activities with more motivation and optimism. Being able to maintain energy and optimism can help a student

cope with adversity. Thus, instead of succumbing to difficulties and obstacles, students become more apt to seek additional solutions and resources, favoring their mental health. It is important to mention that symptoms that indicate damage to mental health include low energy to carry out activities, and this is precisely what we observe as a characteristic of the enthusiasm skill[102,103,108].

Trust: is the ability to develop positive expectations about people. It is believing that people mean well and assuming the best about them. This does not mean being naive or manipulable, because trust involves knowing who to trust. The trust competency helps the students to develop closeness with the important people in his life and to feel like doing so, as well as to allow others to help, support them and also share their thoughts and feelings. Consequently, it helps to create a support network; in this way, the student has more support to seek help when in a vulnerable situation[107,108].

Concluding...

The definitions of the six socioemotional skills most related to mental health indicate that students who tend to report higher levels of mental health are those who have a good perception of themselves, trust in their own abilities, trust others to help and support them and they are enthusiastic about life and everyday tasks, which relates to their perception of self-confidence, trust and enthusiasm. Thus, socioemotional development, together with school management actions, can help students who are perceiving themselves vulnerable in relation to their mental health..

Preventive actions aimed at mental health at school age are important for their protective power by itself, since the chances of recurring depressive episodes are 50% higher for those who have already had a depressive episode[111]. Thus, preventing also means protecting future occurrences and chronicity of mental illnesses. This way, knowing the relationship between socioemotional skills and mental health allows the planning of actions aimed at improving it through the intentional development of skills. This planning should also take into account the association of mental health with other factors (such as personal, social and environmental).

CHAPTER 06

School violence and bullying

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SUMMARY

School violence and bullying

School violence

According to the World Health Organization (WHO), violence can be defined as the intentional use of physical force or power – whether real or threatened – against oneself, against another person or group, resulting in injury, death, psychological harm , deprivation or impaired development[112]. There is no simple or single explanation of violence. It is multifactorial and it includes individual, social, family and contextual factors. Because there is not a single cause, it is necessary to understand that violence involves individual and social aspects, which may be associated with specific behaviors, and it is not possible to state that there is a single "pattern" or "profile" of characteristics. Therefore, based on this definition, it is understood that violence goes beyond physical acts, also including psychological violence, such as threats or coercion, or the perpetration of *bullying*.

In schools, the effects of violence can be observed through the perception of insecurity and vulnerability of young people. The National School Health Survey (PeNSE) indicated that 11.6% of students aged 13 to 17 (i.e. 1.3 million students) said they had stopped going to school because they did not feel safe on the way to or back from school[46]. In the public school network, the percentage was double of what was observed in the private school network.

The reasons for insecurity in the school context are diverse and, among them, is bullying, which can be understood as a systematic intimidation that comprises three main characteristics: aggressive behavior directed at a "target", the intention to hurt or humiliating another person and the context of power inequality[113].

In the school context, bullying can be seen in the form of a) verbal, physical or psychological aggression, such as name calling, threats or nicknames; b) dissemination of information and rumors that aim to leave another person vulnerable; c) verbal or psychological aggression through cell phone messages, social networks or online posts (i.e., *cyberbullying*).

Both violence and *bullying* are reported as harmful to the school environment, as they bring harm to everyone involved in the situation. In general, *bullying* is seen as a dynamic between the *bully* and the victim; however, it is important to note that people who observe the situation or event, those who encourage the aggressor or who protect the victim are also part of this dynamic. Thus, *bullying* is a phenomenon that does not occur only in the relation between aggressor and victim, but in the context as a whole.

Why is it important to study violence and bullying in the school context?

In a survey carried out by a school network, supported by the Ayrton Senna Institute, it was observed that:

16%

of students indicated they were bullied because of their body appearance*.

8%

of students reported being bullied because of their race*.

10%

of students reported that they practice bullying*.

*Data from N = 31,201 students in the final years of Elementary and High School from a public school network located in the Southeast region of Brazil. The survey was carried out in the year 2019.

According to PeNSE, about 23% of students felt humiliated by their colleagues two or more times in the last thirty days prior to the survey[46]. The way in which these violences happen and impact the school experience differs between girls and boys. The most frequent reasons for violence against girls were: appearance of the body, appearance of the face and color or race. In the case of boys, violence is more linked to externalizing behaviors. About 10.5% of students said they had been involved in

physical fights, and among boys, the percentage was more than double the amount registered among girls.

In turn, when investigating *bullying* from the perspective of the *bully*, 12% of the students reported having committed some type of aggression against a colleague, with higher proportions among males than females. The phenomenon occurs more among students from private schools (13.5%) than from public ones (11.8%). When asked about being bullied, 8.4% of boys aged between 13 and 15 reported feeling humiliated by teasing from schoolmates, and 4.9% of boys aged between 16 and 17 reported feeling humiliated by these taunts most of the time or all of the time[54]. Internationally, in a survey by the OCDE[52], 11% of students reported having been mocked by other students, and 8%of young people indicated that they were targets of defamatory rumors a few times a month; in addition, 1 in 4 participants in a classroom reported being pushed or otherwise physically assaulted more than once a month by other students.

In 2019, data from 31,340 students from a state network in the Southeast region of the country, from the 5th and 9th grades of Elementary and Middle School and 3rd grade of High School, who answered about situations of violence and bullying in the last thirty days prior to the survey, were analyzed. The results were that 10.2% of students reported practicing bullying, either by teasing, intimidating or "making fun" of a colleague at some point. From the perspective of the victims, students reported being bullied because of their body appearance (16.1%), face (14.5%) and color/race (8.1%); the other causes were religion (7.3%), sexual orientation (6.5%) and region of origin (6.2%).

Knowing how this type of violence relates to the student's school life helps to predict its short- and long-term impacts and, consequently, to map out prevention and intervention strategies involving aspects relevant to the school itself, which must be done in conjunction with other health- and safety-related strategy that prove to be appropriated. School climate and academic performance tend to be affected by bullying. In a survey by the OCDE[52], schools with lower rates of bullying were described as having a better climate in the classrooms. On the other hand, in schools where bullying was described as frequent, students had lower scores in the science curriculum component

when compared to students from schools where bullying occurred less frequently.

However, the effects of *bullying* are not restricted to the school environment. Research about *bullying* indicates that victims are more likely to develop problems with self-esteem and depression, for example[61,62,114,115]. In addition, longitudinally, it was noted that symptoms of depression could become more persistent in children and adolescents who suffered *bullying*. Assaults can also increase the chances of the young person developing symptoms of anxiety and other issues related to mental health in adult life[61,62].

An integrative literature review reported that, in general, studies with data from Brazilian children and adolescents show that the practice of *bullying* is more associated with males than females, and men are also the ones who suffer the most *bullying*. The study argues that these findings can be explained by the way *bullying* occurs between genders, since boys tend to be more victimized by physical aggression, isolation from a certain group and coercion. On the other hand, girls are often the target of gossip and/or are more harassed by peers, which may be less perceived as bullying by the victims[60].

Thus, understanding both school violence and *bullying* is essential to understand psychosocial adaptation throughout students' development. School environments present an important opportunity as intervention spaces that integrate students as protagonists of their history, as well as teachers, coordinators and directors, in order to elaborate appropriate strategies.

In summary...

Lower rates of school violence and bullying are associated with:

a. *better school performance;*

b. *more engagement in school activities;*

c. *better school climate and sense of school belonging;*

d. *greater levels of mental health.*

How are socioemotional skills associated with school violence and bullying?

Several studies indicate that the development of socioemotional skills is an ally in reducing aggressive behavior and interpersonal violence, such as bullying and physical aggression between colleagues, as well as improving the perception of the school climate[2,86,96,97]. Thus, together with multidisciplinary interventions, the implementation of socioemotional skills development programs helps to create a school environment with less conflicts and that is safer for everyone.

In order to understand how socioemotional skills are empirically associated with violence, data from 1,941 students who responded to the Senna instrument to assess their socioemotional skills, as well as questions about violence and *bullying*, were analyzed. The students in this sample had an average age of 14.2 years (with a range[u] of around 2.04 years) and were composed of 49.36% girls and 50.64% boys. Based on these questions, three aspects were analyzed: violence in the school context, victims of *bullying* and *bullies* (intimidators or those who practice *bullying*).

The relation between socioemotional skills and these three aspects of violence was investigated using a statistical procedure called multiple linear regression[v]. This analysis allows us to verify the unique contribution of each socioemotional skill in reducing school violence and *bullying*.

The socioemotional skills and the mitigation of the violence effects in the school environment

Based on the literature, we can understand that behaviors related to violence are associated with feelings of stress or anger, with difficulties in regulating one's emotions or controlling impulses and, consequently, with a worse perception of school belonging and a smaller sense of security[2, 53]. On the other hand, students who feel they belong to their school community tend to

[u] This variation corresponds to the standard deviation value.

[v] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

report less bullying victimization and more positive relationships with their teachers[11].

Within the socioemotional model adopted by the Ayrton Senna Institute, it is possible to highlight three important domains for mitigating the effects of school violence: self-management, amity and emotional resilience. These domains reflect characteristics such as maintaining focus and organization, respect for others and the ability to regulate one's emotions. Within these domains, five socioemotional skills stand out with a view to an intentional and focused work to reduce the effects of school violence:

- **self-confidence** (emotional resilience domain);
- **determination** (self-management domain);
- **respect for others** (amity domain);
- **responsibility** (self-management domain);
- **frustration tolerance** (emotional resilience domain);

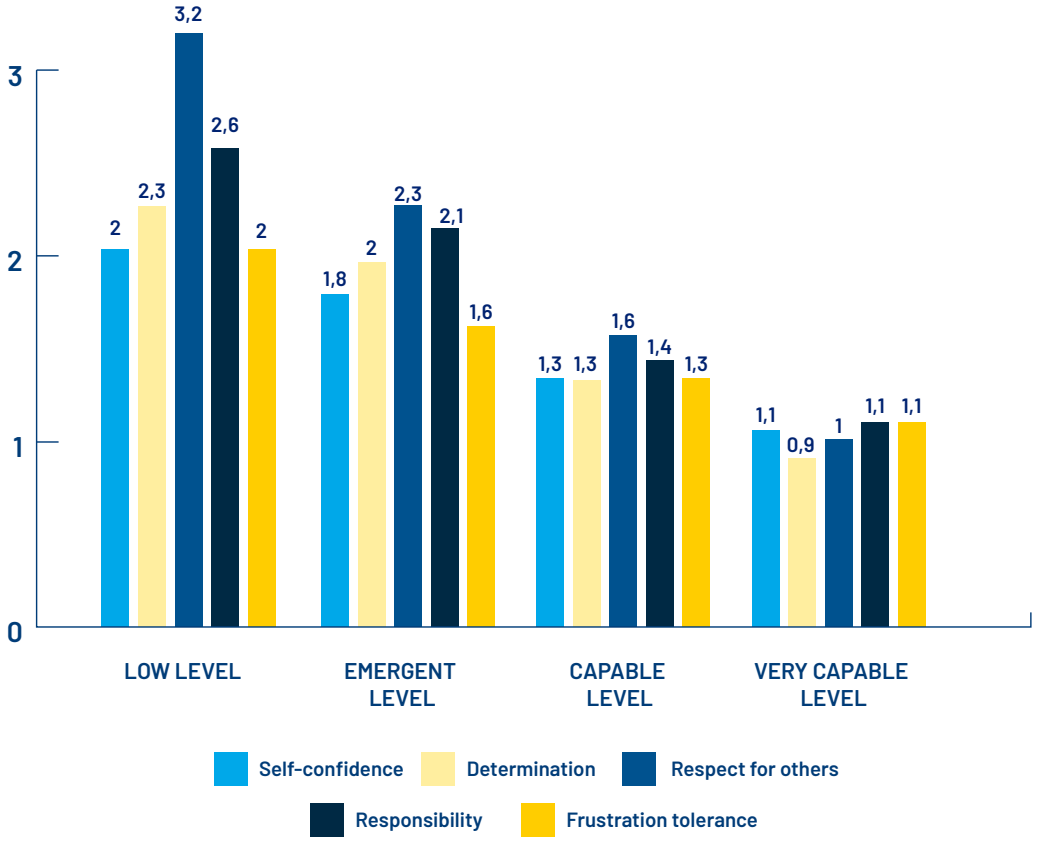
Together, these socioemotional skills can help students persevere, get along better with each other, take on challenges, stay engaged when something goes wrong, and trust themselves more. Thus, each of these skills makes a unique contribution for students to develop resilience in the face of challenging situations and foster bonds with their peers to create a support network in the school environment.

Based on the results of this research, it is possible to say that, globally, the skills of determination, respect for others, responsibility, frustration tolerance and self-confidence helped to explain 10% of the variance of the school violence indicator, and the relationship between these socioemotional skills and the school violence indicator was negative. That is, in this study, it was observed that the involvement of students with school violence is linked to a lower experience of behaviors related to care and respect for peers, as well as to impairments in understanding and managing possible conflict situations. This suggests that the mentioned socioemotional skills can be

intentionally used to mitigate violent behaviors and think about prevention strategies through the socioemotional development.

The contribution of each socioemotional skill to the mitigation of school violence can be seen in Figure 7, which presents the average scores on the violence indicator for each level of development in the five socioemotional skills listed. More detailed and technical information about the results can be found *here*.

Figure 7. School violence scores perceived by students according to the level of socioemotional development in self-confidence, determination, respect, responsibility and frustration tolerance



Note. *For the most part, the mean differences are significantly different. The violence score varies between 0 and 10. The closer to 0, the less school violence or indiscipline behavior is suffered, perpetrated or witnessed at school. The closer to 10, the more behaviors of school violence or indiscipline are suffered, perpetrated or witnessed at school. More details can be found aqui.*

Thus, it is possible to verify that the greater the socioemotional development in this set of skills, the lower the scores on the violence indicator. As an example, we have the relation between school violence and respect. At the "Low" level of the respect for others skill, the average number of behaviors related to school violence was 3.2 witnessed or committed behaviors. Now, the average number of violence behaviors witnessed or committed by those who were at the "Very capable" level of respect was 1. This means that students who witness or commit more behaviors of school violence or indiscipline tend to perceive themselves as less developed in the respect for others socioemotional skill. Students who report witnessing or committing fewer behaviors related to violence or indiscipline tend to perceive themselves with more resources related to the respect skill.

What is the contribution of each socioemotional skill to prevent and mitigate the effects of school violence?

The self-confidence and frustration tolerance skills are part of the emotional resilience domain. This domain refers to the ability to regulate emotions such as anger and sadness, as well as confidence in one's own potential. Responsibility and determination, in turn, are self-management skills, which speak about the ability to plan, make an effort, have clear goals and know how to achieve them ethically and carefully with yourself and others. Finally, the respect for others skill belongs to the amity domain, which refers to the abilities to socialize based on principles and feelings of compassion, justice, acceptance and affection. Let´s understand more about how these five socioemotional skills are associated with the prevention of school violence?

Self-confidence: is related to the ability to deal with the feeling of insecurity in relation to one's own abilities. Being self-confident means feeling good about yourself, maintaining positive expectations about the future, even when things don't seem to be going so well, dealing better with feelings of sadness. More positive feelings towards themselves help the student to adopt more optimistic postures in the face of day-to-day challenges and difficulties[2,53].

Frustration tolerance: this competency supports the student in regulating his feelings of anger and irritation. The ability to adopt strategies to regulate anger

or frustration in situations that do not unfold as expected helps us to evaluate more carefully what went wrong and to avoid "acting hot-headed" or explosively, that is, to take impulsive actions[2,53].

Responsibility: responsibility helps students to engage with each other ethically and responsibly. To be responsible is to act in a reliable and consistent way with yourself and with the people around you, which provides the construction of more trusting and close relationships and, consequently, a more positive environment within the school, helping, together with other factors, in the reduction of cases of violence[11].

Determination: this skill is linked to discipline and ambition to achieve goals, without becoming frustrated in the face of obstacles. At school, by being able to set goals and strive to achieve them, students become motivated and engaged in their tasks, understanding that challenges are part of the process and can be overcome[11].

Respect for others: in the intentional work with the respect skill, concepts of socialization and respect for colleagues and teachers are developed with the purpose of reducing statements that may be an offensive and intimidating behavior. The development of this skill helps students to become aware of the importance of maintaining ties with their schoolmates[11,116].

Socioemotional skills and mitigating the effects of bullying

Literature data show that witnessing or perpetrating bullying is detrimental to the school environment, and can generate feelings of discomfort and insecurity and others linked to anxiety and depression, in the short and long term. This happens because the perpetration of bullying involves behaviors that can offend or hurt other people, whether physically, verbally or psychologically. Thus, both intimidation and being bullied behaviors are associated with difficulties in managing feelings of anxiety, frustration or anger[61,62,114,115].

Based on the socioemotional model adopted by the Ayrton Senna Institute, it is possible to highlight three important domains for mitigating and preventing

behaviors related to *bullying*: amity, self-management and emotional resilience. These domains reflect characteristics such as empathy, respect for others, focus, persistence and frustration tolerance. Within these domains, some socioemotional skills stand out with a view to intentional and focused work to mitigate the effects of *bullying*:

For victims:

- **self-confidence** (emotional resilience domain);
- **respect for others** (amity domain);
- **responsibility** (self-management domain).

For bullies:

- **empathy** (amity domain);
- **persistence** (self-management domain);
- **respect for others** (amity domain);
- **responsabilidade** (self-management domain);
- **frustration tolerance** (emotional resilience domain).

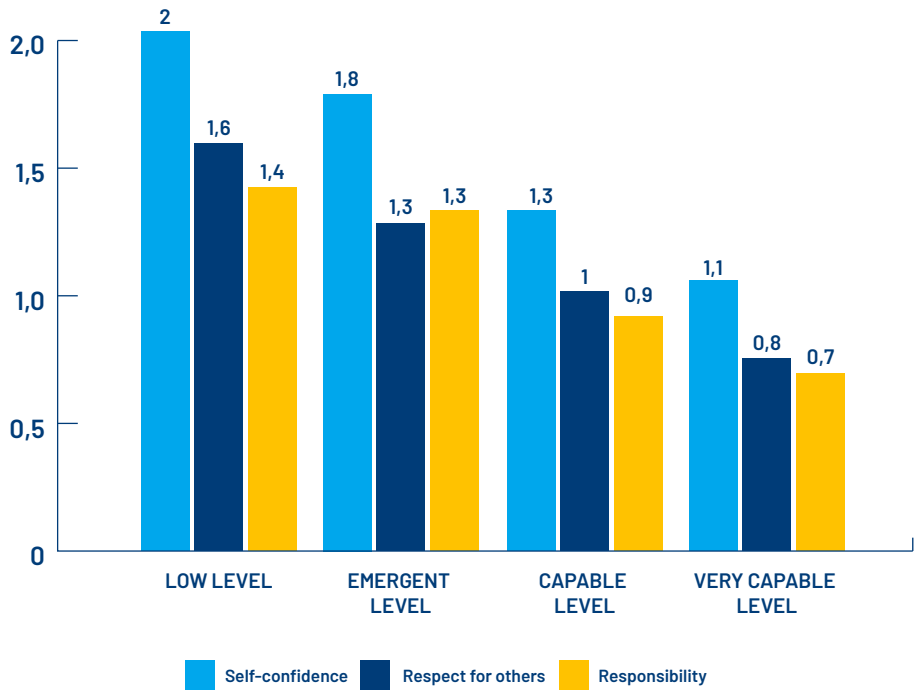
Taken together, these socioemotional skills can help students to show greater respect for their peers and to have more resources to deal with frustrations and challenges and greater confidence in themselves. Thus, each of these skills makes a unique contribution for students to develop care for their colleagues as well as a positive view of themselves.

Victims of bullying

Based on the results of the regression, it is possible to say that, in a global way, the respect, responsibility and self-confidence skills helped to explain 5% of the rate variance of victim of *bullying*. The relationship between socioemotional skills and the *bullying* indicator was negative. That is, in this study,

it was observed that being bullied is linked to the possibility that the student has a less optimistic view about themselves and the people around them, since there are people causing them suffering. This suggests that promoting the development of these socioemotional skills can support students in obtaining resources to deal with these situations and seek support when needed. The contribution of each socioemotional skill to helping students who are being bullied can be seen in Figure 8. The figure presents the average scores on the Bullied Victim Index for each level of development in the three socioemotional skills listed. More detailed and technical information about the results can be found *here*.

Figure 8. Bullying victimization scores as reported by students according to the level of socioemotional development in self-confidence, respect and responsibility



Note. *For the most part, the averages differences are significantly different. The bullying score varies between 0 and 6. The closer to 0, the less bullying behavior students suffered. The closer to 6, the more bullying behaviors were suffered by students. More details can be found here.*

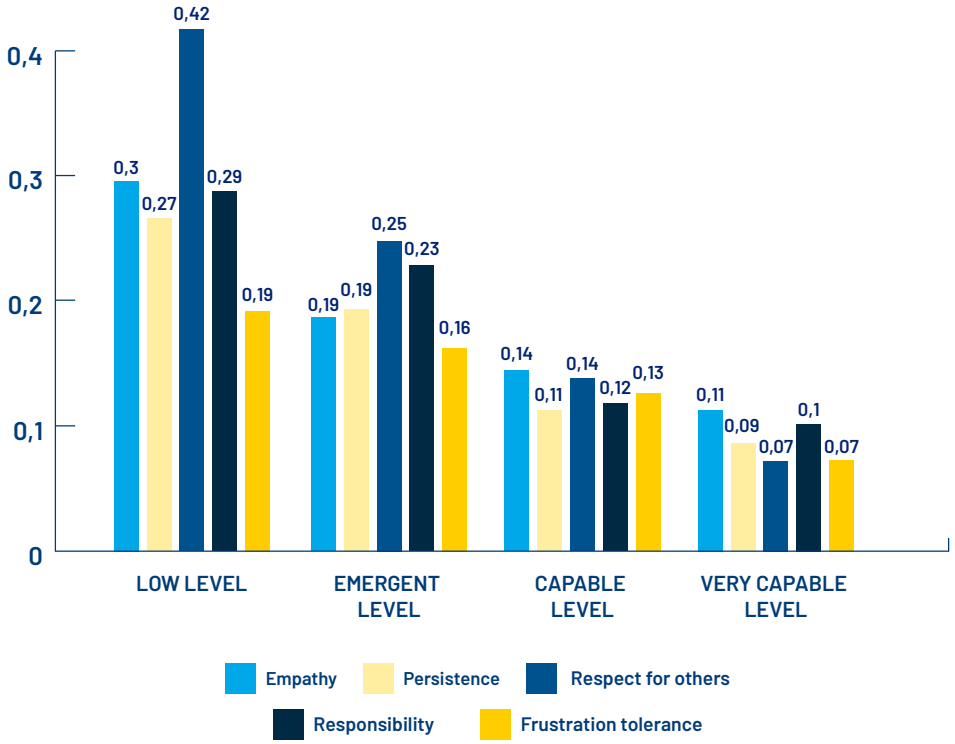
It is possible to verify that the greater the socioemotional development in this set of skills, the lower the scores on the indicator of being bullied. Take, for example, the relationship between being bullied and self-confidence. At the "Low" level of self- confidence, students reported being bullied, on average, for 2 motives; the average number of reports of bullying by those who were at the "Very capable" level of self-confidence was 1.1 motive. This means that students who report suffering more bullying tend to perceive themselves as less developed in self-confidence. Students who report suffering less bullying tend to perceive themselves with more resources related to the self-confidence skill.

Bullies

Regarding intimidation due to *bullying*, globally, the skills empathy, persistence, respect, responsibility and frustration tolerance helped to explain 5% of the variance of the indicator, with the relation between socioemotional skills and the bullying indicator being negative. That is, in this study it was observed that the behavior of perpetrating bullying is linked to greater difficulty in dealing with feelings of anger and greater disconnection with others and their feelings. This suggests that promoting the development of these socioemotional skills in students can help them create resources to deal with their feelings and promote a positive view of other people, fostering a healthy and safe school climate for all.

The contribution of each socioemotional competency to supporting students who are perpetrating bullying can be seen in Figure 9, which presents the average scores on the Bullying Perpetration Index for each developmental level in the five socioemotional skills listed. More detailed and technical information about the results can be found ***here*** .

Figure 9. *Bullying* perpetration scores as reported by students according to the level of socioemotional development in empathy, persistence, respect for others, responsibility and frustration tolerance



Note. *For the most part, the averages differences are significantly different. The bullying score varies between 0 and 1. The closer to 0, the less bullying behaviors are perpetrated by students. The closer to 1, the more bullying behaviors are perpetrated by students. More details can be found here.*

It is possible to verify that, the greater the socioemotional development in this set of skills, the lower the averages of perpetration of *bullying*. Take, for example, the relationship between perpetrating practicing *bullying* and respect for others. Students with the respect for others skill at the "Low" level have an average score of 0.42 for the perpetration of *bullying*, which means that they have more reports of perpetration of *bullying*; students who reported being at the "Very capable" level of respect for others had an average score of 0.1, which means that they report less intimidating behavior with colleagues. This means that students who report perpetrating more *bullying* tend to perceive themselves as less developed in respect for others, while students who report perpetrating less *bullying* tend to perceive themselves

with more resources related to the respect skill.

What is the contribution of each socioemotional skill to prevent and mitigate the effects of bullying?

Victims

Being *bullied* is an experience that can be traumatizing and that has short- and long-term consequences for victims[61,62]. *Bullying* victims tend to demonstrate lower levels of self-management development and emotional resilience. Since students in this situation may be more emotionally vulnerable, it is possible that they have difficulties in dealing with conflict situations and feel a greater need to protect themselves. These are characteristics that can be related to low levels of kindness[116–118].

Thus, working on this set of skills aims to help in the socioemotional development of children and adolescents who are going through such a situation. Shall we understand more about how these three socioemotional skills are associated with *bullying* prevention?

Self-confidence: refers to the ability to trust yourself, to value yourself and, consequently, to reduce negative thoughts about yourself. In this sense, it helps students to deal with feelings of insecurity in relation to their own abilities and sadness and to face adverse and challenging situations[2,53].

Respect for others: this skill is expressed in the figure of the student who, in his actions and decisions, considers the well-being of his colleagues and his teachers, which is the opposite of offending and intimidating, characteristic behaviors of bullying. It is also characterized by commitment to others, considering the feelings of others [11,116,118].

Responsibility: this skill, when well developed, manifests itself in typical behaviors of a person with whom others can count when they need it. It also demonstrates respect for commitments, even in difficult situations, showing a confident attitude[11].

Bullying perpetration

When looking at a construct such as bullying, it is important to understand how to stimulate socioemotional skills in students who engage in this type of behavior to support their development and also reduce this type of expression in the school environment. Bullying perpetrators tend to demonstrate lower levels of development in amity, self-management, and emotional resilience. Since students in this situation may be more emotionally vulnerable, it is possible that they have difficulties in dealing with their own emotions and contain inappropriate or harmful behavior towards others[116–118].

Thus, working on this set of competences aims to help in the socioemotional development of children and adolescents who are going through such a situation. Shall we understand more about how these five socioemotional skills are associated with the prevention of bullying perpetration?

Empathy : this skill refers to the ability to understand the other's perspective, act with kindness and compassion. It's about investing in relationships, helping and supporting. In the literature, bullying is often associated with lower empathy. Children and adolescents who practice bullying tend to have difficulties in recognizing, understanding and internalizing the feelings of their peers in everyday life, which can make it difficult to "put themselves in the other's shoes" [114,116,118]. When working on the empathy skill, the ability to put oneself in the shoes of others and to consider colleagues and their feelings is worked on.

Respect for others: consists of treating people with consideration and tolerance and showing due respect for the feelings, wishes, rights and beliefs of others. Respect helps the student to control aggressive or selfish impulses, so as not to hurt the rights or feelings of others[11,114,116,118].

Persistence: this skill encompasses the abilityto ensure continuity and constancy in the efforts needed to overcome obstacles and complete the tasks undertaken/ initiated, instead of procrastinating or giving up. This ability is related to being aware of one's duties and seeking ways to fulfill them[11,114].

Responsibility: this skill is related to the ability to fulfill agreements and adopt an ethical and responsible attitude towards commitments (whether with the school, with colleagues or with teachers). People with a more developed level of responsibility are indicated as reliable and consistent, which favors the development of closer relationships marked by trust[11,114].

Frustration tolerance: this skill helps students to regulate feelings of anger and irritation, helping them to deal with adverse and conflict situations. In a bullying situation, frustration tolerance acts to control aggressive impulses against another person, strengthening the use of emotion regulation strategies[114,116–118].

Concluding...

When talking about cases of violence and bullying in schools, it is important to combine a socioemotional development with strategies from different teams and perspectives, such as specialists from the areas of health, social assistance, education and safety, in an integrated and intersectoral work, aimed at supporting and welcoming students. In this sense, intentional work with self-management skills, amity and emotional resilience[116,117] is relevant, which help students to build bonds with their colleagues, to feel safe at school and to develop resources to regulate the emotions in the face of challenges encountered in routine. This favors the understanding that their actions are equally important for others to feel safe in the school environment and, consequently, supports the formation of bonds based on reciprocity and respect.

CHAPTER 07

Academic self-esteem

Ana Carolina Zuanazzi, Ana Carla Crispim, Ricardo Primi

SUMMARY

Academic self-esteem

What is academic self-esteem?

Academic self-esteem is a broad construct that is related to self-concept[67,119], which is defined as the perception or belief that people form about themselves based on experiences and interpretations of the environment around them[120]. Self-concept has been indicated in the scientific literature as a very present component in the way a person behaves, in addition to influencing cognitive and emotional outcomes in everyday tasks and mental health[121].

Specifically, academic self-esteem is defined as the students' perception of their own efforts and the consequences of these efforts in their studies. Students with high academic self-esteem tend to perceive themselves as capable of getting good school grades and learning new things at school. Students with low academic self-esteem tend to perceive themselves as academically unsuccessful and to think that their efforts are useless in achieving their academic goals. These perceptions are formed throughout life through school and academic experiences, such as interactions with peers or even feedback from assessments and teachers[122]. These feedbacks produce inputs that help students understand their potential and interpret the environment around them[67].

Why study academic self-esteem in schools?

In a survey carried out by a school network, supported by the Ayrton Senna Institute, it was observed that:

26%

of students feel they **are not good at most** school subjects*.

16%

of students reported that they **tend to believe they are failures***.

26%

of students feel that if they decide they're not going to get any low grades, **they're not so sure they'll be successful at it***.

*Data from N = 175,827 students enrolled in the 5th and 9th grades of Elementary and Middle School and 3rd grade of High School in a public school network located in the Southeast region of Brazil. Survey carried out in the year 2021.

The previous data emphasize the need for care regarding the student's perception of their own ability to perform well in school tasks, given that almost a third of the evaluated sample perceive themselves as having low performance in school subjects and/or are not sure that their efforts will be sufficient to achieve certain academic results.

The importance of considering the student's perception is also reinforced by the proposals for a comprehensive education and full development during basic education, and it is imprinted in the ten general skills of the BNCC. More specifically, Competency 8 proposes that students are able to "know themselves, appreciate themselves and take care of their physical and emotional health, understanding themselves in human diversity and recognizing their emotions and those of others, with self-criticism and ability to deal with them" (p. 10)[1].

According to the scientific literature, the intentional work of this skill can be reflected in two important aspects of students' lives: intrapersonal and

academic. Both self-knowledge and self-care are considered important for mental health and for more positive views of oneself, which contributes to academic self-esteem and favors the development of the intrapersonal dimension[123–125]. Furthermore, several studies point to the association between academic self-esteem and life outcomes. There is considerable evidence of the positive relation between academic self-esteem and school performance, in which better perceptions of self-esteem are associated with achieving greater academic results, such as higher grades in internal and external assessments[126,127].

In practice, this relationship can be reflected in two ways. Being more confident in the potential to perform well on tests may favor the student to feel more secure or even to put more effort into their tasks, which may be reflected in behaviors related to better planning of studies or better preparation for tests, for example. Likewise, having good results in the assessments reinforces the perception that the student is capable of overcoming their challenges, and may even encourage them to delve deeper into certain subjects. In a study developed by eduLab21, it was observed that students who perceived themselves to be more optimistic about their school performance, their ability to learn and their ability to get good grades tended to have better school achievement levels. Each point added in this aspect of self-esteem corresponded to 5.9 points more in Portuguese and 9.1 points more in Mathematics[110]. This data reinforces the importance of thinking about the development of strategies that help students to get to know themselves and promote positive views about themselves and their capabilities, since this perception can influence the outcomes of their academic life.

In summary...

Higher levels of academic self-esteem in students are associated with:

- *better school performance in Portuguese;*
- *better school performance in Mathematics;*
- *fewer behaviors related to anxiety or depression;*
- *better perception of one's own abilities.*

How are socioemotional skills associated with academic self-esteem?

Aspects of academic self-esteem are associated with skills related to the perception of oneself as someone capable, the interest in knowing about different subjects, the ability to set goals, be focused and persist in the face of difficulties. This happens because academic self-esteem is related to the belief and perception of oneself as someone capable of achieving their academic goals in general.

Based on the socioemotional framework adopted by the Ayrton Senna Institute, it is possible to highlight three important domains in the development of academic self-esteem: **emotional resilience, open-mindedness and self-management**. These domains reflect characteristics such as being able to deal with emotions such as anger, insecurity and anxiety, being open to knowing and investigating new things and being able to stay focused, engage in activities and take responsibility for their commitments. Within these domains, five socioemotional skills stand out for an intentional work focused on academic self-esteem:

- **self-confidence** (emotional resilience domain);
- **curiosity to learn** (open-mindedness domain);
- **determination** (self-management domain);
- **focus** (self-management domain);
- **persistence** (self-management domain).

Together, these socioemotional skills can help students build a more positive view of themselves and maintain an investigative and curious attitude, in addition to supporting them in setting goals and finding ways to achieve them, being able to stay focused on the important actions. Thus, each of these skills makes a unique contribution for students to develop self-confidence, curiosity, determination, focus, persistence and greater academic self-esteem.

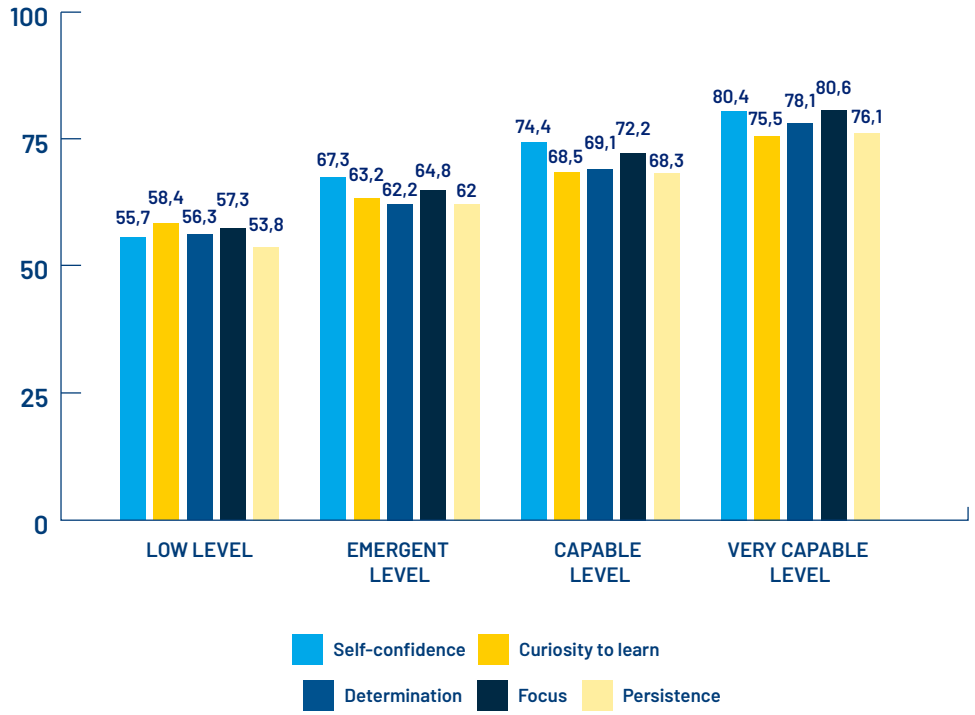
To understand these contributions, data from 51,234 students who answered

the Senna instrument and the instrument on academic self-esteem were analyzed. The students in this sample were in the 5th grade (N= 13,521 students), 9th grade (N = 20,159 students) and 3rd grade of high school (N = 17,554 students) and were 51.5% girls and 48.5% boys. The relationship between socioemotional skills and academic self- esteem was investigated using a statistical procedure called multiple linear regression[w]. This analysis allows us to verify the unique contribution of each socioemotional skill to academic self-esteem.

Based on the results obtained, it is possible to say that, globally, self-confidence, curiosity to learn, determination, focus and persistence helped to explain 32.8% of the variance in students' academic self-esteem. In other words, it was observed that the extent to which students feel capable of carrying out school activities and overcoming obstacles is linked to their perception of their own ability to deal with different challenges, to adopt a curious attitude, to be focused, to set goals and persist to achieve them even in the face of difficulties. This demonstrates an important role of these socioemotional skills in the development of academic self-esteem, suggesting that they can be intentionally used to promote it in students' lives. The contribution of each socioemotional skill to academic self-esteem can be seen in Figure 10, which shows the average self-esteem scores for each level of development in the five social- emotional skills listed. More detailed and technical information about the results can be found ***here*** .

[w] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

Figure 10. Scores of academic self-esteem perceived by students according to the level of socioemotional development in self-confidence, curiosity to learn, determination, focus and persistence



Note. *Differences in averages are significantly different. The academic self-esteem score is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the lower the perceived academic self-esteem. The closer to 100, the higher the perceived academic self-esteem. More details can be found here.*

In general, it is possible to see that the greater the socioemotional development in this set of skills, the higher the academic self-esteem score perceived by students. Take, for example, the relation between academic self-esteem and self-confidence. At the "Low" level, the average score of students in academic self-esteem was 55.7 points; the average score in academic self-esteem at the "Very capable" level was 80.4 points. This means that students who perceive themselves to be less developed in terms of self-confidence are also the students who report lower academic self- esteem. However, the students who perceive more resources related to self-confidence are the

students who also report feeling greater academic self-esteem. Thus, these results show which socioemotional skills are important allies for the development of academic self-esteem, reinforcing the need for intentional and integrated work.

What is the contribution of each socioemotional competence to academic self-esteem?

The self-confidence competence composes the emotional resilience domain, which is related to the concept of regulating emotions such as anxiety, stress or sadness. The curiosity to learn skill belongs to the open-mindedness domain, which talks about the tendency to be open to new experiences, to know about new subjects and to be imaginative. The skills determination, focus and persistence make up the self-management domain, which refers to concepts of organization, establishment of objectives, and actions to achieve them, maintaining an ethical and responsible posture in personal, professional or social life choices. Together, these skills are related to how students see themselves in their school environment, considering expectations about themselves, and their ability to plan and remain committed to achieving their goals, whether in the short or long term.

We observed that these skills can favor the student's perception of their academic abilities, contributing to their learning, as well as to their mental health. Shall we better understand how these five socioemotional competences can help in the development of academic self-esteem?

Self-confidence: relates to feeling fulfilled with one's life and having positive expectations and thoughts about oneself. Having this skill developed means feeling safer and more comfortable with yourself, even in challenging situations, which motivates the student to engage in activities. People who have well-developed self-confidence tend to perceive life with greater optimism, to feel more capable, which is related to greater self-esteem[123,124,126].

Curiosity to learn: refers to the desire to learn and acquire knowledge. It is related to an inquisitive mindset that facilitates investigation, research, critical thinking and problem solving. The curiosity to learn supports the

students to seek new knowledge and remain motivated during learning. It also helps them to understand new ideas and learn more about people and the world[122,126].

Determination: is the ability to set goals, be motivated and dedicate yourself fully to achieving them beyond expectations. Being determined requires effort and energy to face a task or achieve a goal. Thus, this skill supports the students in setting ambitious goals for themselves and in the effort to achieve the desired results[126].

Focus: this skill is related to our concentration when performing a task. Without focus, we can lose track of what we are doing, forget what people tell us, and miss the task at hand due to distractions. Focus favors the ability to concentrate and direct attention to what you are doing, even when the situation is challenging[122,126].

Persistence: talks about the continuity and constancy of the efforts needed to overcome obstacles. This skill is related to the ideas of perseverance and effort. The good development of persistence helps the students to dedicate themselves to completing the activities, avoiding procrastination, making them feel happy and proud of his success, motivating them to overcome challenges[122,126].

Concluding...

The definitions of the five socioemotional skills most related to academic self-esteem indicate that students who tend to have a good perception of their academic abilities are those who have a good view of themselves, face life more optimistically, are curious about various themes, capable of delimiting objectives and having focus and persistence to achieve them. This helps

them to cultivate good feelings and, in the face of challenges, keep calm and deal with them in a healthy way in their school life. These skills drive them to go further, being able to adopt an investigative attitude and look ahead, proposing and pursuing objectives.

Knowing this relation allows the planning of actions to promote academic self-esteem through socioemotional development, as its identification enables the design of specific socioemotional interventions for this purpose. Thus, the intentional work of developing socioemotional skills, in association with other relevant factors for the promotion of academic self-esteem (personal, social and environmental factors), is essential for an educational action based on evidence and in favor of the full development of students.

CHAPTER 08

Learning strategies

Gustavo Henrique Martins, Ana Carla Crispim, Felipe Valentini, Nelson Hauck Filho, Ricardo Primi, Gisele Alves

SUMMARY

Learning strategies

Learning strategies play a relevant role in the school context. Its use enables students to improve the understanding of the content of classes, increase the level of retention of information and improve academic performance. According to Pintrich and De Groot[128], the use of learning strategies can, in addition, help students to become more independent in their learning process and more motivated to learn and increase understanding and transfer of knowledge to other situations. Also, by learning to apply these strategies appropriately, students who experience more difficulties in their school routine build more consolidated understandings about the content[129]. That is, the inclusion of learning strategies in the students' routine contributes decisively to school performance and the teaching-learning process.

What are learning strategies?

Learning strategies are associated with the way students plan, execute and regulate their motivation, preferences and study strategies. In other words, they are the methods and techniques used by students to acquire and store information more efficiently and effectively[130-133]. In general, the learning strategies can be understood through cognitive components (behaviors and thoughts to store information) and meta- cognitive components (planning, monitoring and regulation of one's own thinking)[134]. Based on a more specific approach, known as the Student Approach to Learning[135], the strategies can be categorized into four groups:

1. **Memorization strategies:** relate to the ability to memorize content and repeat it in post-learning situations.
2. **Strategies of effort and persistence:** involve effort and commitment to dedicate oneself to the maximum in studies, being resilient in the face of eventual adversities and challenges.

3

Elaboration strategies: involve the effort to relate the concepts of new learning with knowledge and practices already acquired, establishing new connections and interpretations in the studies.

4

Monitoring strategies: involve planning and checking the learning process in order to know whether knowledge has been acquired.

Together, these strategies help to assimilate and retain the knowledge acquired at school, which reinforces its diversified use by students during the teaching-learning process.

Why study about learning strategies?

In a survey carried out by a school network, supported by the Ayrton Senna Institute, it was observed that:

61%

of students indicated that, often or almost always when studying, they try to find out how information can be useful in practice (Elaboration strategy)*.

45%

of students indicated that often or almost always when studying, they practice repeating to themselves the material several times (Memorization strategy)*.

55%

of students indicated that often or almost always when studying, they make sure to remember the most important ideas (Monitoring strategy)*.

71%

of students indicated that often or almost always when studying, they commit themselves as much as possible (Strategy of effort and persistence)*.

*Data from N = 175,139 students in the 5th and 9th grade of Elementary and Middle school and 3rd grade of High School in a public school network located in the Southeast region of Brazil. The survey was carried out in the year 2021.

In a study that synthesized the impact of different educational interventions

on student performance, it was observed that 15 of the 30 educational interventions with the greatest effect were learning strategies or teaching strategies, with effect sizes ranging from medium to strong[x 136]. That is, the way teachers teach and the way students learn can enhance learning and result in better school performance.

Thus, during the learning process, students can make use of one or more strategies. However, it is important to note that the effectiveness of strategies depends on school demands and the complexity of learning. For example, throughout their school career, students who use monitoring strategies tend to perform better at school than students who use only memorization strategies[65,130]. This is not to say that memorization strategies should not be used; according to a study by Echazarra et al.[137], memorization strategies are useful, but become less appropriate as the difficulty of the content increases. In this study, it was identified that students who indicated using only memorization learning strategies had a 10% more chance of making mistakes on items with intermediate difficulty and a 20% more chance of making mistakes on more difficult items compared to students who indicated using elaboration or monitoring strategies. In this case, the use of elaboration strategies or monitoring strategies becomes more appropriate and brings more positive results for student performance. Therefore, it is important to understand the most appropriate learning strategies according to the presented demand.

In the Brazilian context, similar results were found for school performance. In a research carried out with elementary school students, it was found that the use of learning strategies, especially those related to planning, monitoring and regulating one's own thinking, was associated with higher levels of reading comprehension[138]. This finding was reinforced by the results of a study with an intervention proposal in which it was observed that working with learning strategies with Elementary School students was able to expand their ability to write texts (expressed in an adequate narrative structure, more well articulated and more written lines)[139].

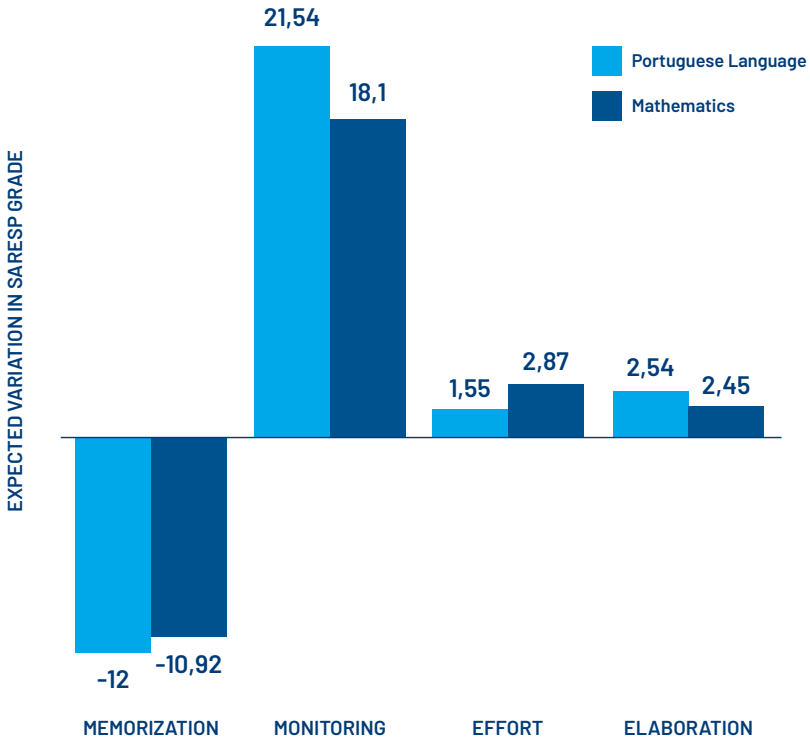
[x] Effect sizes, estimated using Cohen's d statistic, ranged from d = 0.57 (solved examples) to d = 1.28 (Piagetian programs).

Therefore, it is important to think about ways to promote these strategies in the school context. Students who are motivated to learn tend to use more learning strategies and this helps them in their school performance. This reinforces the need to engage students in the application of different strategies and, consequently, experience greater control and reflection over their own learning process [140–142].

Does each learning strategy contribute differently to school performance?

The answer is yes. In Figure 11, the associations between learning strategies and school performance in Portuguese and Mathematics are shown, with data on standardized grades of N = 177,857 students in the 5th and 9th grades and 3rd grade of high school in a school network in the Southeastern Brazil. On the horizontal axis, the learning strategies are presented; on the vertical axis, how much these strategies are associated with Portuguese and Mathematics scores. Thus, the greater and more positive the association, the greater the contribution of the learning strategy to school performance.

Figure 11. Associations between learning strategies and school performance



It was noted that the monitoring learning strategies were the ones that most positively influenced school performance: uniquely, they contributed up to eight times more to the Portuguese Language grade and up to six times more to the Mathematics grade, in comparison with elaboration strategies. Monitoring strategies involve a consistent and frequent verification of learning, helping students to understand what contents were understood and improving their process of self-regulation of learning, while elaboration strategies involve connecting previous and new knowledge in order to construct new interpretations. Note also that memorization strategies showed a negative relation with school performance. This is not to say that they are not important, as, in conjunction with the other strategies, they can be effective. However, the student who only memorizes the content, without exercising critical thinking or monitoring his learning, may have lower academic performance when compared to a student who combines different learning strategies. For example, when a student needs to think of solutions to a simple problem, such as remembering rules for multiplying or dividing, using memorization techniques is a very useful strategy. However, as school problems and activities become more complex – as is the case of reading data in a graph, interpreting and applying them to solve a question –, the need to combine strategies and skills to solve them also increases. Therefore, it is recommended that there is a combination of different strategies for students to enrich their learning possibilities.

In summary...

Using more learning strategies is associated with:

- *better school performance in Mathematics and Portuguese;*
- *greater motivation to learn;*
- *greater control and reflection on the learning process itself.*

How are socioemotional skills associated with learning strategies?

Results found in the scientific literature demonstrate that different learning strategies help students in their studies, as in the case of solving Mathematics[133] problems or reading skills in Portuguese[138]. This happens because, as students reflect on their study patterns and learn to apply learning strategies in the school routine, they develop planning skills, commitment and reflection on new knowledge, relating it to previously learned knowledge acquired[130–133,137].

Based on the socioemotional model adopted by the Ayrton Senna Institute, it is possible to highlight two important domains in the development of learning strategies: self-management and open-mindedness. These domains are reflected in characteristics such as making the most of activities, keeping the focus on studies, even if challenges or difficulties appear along the way, and valuing the importance of researching different sources of knowledge. Within these domains, four socioemotional skills stand out with a view to intentional work focused on learning strategies:

- **determination** (self-management domain);
- **focus** (self-management domain);
- **persistence** (self-management domain);
- **curiosity to learn** (open-mindedness domain).

Together, these socioemotional skills can help students to develop their focus, handling new information and reflecting on the acquired knowledge. Thus, each of these skills brings a unique contribution for students to include learning strategies in their school routine.

To understand these contributions, data from 52,488 students from three school years who answered the Senna instrument and the Brazilian version of the instrument on learning strategies used by the OCDE, called Strategies to Learning (SAL) were analyzed. The students were from the 5th grade (N = 14,050 students), 9th grade (N = 20,613 students) and 3rd grade of high school:

(N = 17,825 students); 51.4% were boys and 48.6%were girls. The relationship between socioemotional skills and strategies was investigated using a multiple linear regression[y]. This analysis made it possible to verify the unique contribution of each socioemotional skill to each learning strategy.

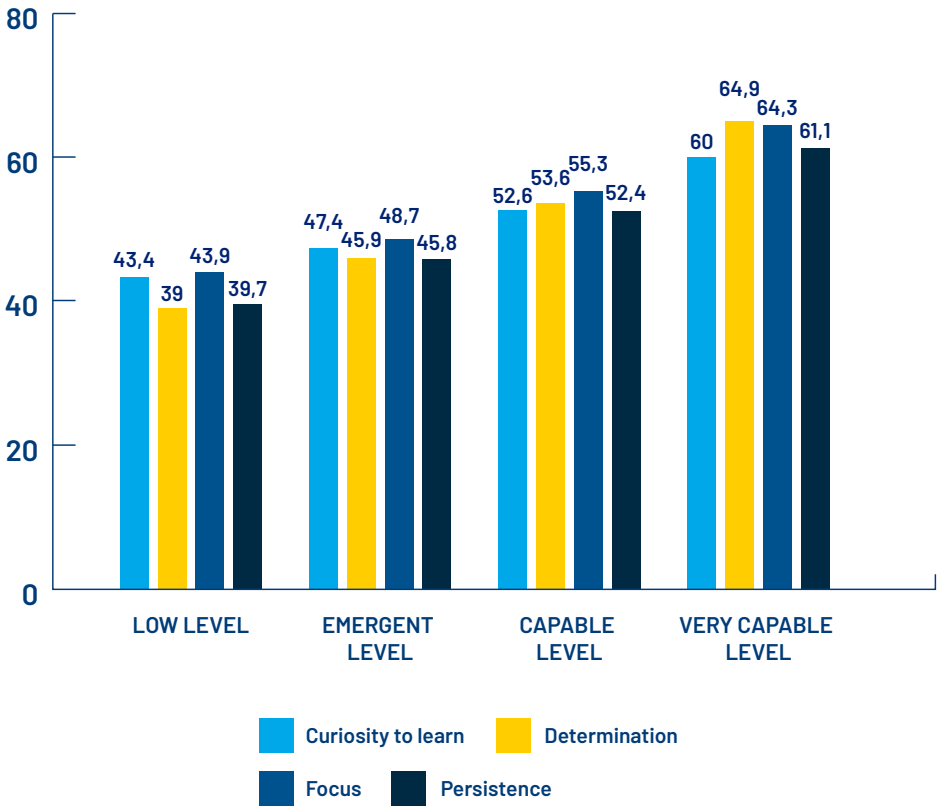
Based on the analyzed results, it is possible to say that, in a global way, curiosity to learn, determination, focus and persistence and curiosity to learn helped to explain between 13% (memorization strategies) and 30% (effort and persistence strategies) of variance of each learning strategy used by students[z]. In other words, in this research, it was observed that capabilities related to concentration on activities, effort dedicated to tasks and curiosity for new knowledge and ideas are linked to the ability to reflect on learning tools and to manage their own studies, helping the exercise of student protagonism. This demonstrates that these socioemotional skills play an important role in learning strategies, suggesting that they can be intentionally activated so that such benefits are promoted.

The contribution of each socioemotional skill to the learning strategies can be seen in Figures 12, 13, 14 and 15. These figures present the average scores in each learning strategy for each level of development in the four socioemotional skills listed. More detailed and technical information about the results can be found ***here***.

[y] Multiple linear regression is a statistical procedure to find out how much one or more variables contribute to the growth or decrease of another variable.

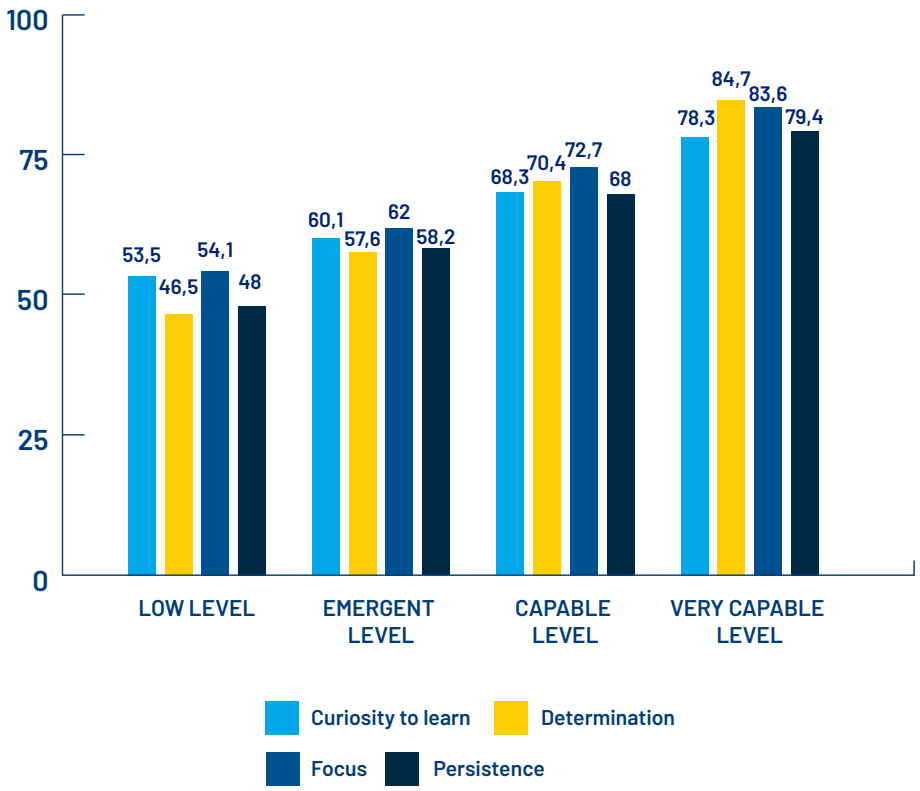
[z] Explained variance of monitoring strategies: $R^2 = 0.19$; explained variance of effort and persistence strategies: $R^2 = 0.30$; explained variance of elaboration strategies: $R^2 = 0.19$; explained variance of memorization strategies: $R^2 = 0.13$.

Figure 12. Scores of memorization strategies applied by students according to the level of socioemotional development in curiosity to learn, determination, focus and persistence



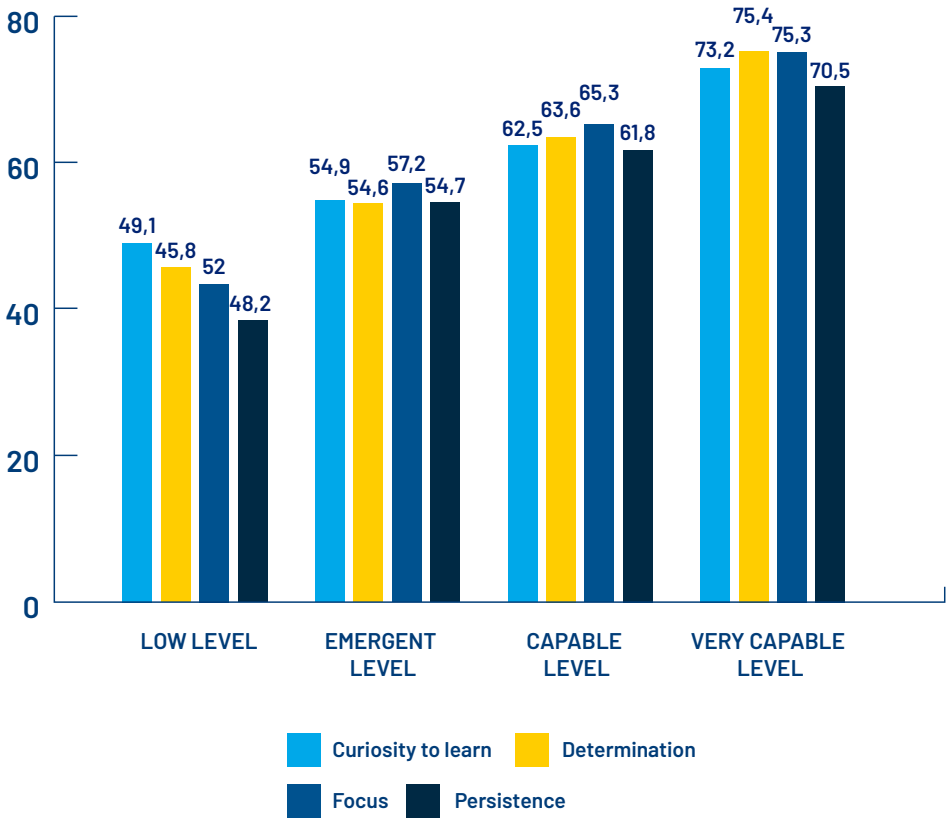
Note. *Differences in averages are significantly different. The score of memorization strategies is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the fewer memorization strategies are applied. The closer to 100, the more memorization strategies are applied. More details can be founds here.*

Figure 13. Scores of persistence strategies applied by students according to the level of socioemotional development in curiosity to learn, determination, focus and persistence



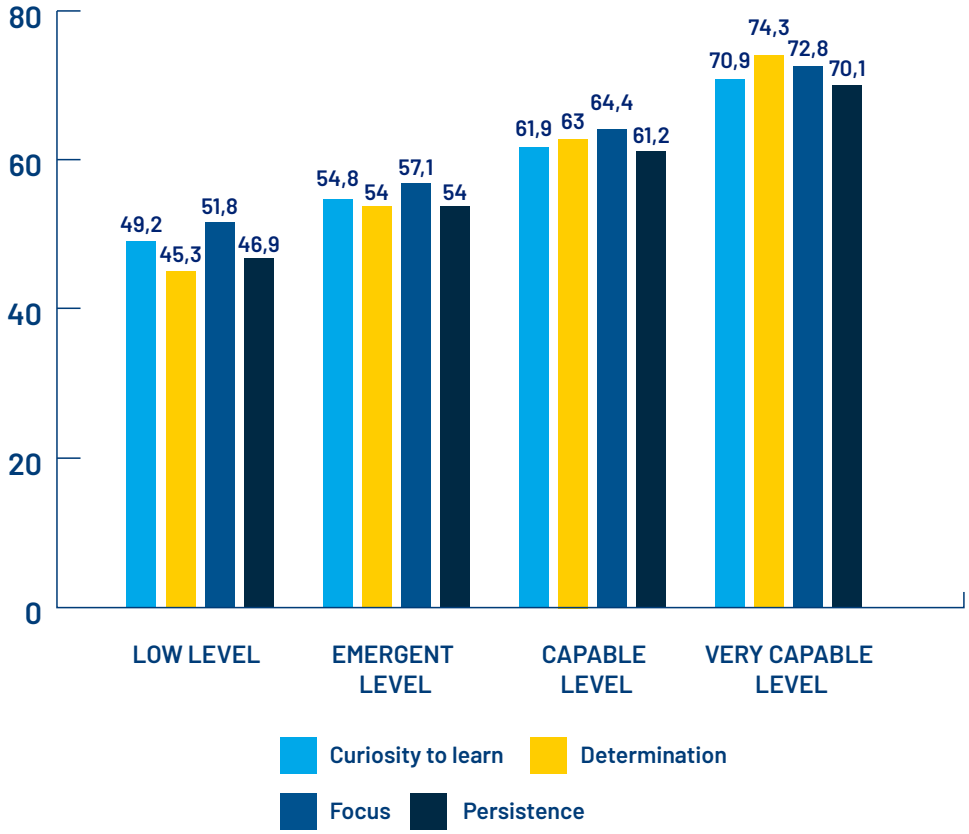
Note. *Differences in averages are significantly different. The score of persistence strategies is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the less persistence strategies are applied. The closer to 100, the more persistence strategies are applied. More details can be found here.*

Figure 14. Scores of elaboration strategies applied by students according to the level of socioemotional development in curiosity to learn, determination, focus and persistence



Note. *Differences in means are significantly different. The elaboration strategies score is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the less elaboration strategies are applied. The closer to 100, the more elaboration strategies are applied. More details can be found here.*

Figure 15. Scores of control strategies applied by students according to the level of socioemotional development in curiosity to learn, determination, focus and persistence



Note. *Differences in averages are significantly different. The score of control strategies is presented in POMP score, which varies between 0 and 100 points. The closer to 0, the fewer control strategies are applied. The closer to 100, the more control strategies are applied. More details can be found aqui.*

In general, it is possible to see that the greater the socioemotional development in this set of skills, the more students report using learning strategies. Take, for example, the relation between elaboration and curiosity to learn strategies in Figure 14. At the "Low" level, the average score of students on this strategy was 49.1 points; the average score for the elaboration strategy at the "Very capable" level was 73.2 points. This means that students who perceive themselves to be less developed in terms of curiosity to learn are

also the students who report using fewer elaboration strategies. Students who perceive themselves to have more resources related to curiosity to learn are the students who also report using more elaboration strategies.

What is the contribution of each socioemotional skill to *learning strategies*?

The determination, focus and persistence skills are part of the self-management domain. This domain refers to the student's ability to plan, make an effort, have clear objectives and know how to achieve them ethically and carefully with themselves and others. In turn, the curiosity to learn skill, from the open-mindedness domain, refers to a tendency to assume an investigative posture, curious about the world, flexible and receptive to new ideas. It was seen that, together, these skills can favor the application of learning strategies by students, contributing to their academic performance. Shall we better understand how these four socioemotional skills can help in the development of learning strategies?

Curiosity to learn: refers to the capacity for intellectual exploration, also related to investigation, research, critical thinking and problem solving. In other words, the curiosity to learn is related to the active search for knowledge, questioning and the search for new information. This skill is closely linked to a more effective combination of learning strategies, as it constitutes tools that can be used to satisfy the student's curiosity. For example, exercising curiosity to learn can help you connect your new knowledge with previous knowledge, making learning meaningful and reflective[131–134,137,140–142].

Determination: refers to the ability to employ effort and commitment to get what you want. It means giving your best and challenging yourself to achieve a goal. Determination can drive the use of learning strategies, such as effort and persistence strategies, which involve commitment and commitment to studies. These strategies include, for example, setting clear and realistic goals, establishing study routines, overcoming obstacles and seeking help when needed. Determination can also motivate the use of other strategies, such as elaboration strategies, which involve connecting new material with prior knowledge, making learning more meaningful and lasting. In summary,

determination is fundamental for the effective application of learning strategies, as it motivates students to do their best and face challenges to achieve their learning objectives[131–134,137,140–142].

Focus: refers to the ability to concentrate on the activity one wants to perform and avoid distractions, even when performing repetitive tasks. By developing focus, students are better able to carry out tasks in a persistent and planned way and to reflect on which learning strategies are most appropriate for each challenge[131–134,137].

Persistence: refers to the ability to overcome obstacles to achieve agreed goals and complete, rather than procrastinating or giving up when situations become difficult or uncomfortable. Persistence is one of the main skills that students need to develop in their studies. Learning strategies are closely linked to persistence, as overcoming obstacles and completing tasks often require effort and commitment. Effort and persistence strategies focus on the student's effort and commitment to studying and include setting long-term goals, setting specific tasks to achieve those goals, using rewards to maintain motivation and resilience in the face of adversity and the challenges encountered during the learning process. Therefore, the development of the persistence skill proves to be an important ally in the use of learning strategies and academic performance[131–134,137,140–142].

Concluding...

The definitions of the four socioemotional skills most related to learning strategies indicate that students who make use of different strategies are those who remain curious and investigative about different subjects, seek to establish and achieve their goals and objectives and are capable of maintaining the focus on his/her tasks. In this way, the intentional performance in this set of skills is important for students to be able to use their abilities to remain focused and engaged in valuing and using knowledge acquired throughout life, in the effective use of learning strategies and in the construction of academic knowledge during the school trajectory. The intentional work in the development of socioemotional skills together with other factors (personal, social and environmental) can favor the use of learning strategies, positively impacting the students' school routine.

CHAPTER 09

Next steps

Gisele Alves, Ana Carolina Zuanazzi, Ana Carla Crispim, Catarina Possenti Sette

SUMMARY

Next steps

Students' life results can be observed in the short and long term, indicating that the experiences and skills they develop at school have the potential to prepare them for the future. In general, in the short term, socioemotional development can improve academic performance and provide healthier interpersonal relationships, creating more welcoming environments. In the long term, benefits are observed, such as the reduction of anxiety and depression disorders, in addition to positive impacts on the full development of students, helping to prepare them to deal with the demands of the 21st century as students, citizens and professionals.

Based on the results presented in this document, it is possible to understand which socioemotional skills are most associated with life outcomes and, therefore, can be the focus of development in intentional educational interventions. Knowing these results is necessary for planning interventions and for decision-making, always considering the specific context of each school network.

The results presented also highlight the plurality of experiences that students have on a daily basis at schools, opening space for a debate on questions of diversity and social markers of difference. Based on this information, it is intended to stimulate further discussion that will culminate in further studies on the themes, in order to examine in detail how inequality in opportunities can affect the school experience of the groups most affected by it and generate inequalities that will go beyond school life. The need to reflect on these issues objectively and to develop actions that strengthen educational policies based on equity, equality and diversity is advocated.

New studies will be conducted with the aim of deepening the understanding of the results reported here and investigating other life outcomes, such as school dropout. The main findings of research developed by eduLab21 regarding the production of knowledge about socioemotional skills and seven life outcomes were summarized and simplified in the language adopted

in this document. It is hoped that, based on these contributions, it will be possible, through teacher training and interventions that encourage the full development of students, to bring the learning achieved closer to pedagogical practices, in addition to supporting the construction of public policies based on evidence.

WANT TO KNOW MORE?

Want to know more?

In this section, you will find all the references organized according to each chapter in the e-book.

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WANT TO KNOW MORE ABOUT THE DATA ANALYSES PRESENTED IN THIS E-BOOK?

Want to know more about the data analyses presented in this e-book?

Variance analysis (ANOVAs)

We evaluated mean and variance differences of each outcome according to the socioemotional development level using ANOVA and post-hoc tests. Significant results were investigated using the Tukey post-hoc test. ANOVA models were estimated using the anova_test function from the R package *rstatix*. The post-hoc Tukey test results were calculated using the PostHocTest function from the R package *DescTools*. The valid N sample size information is described in the notes section under each table.

Subjective well-being

DIFFERENCES OF SUBJECTIVE WELL-BEING MEANS BETWEEN LEVELS OF STRESS MODULATION	DIFFERENCE OF SUBJECTIVE WELL-BEING MEANS	CONFIDENCE INTERVAL – LOW	CONFIDENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	-11,29	-14,60	-7,99	< 0,001
Very capable level-Capable level	3,95	-3,01	10,91	0,4619
Low level-Capable level	-28,14	-31,80	-24,47	< 0,001
Very capable level-Emergent level	15,25	8,55	21,94	< 0,001
Low level-Emergent level	-16,84	-19,98	-13,71	< 0,001
Low level-Very capable level	-32,09	-38,97	-25,21	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional

development levels. The ANOVA model show a significant effect for the development of stress modulation on subjective well-being F(3,1937) = 150,3, p < 0,001, eta2[g] = 0,189). The sample size is 1.941 participants.

DIFFERENCES OF SUBJECTIVE WELL-BEING MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF SUBJECTIVE WELL-BEING MEANS	CONFI-DENCE INTERVAL – LOW	CONFI-DENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	-10,4	-13,26	-7,45	< 0,001
Very capable level-Capable level	11,8	7,09	16,48	< 0,001
Low level-Capable level	-34,3	-37,86	-30,75	< 0,001
Very capable level-Emergent level	22,1	17,65	26,62	< 0,001
Low level-Emergent level	-24,0	-27,21	-20,69	< 0,001
Low level-Very capable level	-46,1	-51,01	-41,16	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on subjective well-being F(3,1937) = 280,4 p < 0,001, eta2[g] = 0,303). The sample size is 1.941 participants.

DIFFERENCES OF SUBJECTIVE WELL-BEING MEANS BETWEEN LEVELS OF ENTHUSIASM	DIFFERENCE OF SUBJECTIVE WELL-BEING MEANS	CONFI-DENCE INTERVAL – LOW	CONFI-DENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	-11,78	-14,65	-8,9	< 0,001
Very capable level-Capable level	9,23	4,98	13,5	< 0,001
Low level-Capable level	-34,28	-39,23	-29,3	< 0,001
Very capable level-Emergent level	21,01	16,73	25,3	< 0,001
Low level-Emergent level	-22,50	-27,48	-17,5	< 0,001
Low level-Very capable level	-43,51	-49,39	-37,6	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of enthusiasm on subjective well-being F(3,1937) = 159,4, p < 0,001, eta2[g] = 0,198). The sample size is 1.941 participants.

School belonging

DIFFERENCES OF SCHOOL BELONGING MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF SCHOOL BELONGING MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	-7,77	-10,05	-5,49	< 0,001
Very capable level-Capable level	8,44	4,89	11,98	<0,001
Low level-Capable level	-17,29	-19,96	-14,62	< 0,001
Very capable level-Emergent level	16,21	12,79	19,62	< 0,001
Low level-Emergent level	-9,52	-12,02	-7,03	< 0,001
Low level-Very capable level	-25,73	-29,42	-22,04	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on school belonging F(3,1939) = 146,3, p < 0,001, eta2[g] = 0,185. The sample size is 1.943 participants.

DIFFERENCES OF SCHOOL BELONGING MEANS BETWEEN LEVELS OF TRUST	DIFFERENCE OF SCHOOL BELONGING MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	-6,73	-9,67	-3,79	< 0,001
Very capable level-Capable level	10,41	2,24	18,57	0,006

Low level-Capable level	-12,92	-16,02	-9,82	< 0,001
Very capable level-Emergent level	17,14	9,26	25,02	< 0,001
Low level-Emergent level	-6,19	-8,41	-3,97	< 0,001
Low level-Very capable level	-23,33	-31,26	-15,39	< 0,001

Nota: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of trust on school belonging $F(3,1939) = 53,1$, $p < 0,001$, $eta2[g] = 0,076$). The sample size is 1.943 participants.

DIFFERENCES OF SCHOOL BELONGING MEANS BETWEEN LEVELS OF STRESS MODULATION	DIFFERENCE OF SCHOOL BELONGING MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	-3,23	-5,57	-0,889	0,002
Very capable level-Capable level	4,39	0,88	7,893	0,007
Low level-Capable level	-10,25	-13,34	-7,156	< 0,001
Very capable level-Emergent level	7,61	4,13	11,096	< 0,001
Low level-Emergent level	-7,02	-10,08	-3,956	< 0,001
Low level-Very capable level	-14,63	-18,66	-10,608	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of stress modulation on school belonging $F(3,1939) = 35,9$, $p < 0,001$, $eta2[g] = 0,053$). The sample size is 1.943 participants.

Mental health

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	19,63	19,35	19,90	< 0,001
Very capable level-Capable level	12,34	12,06	12,61	<0,001
Low level-Capable level	29,40	29,04	29,76	< 0,001
Very capable level-Emergent level	-7,29	-7,56	-7,03	< 0,001
Low level-Emergent level	9,77	9,42	10,12	< 0,001
Low level-Very capable level	17,06	16,71	17,41	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on mental health F(3,160495) = 18539,5, p < 0,001, eta2[g] = 0,257. The sample size is 144.915 participants.

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	13,18	12,86	13,51	< 0,001
Very capable level-Capable level	6,93	6,61	7,25	< 0,001
Low level-Capable level	20,27	19,86	20,69	< 0,001
Very capable level-Emergent level	-6,25	-6,53	-5,98	< 0,001
Low level-Emergent level	7,09	6,71	7,47	< 0,001
Low level-Very capable level	13,34	12,97	13,72	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and

socioemotional development levels. The ANOVA model show a significant effect for the development of focus on mental health F(3,160641)=6508,8,p<0,001,eta2[g] = 0,108). The sample size is 144.915 participants.

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	13,02	12,65	13,40	<0,001
Very capable level-Capable level	6,01	5,63	6,40	< 0,001
Low level-Capable level	20,98	20,55	21,40	< 0,001
Very capable level-Emergent level	-7,01	-7,28	-6,74	< 0,001
Low level-Emergent level	7,95	7,63	8,28	< 0,001
Low level-Very capable level	14,96	14,62	15,30	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on mental health F(3,160363) = 6972,9, p < 0,001, eta2[g] = 0,115). The sample size is 144.915 participants.

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF TRUST	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	7,30	6,99	7,62	< 0,001
Very capable level-Capable level	4,21	3,92	4,49	<0,001
Low level-Capable level	10,24	9,72	10,76	< 0,001
Very capable level-Emergent level	-3,09	-3,41	-2,78	< 0,001
Low level-Emergent level	2,94	2,40	3,47	< 0,001

Low level-Very capable level	6,03	5,51	6,55	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of trust on mental health F(3,159994) = 1654,2, p < 0,001, eta2[g] = 0,03. The sample size is 144.915 participants

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF ENTHUSIASM	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	15,00	14,67	15,34	< 0,001
Very capable level-Capable level	8,89	8,58	9,20	<0,001
Low level-Capable level	20,94	20,57	21,31	< 0,001
Very capable level-Emergent level	-6,11	-6,40	-5,83	< 0,001
Low level-Emergent level	5,93	5,58	6,28	< 0,001
Low level-Very capable level	12,05	11,72	12,37	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of enthusiasm on mental health F(3,160042) = 8176,4, p < 0,001, eta2[g] = 0,133. The sample size is 144.915 participants.

DIFFERENCES OF MENTAL HEALTH MEANS BETWEEN LEVELS OF STRESS MODULATION	DIFFERENCE OF MENTAL HEALTH MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	15,91	15,60	16,23	<0,001
Very capable level-Capable level	9,64	9,37	9,91	<0.001
Low level-Capable level	22,67	22,23	23,11	< 0,001

Very capable level-Emergent level	-6,27	-6,56	-5,98	< 0,001
Low level-Emergent level	6,76	6,30	7,21	< 0,001
Low level-Very capable level	13,03	12,60	13,45	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of stress modulation on mental health $F(3,160350) = 8928,5$, $p < 0,001$, $eta2[g] = 0,143$. The sample size is 144.915 participants.

School achievement - Mathematics

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	15,48	14,55	16,41	< 0,001
Emergent level - Low level	7,45	3,37	11,53	<0,001
Very capable level - Low level	25,97	24,69	27,25	< 0,001
Emergent level - Capable level	-8,03	-12,11	-3,95	< 0,001
Very capable level - Capable level	10,49	9,21	11,77	< 0,001
Very capable level – Emergent level	18,52	14,35	22,69	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on Mathematics scores $F(3,88911) = 1129,9$, $p < 0,001$, $eta2[g] = 0,037$. The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF EMPATHY	DIFFERENCE OF MATH-EMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	26,30	249,002	27,69	< 0,001
Emergent level - Low level	16,76	153,403	18,17	< 0,001
Very capable level - Low level	27,46	260,087	28,92	< 0,001
Emergent level - Capable level	-9,54	-106,215	-8,46	< 0,001
Very capable level - Capable level	1,17	0,0353	2,30	< 0,001
Very capable level – Emergent level	10,71	95,504	11,87	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of empathy on Mathematics scores $F(3,89158) = 993,4$, $p < 0,001$, $eta2[g] = 0,032$ The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF RESPECT FOR OTHERS	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	29,35	27,69	31,02	<0,001
Emergent level - Low level	17,71	16,01	19,41	< 0,001
Very capable level - Low level	32,83	31,15	34,51	< 0,001
Emergent level - Capable level	-11,65	-12,74	-10,55	< 0,001
Very capable level - Capable level	3,48	2,41	4,54	< 0,001
Very capable level - Emergent level	15,12	14,00	16,24	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of respect for others on Mathematics scores $F(3,88608) = 1101,2$, $p < 0,001$, $eta2[g] = 0,036$. The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	27,79	25,59	30,0	< 0,001
Emergent level - Low level	16,65	14,44	18,9	<0,001
Very capable level - Low level	31,98	29,72	34,2	< 0,001
Emergent level - Capable level	-11,14	-12,15	-10,1	< 0,001
Very capable level - Capable level	4,19	3,08	5,3	< 0,001
Very capable level - Emergent level	15,33	14,18	16,5	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibility on Mathematics scores $F(3,88747) = 758,7$, $p < 0,001$, $eta2[g] = 0,025$. The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	18,43	16,81	20,06	< 0,001
Emergent level- Low level	10,62	8,88	12,37	< 0,001
Very capable level - Low level	27,98	26,28	29,68	< 0,001
Emergent level- Capable level	-7,81	-8,93	-6,69	< 0,001
Very capable level - Capable level	9,55	8,50	10,60	< 0,001
Very capable level – Emergent level	17,36	16,13	18,58	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on Mathematics scores $F(3,89034) = 789,9$, $p < 0,001$, $eta2[g] = 0,026$. The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	14,38	12,60	16,16	<0,001
Emergent level - Low level	5,27	3,40	7,14	<0.001
Very capable level - Low level	18,44	16,45	20,43	< 0,001
Emergent level – Capable level	-9,11	-10,14	-8,08	< 0,001
Very capable level - Capable level	4,06	2,83	5,30	< 0,001
Very capable level – Emergent level	13,17	11,81	14,53	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on Mathematics scores F(3,89009) = 367,5, p < 0,001, eta2[g] = 0,012. The sample size is 91.037 participants.

DIFFERENCES OF MATHEMATICS MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF MATHEMATICS MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	16,34	14,17	18,50	< 0,001
Emergent level – Low level	7,84	5,61	10,07	<0,001
Very capable level - Low level	20,70	18,43	22,98	< 0,001
Emergent level – Capable level	-8,49	-9,53	-7,46	< 0,001
Very capable level - Capable level	4,37	3,24	5,50	< 0,001
Very capable level - Emergent level	12,86	11,61	14,11	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on Mathematics scores F(3,89010) = 364,6, p < 0,001, eta2[g] = 0,012. The sample size is 91.037 participants.

School achievement - Portuguese

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	19,54	18,63	20,46	< 0,001
Emergent level - Low level	8,28	4,27	12,29	< 0,001
Very capable level - Low level	33,17	31,91	34,43	< 0,001
Emergent level - Capable level	-11,27	-15,27	-7,26	< 0,001
Very capable level - Capable level	13,63	12,36	14,89	< 0,001
Very capable level - Emergent level	24,89	20,79	29,00	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on Portuguese scores $F(3,9287) = 1889,7$, $p < 0,001$, $eta2[g] = 0,057$. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF EMPATHY	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	32,03	30,66	33,40	<0,001
Emergent level - Low level	18,44	17,05	19,83	< 0,001
Very capable level - Low level	36,24	34,81	37,67	< 0,001
Emergent level - Capable level	-13,60	-14,66	-12,53	< 0,001
Very capable level - Capable level	4,21	3,09	5,33	< 0,001
Very capable level - Emergent level	17,81	16,66	18,95	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of empathy on Portuguese scores F(3,93256) = 1778,7, p < 0,001, eta2[g] = 0,05. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF RESPECT FOR OTHERS	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	36,08	34,45	37,71	< 0,001
Emergent level - Low level	20,63	18,96	22,29	<0,001
Very capable level - Low level	41,10	39,45	42,74	< 0,001
Emergent level – Capable level	-15,46	-16,54	-14,37	< 0,001
Very capable level - Capable level	5,02	3,97	6,07	< 0,001
Very capable level - Emergent level	20,47	19,37	21,57	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of respect for others on Portuguese scores F(3,92687) = 1854,1, p < 0,001, eta2[g] = 0,057. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	28,04	25,86	30,22	< 0,001
Emergent level - Low level	16,27	14,08	18,47	<0,001
Very capable level - Low level	34,58	32,33	36,82	< 0,001
Emergent level – Capable level	-11,77	-12,78	-10,76	< 0,001
Very capable level - Capable level	6,53	5,43	7,64	< 0,001

Very capable level - Emergent level	18,30	17,16	19,44	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibiity on Portuguese scores F(3,92798) = 937,0, p < 0,001, eta2[g] = 0,029. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	19,07	17,47	20,67	<0,001
Emergent level- Low level	9,63	7,91	11,36	<0.001
Very capable level - Low level	29,46	27,77	31,14	< 0,001
Emergent level- Capable level	-9,44	-10,55	-8,32	< 0,001
Very capable level - Capable level	10,39	9,34	11,43	< 0,001
Very capable level - Emergent level	19,82	18,60	21,04	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on Portuguese scores F(3,93120) =953,7, p< 0,001,eta2[g] = 0,03. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	13,94	12,18	15,71	< 0,001
Emergent level – Low level	4,43	2,58	6,29	<0,001
Very capable level - Low level	18,38	16,40	20,36	< 0,001

Emergent level - Capable level	-9,51	-10,54	-8,49	< 0,001
Very capable level - Capable level	4,43	3,20	5,67	< 0,001
Very capable level - Emergent level	13,95	12,59	15,31	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on Portuguese scores F(3,93087) = 389,8, p < 0,001, eta2[g] = 0,012. The sample size is 95.246 participants.

DIFFERENCES OF PORTUGUESE MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF PORTUGUESE MEANS	CONFIDENCE INTERVAL – LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	16,50	14,37	18,63	< 0,001
Emergent level – Low level	7,45	5,25	9,65	< 0,001
Very capable level - Low level	20,84	18,59	23,09	< 0,001
Emergent level - Capable level	-9,05	-10,08	-8,02	< 0,001
Very capable level - Capable level	4,34	3,21	5,47	< 0,001
Very capable level - Emergent level	13,39	12,14	14,64	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on Portuguese scores F(3,93087) = 394,7, p < 0,001, eta2[g] = 0.013. The sample size is 95.246 participants.

School violence

DIFFERENCES OF SCHOOL VIOLENCE MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF SCHOOL VIOLENCE MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,679	0,410	0,94787	<0,001
Very capable level-Capable level	-0,378	-0,763	0,00782	0,057
Low level-Capable level	0,983	0,543	142,256	< 0,001
Very capable level-Emergent level	-1,056	-1,420	-0,69258	< 0,001
Low level-Emergent level	0,304	-0,117	0,72495	0,247
Low level-Very capable level	1,361	0,857	186,385	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on school violence F(3,1937) = 31,6, p < 0,001, eta2[g] = 0,047 The sample size is 1.941 participants.

DIFFERENCES OF SCHOOL VIOLENCE MEANS BETWEEN LEVELS OF RESPECT FOR OTHERS	DIFFERENCE OF SCHOOL VIOLENCE MEANS	CONFI-DENCE INTERVAL – LOW	CONFI-DENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	0,695	0,397	0,993	< 0,001
Very capable level-Capable level	-0,561	-0,837	-0,285	<0,001
Low level-Capable level	1,625	1,085	2,165	< 0,001
Very capable level-Emergent level	-1,256	-1,586	-0,926	< 0,001
Low level-Emergent level	0,930	0,361	1,500	<0,001

Low level-Very capable level	2,186	1,628	2,745	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of respect for others on school violence F(3,1937) = 52,9, p < 0,001, eta2[g] = 0,076. The sample size is 1.941 participants.

DIFFERENCES OF SCHOOL VIOLENCE MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF SCHOOL VIOLENCE MEANS	CONFI-DENCE INTERVAL – LOW	CONFI-DENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	0,711	0,444	0,9783	< 0,001
Very capable level-Capable level	-0,333	-0,650	-0,0165	0,035
Low level-Capable level	1,138	0,515	17,607	< 0,001
Very capable level-Emergent level	-1,044	-1,377	-0,7119	< 0,001
Low level-Emergent level	0,427	-0,204	10,577	0,304
Low level-Very capable level	1,471	0,818	21,246	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibility on school violence F(3,1937) = 31,4, p < 0,001, eta2[g] = 0,046. The sample size is 1.941 participants.

DIFFERENCES OF SCHOOL VIOLENCE MEANS BETWEEN LEVELS OF FRUSTRATION TOLERANCE	DIFFERENCE OF SCHOOL VIO-LENCE MEANS	CONFI-DENCE INTERVAL – LOW	CONFI-DENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	0,310	-0,00348	0,6229	0,054
Very capable level-Capable level	-0,204	-0,71042	0,3015	0.726
Low level-Capable level	0,731	0,41041	10,507	< 0,001

Very capable level-Emergent level	-0,514	-0,99571	-0,0326	< 0,001
Low level-Emergent level	0,421	0,14089	0,7008	0,031
Low level-Very capable level	0,935	0,44890	14,211	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of frustration tolerance on school violence F(3,1937 = 15,7, p < 0,001, eta2[g] = 0,024. The sample size is 1.941 participants.

DIFFERENCES OF SCHOOL VIOLENCE MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF SCHOOL VIOLENCE MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,452	0,1676	0,737	< 0,001
Very capable level-Capable level	-0,277	-0,7367	0,182	0,405
Low level-Capable level	0,697	0,3495	1,044	< 0,001
Very capable level-Emergent level	-0,730	-11,678	-0,291	< 0,001
Low level-Emergent level	0,245	-0,0744	0,564	0,199
Low level-Very capable level	0,974	0,4928	1,456	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on school violence F(3,1937) = 15,1, p < 0,001, eta2[g] = 0,023. The sample size is 1.941 participants.

Bullying – bullying victims

DIFFERENCES OF BULLYING VICTIM INDEX MEANS BETWEEN LEVELS OF RESPECT FOR OTHERS	DIFFERENCE OF BULLYING VICTIM INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,266	0,0389	0,4937	0,014
Very capable level-Capable level	-0,259	-0,4700	-0,0489	0,008
Low level-Capable level	0,581	0,1687	0,9923	0,002
Very capable level-Emergent level	-0,526	-0,7778	-0,2736	< 0,001
Low level-Emergent level	0,314	-0,1202	0,7487	0,246
Low level-Very capable level	0,840	0,4140	12,658	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of respect for others on bullying – victim index $F(3,1937) = 14,5$, $p < 0,001$, $eta2[g] = 0,022$. The sample size is 1.941 participants.

DIFFERENCES OF BULLYING VICTIM INDEX MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF BULLYING VICTIM INDEX MEANS	CONFIDENCE INTERVAL – LOW	CONFIDENCE INTERVAL – HIGH	P-VALUE
Emergent level-Capable level	0,4171	0,2172	0,6171	<0,001
Very capable level-Capable level	-0,2194	-0,4565	0,0177	0,081
Low level-Capable level	0,5100	0,0437	0,9764	0,025
Very capable level-Emergent level	-0,6366	-0,8856	-0,3876	< 0,001
Low level-Emergent level	0,0929	-0,3796	0,5654	0,958
Low level-Very capable level	0,7295	0,2401	12,188	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibility on bullying – victim index F(3,1937) = 18,5, p < 0,001, eta2[g] = 0,028. The sample size is 1.941 participants.

DIFFERENCES OF BULLYING VICTIM INDEX MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF BULLYING VICTIM INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,279	0,0677	0,491	0,004
Very capable level-Capable level	-0,209	-0,5506	0,133	0,395
Low level-Capable level	0,418	0,1595	0,676	< 0,001
Very capable level-Emergent level	-0,488	-0,8144	-0,162	< 0,001
Low level-Emergent level	0,138	-0,0989	0,376	0,438
Low level-Very capable level	0,627	0,2685	0,985	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on bullying – victim index F(3,1937) = 10,7, p < 0,001, eta2[g] = 0,016 The sample size is 1.941 participants.

Bullying - Perpetrators

DIFFERENCES OF BULLYING PERPETRATORS INDEX MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF BULLYING PERPETRATORS INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,0812	0,03212	0,1303	< 0,001
Very capable level-Capable level	-0,0253	-0,09043	0,0398	0.750
Low level-Capable level	0,1540	0,07686	0,2311	< 0,001
Very capable level-Emergent level	-0,1066	-0,16903	-0,0441	< 0,001

Low level-Emergent level	0,0727	-0,00216	0,1476	0,061
Low level-Very capable level	0,1793	0,09308	0,2655	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on bullying – perpetration index F(3,1937) = 15,6, p < 0,001, eta2[g] = 0,024. The sample size is 1.941 participants.

DIFFERENCES OF BULLYING PERPETRATORS INDEX MEANS BETWEEN LEVELS OF RESPECT FOR OTHERS	DIFFERENCE OF BULLYING PERPETRATORS INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,1102	0,0562	0,1643	<0,001
Very capable level-Capable level	-0,0655	-0,1155	-0,0154	0,004
Low level-Capable level	0,2787	0,1808	0,3766	< 0,001
Very capable level-Emergent level	-0,1757	-0,2356	-0,1157	< 0,001
Low level-Emergent level	0,1685	0,0652	0,2718	< 0,001
Low level-Very capable level	0,3441	0,2429	0,4454	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of respect for others on bullying – perpetration index F(3,1937) = 37,1, p < 0,001, eta2[g] = 0,054). The sample size is 1.941 participants.

DIFFERENCES OF BULLYING PERPETRATORS INDEX MEANS BETWEEN LEVELS OF EMPATHY	DIFFERENCE OF BULLYING PERPETRATORS INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,0432	-0,00391	0,0903	0,086
Very capable level-Capable level	-0,0308	-0,09126	0,0297	0,557
Low level-Capable level	0,1521	-0,03064	0,3348	0,140
Very capable level-Emergent level	-0,0740	-0,13542	-0,0125	< 0,001

Low level-Emergent level	0,1089	-0,07416	0,2919	0,420
Low level-Very capable level	0,1829	-0,00406	0,3698	0,058

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of empathy on bullying – perpetration index F(3,1937) = 5,0, p = 0,002, eta2[g] = 0,008. The sample size is 1.941 participants.

DIFFERENCES OF BULLYING PERPETRATORS INDEX MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF BULLYING PERPETRATORS INDEX MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Emergent level-Capable level	0,711	0,444	0,9783	< 0,001
Very capable level-Capable level	-0,333	-0,650	-0,0165	0,035
Low level-Capable level	1,138	0,515	17,607	< 0,001
Very capable level-Emergent level	-1,044	-1,377	-0,7119	< 0,001
Low level-Emergent level	0,427	-0,204	10,577	0,304
Low level-Very capable level	1,471	0,818	21,246	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibility on bullying – perpetration index F(3,1937) = 31,4, p < 0,001, eta2[g] = 0,046. The sample size is 1.941 participants.

DIFFERENCES OF BULLYING PERPETRATORS INDEX MEANS BETWEEN LEVELS OF FRUSTRATION TOLERANCE	DIFERENÇA DE MÉDIA DE BULLYING - INTIMIDADOR	INTERVALO DE CONFIANÇA BAIXO	INTERVALO DE CONFIANÇA ALTO	VALOR DE P
Emergent level-Capable level	0,310	-0,00348	0,6229	0,054
Very capable level-Capable level	-0,204	-0,71042	0,3015	0,726
Low level-Capable level	0,731	0,41041	10,507	< 0,001
Very capable level-Emergent level	-0,514	-0,99571	-0,0326	< 0,001

Low level-Emergent level	0,421	0,14089	0,7008	0,031
Low level-Very capable level	0,935	0,44890	14,211	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of frustration tolerance on bullying – perpetration index F(3,1937) = 15,7, p < 0,001, eta2[g] = 0,024. The sample size is 1.941 participants.

Academic self-esteem

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF SELF-CONFIDENCE	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	18,70	18,14	19,27	<0,001
Emergent level- Low level	11,57	11,12	12,02	<0,001
Very capable level - Low level	24,66	24,06	25,27	< 0,001
Emergent level - Capable level	-7,14	-7,69	-6,58	< 0,001
Very capable level - Capable level	5,96	5,28	6,64	<0,001
Very capable level - Emergent level	13,10	12,51	13,69	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of self-confidence on academic self-esteem F(3,54760) = 4691,0, p < 0,001, eta2[g] = 0,204. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	10,08	9,51	10,64	<0,001
Emergent level - Low level	4,82	4,22	5,42	<0,001
Very capable level - Low level	17,12	16,49	17,74	< 0,001
Emergent level – Capable level	-5,26	-5,78	-4,73	< 0,001
Very capable level - Capable level	7,04	6,49	7,60	<0,001
Very capable level – Emergent level	12,30	11,70	12,89	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on academic self-esteem $F(3,54986) = 1886,6$, $p < 0,001$, $eta2[g] = 0,093$. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	14,88	14,39	15,38	<0,001
Emergent level - Low level	7,48	6,97	7,99	<0,001
Very capable level - Low level	23,32	22,63	24,02	< 0,001
Emergent level – Capable level	-7,40	-7,90	-6,91	< 0,001
Very capable level - Capable level	8,44	7,75	9,13	<0,001
Very capable level – Emergent level	15,84	15,15	16,54	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on academic self-esteem $F(3,54735) = 3348,5$, $p < 0,001$, $eta2[g] = 0,155$. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF ORGANIZATION	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	9,92	9,28	10,56	<0,001
Emergent level - Low level	5,71	5,14	6,28	<0.001
Very capable level - Low level	14,87	14,26	15,49	< 0,001
Emergent level - Capable level	-4,21	-4,77	-3,65	< 0,001
Very capable level - Capable level	4,95	4,34	5,56	< 0,001
Very capable level - Emergent level	9,16	8,63	9,69	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of organization on academic self-esteem $F(3,55086) = 1419,1$, $p < 0,001$, $eta2[g] = 0,072$. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF RESPONSIBILITY	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	11,25	10,41	12,09	<0,001
Emergent level - Low level	5,24	4,38	6,11	<0.001
Very capable level - Low level	17,23	16,38	18,08	< 0,001
Emergent level – Capable level	-6,01	-6,52	-5,49	< 0,001
Very capable level - Capable level	5,98	5,48	6,48	< 0,001
Very capable level – Emergent level	11,99	11,45	12,52	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of responsibility on academic self-esteem $F(3,54567) = 1548,2$, $p < 0,001$, $eta2[g] = 0,078$. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	12,82	12,25	13,39	<0,001
Emergent level - Low level	5,97	5,37	6,56	<0.001
Very capable level - Low level	21,83	21,17	22,48	< 0,001
Emergent level – Capable level	-6,86	-7,35	-6,36	< 0,001
Very capable level - Capable level	9,01	8,45	9,57	< 0,001
Very capable level - Emergent level	15,86	15,27	16,45	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on academic self-esteem $F(3,54705) = 2879,0$, $p < 0,001$, $eta2[g] = 0,136$. The sample size is 51.234 participants.

DIFFERENCES OF ACADEMIC SELF-ESTEEM MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF ACADEMIC SELF-ESTEEM MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level - Low level	14,44	13,76	15,12	<0,001
Emergent level – Low level	8,21	7,57	8,86	<0.001
Very capable level - Low level	22,30	21,64	22,96	< 0,001
Emergent level – Capable level	-6,22	-6,74	-5,71	< 0,001
Very capable level - Capable level	7,86	7,33	8,40	< 0,001
Very capable level - Emergent level	14,09	13,60	14,58	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on academic

self-esteem F(3,54799) = 3157,7, p < 0,001, eta2[g] = 0,147. The sample size is 51.234 participants.

Learning strategies – Monitoring strategies

DIFFERENCES OF MONITORING STRATEGIES MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF MONITORING STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	17,67	16,95	18,38	<0,001
Emergent level –Low level	8,70	7,94	9,46	<0,001
Very capable level –Low level	29,00	28,16	29,83	< 0,001
Emergent level –Capable level	-8,97	-9,59	-8,34	< 0,001
Very capable level –Capable level	11,33	10,62	12,04	<0,001
Very capable level –Emergent level	20,29	19,54	21,05	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on monitoring strategies F(3,55211) = 3127,8, p < 0,001, eta2[g] = 0,145. The sample size is 52.488 participants.

DIFFERENCES OF MONITORING STRATEGIES MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF MONITORING STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	12,59	11,93	13,25	<0,001
Emergent level –Low level	5,32	4,64	5,99	<0,001
Very capable level –Low level	21,00	20,08	21,93	< 0,001
Emergent level –Capable level	-7,28	-7,94	-6,61	< 0,001

Very capable level –Capable level	8,41	7,49	9,33	<0,001
Very capable –Emergent level	15,69	14,76	16,62	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on monitoring strategies F(3,55219) = 1493,7, p < 0,001, eta2[g] = 0,075. The sample size is 52.488 participants.

DIFFERENCES OF MONITORING STRATEGIES MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF MONITORING STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	14,30	13,42	15,19	<0,001
Emergent level –Low level	7,06	6,22	7,90	<0,001
Very capable level –Low level	23,19	22,33	24,05	< 0,001
Emergent level –Capable level	-7,24	-7,91	-6,57	< 0,001
Very capable level –Capable level	8,89	8,19	9,59	<0,001
Very capable level –Emergent level	16,13	15,49	16,77	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on monitoring strategies F(3,55262) = 2154,7, p < 0,001, eta2[g] = 0,105. The sample size is 52.488 participants.

DIFFERENCES OF MONITORING STRATEGIES MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF MONITORING STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	12,73	12,01	13,44	<0,001
Emergent level –Low level	5,57	4,81	6,33	<0.001
Very capable level –Low level	21,72	20,93	22,52	< 0,001

Emergent level –Capable level	-7,16	-7,83	-6,49	< 0,001
Very capable level –Capable level	8,99	8,28	9,70	< 0,001
Very capable level –Emergent level	16,15	15,40	16,91	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on monitoring strategies F(3,55454) = 1908,8, p < 0,001, eta2[g] = 0,094. The sample size is 52.488 participants.

Learning strategies – Elaboration strategies

DIFFERENCES OF ELABORATION STRATEGIES MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF ELABORATION STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	17,80	17,06	18,55	<0,001
Emergent level –Low level	8,88	8,10	9,67	<0,001
Very capable level –Low level	29,60	28,74	30,46	< 0,001
Emergent level –Capable level	-8,92	-9,56	-8,28	< 0,001
Very capable level –Capable level	11,80	11,06	12,54	<0,001
Very capable level –Emergent level	20,72	19,94	21,50	< 0,001

Nota: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on elaboration strategies F(3,55205)=3034,1,p<0,001,eta2[g]=0,142. The sample size is 52.488 participants.

DIFFERENCES OF ELABORATION STRATEGIES MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF ELABORATION STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	13,38	12,71	14,06	<0,001
Emergent level –Low level	5,28	4,59	5,97	<0,001
Very capable level –Low level	23,36	22,41	24,31	< 0,001
Emergent level –Capable level	-8,10	-8,79	-7,42	< 0,001
Very capable level –Capable level	9,97	9,03	10,92	<0,001
Very capable level –Emergent level	18,08	17,12	19,03	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on elaboration strategies F(3,55187)=1719,6,p<0,001,eta2[g]=0,085. The sample size is 52.488 participants.

DIFFERENCES OF ELABORATION STRATEGIES MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF ELABORATION STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	13,64	12,73	14,56	<0,001
Emergent level–Low level	6,49	5,62	7,36	<0,001
Very capable level –Low level	22,38	21,49	23,28	< 0,001
Emergent level –Capable level	-7,15	-7,85	-6,46	< 0,001
Very capable level –Capable level	8,74	8,01	9,46	<0,001
Very capable level –Emergent level	15,89	15,23	16,56	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on elaboration strategies F(3,55225)= 1897,9,p< 0,001,eta2[g]=0,093. The sample size is 52.488 participants.

DIFFERENCES OF ELABORATION STRATEGIES MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF ELABORATION STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	13,40	12,67	14,13	<0,001
Emergent level –Low level	5,77	4,99	6,55	<0.001
Very capable level –Low level	24,04	23,23	24,85	< 0,001
Emergent level –Capable level	-7,63	-8,32	-6,95	< 0,001
Very capable level –Capable level	10,64	9,91	11,37	< 0,001
Very capable level –Emergent level	18,27	17,50	19,05	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on elaboration strategies $F(3,55427) = 2225,8$, $p < 0,001$, $eta2[g] = 0,108$. The sample size is 52.488 participants.

Learning strategies – Memorization strategies

DIFFERENCES OF MEMORIZATION STRATEGIES MEANS BETWEEN LEVELS OF DETERMINATION	DIFFERENCE OF MEMORIZATION STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	14,54	13,72	15,35	<0,001
Emergent level –Low level	6,89	6,03	7,75	<0,001
Very capable level –Low level	25,90	24,96	26,85	< 0,001
Emergent level –Capable level	-7,65	-8,35	-6,94	< 0,001
Very capable level –Capable level	11,37	10,56	12,17	<0,001
Very capable level –Emergent level	19,01	18,16	19,87	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on memorization strategies F(3,55056) = 1928,4, p < 0,001, eta2[g] = 0,095. The sample size is 52.488 participants.

DIFFERENCES OF MEMORIZATION STRATEGIES MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF MEMORIZATION STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	11,46	10,72	12,20	<0,001
Emergent level –Low level	4,79	4,03	5,54	<0,001
Very capable level –Low level	20,40	19,36	21,44	< 0,001
Emergent level –Capable level	-6,68	-7,42	-5,93	< 0,001
Very capable level –Capable level	8,94	7,91	9,97	<0,001
Very capable level –Emergent level	15,61	14,57	16,65	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on memorization strategies F(3,55055) = 1085,4, p < 0,001, eta2[g] = 0,056. The sample size is 52.488 participants.

DIFFERENCES OF MEMORIZATION STRATEGIES MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCS OF MEMORIZATION STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	12,72	11,73	13,71	<0,001
Emergent level –Low level	6,10	5,16	7,04	<0,001
Very capable level –Low level	21,47	20,50	22,43	< 0,001
Emergent level –Capable level	-6,62	-7,37	-5,87	< 0,001
Very capable level –Capable level	8,74	7,96	9,53	<0,001
Very capable level –Emergent level	15,36	14,65	16,08	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional

development levels. The ANOVA model show a significant effect for the development of persistence on memorization strategies F(3,55099)= 1499,2,p< 0,001,eta2[g]= 0,075. The sample size is 52.488 participants.

DIFFERENCES OF MEMORIZATION STRATEGIES MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF MEMORIZATION STRATEGIES MEANS	CONFI-DENCE INTERVAL - LOW	CONFI-DENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	9,18	8,37	9,99	<0,001
Emergent level –Low level	4,01	3,15	4,87	<0.001
Very capable level –Low level	16,58	15,68	17,48	< 0,001
Emergent level –Capable level	-5,17	-5,93	-4,41	< 0,001
Very capable level –Capable level	7,39	6,59	8,20	< 0,001
Very capable level –Emergent level	12,57	11,71	13,42	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on memorization strategies F(3,55312) = 860,3, p< 0,001,eta2[g] = 0,045. The sample size is 52.488 participants.

Learning strategies – Effort and persistence

DIFFERENCES OF EFFORT AND PER-SISTENCE STRATEGIES MEANS BE-TWEEN LEVELS OF DETERMINATION	DIFFERENCE OF EFFORT AND PERSISTENCE STRATEGIES MEANS	INTERVALO DE CON-FIANÇA BAIXO	INTERVALO DE CONFI-ANÇA ALTO	VALOR DE P
Capable level-Low level	23,9	23,2	24,6	<0,001
Emergent level –Low level	11,1	10,4	11,8	<0,001
Very capable level –Low level	38,2	37,4	39,0	< 0,001
Emergent level –Capable level	-12,8	-13,4	-12,2	< 0,001
Very capable level –Capable level	14,3	13,7	15,0	<0,001

Very capable level –Emergent level	27,1	26,4	27,8	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of determination on effort and persistence strategies F(3,54835) = 6129,2, p < 0,001, eta2[g] = 0,251. The sample size is 52.488 participants.

DIFFERENCES OF EFFORT AND PERSISTENCE STRATEGIES MEANS BETWEEN LEVELS OF FOCUS	DIFFERENCE OF EFFORT AND PERSISTENCE STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	18,6	17,91	19,21	<0,001
Emergent level –Low level	7,9	7,24	8,56	<0,001
Very capable level –Low level	29,5	28,56	30,37	< 0,001
Emergent level –Capable level	-10,7	-11,31	-10,01	< 0,001
Very capable level –Capable level	10,9	10,00	11,80	<0,001
Very capable level –Emergent level	21,6	20,65	22,47	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of focus on effort and persistence strategies F(3,54811) = 3188,2, p< 0,001,eta2[g] = 0,149. The sample size is 52.488 participants.

DIFFERENCES OF EFFORT AND PERSISTENCE STRATEGIES MEANS BETWEEN LEVELS OF PERSISTENCE	DIFFERENCE OF EFFORT AND PERSISTENCE STRATEGIES MEANS	CONFIDENCE INTERVAL - LOW	CONFIDENCE INTERVAL - HIGH	P-VALUE
Capable level-Low level	20,00	19,14	20,86	<0,001
Emergent level –Low level	10,21	9,39	11,02	<0,001
Very capable level –Low level	31,36	30,52	32,20	< 0,001
Emergent level –Capable level	-9,79	-10,45	-9,14	< 0,001
Very capable level –Capable level	11,36	10,68	12,04	<0,001

Very capable level –Emergent level	21,15	20,53	21,78	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of persistence on effort and persistence strategies F(3,54846) = 4083,2, p < 0,001, eta2[g] = 0,183. The sample size is 52.488 participants.

DIFFERENCES OF EFFORT AND PERSISTENCE STRATEGIES MEANS BETWEEN LEVELS OF CURIOSITY TO LEARN	DIFFERENCE OF EFFORT AND PERSISTENCE STRATEGIES MEANS	CONFIDENCE INTERVAL – LOW	CONFIDENCE INTERVAL – HIGH	P-VALUE
Capable level-Low level	14,86	14,14	15,58	<0,001
Emergent level –Low level	6,62	5,86	7,38	<0.001
Very capable level –Low level	24,84	24,04	25,64	< 0,001
Emergent level –Capable level	-8,24	-8,92	-7,57	< 0,001
Very capable level –Capable level	9,98	9,27	10,69	< 0,001
Very capable level –Emergent level	18,22	17,47	18,98	< 0,001

Note: Results from Tukey test are presented to show mean differences between outcome scores and socioemotional development levels. The ANOVA model show a significant effect for the development of curiosity to learn on effort and persistence strategies F(3,55038) = 2476,0, p < 0,001, eta2[g] = 0,119. The sample size is 52.488 participant.

Linear regressions and correlations

The results presented in this section are the betas (standardized B estimate), the standardized standard errors, the confidence intervals of the betas (95%) and the p-values. The linear regression was estimated using the *lm* function from the R package *stats*. The standardized estimates were derived using the *tab_model* functions from the R pckage *sjPlot*. For school achievement, Pearson correlations were estimated using the *corr.test* functions of the R package *psych*.

Subjective well-being

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Emotional resilience	Self-confidence	0,33	0,02	0,29 – 0,38	< 0,001
	Stress modulation	0,24	0,02	0,20 – 0,28	< 0,001
Engaging with others	Enthusiasm	0,22	0,02	0,18 – 0,26	< 0,001

Note: The adjust R^2 is 0,39. The sample size is N = 1.941 participants.

School belonging

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Emotional resilience	Self-confidence	0,37	0,02	0,33-0,41	< 0,001
Amity	Trust	0,18	0,02	0,14-0,22	< 0,001
Engaging with others	Social initiative	0,14	0,02	0,10-0,18	< 0,001

Note: The adjust R^2 is 0,26. The sample size is N = 1.943 participants.

Mental health

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Emotional resilience	Self-confidence	0,33	0,00	0,33-0,34	< 0,001
	Stress modulation	0,19	0,00 0,00	0,19-0,20	< 0,001
Engaging with others	Enthusiasm	0,13	0,00	0,13-0,14	< 0,001

Self-management	Focus	0,12	0,00	0,11-0,12	< 0,001
	Determination	0,11	0,00	0,11-0,12	< 0,001
Amity	Trust	0,06	0,00	0,06-0,07	< 0,001

Note: The adjust R^2 is 0,40. The sample size is N = 144.915 participants.

School achievement

DOMAINS	SKILLS	PORTUGUESE	MATHEMATICS	P-VALUE
Open-mindedness	Curiosity to learn	0,22	0,18	< 0,001
Amity	Empathy	0,19	0,13	< 0,001
	Respect for others	0,17	0,13	< 0,001
Self-management	Responsibility	0,16	0,14	< 0,001
	Determination	0,16	0,15	< 0,001
	Focus	0,11	0,10	< 0,001
	Persistence	0,10	0,10	< 0,001

Note: The correlation values are Pearson correlations (r). The sample size varied between N = 91.037 and 95.246 participants., considering pairwise available information between socioemotional skills and Portuguese and Mathematics scores.

School violence

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Amity	Respect for others	-0,10	0,03	-0,15 - 0,05	< 0,001
Self-management	Determination	-0,11	0,03	-0,17 - 0,06	< 0,001
	Responsibility	-0.03	0,03	-0,08 - 0,02	0,195

Emotional resilience	Self-confidence	-0,09	0,02	-0,13 - 0,04	0,001
	Frustration tolerance	-0.06	0,02	-0,11 - 0,02	0,009

Note: The adjust R^2 is 0,10. The sample size is N = 1.941 participants.

Bullying – Victim index

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Amity	Respect for others	-0,07	0,03	-0,12 - 0,02	0,009
Self-management	Responsibility	-0,06	0,02	-0,11 - 0,01	0,015
Emotional resilience	Self-confidence	-0,12	0,02	-0,16 – 0,07	< 0,001

Note: The adjust R^2 is 0,05. The sample size is N = 1.941 participants.

Bullying – Perpetrator index

DOMAINS	SKILLS	ODDS RATIO	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Amity	Empathy	0,98	0,04	0,90 – 1,07	0,674
	Respect for others	0,80	0,04	0,73 – 0,87	< 0,001
Self-management	Responsibility	0,94	0,06	0,83 – 1,07	0,365
	Persistence	0,83	0,06	0,72 – 0,95	0,009
Emotional resilience	Frustration tolerance	0,98	0,04	0,90 – 1,07	0,685

Note: R^2 (McFadden) adjusted is 0,05. The sample size is N= 1.941 participants.

Academic self-esteem

DOMAINS	SKILLS	β	STAN-DARD ERROR	CONFIDENCE INTERVAL	P-VAL-UE
Open-mindedness	Curiosity to learn	0,07	0,00	0,06 – 0,07	< 0,001

Self-management	Focus	0,16	0,00	0,15 – 0,17	< 0,001
	Determination	0,10	0,00	0,09 – 0,11	< 0,001
	Persistence	0.15	0,00	0,14 – 0,16	< 0,001
Emotional resilience	Self-confidence	0,32	0,00	0,31 – 0,33	< 0,001

Note: The adjust R^2 is 0,33. The sample size is N = 51.234 participants.

Learning strategies

Monitoring strategies

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Open-mindedness	Curiosity to learn	0,13	0,00	0,13 – 0,14	< 0,001
Self-management	Determination	0,22	0,01	0,21 – 0,23	< 0,001
	Focus	0,06	0,00	0,05 – 0,07	< 0,001
	Persistence	0,13	0,00	0,13 – 0,14	< 0,001

Note: The adjust R^2 is 0,18. The sample size is N = 52.488 participants.

Elaboration strategies

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Open-mindedness	Curiosity to learn	0,17	0,00	0,16 – 0,18	< 0,001
Self-management	Determination	0,20	0,01	0,19 – 0,21	< 0,001
	Focus	0,09	0,00	0,08 – 0,10	< 0,001
	Persistence	0,10	0,00	0,09 – 0,11	< 0,001

Note: The adjust R^2 is 0,19. The sample size is N = 52.468 participants.

Memorization strategies

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Open-mindedness	Curiosity to learn	0,07	0,00	0,06 – 0,08	< 0,001
Self-management	Determination	0,18	0,01	0,17 – 0,19	< 0,001
	Focus	0,08	0,00	0,07 – 0,09	< 0,001
	Persistence	0,13	0,01	0,12 – 0,14	< 0,001

Note: The adjust R^2 is 0,13. The sample size is N = 52.351 participants.

Effort and persistence strategies

DOMAINS	SKILLS	β	STANDARD ERROR	CONFIDENCE INTERVAL	P-VALUE
Open-mindedness	Curiosity to learn	0,11	0,00	0,10 – 0,12	< 0,001
Self-management	Determination	0,29	0,00	0,28 – 0,30	< 0,001
	Focus	0,14	0,00	0,13 – 0,15	< 0,001
	Persistence	0,17	0,00	0,16 – 0,17	< 0,001

Note: The adjust R^2 is 0,30. The sample size is N = 52.135 participants

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