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Self-Regulated learning in accounting: an analysis of Emergency Remote Teaching

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Abstract

Objective: To analyze the behavior of students attending graduate degree Accounting programs regarding self-regulated learning strategies adopted in Emergency Remote Teaching (ERT).

Method: This survey descriptive research with a quantitative approach addressed students regularly enrolled in graduate Accounting programs. The study sample comprised 109 valid responses obtained from 2,266 students enrolled in 2022. Descriptive statistics and a reliability analysis were performed. Next, the Kruskal-Wallis and Spearman Correlation tests were conducted to identify the behavior of graduate Accounting students regarding self-regulated learning strategies.

Results: The results showed that the students adopted self-regulated learning strategies at a moderate level in the ERT environment. The Environment-Structuring dimension obtained the highest mean of the adoption of self-regulated learning strategies, indicating that students were more concerned about setting up an adequate place to study and making it comfortable.

Contributions: This study contributes to the academic milieu by showing that the students had the initiative to organize themselves to perform well in a context that required varying degrees of adaptability and discipline. With a deeper understanding of the factors influencing self-regulated learning, educational institutions can adopt more effective approaches to supporting students on their academic journey, promoting a more productive and successful teaching and learning environment.

Keywords: Self-regulation; Emergency Remote Teaching; Accounting.

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Introduction

An economic and health crisis caused by COVID-19 struck Brazil in 2020 (SARS-CoV-2). To contain the spread of the virus, restrictive measures, such as social distancing and lockdowns, were imposed, impacting the Brazilian and global economies. The pandemic brought the concept of "adaptability" into light, demanding society adapt to changes in various spheres of life (Nassif *et al.*, 2020).

According to the United Nations Educational, Scientific and Cultural Organization (Unesco, 2020), the pandemic caused schools and universities to interrupt educational activities, affecting more than 90% of students worldwide. An alternative to cope with these circumstances was temporarily migrating from face-to-face to Emergency Remote Teaching (ERT). This measure was announced through Ordinance No. 343 on March 17, 2020, in which the Brazilian Ministry of Education (MEC) exceptionally authorized face-to-face classes to be replaced by online classes during the pandemic.

Hodges *et al.* (2020) note that, in contrast to experiences planned and designed from the beginning to be conducted online, ERT is a temporary shift from face-to-face to an alternative modality due to crisis circumstances. Notably, the online modality imposed challenges on students and educators, as they had to suddenly change the format in which classes took place and adapt to a new environment.

In this context, higher education institutions had to adapt during the pandemic. Note that even though it was an emergency, the changes in the use of technology were reflected in the behaviors of educators and students. Fogarty (2020) argues that the decline in higher education support structures during the pandemic increased the need for students to self-regulate more efficiently. Furthermore, the author above also considers that the change in the teaching modality caused changes in the classes' content, demanding educators to dedicate more time to preparing classes; hence, workload became more apparent.

At the same time, the COVID-19 crisis was an opportunity to make positive changes in accounting education, considering that online teaching eliminates commuting for students and faculty members, reflecting a broader trend in the accounting profession towards digitalization (Sangster *et al.*, 2020). Note that in the context of Brazilian education, graduate degree programs in Accounting already require students to be more autonomous learners. Espejo *et al.* (2022) sought to identify expectations, opportunities, difficulties, and impacts on Master's students of newly implemented graduate programs. They concluded that graduate studies represent an opportunity for students to expand their knowledge and qualifications, besides the possibility of initiating an academic career. Nonetheless, the participant Master's students reported that difficulties included adaptation problems, poor infrastructure, teaching staff's lack of preparation, a need to master the English language, and working long hours.

In this sense, self-regulated learning is essential for success in remote teaching. Zimmerman (2000) explains that self-regulation concerns the degree to which students actively engage in learning, encompassing metacognitive, motivational, and behavioral aspects. Barnard-Brak *et al.* (2010) surveyed college students enrolled in online programs, showing that students with a high self-regulation profile obtained more successful academic performance. Perry *et al.* (2006) state that self-regulated students achieve academic success, considering they are prone to taking on challenging tasks and developing a deep understanding of specific topics. These results reinforce the need to address the implementation of self-regulated learning strategies in the context of emergency remote teaching among students regularly enrolled in graduate programs in Accounting in Brazil.

It is noteworthy that, even though there is extensive research on self-regulation in the academic context, the emphasis has primarily been centered on undergraduate programs (Hamdan *et al.*, 2021; Hong *et al.*, 2021; Jurisevic *et al.*, 2021; Silva, 2021; Souza *et al.*, 2018; Vilela & Silva, 2022; Vilkova & Shcheglova, 2021). Therefore, graduate programs, specifically graduate programs in Accounting, are seldom explored in the literature (Taghizade *et al.*, 2020). Hence, the following research question emerged: **What is the behavior of students attending graduate degree programs in Accounting regarding self-regulated learning in the Emergency Remote Teaching environment?**

Thus, this study's objective was to analyze the self-regulated learning behavior of students attending graduate programs in Accounting in the Emergency Remote Teaching (ERT) environment.

In addition to contributing to the literature on self-regulated learning, this study contributes to higher education institutions by analyzing students' behavior when facing adversities imposed by a crisis in a distance-learning context. Therefore, it enables improving adaptability actions for students to achieve better academic performance in the teaching-learning process.

Additionally, this study is expected to contribute to the performance of future educators, considering that the study sample comprises graduate students. Furthermore, knowledge of students' self-regulated learning during their graduate programs can help strengthen their learning as Accounting professionals. In this context, knowledge about self-regulation strategies tends to be more widely promoted among faculty members, consequently generating positive aspects for teaching.

Finally, self-regulated skills, such as time management, play a crucial role in academic life and are essential for the accounting profession, considering the constant updates applied to accounting standards. Thus, accounting professionals who develop self-regulated learning skills are better equipped to cope with changes in the job market.

This paper is organized with this introduction (section 1), a theoretical framework based on Social Cognitive Theory, and the primary studies on self-regulated learning and the context of emergency remote teaching (section 2). The following section presents the method, including the tests and how the sample was determined (section 3), followed by the results and discussion (section 4) and final considerations (section 5).

2 Theoretical Framework

2.1 Social Cognitive Theory

Studies on learning processes are conducted in different contexts. The considerations proposed by Social Cognitive Theory prove to be elementary for this study's discussion. The Social Cognitive Theory stands as a consolidated foundation within the scope of social learning and consists of an explanatory framework for human action and development (Bandura, 1986; Azzi, 2010).

Social Cognitive Theory provides an explanatory model for human behavior outlined by reciprocal determinism, in which behavior, personal factors, and the environment interact as determinants that influence each other (Bandura & Jourden, 1991; Bandura, 1986; Bandura, 1999; Azzi, 2010).

Conceived by Albert Bandura, this theory considers the perspective of agency for self-development, adaptation, and change (Bandura, 1986). It is equivalent to conceiving the individual as being responsible for intentionally influencing his/her path and circumstances. From this perspective, people are self-organizing, proactive, self-regulating, and self-reflective agents who can contribute to and interfere with events around them.

Hence, individuals are considered self-regulator agents rather than mere planners and forecasters. Thus, Bandura (1986) highlights that self-awareness enables people to reflect upon their self-efficacy and the integrity of their thoughts and attitudes, making necessary adjustments. Additionally, perceived self-efficacy is a primary construct of Social Cognitive Theory linked to one's beliefs in his/her potential to organize and perform actions essential to producing specific achievements (Bandura, 1997).

From the agent's perspective, individuals can develop their ability to control the nature and quality of their lives and, therefore, are seen as active agents who interfere in their motivation and actions (Bandura, 2009; Azzi, 2010). Bandura (1986) reflects that human agency is based on two characteristics: intentionality and the temporal extension of agency based on anticipation. The first is intentions, which are believed to comprise plans and action strategies supporting such achievement, while the second concerns predicting the likely results of actions to guide efforts in advance.

From this perspective, due to human capabilities such as symbolization, anticipation, self-reflection, and self-regulation, individuals have a self-referential system that allows them to act intentionally, focus on specific objectives, coordinate actions, and anticipate potential results (Bandura, 2009; Azzi, 2010).

Considering the previous discussion, the learning strategies addressed in this study are self-regulatory mechanisms related to aspects such as the ability to understand information, monitor learning, and manage the physical and social environment and the resources available.

2.2 Self-regulated Learning and Emergency Remote Teaching

Zimmerman (2013) defines self-regulated learning as the level at which students act in a metacognitive, motivational, and behavioral way in their learning process. According to Schunk (2005), self-regulated learning is a tool that clarifies differences between students' performance and is used to achieve better educational performance. According to Pintrich (1999), self-regulation is a set of strategies that culminate in regulating students' learning. Zimmerman (1998) corroborates this notion, indicating that self-regulation results from students' self-generated behavior, which is systematically organized to achieve learning objectives.

Self-regulated learning in an online environment differs from face-to-face learning. Factors such as time flexibility, the use of technological resources, and the use of virtual learning environments increase the challenges, demanding self-regulated behaviors to overcome such challenges, in addition to greater responsibility to achieve learning objectives (Cavanaugh *et al.*, 2012; Ávila & Frison, 2016). Thus, students in an online learning environment are likely to be more willing to adopt self-regulated learning behaviors (Keegan, 2005; Barnard-Brak *et al.*, 2010).

Barnard-Brak *et al.* (2010) emphasize that self-regulated learning is not equally distributed in all domains or all learning situations. For this reason, there is a need to expand studies on the development of self-regulated learning, considering the inclusion of students migrating from the face-to-face to the online learning environment. This process requires understanding the individual characteristics that influence the results of self-regulated learning (Cavanaugh *et al.*, 2012). Barnard-Brak *et al.* (2010) consider that inserting a student into an online learning environment does not automatically make him/her a self-regulated individual. In this aspect, educators must provide tools that contribute to developing self-regulation skills so that students adapt to new tools, technologies, and virtual learning environments, creating strategies to improve their performance in this new context (Castro, 2016).

The COVID-19 pandemic led different countries to recommend or implement remote learning. Coqueiro and Souza (2021) note that, unlike distance education, remote teaching is concerned with an emergency in which individuals have to migrate from an in-person to a virtual environment, where there is not always the possibility of a flexible schedule. Classes are held in synchronous and asynchronous formats, where synchronous classes are held via videoconference, enabling teachers and students to interact in real time, similar to face-to-face education.

Wang *et al.* (2020) corroborate this perspective by stating that emergency remote teaching is an alternative and temporary teaching method that was implemented in response to a specific crisis; thus, it differs from the typical distance education modality. Distance learning is defined as the distance in time and/or space between students and learning resources (Bozkurt & Sharma, 2020).

Adopting online learning in an emergency is a necessity that has led public policy experts, citizens, teachers, and students to find solutions that minimize the challenges (Hodges *et al.*, 2020). This new learning format is a temporary solution to face an emergency, adapting how content is transmitted in specific situations where face-to-face education previously existed (Affouneh *et al.*, 2020).

Antunes (2020) states that the actors involved in the teaching-learning process in a remote format need constant updates, new content approaches, new attitudes, and new methodological procedures. This shows that there is a need for self-regulation in several dimensions, "new literacies, new practices, new ways of building knowledge and establishing communication" [free translation] (Cani *et al.*, 2020, p. 30). Therefore, investigating self-regulated learning among students attending a remote environment becomes relevant and can contribute to teaching-learning.

Boor and Cornelisse (2021) provide some insights about self-regulation during emergency remote teaching based on the experience of students and teachers. Their main finding reveals that the COVID-19 pandemic affected self-regulation in three ways: 1) it interrupted the curricular structure and the pace of studies, 2) it decreased teachers' feedback, and 3) it decreased the interactions between students and teachers. Likewise, Hamdan *et al.* (2021) suggest that during emergency remote teaching, students faced difficulties in feeling satisfied with the educational environment, and they also found it challenging to regulate and control their learning.

Hong *et al*. (2021) show that individuals with high levels of academic procrastination tended to present low levels of self-regulation in online learning during the coronavirus lockdown, which resulted in an increased perception of learning ineffectiveness in this environment. They clarify that academic procrastination may be associated with several aspects, such as lack of motivation, anxiety, and disorganization. When addressing students of an Accounting Sciences program attending classes in the ERT format, Vilela and Silva (2022) found that students were little motivated and experienced high levels of negative feelings, such as bad mood, despair, stress, anxiety, and/or depression, factors that affect the teaching-learning process and may lead to academic dropout and damage mental health.

On the other hand, Jurisevic *et al.* (2021) found evidence that students who were more likely to set goals and apply strategies to structure their environment generally presented a more positive outlook towards life, while they were less likely to use coping strategies that involve catastrophizing, i.e., exaggerated amplification of problems and their consequences.

Biwer *et al*. (2021) found that college students migrating to ERT during the pandemic faced difficulties managing their time and regulating their attention and efforts and consequently obtained worse academic performance. Furthermore, Vilela and Silva (2022) note that Accounting students less frequently adopted some self-regulation strategies such as self-consequences, goal setting and planning, and organization and transformation.

3 Method

3.1 Study Characteristics and Sample

This is characterized as survey descriptive research with a quantitative approach (Martins & Teóphilo, 2016). An online questionnaire was sent to Brazilian graduate Accounting programs to identify the behavior of graduate Accounting students regarding self-regulated learning mechanisms. Data were collected from December 2021 to January 2022. First, we consulted the Sucupira Platform website to obtain a list of graduate degree Accounting programs and their respective institutional emails. Next, the programs were asked to send the questionnaire to the students. Of the 2,266 students regularly enrolled in the programs listed on the Sucupira Platform in 2022, 113 answered the survey. However, four respondents were excluded from the database because they reported not attending the Emergency Remote Teaching modality during the COVID-19 pandemic. Thus, the final sample consisted of 109 students.

3.2 Data Collection Instrument

The questionnaire comprised two parts. The first part included (i) the participants' general profile, including gender, age, marital status, whether they had a paid job concomitantly with the program, and socioeconomic information, among others; while the second part included the (ii) OSLQ (Online Self-Regulated Learning Questionnaire) to identify learning strategies.

Barnard-Brak *et al.* (2010) developed OSLQ to assess the self-regulated learning of American students in online learning environments. Rufini *et al.* (2021) show that OSLQ has been the main instrument used in studies addressing this topic. Analyses of its validity, reliability, and consistency have been conducted since then (Barnard-Brak *et al.*, 2010; Rodrigues *et al.*, 2016; Martinez-Lopez *et al.*, 2017; Lin *et al.*, 2017; Fung *et al.*, 2018; Taghizade *et al.*, 2020; Vilkova & Shcheglova, 2021; Rufini *et al.*, 2021).

OSLQ was designed to meet the need for an instrument aimed at the online context. Its first version comprised 86 items derived from Zimmerman's (1998) conceptions of self-regulated learning. Its final version resulted in a brief version aimed at the American culture, considering both the online and hybrid course formats. Later, Rodrigues *et al.* (2016) performed cross-cultural adaptation procedures, validating it for the Brazilian context.

According to Zimmerman (1998), OSLQ is subdivided into six dimensions:

1. Goal Setting (GS): determining intended actions or results;
2. Environment Structuring (ES): selecting or creating compelling environments for learning;
3. Task Strategy (TS): analyzing tasks and identifying learning methods;
4. Time Management (TM): estimating and managing time;
5. Help-Seeking (HS): choosing specific models, people, teachers, or books to aid learning, and
6. Self-Evaluation (SE): establishing and using standards for self-evaluation.

The students were presented with 24 statements and were instructed to choose on a Likert-type scale the option that best represented how they perceived themselves in relation to the program in the ERT modality. The Likert scale ranged from 1 (totally disagree) to 5 (I totally agree). All items on the scale are positive, and according to Barnard-Brak *et al.* (2010), scores between 1 and 2 indicate a low frequency of self-regulation, between 2.1 and 3.9, moderate self-regulation, and between 4 and 5, a high frequency of self-regulation.

This study was conducted after the participants signed a free and informed consent form and after the Institutional Review Board approved it (Opinion Report No. 5,723,488).

3.3 Data Analysis Techniques

Based on the mechanisms previously described, the analyses were performed using descriptive statistics, reliability analysis (Croanbach's Alpha), Kruskal-Wallis test, and Spearman's Correlation to investigate the self-regulated learning strategies of graduate students attending graduate Accounting programs. Descriptive statistics were applied to describe and understand the sample's behavior and characteristics (Maroco, 2010).

Additionally, Martins and Teóphilo (2016) describe that the reliability of an instrument consists of its coherence, which is verified through the constancy of its results. Hence, the reliability of a measure is linked to the confidence it inspires. In this context, Croanbach's Alpha stands out as an indicator widely used to measure reliability (Hair Jr *et al*., 2009). This coefficient ranges from 0 to 1; alpha values from 0.60 to 0.70 are considered the lower limit of acceptability. The Kruskal-Wallis test is used "to test whether two or more samples come from the same population or different populations, or whether the samples come from populations with the same distribution" (free translation) (Maroco, 2010, p. 227). Thus, we verified whether there was a difference between the respondents' characteristics and learning strategies. Since the Kruskal-Wallis test is non-parametric, the normality of data was first verified using the Kolmogorov-Smirnov test, justifying this methodological choice. The results showed a p-value equal to 0.00, confirming that the null hypothesis of data normality was rejected with a 5% significance level.

Furthermore, Spearman's correlation test, suitable for data not normally distributed, which is the case in this study, was used to test the correlations between the variables. This coefficient ranges between –1 and 1, and the correlation can be classified as strong, moderate, or weak (Cohen, 1988; Brites, 2007). The coefficients were analyzed as follows: 0 denotes no correlation; +/-]0 – 0.25] very weak correlation; +/-]0.25 – 0.40] weak correlation; +/-]0.40 – 0.60] moderate correlation; +/-]0.60 – 0.75] strong, moderate correlation; +/-]0.75 – 0.90] strong correlation; +/-]0.90 – 1[very strong correlation; +/- 1 perfect correlation. The sign informs the direction of the association between the variables, whether positive or negative (Brites, 2007).

4. Analysis and Discussion of Results

4.1 Participants' Profile

On average, the graduate Accounting students were 36 years old; most (58.7%) were women, and 41.3% were men. Of the 109 respondents, 56% were married, followed by 38.5% of single individuals, 3.7% divorced, 0.9% widowers, and another 0.9% in a stable union.

Regarding whether the participants had a paid job while attending the program, most (69.7%) had a paid job, and 30.3% did not. As for the participants' sociodemographic profile, most considered themselves to belong to class C (45.9%), followed by 32.1% of those reporting to belong to class D, 15.6% who belonged to class B, 4.6% to class E and, finally, 1.8% to class A.

Additionally, 73.4% of the graduate students in the Accounting program were attending a Master's program, while 26.6% were attending a doctorate program. Regarding the participants' regional profile, 55% were enrolled in programs located in the Southeast, 34.9% in the South, 6.4% in the Northeast, and 3.7% in the Midwest. Note that none of the participants were from the North because this region had no graduate degree programs in Accounting at the time of this study.

4.2 Analysis of the Answers Provided to OSLQ (Online Self-Regulated Learning Questionnaire)

Croanbach Alpha was used to verify the reliability of OSLQ (Online Self-Regulated Learning Questionnaire). IBM® SPSS® was used. An alpha of 0.863 was found, which is considered adequate, confirming that the instrument measures what it proposes to measure (Landis & Koch, 1977).

After the preliminary analysis regarding the instrument's reliability, we proceed to explore the answers to the questionnaire. Table 1 presents the OSLQ results according to each statement and the six dimensions (Zimmerman, 1998). The higher the score, the more frequently learning strategies are adopted. Scores between 1 and 2 indicate low self-regulation frequency, between 2.1 and 3.9 indicate moderate self-regulation frequency, and scores between 4 and 5 indicate high self-regulation frequency (Barnard-Brak *et al*., 2010).

The standard deviations of the items indicate the statements' homogeneity. Statement 5, which concerns one's commitment to the quality of work considering online learning, presented the largest deviation (1.45). Next, statement 21, concerning making a summary to support reflections on how learning progressed in a given discipline, obtained a standard deviation of 1.38. These findings indicate that, in general, learning strategies are heterogeneously adopted among the students. The perceptions that differ the most concerned divergences regarding the quality of the work due to it being performed remotely and the preparation of summaries in the learning process (Table 1), besides perceptions regarding habits of reading content aloud to minimize distractions and preparing questions in advance for the chats.

Table 1
Results of the Online Self-Regulated Learning Questionnaire – OSLQ

Dimension	Statements	Mean	Standard deviation	Median	Min	Max
Goal Setting	1 *Eu defino metas para a realização das minhas tarefas em cursos on-line*. [I set standards for my assignments in online courses]	4.04	0.91	4	1	5
	2 *Eu defino metas de curto prazo (diário ou semanal), bem como metas de longo prazo*. [I set short-term (daily or weekly] goals as well as long-term goals.	3.92	0.99	4	1	5
	4 *Eu defino metas que me ajudam com o tempo de estudo dedicado para os meus cursos a distância*. [I set goals to help me manage study time for my online courses.]	3.78	0.96	4	1	5
	5 *Eu não comprometo a qualidade do meu trabalho por ele ser a distância*. [I don't compromise the quality of my work because it is online]	3.77	1.45	4	1	5
	3 *Eu mantenho um alto padrão de aprendizagem no meu curso*. [I keep a high standard for my learning in my online courses.]	3.63	0.93	4	2	5
	Dimension's mean score	3.83				
Environment Structure	7 *Eu procuro um lugar confortável para estudar*. [I find a confortable place to study]	4.54	0.73	5	1	5
	8 *Eu sei onde posso estudar de forma mais eficiente quando me dedico ao estudo a distância*. [I know where I can study most efficiently for online courses]	4.46	0.78	5	2	5
	6 *Eu escolho o local onde eu estudo para evitar distrações*. [I choose the location where I study to avoid too much distraction]	4.39	0.83	5	2	5
	9 *Eu escolho um horário do dia para estudar que tenha poucas distrações*. [I choose a time with few distractions for studying for my online courses.]	3.89	1.14	4	1	5
	Dimension's mean score	**4.32**				

Dimension	Statements	Mean	Standard deviation	Median	Min	Max
Task Strategies	10 *Eu tento fazer esquemas e anotações relacionadas com os conteúdos*. [I try to make more thorough notes for my online courses because notes are even more important for learning online than in a regular classroom].	4.10	1.04	4	1	5
	13 *Costumo utilizar material extra do que foi disponibilizado na plataforma*. [I work extra problems in my online courses in addition to the assigned ones]	3.81	1.20	4	1	5
	12 *Eu preparo minhas perguntas antes de entrar nos chats e fóruns de discussões*. [I prepare my questions before joining in discussion forum.]	3.00	1.35	3	1	5
	11 *Eu costumo ler os materiais em voz alta para não sofrer distrações*. [I read aloud instructional materials posted online to fight against distractions]	2.45	1.36	2	1	5
	Dimension's mean score	**3.34**				
Time Management	14 *Eu reservo tempo extra para estudar para minhas disciplinas on-line*. [I allocate extra studying time for my online courses]	3.68	1.15	4	1	5
	15 *Agendo dias específicos da semana para estudar para meu curso* [I schedule the same time every day or every week to study for my online courses]	3.40	1.26	4	1	5
	16 *Tento distribuir meu tempo estudando uniformemente todos os dias*. [I try to distribute my studying time evenly across days]	3.23	1.32	3	1	5
	Dimension's mean score	**3.44**				
Help Seeking	17 *Procuro amigos para tirar dúvidas sobre os conteúdos quando preciso*. [I find someone to consult with when I need help]	3.83	1.28	4	1	5
	18 *Compartilho meus problemas com os colegas on-line de forma que saibamos o que nos traz dificuldades e como solucionar nossos problemas*. [I share my problems with my classmates online, so we know what we are struggling with and how to solve our problems]	3.53	1.29	4	1	5
	20 *Eu costumo pedir ajuda ao tutor ou professor através de e-mail ou mensagem via plataforma*. [I am persistent in getting help from the instructor through e-mail]	3.20	1.35	3	1	5
	19 *Quando necessário, eu tento encontrar meus colegas de curso presencialmente*. [If needed, I try to meet my classmates face-to-face]	1.78	1.14	1	1	5
	Dimension's mean score	**3.08**				
Self-Evaluation	22 *Faço reflexão e questionamentos sobre o material do curso disponibilizado*. [I ask myself a lot of questions about the course material when studying for an online course]	3.46	1.17	3	1	5
	23 *Me comunico com meus colegas para refletir como está meu andamento no curso*. [I communicate with my classmates to find out how I am doing in my online classes]	3.30	1.30	3	1	5
	24 *Costumo fazer comparativos entre o que estou aprendendo e o que meus colegas estão aprendendo*. [I communicate with my classmates to find out what I am learning that is different from what they are learning]	2.78	1.34	3	1	5
	21 *Eu costumo fazer um resumo do meu aprendizado para refletir sobre o que aprendi na disciplina*. [I summarize my learning in online courses to examine my understanding of what I have learned]	2.71	1.38	2	1	5
	Dimension's mean score	3.06				
OSLQ Total mean score		**3.53**				

Source: developed by the authors using the tests performed on SPSS.

In general, the self-regulated learning level in the ERT environment was considered moderate; a total mean score of 3.53 was obtained. This result corroborates Silva's findings (2021). More specifically, the Environment Structuring dimension obtained the highest mean score (4.32), which is similar to the results found by Silva (2021) and Vilela and Silva (2022), suggesting that the students needed to make more significant efforts to adapt to the transition from the in-person to the online environment (ERT) during the COVID-19 pandemic. In this sense, students were more concerned with the environment where they would study to minimize distractions and make it more comfortable.

The Goal Setting dimension obtained the second-highest mean score (3.83). The students emphasized that they set goals for completing online tasks in the short and long term. These results corroborate the findings of Jurisevic *et al.* (2021), in which students reported the frequent use of these two self-regulated learning strategies. On the other hand, these findings partially diverge from the study by Vilela and Silva (2022), which noted that Accounting Sciences students less frequently adopted goal-setting and planning, organizing, and transformation strategies.

Next, the scores obtained in the Time Management, Task Strategies, Help-Seeking, and Self-Evaluation dimensions are organized in descending order, from the most to the least frequently adopted, with the respective means: 3.44, 3.34, 3.08, and 3.06.

4.3 Sample Distribution

Considering Spearman's Correlations and the Kruskal-Wallis (K-W) test, the results were analyzed together to verify potential differences between the respondents and the learning strategies adopted. First, the K-W test was performed on SPSS to compare gender, whether the individual had a paid job concomitant to the course, social class, type of graduate degree program, age, and region, with the total score obtained on the OSLQ and each statement.

Tables 2 to 7 describe in detail the correlation coefficients and mean classifications resulting from the K-W tests and their respective p-values according to dimension, considering the Total Score of each variable, the groups, and the respective statements. Additionally, the tables present the mean position of each group relative to all observations, according to the Kruskal-Wallis test and the items comprising the OSLQ, corresponding to the statements ranging from S1 to S24.

Table 2 shows the self-regulated learning strategies comprising the Goal-Setting dimension, with the highest associations being S2, S3, and S4. The statement concerning the definition of short, and long-term goals (S2) is positively correlated with the one about maintaining a high learning standard throughout the course (S3) and setting goals to spend extra time on distance learning (S4).

Next, no significant statistical differences were found between most groups and the individuals' total scores, except for whether the students had a paid job concomitantly with the online program. On this aspect, Biwer *et al.* (2021) clarify that college students who transitioned to the ERT during the pandemic generally found it challenging to manage their time and regulate their attention and efforts and, therefore, experienced worse academic performance.

Only the profile concerning whether the students had a paid job concurrently with the program presented a significant association with the Total Score obtained in the OSLQ in the Kruskal-Wallis test at 10% significance. Silva (2021) found a similar association with the participants' social class.

Table 2
Correlation and Kruskal-Wallis Tests: OSQL's Total Score and the Goal Setting Dimension

	Total Score OSQL	P1	P2	P3	P4	P5
P1		1,00				
P2		0,62*	1,00			
P3		0,36*	0,339**	1,00		
P4		0,60*	0,652**	0,507*	1,00	
P5		0,17	0,218*	0,343*	0,229**	1,00
Comparison between Groups						
Male	50,46	50,29	51,83	55,57	50,56	56,33
Female	58,20	58,31	57,23	54,60	58,13	54,06
p-value	0,21	0,16	0,36	0,87	0,19	0,69
Has a paid job	58,41	58,56	55,39	47,89	48,59	40,36
Does not have a paid job	47,14	53,45	54,83	58,09	57,78	61,36
p-value	0,09***	0,41	0,93	0,10***	0,14	0,00*
Class E	64,80	65,80	76,30	71,80	67,90	71,20
Class D	50,90	51,04	52,30	52,59	45,11	54,06
Class C	55,60	57,89	54,69	51,55	58,48	51,06
Class B	60,85	56,06	58,15	63,59	63,82	60,35
Class A	37,50	16,00	30,00	68,50	33,75	84,00
p-value	0,68	0,26	0,36	0,38	0,10***	0,30
South	59,53	53,91	56,84	58,66	55,47	55,36
Southeast	52,93	56,13	53,36	54,25	53,03	55,34
Northeast	57,57	54,64	59,93	48,00	65,93	53,00
Midwest	38,63	49,00	53,50	43,75	61,00	50,00
p-value	0,54	0,96	0,91	0,67	0,71	0,98
Married	53,96	56,75	55,03	53,75	55,57	58,58
Single	53,90	52,89	55,05	56,68	53,36	48,33
Divorced	59,13	61,75	53,00	51,38	51,63	55,88
Widowed	97,00	49,00	91,50	31,00	61,00	84,00
Others	106,00	16,00	22,50	99,00	96,50	84,00
p-value	0,34	0,66	0,62	0,55	0,71	0,30
Entre 22 e 30 anos:	45,43	55,74	51,93	55,57	54,25	45,96
Entre 31 e 40 anos	57,40	52,55	55,02	54,02	52,37	59,82
Entre 41 e 50 anos	62,81	66,29	58,07	59,83	62,43	55,90
Acima de 51 anos	61,37	36,31	59,88	45,50	53,81	63,38
p-value	0,17	0,09***	0,71	0,85	0,64	0,17
Mestrado	56,50	57,00	60,16	48,72	53,10	52,17
Doutorado	52,10	54,28	53,13	57,28	55,69	56,03
p-value	0,56	0,67	0,28	0,19	0,69	0,55

Source: developed by the authors based on the tests performed with SPSS.
Note: (***) significant at 10%; (**) at 5%, and (*) at 1%.

Such a significant difference suggests that the self-regulated learning strategies adopted by graduate students with a paid job in the context of emergency remote teaching from those without a paid job.

Those performing a paid job while pursuing graduate studies may face additional challenges in managing their time and resources. The need to balance a paid job with academic responsibilities may influence their self-regulated learning. Perhaps these students have a greater sense of responsibility and discipline to manage their time effectively, which may lead them to obtain higher scores in self-regulation strategies.

On the other hand, this significant difference may indicate that students without a paid job have more time and resources to dedicate to their studies, positively influencing self-regulated learning. Therefore, the analysis of these results suggests that the balance between having a paid job and studying plays an important role in the students' self-regulated learning. These findings encourage reflections considering Castro's (2016) argument that educators must contribute by providing tools that help students develop self-regulation skills to adapt to the virtual learning environment and create strategies to improve their performance.

The students' ages were significantly associated with self-regulation behaviors, indicating that a student's age may influence one's behavior and individual approach to online learning. The fact that age was significantly associated with S1 suggests that different age groups adopt different strategies to determine learning goals. The association between having/not having a paid job while attending the online course and S3 and S5 presented significant differences, corroborating the correlation analysis previously discussed. These findings are relevant for educational institutions, as they highlight the importance of recognizing and building strategies that consider differences in the profile of students attending graduate studies. Furthermore, these findings provide insights into developing strategies that help students balance their responsibilities and achieve academic success.

Additionally, the results showed that students from different social classes differ in setting goal behaviors, i.e., spending time studying for online courses (S4).

Table 3 shows that the self-regulated learning strategies composing the Environment Structuring dimension, S6, and S7, showed the highest associations. Therefore, searching for a comfortable place to study (S6) was significantly and positively associated with choosing a place that prevents distractions (S7). The latter is also positively associated with knowledge about where to study more efficiently when attending an online course (S8).

Table 3

Correlation and Kruskal-Wallis Tests: Environment Structuring Dimension

	P6	P7	P8	P9
P6	1,00			
P7	0,691*	1,00		
P8	0,535*	0,644*	1,00	
P9	0,269*	0,305**	0,348*	1,00
Comparison between Groups				
Male	52,72	50,94	50,78	49,99
Female	56,60	57,85	57,97	58,52
p-value	0,48	0,18	0,18	0,14
Has a paid job	49,74	50,73	50,77	52,71
Does not have a paid job	57,28	56,86	56,84	55,99
p-value	0,20	0,27	0,29	0,60
Class E	55,30	74,50	66,60	66,60
Class D	53,39	50,36	49,73	50,30
Class C	54,80	53,74	52,92	58,13
Class B	58,85	63,21	68,85	57,68
Class A	54,75	49,25	52,50	7,25
p-value	0,98	0,24	0,14	0,12
South	52,28	49,84	57,29	52,59
Southeast	55,58	57,22	53,62	54,97
Northeast	71,71	74,50	62,57	69,29
Midwest	42,88	36,63	40,75	53,38
p-value	0,31	0,06***	0,56	0,60
Married	55,52	54,17	54,43	53,56
Single	53,14	55,82	53,94	54,92
Divorced	54,75	49,25	64,25	70,25
Widowed	78,50	74,50	76,00	50,00
Others	78,50	74,50	76,00	90,50
p-value	0,81	0,85	0,79	0,62
Between 22 and 30 yo	49,24	51,97	45,60	51,72
Between 31 and 40 yo	55,23	57,42	55,86	56,08
Between 41 and 50 yo	61,67	56,79	67,05	55,36
Above 51 yo	60,69	49,25	58,38	61,81
p-value	0,40	0,73	0,04**	0,83
Master's degree	52,19	51,57	52,60	54,93
Doctoral degree	56,02	56,24	55,87	55,03
p-value	0,53	0,42	0,58	0,99

Source: developed by the authors based on the tests performed with SPSS.

Note: (***) significant at 10%; (**) at 5%, and (*) at 1%.

Furthermore, the analysis revealed significant differences between Brazilian regions regarding the choice of a study environment that prevents distractions (S7). Differences according to the age group were also found in the students' understanding of the most effective study environment in an online context (S8). Some studies partially corroborate these findings. Aguiar and Silva (2017) performed a comparative analysis of the profile of Accounting Sciences students between the face-to-face and online formats regarding self-regulated learning strategies, concluding that the teaching modality, semester, age, and gender may be associated with using self-regulated learning strategies.

The statements concerning task strategies showed significant but weaker correlations (Table 4). The group comparison showed that the students' gender was significantly associated with statements S10 and S11. These results indicate that, although there are no significant differences in terms of total adoption of self-regulated learning tools, a student's gender is associated with specific differences concerning studying and learning behaviors, such as making diagrams and notes of the classes' content (S10) and the habit of reading aloud to minimize distractions (S11). Souza *et al.* (2018) also found that female undergraduate Accounting students tend to develop more learning strategies than male students.

Table 4

Correlation and Kruskal-Wallis Tests: Task Strategies Dimension

	P10	P11	P12	P13
P10	1,00			
P11	0,14	1,00		
P12	0,326*	0,289*	1,00	
P13	0,221**	0,12	0,378*	1,00
Comparison between Groups				
Male	49,13	49,17	56,90	51,99
Female	59,13	59,10	53,66	57,12
p-value	0,08***	0,10***	0,59	0,38
Has a paid job	51,61	53,59	53,53	53,74
Does not have a paid job	56,47	55,61	55,64	55,55
p-value	0,43	0,75	0,74	0,78
Class E	55,60	52,80	37,10	59,80
Class D	55,67	54,27	52,54	57,26
Class C	52,51	53,36	55,78	53,76
Class B	62,12	58,91	63,03	52,15
Class A	43,50	81,00	55,00	58,75
p-value	0,80	0,75	0,54	0,96
South	60,14	55,70	59,59	56,45
Southeast	51,98	54,47	52,92	54,76
Northeast	60,64	54,21	48,64	54,43
Midwest	41,63	57,75	53,75	45,88
p-value	0,41	0,99	0,70	0,93
Married	52,63	53,35	59,34	52,75
Single	56,80	56,74	48,23	56,02
Divorced	67,88	66,63	48,75	61,25
Widowed	84,00	19,50	55,50	89,50
Others	43,50	71,50	99,50	89,50
p-value	0,66	0,64	0,24	0,53
Between 22 and 30 yo	56,91	57,97	49,60	54,84
Between 31 and 40 yo	53,36	50,37	53,55	54,25
Between 41 and 50 yo	55,60	58,00	62,69	53,45
Above 51 yo	54,75	61,13	66,06	64,06
p-value	0,96	0,59	0,33	0,85
Master's degree	49,88	52,28	52,03	50,91
Doctoral degree	56,86	55,99	56,08	56,48
p-value	0,28	0,58	0,55	0,40

Source: developed by the authors based on the tests performed with SPSS.
Note: (***) significant at 10%, (**) at 5%, and (*) at 1%.

As shown in Table 5, the K-W test results showed no statistical differences between the groups in the Time Management dimension. The correlations in this dimension were significant but weaker.

Table 5

Correlation and Kruskal-Wallis Tests: Time Management Dimension

	P14	P15	P16
P14	1,00		
P15	0,364*	1,00	
P16	0,370*	0,337*	1,00
Comparison between Groups			
Male	54,56	53,51	51,24
Female	55,31	56,05	57,64
p-value	0,90	0,67	0,29
Has a paid job	56,35	49,50	57,38
Does not have a paid job	54,41	57,39	53,97
p-value	0,76	0,22	0,60
Class E	61,90	68,70	53,00
Class D	52,89	53,36	52,56
Class C	55,17	53,38	57,54
Class B	60,82	61,15	58,79
Class A	21,00	37,75	7,00
p-value	0,47	0,64	0,23
South	60,71	57,38	60,49
Southeast	51,34	52,99	50,21
Northeast	59,07	62,50	62,93
Midwest	48,50	49,38	60,88
p-value	0,47	0,79	0,35
Married	51,57	56,88	56,66
Single	57,87	50,30	50,55
Divorced	57,13	69,00	55,00
Widowed	95,00	40,00	98,00
Others	95,00	97,00	98,00
p-value	0,33	0,39	0,30
Between 22 and 30 yo	55,65	55,26	48,31
Between 31 and 40 yo	52,26	49,07	54,88
Between 41 and 50 yo	54,24	63,36	61,60
Above 51 yo	70,00	66,06	66,81
p-value	0,50	0,23	0,29
Master's degree	56,69	53,38	55,50
Doctoral degree	54,39	55,59	54,82
p-value	0,73	0,74	0,92

Source: developed by the authors based on the tests performed with SPSS.
Note: (***) significant at 10%; (**) at 5%, and (*) at 1%.

Additionally, S17, which concerns students seeking friends to ask questions about the course content, is positively associated with the statement that concerns sharing problems with colleagues online (S18). The significance between these items and age suggests that students of different ages have different levels of willingness to share problems and communicate with peers to improve their learning, as highlighted in Table 6. Boor and Cornelisse (2021) discuss these results, indicating that the COVID-19 pandemic affected self-regulation in several aspects, including decreased interactions between students and teachers.

Furthermore, gender was statistically relevant for the answers rating S20, indicating that a student's gender is associated with specific differences in studying and learning behaviors, such as asking for help from the instructor or teacher via email or message on the platform.

Table 6
Correlation and Kruskal-Wallis Tests: Help-Seeking

	P17	P18	P19	P20
P17	1,00			
P18	0,639*	1,00		
P19	0,14	0,17	1,00	
P20	0,303*	0,310*	0,247*	1,00
Comparison between Groups				
Male	53,16	51,00	51,61	48,89
Female	56,30	57,81	57,38	59,30
p-value	0,59	0,25	0,29	0,08***
Has a paid job	49,98	49,64	49,26	48,82
Does not have a paid job	57,18	57,33	57,49	57,68
p-value	0,25	0,23	0,16	0,17
Class E	56,40	54,20	46,70	73,00
Class D	46,91	51,40	52,54	52,57
Class C	60,50	58,28	58,54	52,84
Class B	53,47	54,71	52,21	61,71
Class A	68,50	40,50	54,00	49,50
p-value	0,32	0,83	0,79	0,55
South	52,03	55,42	58,11	58,03
Southeast	58,87	56,35	54,26	52,62
Northeast	43,57	52,79	57,07	54,43
Midwest	45,25	34,63	33,00	63,00
p-value	0,42	0,59	0,39	0,80
Married	53,20	52,89	55,81	55,59
Single	55,60	55,87	51,44	53,05
Divorced	60,00	59,13	62,00	45,00
Widowed	87,50	93,00	91,00	98,00
Others	87,50	93,00	91,00	98,00
p-value	0,61	0,48	0,37	0,35
Between 22 and 30 yo	44,12	43,13	52,85	48,15
Between 31 and 40 yo	63,48	61,49	57,18	57,46
Between 41 and 50 yo	55,50	59,90	53,31	57,14
Above 51 yo	51,19	55,25	56,00	64,38
p-value	0,04**	0,05**	0,90	0,42
Master's degree	56,02	51,41	57,16	47,00
Doctoral degree	54,63	56,30	54,22	57,90
p-value	0,83	0,46	0,63	0,10

Source: developed by the authors based on the tests performed with SPSS.
Note: (***) significant at 10%; (**) at 5%, and (*) at 1%.

The correlations between the variables related to self-evaluation did not exceed 0.48 (Table 7). The group comparison showed that gender was associated with reflecting and questioning the course material (P22). This statement was also significantly associated with the region where the graduate program is located.

The significance of the association between statement P23 and age suggests that students of different ages have different levels of willingness to communicate with their peers to reflect on their progress throughout the course. Similar to statement P22, P23 was also significantly associated with the region where the program is located.

Table 7

Correlation and Kruskal-Wallis Tests: Self-Evaluation

	P21	**P22**	**P23**	**P24**
P21	1,00			
P22	0,480*	1,00		
P23	0,348*	0,469*	1,00	
P24	0,17	0,262*	0,317*	1,00
Comparison between Groups				
Male	57,61	60,96	55,98	58,13
Female	53,16	50,81	54,31	52,80
p-value	0,46	0,09***	0,78	0,37
Has a paid job	49,15	49,55	47,91	55,48
Does not have a paid job	57,54	57,37	58,08	54,79
p-value	0,19	0,22	0,11	0,91
Class E	52,00	68,40	58,70	67,90
Class D	49,54	54,66	51,30	54,77
Class C	59,02	53,80	56,80	56,47
Class B	60,18	53,53	54,35	45,18
Class A	13,50	70,00	71,00	73,50
p-value	0,19	0,82	0,86	0,49
South	60,37	64,29	53,21	61,43
Southeast	52,88	52,37	60,49	51,01
Northeast	55,71	48,14	22,36	54,14
Midwest	34,50	18,25	46,75	55,25
p-value	0,36	0,02**	0,02**	0,45
Married	58,08	51,28	52,52	49,40
Single	49,06	59,12	57,37	60,25
Divorced	51,25	47,50	46,88	71,63
Widowed	84,50	97,00	97,00	62,00
Others	102,00	97,00	97,00	102,50
p-value	0,24	0,23	0,33	0,15

	P21	P22	P23	P24
Between 22 and 30 yo	44,01	51,03	47,31	47,71
Between 31 and 40 yo	56,03	57,07	63,90	61,79
Between 41 and 50 yo	63,83	50,29	56,17	53,76
Above 51 yo	72,56	72,38	33,44	50,19
p-value	0,03**	0,28	0,02**	0,23
Master's degree	52,26	51,07	62,84	47,60
Doctoral degree	55,99	56,43	52,16	57,68
p-value	0,58	0,42	0,11	0,13

Source: developed by the authors based on the tests performed with SPSS.
Note: (***) significant at 10%; (**) at 5%, and (*) at 1%.

Finally, the students' marital status and the type of graduate degree program were not associated with any of the dimensions concerning self-regulated learning strategies. Nonetheless, in general, different behaviors were found among the graduate students answering the OSLQ, showing that the students might have adapted and reformulated the self-regulated learning strategies adopted in the context of ERT.

5. Final Considerations

This study aimed to analyze the behavior of students attending graduate degree Accounting programs regarding self-regulated learning strategies adopted in Emergency Remote Teaching. This study's primary finding is that, in general, the students addressed here moderately adopt self-regulated learning strategies in the ERT environment; the total mean score was 3.52. Adopting learning strategies was decisive in such a peculiar context, in which students had to migrate from traditionally face-to-face to online classes due to the health emergency imposed by the new coronavirus (COVID-19). Hence, the students took the initiative to organize themselves to perform well in a context requiring varying degrees of adaptability and discipline.

Specifically, the Environment-Structuring dimension obtained the highest mean score (4.32), indicating the level of adoption of self-regulated learning strategies. Thus, the students had to adapt and make efforts to migrate from face-to-face to online classes during the ERT. Hence, students were concerned with setting an adequate place to study, eliminating distractions, and making it more comfortable.

Goal Setting obtained the second-highest mean score (3.83). Next, Time Management, Task Strategies, Help-Seeking, and Self-Evaluation are listed in descending order, ranging from the most frequently adopted to the least commonly adopted self-regulated learning strategies. Thus, this study shows that the students adopted all the dimensions of self-regulated learning at varied levels, which together were helpful in the teaching-learning process in ERT. It is also worth noting that, as shown here, the online modality is expected to be increasingly implemented and gain more space within the scope of educational institutions.

The Kruskal-Wallis test showed no statistically significant differences between the total score obtained in the online self-regulated learning scale and gender, social class, type of graduate degree program, age, or region. However, having a (paid or unpaid) job while attending the online program was significantly associated with the total score obtained in the self-regulated learning strategies. Additionally, the test showed significant differences in some of the groups regarding specific practices, according to individual statements, relatively to the behavior of the group components.

This study's results corroborate previous findings such as those obtained by Souza *et al*. (2018), Aguiar and Silva (2017), Jurisevic *et al*. (2021), and Silva (2021), presenting significant implications from both a theoretical and practical point of views. Theoretically, this study contributes to a deeper understanding of self-regulated learning in a crisis context, such as the COVID-19 pandemic, expanding existing knowledge on the topic. Moreover, this study sheds light on how demographic factors such as age, gender, and extracurricular activities influence students' self-regulation in remote learning environments.

From a practical point of view, these results provide information for higher education institutions and graduate programs to adapt their teaching and support strategies based on students' specific needs, including the implementation of personalized guidance programs, self-regulated learning support, and communication tools to facilitate interaction among students. Furthermore, these findings are expected to guide more effective educational policies for times of crisis, such as a pandemic, and provide insights into how to promote autonomous learning in challenging situations.

This study's limitations include that the results cannot be generalized. Additionally, cross-sectional data were collected; hence, no conclusions can be drawn regarding changes over time. Longitudinal variations, such as trends or cause and effect, cannot be identified. Additionally, the questionnaires were applied in an ERT context, which might influence the results due to the specific characteristics of students, teachers, and the context, considering that in a regular situation, the students can choose the teaching modality, i.e., it is not imposed, institutions can develop more elaborate teaching strategies, and teachers have the opportunity to prepare for distance or remote teaching adequately.

Future investigations are suggested to identify whether such behaviors remain in different samples, such as undergraduate students. The purpose would be to compare results between different levels of education. Additionally, more in-depth qualitative analyses can encourage discussions on motivation, contexts, difficulties, and other relevant factors that can interfere with one's self-regulation in online learning.

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