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Self-regulated learning and study orientation: results of an intervention project

Aprendizagem autorregulada e orientação de estudo: resultados de um projeto de intervenção

Patrícia Diane Puglia¹  <https://orcid.org/0000-0003-3686-6386>

Regina de Cássia Rondina²  <https://orcid.org/0000-0002-0588-8120>

Raul Aragão Martins³  <https://orcid.org/0000-0001-6495-731X>

¹ Teaching and Formative Processes Postgraduate Program - Institute of Biosciences, Language, and Exact Sciences - Universidade Estadual Paulista (UNESP): <https://www.ibilce.unesp.br/> São José do Rio Preto/São Paulo, São José do Rio Preto/São Paulo, Brazil

² Education and Human Development Department (DEPEDH), Philosophy and Sciences College, Universidade Estadual Paulista (UNESP): <https://www.marilia.unesp.br/> Marília/São Paulo, Marília/São Paulo, Brazil

³ Education Department, Institute of Biosciences, Language, and Exact Sciences, Universidade Estadual Paulista (UNESP): <https://www.ibilce.unesp.br/> São José do Rio Preto/ São Paulo, São José do Rio Preto/São Paulo, Brazil

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 Corresponding author: Patrícia Diane Puglia - patricia.puglia@unesp.br

Abstract

This article reports on the application and assessment of a project for the promotion of self-regulatory skills among technical high school students. The study was conducted at a Federal Educational Institution in the state of São Paulo, Brazil. The study sample consisted of 35 new students who presented problems adapting to the new academic routine and symptoms of anxiety. The students were given systematic study guidance sessions to help them to develop self-regulated learning skills. The study data were collected using the following methods: Scale DASS-21 (Brazilian version), semi-structured initial and final interviews, and researcher's observations. The results show varying degrees of success among students in acquiring self-regulation skills. The quantitative pre- and post-test comparison of the DASS-21 data and the JT Method showed a reduction in anxiety symptoms in 12 and 8 students respectively, and the analysis of variance detected a significant reduction in the group's average anxiety score after the project. The qualitative analysis showed that, for most of the students, the project sessions promoted the development of skills in self-regulation of learning, improving aspects such as study planning and organisation, among others. Further research is necessary, to address intervening variables.

Resumo

Este artigo apresenta a aplicação e a avaliação de um projeto para a promoção de habilidades autorregulatórias entre estudantes do ensino médio técnico. O estudo foi realizado em uma Instituição Federal de Ensino do Estado de São Paulo, Brasil. A amostra do estudo foi constituída por 35 alunos recém-ingressos que apresentavam problemas de adaptação à nova rotina acadêmica e sintomas de ansiedade. Os/As estudantes receberam sessões sistemáticas de orientação de estudo para ajudá-los a desenvolver habilidades de aprendizagem autorregulada. Os dados para o estudo foram coletados por meio dos seguintes métodos: Escala DASS-21 (versão brasileira), entrevistas semi-estruturadas iniciais e finais, e observações da pesquisadora. Os resultados mostram diferentes graus de sucesso dos estudantes na aquisição de habilidades de autorregulação. A comparação quantitativa pré e pós-teste dos dados da DASS-21 e o Método JT mostraram uma redução dos sintomas de ansiedade em 12 e 8 alunos, respectivamente, e a análise de variância detectou uma redução significativa no escore médio de ansiedade do grupo após o projeto. A análise qualitativa mostrou que, para a maioria dos estudantes, as sessões do projeto promoveram o desenvolvimento de habilidades em autorregulação da aprendizagem, melhorando aspectos como o planejamento e a organização do estudo, entre outros. Novas pesquisas são necessárias, considerando as variáveis intervenientes.

Keywords: adolescents; anxiety; high school; intervention project; self-regulated learning.

Palavras-chave: adolescentes; ansiedade; aprendizagem autorregulada; ensino médio; projeto de intervenção.

Adolescence is a stage of the life cycle marked by intense biopsychosocial transformations (Papalia and Martorell, 2021). At this stage of life, the vulnerability of many individuals to the onset and/or evolution of psychopathological symptoms tends to increase (Grolli et al., 2017; Papalia and Martorell, 2021). The presence of prolonged stressors at this stage, if associated with the lack of unhealthy coping mechanisms, can increase susceptibility to mental health problems (González and Hernández, 2009). In children and adolescents, prolonged stress can trigger symptoms of mood, anxiety, learning difficulties, as well as somatic complaints (González and Hernández, 2009).

Anxiety disorders are among the most common psychopathologies in childhood and adolescence (Dalsgaard et al., 2020). Anxiety can be characterized by the presence of worries and frequent and intense fears about everyday events (Colunga-Rodríguez et al., 2021). Children and adolescents with generalized anxiety disorder tend to worry too much about their academic and/or sports performance and have catastrophic thoughts, which can result in physical symptoms, compromising daily activities. If not treated in a timely manner, the problem can become chronic, affecting their quality of life and increasing the risk of substance use and/or psychiatric comorbidities (Colunga-Rodríguez et al., 2021).

The entrance in high school is among the stressors that are characteristic of adolescence and generally requires an initial period of adaptation. There is evidence of an association between high levels of stress and lower academic performance in high school (Colunga-Rodríguez et al., 2021). It is assumed that adaptation difficulties are greater in technical courses integrated into high school compared to other teaching modalities. In a Brazilian study with integrated high school students, variables such as excessive activities, demands for performance, little time for leisure/sports and discrimination against students with attention deficit were associated with the risk of stress (Rosa, 2023). Possibly, typical adaptation difficulties, if associated with a lack of coping resources, end up increasing the vulnerability of many adolescents to stress and favoring the appearance and/or evolution of psychopathological symptoms, such as anxiety in this teaching modality (Rosa, 2023; Madaloz et al., 2023). The literature emphasizes the importance of public preventive policies for mental health in children and adolescents, as a form of prevention. Schools have been considered ideal spaces for preventive actions in physical and mental health during childhood and adolescence, contributing to the development of skills that strengthen protective factors and minimize developmental risk factors (Vieira et al., 2014).

Considering the set of skills necessary for children and adolescents that contribute to the integral formation of the individual, self-regulation of learning stands out. Within the scope of Social Cognitive Theory, Bandura (1991) characterizes self-regulation of learning as a conscious and voluntary process, which allows individuals to manage their own thoughts, feelings and behaviors. Thus, self-regulation is understood as a complex process, which

encompasses sub-processes, such as self-monitoring, self-evaluative judgments and self-reactions. Self-regulated students tend to have a greater belief in self-efficacy in academic activities; to learn more about the content studied and to become more involved with studies, improving school/academic performance (Ganda and Boruchovitch, 2018). Two theoretical models have been the basis for many intervention projects for self-regulation in recent decades, namely, the self-regulated learning model, proposed by Zimmerman (1998; 2000) and the Learning Planning, Assessment and Execution (PLEA) model, authored by Rosário (2004).

Zimmerman's model comprises three phases. The first, considered the preliminary phase, encompasses processes that precede learning and carrying out the task, and presupposes the development of skills such as analysis and interpretation of the task. At this stage, students set goals and select learning strategies, creating a plan to achieve their objectives. Aspects such as motivation and the students' sense of self-efficacy influence this stage. In the second phase, called realization/execution, students put their planning into practice. This stage involves sub-processes such as self-monitoring and self-control, through management of time, physical environment and their own attention, among other aspects. The final stage, called self-reflection, presupposes self-evaluation; At this point, students reflect on the degree of effectiveness of the strategies adopted (Zimmerman, 1998; 2000).

The PLEA model by Rosário (2004) consists of a process of a cyclical and interactive nature, assuming a synergistic relationship between the stages. Each phase of the PLEA contains the three phases of the self-regulatory cycle: during planning, students analyze the demands/tasks, evaluate their personal and environmental resources, set objectives and plan how to achieve them; in the execution phase, self-monitoring occurs, when students apply the strategies and evaluate their effectiveness, while in the evaluation stage, students compare the extent to which the results achieved meet the outlined learning objectives, reformulating or using other strategies, if necessary.

In Zimmerman's self-regulated learning model, self-efficacy and goal setting are fundamental factors in the process. In the cycle (previous phase, realization phase and self-reflection phase) the last phase might influence the next preliminary phase. Rosário's PLEA model is based on Zimmerman's model. In short, it is a model that presents a procedural logic; a cyclical and flexible model that can be reviewed at each stage whenever students think that an action did not have the expected result (Polydoro and Azzi, 2009).

For the students to develop self-regulation, they will have to develop metacognitive strategies, reflecting on how to perform the task. The term metacognition was proposed by Flavell and refers to the knowledge and regulation of cognitive processes by individuals during learning (Flavell et al., 1999). Metacognition is related to awareness of one's own thoughts and is associated with understanding how students identify and construct

knowledge about their own cognition (Silva Xavier et al., 2020). The ability to plan, monitor and reflect on one's own learning presupposes the use of metacognitive strategies (De Araújo Silva and Bizerra, 2022), contributing to students' autonomy and the choice of strategies suitable to their characteristics and those of the task (Silva Xavier et al., 2020).

Currently, at all levels of education, educators encourage the development of self-regulation of learning, with the aim of minimizing students' difficulties with the challenges they encounter in learning (Ganda and Boruchovitch, 2018; Silva Xavier et al., 2020). The literature describes programs for the development of self-regulation, with different designs all over the world (Sáez-Delgado et al., 2022; Da Silva and Alliprandini, 2020; De Araújo Silva and Bizerra, 2022). To date, there is no knowledge of Brazilian studies with a specific focus on the association between anxiety and self-regulation of learning, within the scope of technical courses integrated into high school.

Taking all that into consideration, the objective of this study was to develop, implement and evaluate the degree of effectiveness of the intervention project, aimed at developing self-regulatory skills in students entering the first year of technical courses integrated into high school, based on the following general hypotheses:

- The study guidance sessions will enable the development of self-regulatory skills in students, favoring adaptation to the new academic reality and increasing learning success.
- The acquisition of self-regulatory skills will minimize the risk of the onset and/or evolution of anxiety symptoms, contributing to reducing the number of adolescents referred to mental health treatments.

Method

This study was based on intervention research. The project was developed as a curriculum overlap, in onsite education, with general content, and short term. It was destined to high school and focused on individuals (Ganda and Boruchovitch, 2019).

Participants

Adolescents entering the technical course integrated into high school in 2022 were included. There were around 120 adolescents enrolled, the inclusion criterion selected those that were showing simultaneous difficulty of adaptation to the new academic routine, which was verified in the initial interview, and symptoms of anxiety, identified using the DASS-21 Scale. The selection process resulted in 35 students participating in the project.

Considering the profile of the participants in the study orientation project per course, sex, and age, the 35-student sample was distributed as follows (Table 1).

Table 1*Profile of the participants in the study orientation project in the 1st year*

Course	Sex	Age (years)				Total
		14	15	16	17	
Edification Integrated Technical Course	Female	1	8	0	1	10
	Male	0	2	1	1	4
Computing Integrated Technical Course	Female	1	8	2	0	11
	Male	0	2	0	0	2
Mechatronics Integrated Technical Course	Female	0	2	3	0	5
	Male	0	2	1	0	3
Total		2	24	7	2	35

Instruments

Depression, Anxiety and Stress Scale (DASS-21), Brazilian version (Vignola and Tucci, 2014)

The DASS-21 scale was used to assess anxiety, stress and depression indicators. This is a Likert-type self-report scale, comprising 21 questions and three sub-scales, namely, depression, anxiety and stress.

Interviews

An initial interview was carried out with the participating students to evaluate aspects related to motivation and study habits, such as: suitable place to study at home, daily study routine, organization of academic activities, study strategies, interest in their course, level of attention, difficulties in adapting to the school routine, among other factors that could influence their academic life.

To assess the students' perception of the impact of the interventions on their learning and academic adaptation, the final interview addressed issues such as the students' perception of their participation in the project, and changes in their routine after the interventions, among others.

Procedure

The work was carried out at a Federal Institution, which offers technical courses integrated into high school, in the state of São Paulo, Brazil. The application of the instruments began in June 2022, with the DASS-21 Scale using an online form (Google Forms).

Next, an individual consultation session was held with all participating students, during which the initial semi-structured interview was carried out. Among the 65 students who consented to participate, 35 met the inclusion criteria for presenting, concomitantly, academic adaptation difficulties (confirmed in the initial interview) and anxiety symptoms

located in the mild/mild, moderate, severe or extreme severe ranges of the DASS -21. Those were referred for intervention. The study guidance sessions were guided by the theoretical models of Zimmerman (2000) and Rosário (2004). Each student received between one and four individual guidance sessions, depending on their particular difficulties. The guidance given in each of the session is described below.

In the first session, each student was instructed to develop a plan in monthly and weekly planners (schedules). The monthly planners were intended for taking notes related to tests and assignments for the organization of a two-month period. This aimed to facilitate the visualization of the activities to be carried out and the planning of strategies to achieve them, considering the time available for study. The importance of dedicating time to studying and taking breaks was emphasized (Góes and Boruchovitch, 2020; Zimmerman, 1998).

In the second session, we verified how much of the planning was implemented. The importance of aspects such as: carrying out a weekly checklist of planned activities was emphasized to anticipate studies, check the subjects to be studied, prepare the work in advance; identify the activities completed and those that remained to be done, thus avoiding the accumulation of activities before assessments. In this session, the study strategies adopted by the student were investigated (such as synthesis, mind map, summary, among others), in all subjects but, more specifically, in those they were struggling the most with. Students received information about resources and strategies, such as performing exercises and seeking help to solve doubts, among others (Góes and Boruchovitch, 2020).

Regarding students who received more guidance sessions, up to four, we verified to what extent the planning, execution and strategies used were being effective, based on the students' reports, the notes made in the planners, the activity lists and by monitoring their grades. We also evaluated whether the students were able to put the guidelines into practice and whether it would be necessary to change any stage of the planning and/or change learning strategies. In this way, the entire process was evaluated, encouraging students' reflection and reinforcing the specific guidelines provided.

In the last session, a retrospective was carried out with each participant to evaluate the results. Advisor and student, together, sought to identify in which subjects required performance improvement. A summary was also made available to students in the form of a digital folder, based on the PLEA model (Rosário, 2004), containing the main information about self-regulation of learning. In November, after the end of the intervention, participants filled out the DASS-21 Scale again and completed the final semi-structured interview. The project was carried out from June to November 2022, with guidance sessions held individually and lasting from 10 to 30 minutes, on afternoons when the students did not have classes.

Ethical aspects

The research project was submitted to the *Plataforma Brasil* (Brazil Platform), processes number: CAAE: 56563222.1.0000.5466 (Proposing Institution) and CAAE: 56563222.1.3001.5473 (Coparticipant Institution). After approval, the interventions started, following all the procedures by the Brazilian National Research Ethics Committee (CONEP, from Brazilian Portuguese, *Comissão Nacional de Ética em Pesquisa do Brasil*) and the instructions for procedures to be followed in research with any phase in virtual environment (Letter Nº 2/2021/CONEP/SECNS/MS).

Data analysis

The research data were subjected to different analyses. Among them, the scores from the application of the DASS-21 Scale, pre and post intervention, were compared; the JT method was used and an analysis of variance with repeated measures was performed, considering sex (female and male) as the independent variable (using IBM SPSS, V. 22.0). To investigate the degree of effectiveness of the project, the content of the final interviews was analyzed according to Bardin's (1977) theoretical model. The categorization carried out by the researcher was evaluated by two professors, whose doctoral studies had been related to the research area, to analyze the consistency of the categorization.

Results

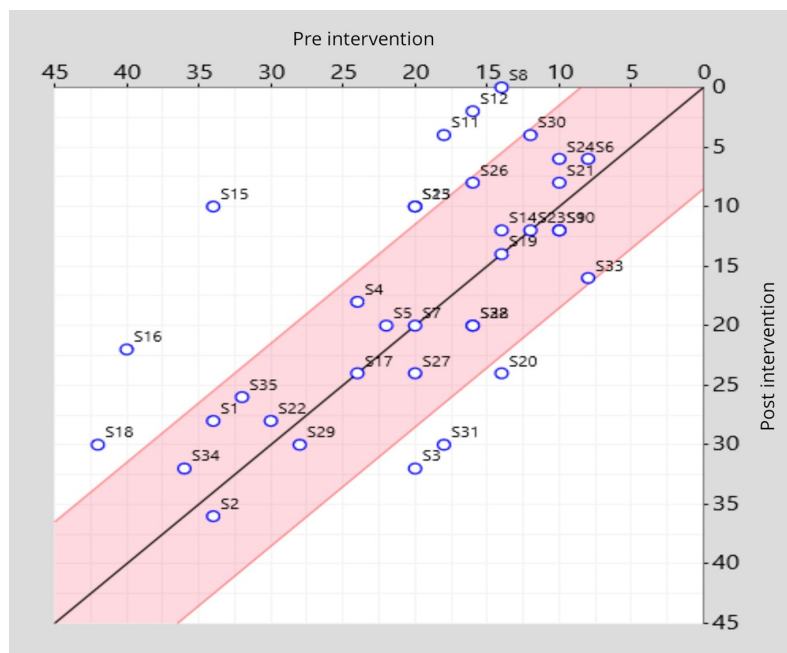
Quantitative analysis

The classifications were compared using the scores obtained by the students in the two applications of the DASS-21 Scale, pre and post intervention. We observed that of the 35 new students, 12 participants showed a reduction in anxiety scores; 5 presented an increase in anxiety scores, and 18 showed no change in anxiety symptoms. Regarding the sample average anxiety score, a reduction was detected from 20.46 ($SD = 9.5$) points in the first application to 17.43 ($SD = 9.9$) in the second.

Another form of analysis used was the JT Method, which compared anxiety scores, respectively, in the pre- and post-intervention assessments. Figure 1 shows the interpretation generated by the program. The 8 points that are located above the upper diagonal line represent the students who showed improvement in anxiety symptoms after the intervention. The 3 points located below the line indicate students who had worsened symptoms. In relation to the other points, which are located between the lines upper and lower to the bisector, it is not possible to say whether there was a worsening or improvement in symptoms. This analysis therefore detected a reliable reduction in anxiety in eight students.

Figure 1

Results obtained using the JT method



Finally, through analysis of variance with repeated measures to compare the results of the DASS-21 in the pre- and post-intervention assessments, considering sex (female and male) as an independent variable, a positive effect of the intervention for anxiety was detected ($F(1,33) = 5.860, p = 0.021$). This shows that the reduction in the average anxiety score was statistically significant. The interaction between sex and intervention did not show a significant effect.

Qualitative analysis

Researcher's observations during the study orientation sessions and students' reports in the final interview

The analysis of the guidance sessions and the students' reports in the final interviews enabled the verification that their participation in the project, in most cases, favored the development of self-regulatory skills, especially in the planning phase, that is, scheduling assessment/work dates and goal setting. We also observed the acquisition of skills related to the execution and self-assessment phases, such as anticipating activities and content to be studied, focus, attention, prioritizing tasks, time management, identifying the most effective learning strategies, and requesting help to solve doubts, among others. There were no dropouts during the intervention.

As regards the final interviews, several theme characteristics were listed through the analysis of the students' reports. The four main characteristics were participation in the project, execution of the plan, reflection on performance in the subjects and feelings of anxiety in assessments. Excerpts from the students' reports presented below, exemplifying each category.

Project participation. Most of the interviewees stated that the guidance sessions helped them, mainly in the organization of their studies, as reported below:

Taking part in the project helped me, because I used to find it very difficult to organize everything, because I wanted to do everything... at the same time, but at the same time, I could not organize it, then I felt it was bad and that I had to study everything (...). Then, the tasks that I could not do before, now, I can, because they are on paper. (E33).

Planning execution. The monthly planner was the mostly used resource, it favored the visualization of tasks and helped planning; however, the weekly planner was almost forgotten. The weekly checklist was also useful, according to the participants' perception:

I used the planner. I managed to organize myself better, there were times that I only made a list of things to do, I did not write the time, I just marked priorities with a little star and kept doing it, I also used the pomodoro technique and the mind map to study (E35).

Reflection on performance in different subjects. Several participants stated that they started to focus on the subjects they found more difficult, as reported below:

Then, there were lots of things I focused on because I was good at them, and used to neglect the things I was bad at. So, today I focus on the things I find the most difficult, but not on the things I already master, I'm good at that, so I only need to keep up with that work (E15).

Feelings of anxiety in evaluations. In several cases, the participants noticed that their participation in the project minimized feelings such as nervousness, worries, and anxiety, mainly before school tests, as observed in the student's report on his specific difficulty in one subject:

Ah, I felt it, because I could remember more at the time of the test, before I used to be very anxious and I could not remember anything, but I managed, only in mathematics, you know, I always had difficulties, then it was very hard. But, I did well in the other subjects (E17).

However, such perception was not unanimous, which agrees with the results found in the DASS-21, as observed below:

This is anxiety, isn't it? I feel nervous, and then, it is not because I don't know the content... it is because I get nervous and end up forgetting a lot of what I had studied, the things that I should remember at that time, then I write the wrong thing (...)(E22).

Changes after participating in the project. The participants mostly mentioned aspects such as greater motivation for and interest in the studies, better preparation, balance, and awareness of the need to create a routine and study habits:

Ah, I felt better in relation to tests, for learning how to organize everything I need to do, you see? Like a better organization of the studies, because in the past I saw what I saw, I studied everything that appeared in front of me. Nowadays, I don't, now I choose what I have to study (E15).

This perception was not unanimous either, as mentioned by the student below:

Then, I don't know, it is because I usually leave school very late, I feel sleepy during the day, then I get home and want to sleep, or I have to help with the household chores, help my mom or study (E3).

The set of reports agrees with the researcher's observations, it reveals a continuum in the researched group regarding the acquisition of self-regulatory skills and decreased anxiety symptoms.

Discussion

The objective of this study was to evaluate the degree of effectiveness of the intervention project, based on the assumption that the intervention would promote the acquisition of self-regulatory skills in participants and minimize anxiety symptoms.

In general, the results suggest that most of the participating students were successful, especially in the planning phase, defining goals and adopting a weekly list of activities (checklist). This strategy, combined with planned study schedules, proved to be effective in most cases. The reports emphasized improvements in aspects such as "organization" of studies and time management to achieve goals, among others, in line with the literature reports about the planning phase "the student analyzes the task he/she will face, studies the personal and environmental resources necessary to face the task, establishes objectives and plans to achieve the intended goal" (De Araújo Silva and Bizerra, 2022, p. 4-5). In general terms, the results found here are similar to those of recent Brazilian research. In a study with professional high school students, when considering the phases comprised in the self-regulatory process, the greatest evolution of skills was observed in the planning stage (Silva and Bizerra, 2022). Also, in the study by Da Silva and Alliprandini (2020), the

level of self-regulated learning in high school was assessed and a high frequency of positive responses was observed in the planning stage.

This study observed that most of the students were also successful during the implementation and evaluation stages, using the monthly planner effectively, for example. Possibly, due to the number of subjects, many have faced difficulties in establishing a routine with fixed subjects to be studied. The reports in the interviews, combined with the researcher's observations, lead us to believe that the majority complied with the planning to a greater or lesser extent, paying attention to aspects such as management of the study environment, identification of difficulties and potentialities and prioritization of activities. The acquisition of skills such as time management and control of aspects of the environment was also noted, which facilitated the achievement of goals, according to the literature (Freire, 2009).

The presence of metacognitive processes is implicit, for example, when a student reported:

Yes, it was good, because I found a way of organizing myself better and focus on the things I am intelligent ... things that are really necessary. Then, there were lots of things I focused on because I was good at them, and used to neglect the things I was bad at. So, today I focus on the things I find the most difficult

By becoming aware of their own cognitive process, students recognize the importance of self-assessment in detecting strengths and weaknesses when learning and this, among other aspects, can help them concentrate or focus on their studies and thus be able to achieve their goals (Silva Xavier et al., 2020).

A maioria dos/as estudantes efetuou esforços reflexivos, no sentido de análise do próprio desempenho e de identificação/enfrentamento das dificuldades, o que vai ao encontro da literatura (Polydoro e Azzi, 2009; Zimmerman, 1998, 2000; Rosário, 2004). A fase de autorreflexão pressupõe processos de auto-observação como, por exemplo, a autocrítica, no sentido de atribuição de causalidade ao próprio desempenho (Zimmerman, 1998, 2000). Quando um estudante afirma, por exemplo, que “mas ainda sou um pouquinho desorganizada com as coisas, com as minhas tarefas, acabo deixando para última hora, às vezes”, evidencia a aquisição de habilidades, nesse sentido: na etapa de autorreflexão, o/a estudante avalia a eficácia das estratégias de aprendizado via automonitoração, para a identificação de discrepâncias entre o resultado obtido e o objetivo inicial, bem como a redefinição de estratégias para a realização de metas.

Most of the students made reflective efforts to analyze their own performance and identify/cope with difficulties, which is in line with the literature (Polydoro and Azzi, 2009; Zimmerman, 1998, 2000; Rosário, 2004). The self-reflection phase presupposes self-

observation processes such as self-criticism, in the sense of ascribing causality to one's own performance (Zimmerman, 1998, 2000). When a student states, for example, that “but I'm still a little disorganized with things, with my tasks, I end up leaving it until the last minute, sometimes”, he/she highlights the acquisition of skills since in the self-reflection stage, students evaluate the effectiveness of learning strategies via self-monitoring, to identify discrepancies between the result obtained and the initial objective, as well as redefining strategies to achieve goals (Polydoro and Azzi, 2009).

However, there were exceptions. Procrastination behavior was observed in some participants, that is, the tendency to postpone or delay tasks, which is associated with behaviors that are harmful to learning, such as delaying assignments and reducing study time. This is an illogical postponement, characterizing gaps between intention and action (Brahma and Saikia, 2023). By deviating their attention from school activities, feelings such as tension, fear or worry are momentarily avoided; procrastination can also be a scheme to hide the lack of understanding of certain school content (Sampaio and Bariani, 2011). Procrastination can end up becoming stronger, as it is a behavioral response that allows the avoidance of perceived stressors. When faced with stress, adolescents can use productive coping strategies, such as facing the problem, or resorting to avoidance, diverting attention from the focus of the problem (González and Hernández, 2009). Students with a high degree of self-regulation of learning are less likely to procrastinate studies, while students with low self-regulation tend to procrastinate more (Brahma and Saikia, 2023).

The obstacles faced by some participants in this study might have reduced their motivation to study. It is assumed that the gap in previous content, when combined with factors such as tiredness resulting from traveling to study in another city, family problems, lack of adequate space for studying, among other aspects, have made it difficult for some students to adapt to the new reality. Motivation is considered a crucial factor for learning and permeates the self-regulatory process: “Self-regulation of learning can be developed through the coordination of cognitive, metacognitive and motivational skills” (Basso and Abrahão, 2018, p. 496).

The results seem to suggest the act of procrastinating by some of the participating students and/or factors that interfere with their motivation made self-regulation and learning difficult, leading to more procrastination and demotivation, resulting in a vicious circle. Possibly, this is a bidirectional association. It is possible that the intervention was not effective in promoting self-regulation and minimizing procrastination or demotivation in some students. Therefore, we recognize that in these cases, longer interventions would be necessary.

As regards anxiety symptoms, the initial hypothesis was partially confirmed, both by comparing the scores for each case individually and by applying the JT Method. Furthermore,

the difference between the mean scores on the DASS-21 anxiety factor (pre and post intervention) was significant. Considering the group of students who participated in the intervention project, a reduction in the average level of anxiety was noted. These factors suggest the possibility of a positive effect of the intervention.

It is essential to pay attention to variables that may have interfered in the students' performance when filling out the DASS-21 and/or in their academic adaptation. The year when the study was developed, 2022 is considered atypical since those teenagers entered high school in the period immediately after the pandemic. There is evidence that the COVID-19 pandemic has exacerbated mental health problems in adolescents and/or the general population (Vazquez et al., 2022). Furthermore, the intervention took place between June and November 2022, and during part of this period some of the free afternoons were used for extracurricular activities, reducing the time that students had to dedicate to studying.

These and other variables may have caused overload and stress in students in the final phase of this project, influencing their level of anxiety. In addition, the second application of the DASS-21 took place in November, the period in which students were having their final school tests. It is important to consider the construct of test anxiety and its association with self-regulatory processes (Rosário et al., 2004; Shih, 2019). The literature suggests that test anxiety symptoms, at moderate levels, can even contribute to self-regulation; while high levels of anxiety before assessments can harm academic performance (Rosário et al., 2004). New studies on the subject, under different intervention formats and considering the role of intervening variables, could contribute to the understanding of this matter.

Os resultados deste trabalho como um todo vão ao encontro do que prevê a literatura, quanto ao papel da escola em promover a autorregulação (Frison, 2016; Ganda e Boruchovitch, 2018). Há um consenso no sentido de que as instituições escolares deveriam incorporar o ensino de habilidades autorregulatórias ao cotidiano das aulas. Docentes podem incluir o ensino de habilidades dessa natureza durante as aulas (González e Hernández, 2009; Rosário et al., 2004).

The results of this work as a whole are in line with what the literature regarding the role of schools in promoting self-regulation (Frison, 2016; Ganda and Boruchovitch, 2018). There is a consensus that school institutions should incorporate the teaching of self-regulatory skills into everyday classes. Teachers can include the teaching of skills of this nature in their lessons (González and Hernández, 2009; Rosário et al., 2004).

The individual study orientation guided by the theoretical framework of self-regulation of learning, carried out by the researcher, proved to be an efficient way of helping students. The data gathered during the interviews, combined with the researcher's observations during the sessions, revealed that most of the students were successful in aspects such as

analyzing the set of tasks required by the course, verifying which strategies are most effective in achieving the expected results, and evaluating progress in relation to learning, among others. Furthermore, they also understood the need to adjust the planning, whenever needed. It was possible to verify that when stimulated, most of the participants reflected on the proposed situation, according to their possibilities at the moment, their individuality and considering their life history.

The set of results therefore shows that most of the participants acquired relevant skills for their self-regulatory process at different levels and that the interventions favored students' academic adaptation to a greater or lesser extent in most cases.

However, the study has some limitations such as the small sample size, which did not allow the generalization of the results. Another limitation was that the students' free time was relatively limited. Therefore, further research should be carried out with a larger sample population and with a greater frequency of consultations to expand understanding of the subject.

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