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Demographic and academic analysis of self-regulated learning in Accounting students from HEI in Salvador

Abstract

Objective: Analyze whether demographic and academic factors influence self-regulated learning.
Method: The research sample included 713 Accounting students from three Higher Education Institutions (HEI). The study data were collected through a questionnaire and, for the statistical analysis, descriptive statistical methods, inferential analyses through the application of Factor Analysis and Multiple Regression were used.
Results: The results found were significant for gender, years of education, education level of father, age and training in Accounting course. Thus, young female students who spent more hours on studying, in the initial phase of the course and whose father had a low education level tend towards higher levels of self-regulated learning behavior.
Contributions: Social and demographic factors can influence self-regulated learning. Thus, it is promoted to the extent that it receives influence from external social factors.
Key words: Self-regulated learning. Academic factors. Demographic factors. Learning.

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1. Introduction

With the advent of Information and Communication Technologies (ICTs) and the significant increase in the amount of information that is easily accessible, it is imperative to rethink a learning model that fits the new needs of the current social context, especially the need to learn or learn to learn. Attributes such as "greater student independence" are fundamental to have access to a wide range of information sources, understanding that, in higher education for example, each curricular component has a limited number of hours and the teachers lack time to exhaust all content.

In this context, in the area of Sociocognitive Psychology, characteristics of self-regulation have been discussed, in which the learner becomes a construct of his learning and is able to initiate, monitor and control his own way of learning. Zimmerman and Martinez-Pons (1986) observed that students who were considered independent or self-regulated had different attributes from those who presented inferior performance because they were more active in the process of learning and regulated behavioral and motivational variables as well as metacognitive variables.

According to Zimmerman & Martinez-Pons (1986), the individual gradually develops self-regulation until the need for social assistance occurs. This involves the levels of observation, emulation, self-control and self-regulation. This preface reveals that Social Cognitive Theory does not understand self-regulation in an isolated way, considering the developmental (parents' help, for example) and environmental (related to factors external to the individual: help from the teacher, group, etc.) characteristics associated with the determination of a personal judgment of the use of cognitive, metacognitive and self-reinforcement strategies (Zimmerman, 2000; 2002).

For Veiga Simão and Frison (2013), from the perspective of the Sociocognitive theory, which integrates self-regulated learning, internal and external factors influence the learning process, as it considers that the surrounding physical and social environment influence motivation, cognition and behavior. Thus, self-regulation is an interaction of behavioral, personal, and environmental processes (Bandura, 1986). Therefore, self-regulated learning can be influenced by multiple variables, whether endogenous (motivations, goals, etc.) or exogenous (peer help, teachers, parents, etc.) to the individual. The relationships of factors exogenous to the individual are associated with the cyclical phase of self-regulation and self-efficacy (belief in the ability to handle and accomplish a task) (Zimmerman & Schunk, 1989).

With this understanding, the Brazilian literature has studied the influence of a few demographic (gender, age) and academic (current semester) factors on Self-Regulated Learning (SRL) in accounting students (Silva et al., 2017; Aguiar & Silva, 2017; Lima Filho, Lima & Bruni, 2015). In order to understand other factors that may be related to self-regulated learning, this study seeks to explain the process of self-regulation based on Bandura's Sociocognitive Model (1986), and Zimmerman and Martinez-Pons' (1986) Self-Regulated Learning theory, through the following problem: **What demographic and academic factors influence the self-regulated learning of Accounting students in HEI in Salvador (BA)?**

The general objective of this study is to verify the demographic and academic factors that influence the self-regulated learning of Accounting students in HEI in Salvador. In order to achieve the general objective, the following specific objectives were defined: a) to identify the self-regulated strategies undergraduate Accounting students use at Higher Education Institutions in Salvador (BA); b) to examine the dimensions of self-regulated strategies used by undergraduate Accounting students; c) analyze whether demographic and academic factors can influence the self-regulated learning of Accounting students in HEIs in Salvador.

This study sought to fill knowledge gaps in the relation of factors that may be relevant to explain a higher degree of self-regulated learning when analyzing other academic factors (type of public or private HEI) and demographic factors (father and mother education; of work or stage, and time of study) not analyzed by the Brazilian literature. A better theoretical understanding of such factors can be enhanced to the point of making them more self-regulating in the learning process, as it allows behaviors to be modified in order to promote better academic performance, considering that the self-regulated student is success-oriented; and practical and social when they are professional, because they will be better qualified and prepared to adapt, take a position and give feedback on specific information for the proper functioning of the sector and the economy (Aecc, 1990; Aicpa, 2000).

To reach the objectives, a questionnaire was applied to a sample of 713 undergraduate Accounting students from three Higher Education Institutions, located in the city of Salvador, Bahia. The data obtained underwent three different types of treatments: descriptive statistics, to reach the first specific objective; factor analysis, corresponding to the second specific objective; and multiple regression, to achieve specific goal three.The results showed that Accounting students use self-regulated learning strategies with a frequency of over 68%; the grouping of the fourteen self-regulation strategies into two groups by the students analyzed; and the finding of a significant influence on self-regulated learning for the variables "gender", "study time", "age" and "father's education", in which the latter factor was negatively related with the degree of self-regulated learning, a finding that was not pointed out by the previous finding about the self-regulation of the learning.

2. Theoretical Framework

2.1 Self-regulated learning theory

Studies on the academic environment by Fischer, Davel and Vergara (2006) have pointed out that the practices experienced and the concrete and imagined experiences, as well as the cognition and the emotion, are factors that contribute to the learning process. Shuell (1986) agrees that what the learner does in determining learning is more important than what the teacher can provide. Therefore, these authors considered that the process of teaching and learning is influenced by a wide range of characteristics, that is, it is not restricted to the environments of educational institutions or to the relations between teachers and students.

In this context, the idea of studying students' independence strategies emerged around 1980, when investigators analyzed how the students organized the learning, and later culminated in the systematization of the Self-Regulated Learning (SRL) theory. According to this theory, a self-regulated student is able to initiate, monitor and control his/her learning (Boekaerts & Cascallar, 2006; Efklides, 2011; Zimmerman, 2000). In this way, the students are active in the learning process, control their behaviors, motivations and metacognition in order to guarantee learning until success is achieved.

In the perspective of the sociocognitive conception, Self-Regulated Learning (SRL) is understood as a voluntary and conscious process that permits managing the behavior, feeling and thinking in order to reach the individual's personal goals, guided by a pattern of behavior in which the subject becomes self-observing, self-judging and self-reacting (Bandura, 1991; Polydoro & Azzi, 2008 and Zimmerman, 2000b). That is, the process of self-regulation of learning is characterized as ranging from the mobilization of mental operations to the planning, verification of the conduction and evaluation surrounding an objective established by an individual.

The student's self-regulation skills, initially developed by social influences, are later controlled by the individual and indicate four levels of this process (Schunk & Zimmerman, 1997). At the first level, the learner has knowledge about learning skills, which is learned through verbal description or repeated observation. The student learns the most significant characteristics of the strategies with the aid of social modeling. As an example, teachers who present an accounting entry and verbally include how to implement a strategy, skill or process.

At level two, emulative, the student repeats the styles of the model, which is considered as standard, to a greater extent than merely copying his actions. In this guided phase, the teacher chooses an activity or strategy and considers that the students already know the strategies and have to put them into practice; and finally receives feedback from the process execution to develop his/her skills.

At level three, self-controlled, the student performs another activity that is identical to the previous ones that served as a framework for the development of the learning strategy, called "transfer". The internal representation that the student already has permits the internalization of the strategy, although the strong dependence on the standard model used in the previous stages is taken into account. After completion, the student defines his/her self-reinforcement as a result of successful performance and assesses him-/herself. At the moment of self-evaluation, the presence of the teacher is essential (Rosário, 2004).

The fourth and last stage is self-regulation. Students at this level are able to maintain motivation around their goals to be achieved, as well as their belief in their own ability to learn or perform better (self-efficacy) (Bandura, 1986; Schunk & Zimmerman, 1997). This stage also considers that students already have the autonomy to decide when to use strategies, with or without modeling, as they are already able to regulate their thoughts, behaviors and motivations, that is, to be self-regulated.

With this understanding, the aspects that permeate the discussion of self-regulation in learning involve the interference of characteristics that are not exclusively unique to the individuals, but which can influence their behavior in the sense of enhancing or not the self-regulation in learning.

Studies of Corrêa-Vieira, Bragagnolo-Frison, and Veiga-Simão (2015) verified whether the students of an 8th grade class in a Brazilian public school improved reading comprehension and reading self-regulation skills when participating in a metacognitive modeling intervention. The results also indicated that 70.37% of the students presented progress in the reading comprehension and that the self-regulation strategies of reading comprehension helped both in the evaluation of the reading process and in the actual understanding, that is, in the understanding that the student had when reading a text.

Studies by Herndon and Bembenutty (2017) in the United States have verified how social and academic factors may be related to academic performance and found that study hours, self-regulation, intrinsic motivation, self-efficacy beliefs, academic delay of gratification and education level were related to academic performance. These findings suggest that there are individual differences in the ways in which students respond to these alternative academic settings.The work of Rosário, Morão and Chaleta (2005) analyzed the relations between the behavioral profile of the student and the homework. He found that the parents' education level is positive and significantly associated with the homework attitude and behavior profiles. According to the study, the homework attitude and behavior profiles are positive and significantly associated with the self-regulatory profiles. Students who perceive themselves as more self-efficacious have better homework attitude and behavior profiles.

2.2 Bandura's sociocognitive model

The sociocognitive model of individual behavior Bandura proposed was a reaction against the psychoanalytic and behaviorist models. In this sense, this model emphasized the interactions of behavioral, personal and environmental factors that influence behavior and motivation through the Triadic Reciprocal Causation model in the interaction between behavior, person and environment (Bandura, 1986).

Based on Sociocognitive theory, human development occurs through adaptations and changes in the individual, who becomes proactive, self-reflexive, self-organized and self-regulated (Bandura, 2008). In this perspective, Bandura (2001, 2006, 2008) pointed out four characteristics of individual behavior: the intention in the accomplishment of a future action, the elaboration of plans and strategies; the anticipation of future actions by setting goals and anticipating possible outcomes (behavioral guidance); self-reaction by self-regulating behaviors through personal goals and standards that reflect the completion or not of a task (relation to perceived self-efficacy); and self-reflection, in which there is a judgment about oneself (thoughts and actions).

For Bandura (1986, 2001, 2006, 2008), personal development suffers social and structural influences while influencing its social context. In the development of the social model, Bandura (1986) indicates that the phases relate the influences on the behavior of the observer; by providing rapid responses to social issues; by providing learning by observation to acquire cognitive skills and new behavioral habits.

In this context, Bandura's Triadic model relates to the self-regulated learning construct due to the personal interactions (cognitive, affective and biological events), environmental (range of everyday social influences), contextual and behavioral patterns (activity patterns) in which new learning is acquired. It is conceived that, in this model, there are reciprocal influences between the various factors, but without patterns of interaction, as each factor can be variable to the context it is inserted in.

According to Castro (2007), based on the Sociocognitive theory, self-regulation of learning goes beyond the understanding of personal factors, considering the physical and social environment of the learner, considering that it is in the social environment that instruction and modeling occur, which serve as a guide to transmit self-regulation skills, such as persistence, self-praise, and self-reaction, through parents, teachers, peers, and the community (Zimmerman, 2000a).

2.3 Zimmerman's Theory of Self-Regulated Learning

The theory of Self-regulation elaborated by Zimmerman is influenced by Bandura's Sociocognitive theory. For Zimmerman (2002), the self-regulation of learning is a self-directed process in which learners use mental skills for academic competences. According to Zimmerman (2000; 2002), self-regulation occurs in a gradual and continuous way, in which the dependence on social support is gradually reduced. For this purpose, the individual mobilizes observation, emulation, self-control and self-regulation.

Zimmerman's model of self-regulated learning occurs cyclically in three stages: the first stage is the cyclical one, considered the preliminary stage of performance (planning); the second stage is performance or volitional control (achievement); and, finally, the stage of self-reflection (evaluation); in which each of these stages mobilizes distinct thoughts in the student and works in a dynamic, cyclical and open way (Rosário, 2002; Schunk & Zimmerman, 2003; Silva, 2004; Zimmerman, 1998, 2002; Zimmerman & Schunk, 2004; Schunk, Pintrich & Meece, 2008).

In this context, Zimmerman and Martinez-Ponz (1986) identified fourteen possible strategies most used by self-regulated students. According to the authors, the use of these strategies gives the student a valuable learning tool and its use is directly related to academic success indices. The strategies present in self-regulated students, with their respective definitions and examples, are presented in Chart 1.

	Strategies	Definition	Examples: (Rosário, 1999)
1	Self-assessment	Declarations indicate the students' assessment about the quality or progress of their work.	"...I checked my work to make sure that it was good".
2	Organization and transformation	Declarations indicating the students' initiatives to get reorganized, improving the learning materials.	"...I always make a schedule before writing the reports of the chemistry experiments".
3	Goal setting and planning	Declarations indicating educational goal setting: planning, time phase and conclusion of activities related to these goals.	"... I start studying two weeks before the test and I am calm".
4	Information seeking	Declarations indicating the students' efforts to gain extra information from non-social sources when they face a school task.	"...before I start an activity, I go to the school library to collect as much information on the theme as possible".
5	Note taking	Declarations indicating efforts to register events or results	"...during the classes, I make as much notes as possible on what the teachers offers".
6	Environmental structure	Declarations indicating efforts to select or alert the physical or psychological environment in order to promote learning.	"...I isolate myself in the bedroom to avoid getting distracted" or "...to concentrate on what I am doing, I turn off the sound".
7	Self-consequence	Declarations indicating the imagination or achievement of rewards or punishments for success or failure in school.	"...if I do well on the test, I buy some chocolates".
8	Repetition and memorization	Declarations indicating the students' initiatives and efforts to memorize the material.	"...in the preparation for a physics test, I write the formula many times until I know it by heart".
9-11	Search for social help	Declarations indicating the students' initiatives and efforts to seek help from peers (9); teachers (10); and adults (11)	"... if I face difficulties to study I ask my father for help, he's a physician".
12-14	Data review	Declarations indicating the students' efforts-initiatives to reread the notes (12); test (13); and textbooks (14) to prepare for a class or written exercises.	"...before the tests, I always review the summaries of the subject I made" or "To prepare for a test, I solve the formulations of what I have already done".

Source: Zimmerman and Martinez-Pons (1986, p. 5-16); Rosário (2001, p.52), adapted.

Chart 1. Self-regulated learning strategies

In the study by Silva and Simão (2016), the possibility of interview effectiveness was analyzed as a task that can help and enhance the identification of self-regulating processes in learning, such as enhancing them in the students. The authors concluded that evolution occurred in the learning profiles, as the students began to adapt the objectives of the strategies, to internalize action norms and to review. This study reveals the importance of the "data review" strategy E10. According to Zimmerman and Martinez-Pons (1986), it is through this strategy that students' efforts and initiatives to re-read the notes, tests, textbooks, notes to prepare for some class or written exercises take place.

Frison (2016) found that monitoring enhanced the use of different strategies to enhance learning, and that the small study group provided actual learning, as students helped one another, which favored commitment and dedication to the tasks. In the study, the presence of the "social aid" learning strategy (E9) was clearly perceived, in which more advanced students in the course offer support for the clarification of students' doubts.

3. Method

The research is exploratory as it aims for a greater understanding of the factors that can affect the self-regulated learning; and descriptive, as it aimed to describe the phenomena of self-regulated learning. For Gil (2007), exploratory research aims to enhance the familiarity with the problem, with a view to making it more explicit or constructing hypotheses. With regard to procedures, it can be classified as bibliographical due to the necessary literature scanning in any scientific construction; a field study, because questionnaires were applied to the Accounting students in order to gather information for the development of the study; and survey, because information was sought on demographic and academic characteristics and on the use of self-regulation strategies. The problem approach was classified as quantitative because several statistical methods were used to respond to the objectives of the study, such as multiple analysis and factor analysis.

In the selection of the sample, criteria were applied through which the research objectives could be met. Two public institutions and one non-profit private institution, which traditionally offer the Accounting course in the city of Salvador-Bahia, were chosen and facilitated access to the HEI.

The proposal of the model rests on the idea that demographic and academic variables can influence the students' self-regulated learning. The demographic variables are gender, age, semester, study time, whether the student is in training or working (in hours), education level of the father and mother; and the academic variables are the current semester and the type of HEI (whether public or private).

The data were collected in two ways: through in-class application at the Visconde de Cairu Foundation (FVC) and at the State University of Bahia (UNEB). At the Federal University of Bahia, the data were collected with the help of Survey Monkey's online platform. The coordinator of the Accounting course at UFBA forwarded the online questionnaire as only the administrative staff of the institution has access to all student emails. The sample consisted of 713 Accounting students, corresponding to a population of 1,929 students enrolled in the second semester of 2017.

The data collection instrument was the questionnaire, segmented into two blocks. Eight demographic and academic aspects were used, with ten questions that addressed the self-regulated learning strategies identified by Zimmerman (1986). In block I, the questions related to the socioeconomic and academic characteristics of the student are listed: (a) gender, (b) age, (c) name of the college where they study, (d) semester in progress, (f) the father's education level, (g) the mother's education level and (h) the hour load of the internship/work. In order to identify them, eight aspects were used considered in previous studies (Zimmerman & Martinez-Pons, 1986; Rosário, 1999; Filcher & Miller, 2000; Zimmermann, 2002; Rosário & Almeida, 2005; Schunk, 2005; Bell & Akroyd, 2006).

Block II sought to verify the use of self-regulated learning strategies identified by Zimmerman and Martinez-Pons (1986). In this sense, the block is composed of 10 questions that present the variables of Self-assessment; Organization and transformation; Goal setting and planning; Information seeking; Note taking; Environmental structure; Self-consequence; Repetition and memorization; Search for social help and Data review. Block II of the questionnaire corresponded to the characteristics identified by Zimmerman (1986) and a seven-point Likert scale was used, ranging from 1 (never performs the activity) to 7 (always performs the activity). The use of the Likert scale is intended to highlight the relevance the students attribute to the proposed questions and the related variables (Silva Júnior & Costa, 2014, p.5).

Two hypotheses were tested in this study to help clarify the relationships between self-regulated learning and social and academic factors in the Accounting course: H1: Social variables may explain the self-regulation of learning and H2: Academic variables may explain learning self-regulation.

In order to investigate how students' self-regulated learning can relate to demographic and academic factors (objective c) and to test the study hypotheses H1 and H2, multiple regression was used. According to Hoffmann (2006), there is a multiple regression when it is assumed that the dependent variable is a linear function of two or more explanatory variables and that can be expressed as shown in the equation:

$$Y = \boldsymbol{\beta 0} + \boldsymbol{\beta 1} X_1 + \boldsymbol{\beta 2} X_2 + \boldsymbol{\beta 3} X_3 + ... \boldsymbol{\beta n}\, \mathbf{X_n} + \varepsilon$$

The models through which these relations could be verified are described in Chart 2.

Demographic SRL model	SRLi = β0 + β1Gen + β2Efat + β3Emot + β4Tra + β5Age + β6Tis + ε
Academic SRL model	SRLi = β0 + β1Sem + β2HEI+ ε
Demographic and academic SRL models	SRLi = β0 + β1Gen + β2Efat + β3Emot + β4Tra + β5Age +β1Sem + β2IESβ6Tis + ε

Legend: SRLi = Self-regulated Learning index (mean scores, 1 to 7, on self-regulated learning scale) β0 = Constant β1Gen = Gender β2Epai = Father's education β3Emot = Mother's Education β4Tra = Work or training β5Age = Age β6Tis = Time of study β1Sem = Semester β2HEI = Type of HEI ε = Error or regression residual.

Source: elaborated by the author (2018)

Chart 2. Multiple regression models

The demographic and academic SRL model was aimed at analyzing the "simultaneous relationship between self-regulated learning and demographic and academic factors", and yet another scenario was constructed. The underlying idea is that the two factors can simultaneously explain the student's self-regulated learning.

4. Results

The general aim of this study was to verify that demographic and academic factors influence self-regulated learning at the investigated HEI om Salvador (BA). Therefore, data were collected from a sample of 713 students from HEI located in Salvador, Bahia. Table 1 evidences that 67.6% of the sample were students from public and 32.4% from private HEI. Within the students from public HEI, 37.2% come from the Federal University of Bahia (UFBA) and 30.4% from the State University of Bahia (Uneb).

Table 1
Sample composition per HEI

Type of HEI	HEI	Fi	Fi%
Public	UFBA	265	37.2
	UNEB	217	30.4
Sub-total		**482**	**67.6**
Private	FVC	231	32.4
Total		**713**	**100.00**

Source: Research data, 2018.

Regarding these students' gender, 44.74% are male and 55.26% female. Of these, 16.41% are aged up to twenty years, 42.36% between 21-25, 17.95% between 26-30, 13.88% between 31-35 and 9.4% are older than 36 years. As for the semesters they are taking in the Accounting course, 44.6% are in the fourth semester and 55.4% in the fifth to the eighth semester.

To achieve the first specific objective of this study, the self-regulated learning strategies identified by Zimmerman and Martinez-Pons (1986) were used, as presented and exemplified in Table 1. Table 2, which segments between up to three and more than three, reveals that the the strategies the Accounting students used most were self-assessment (E1), the search for social help (E9), environmental structure (E6) and data review (E10). These findings converge with Zimmerman (1986, 1989), indicating that students tend to preferentially use the self-assessment strategy, while the less-used strategies were self-consequence (E7) and goal setting and planning (E3).

Table 2

Use of self-regulated learning strategies by accounting students using a segment point

		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
< 4	Fi	52	136	413	158	114	82	524	223	65	91
	Fi%	7.29	19.07	**57.92**	22.16	15.99	11.50	**73.49**	31.28	9.12	12.76
≥ 4	Fi	661	577	300	555	599	631	189	490	648	622
	Fi%	**92.71**	80.93	42.08	77.84	84.01	**88.50**	26.51	68.72	**90.88**	**87.24**

Source: research data (2018).

With the exception of self-consequence (E7) and goal setting and planning (E3) , all other self-regulation strategies were pointed out with usage rates superior to 68%. Silva et al. (2017) found similar results for students from private HEI in Private Distance Education in Accounting and Lima Filho et al. (2015) at two public HEIs in the State of Bahia for the use of strategies E1, E6 and E10.

Table 2 shows the strong use of the self-assessment strategy (92.71%), which is the strategy the accounting students use most. Using the self-assessment strategy allows the student to correct any mistakes made in tasks and to improve on the next task. Regarding the use of self-assessment in the educational process, Ribeiro (2003) emphasizes that this is an important strategy in the students' practice, as it permits evaluating what has been learned.The second most usual strategy was the "demand for social help" (E9) with 90.88%. This is a fundamental strategy towards success in the accomplishment of a task and the Accounting students' frequent use of this strategy entails better academic performance. In the research conducted by Frison (2016), in the light of self-regulated learning, monitoring favored the use of different strategies to enhance learning.

The "environmental structure" (E6) strategy was pointed out by 88.50%. For Corno (2001), self-regulated learning can be enhanced through changes made to a particular task which the individual himself can perform, or by reactions from the surrounding environment, as the individual is considered to be influenced by expectations and intentions that impact motivation and emotion. Rosário and Polydoro (2012) believe that students are able to make use of a series of volitional strategies geared toward avoiding external and internal distractions to maintain concentration, effort and motivation during the performance of tasks. Therefore, it is understood that the students analyzed use essential structures to promote good learning and thus to be more self-regulated.

The non-use of the "self-consequence" strategy (E7) (26.51%) has been recurrent in research on self-regulated learning in Accounting students, both for the "presence" and "distance" modality (Silva et al., 2017; Lima Filho, Lima & Bruni, 2015; Aguiar & Silva, 2015; 2017). The literature on self-regulated learning pointed out by Zimmerman and Martinez-Pons (1986) indicates that the fourteen strategies are part of the larger cyclic process segmented in the three stages (planning, execution and self-reflection), these being complementary and continuous phases. Students may be using other forms of incentives to accomplish the task, which further shapes the Brazilian cultural reality. Based on previous studies and the results of this study, it is argued that self-consequence is not a self-regulated learning strategy present in accounting students in HEI in the Brazilian context (Silva et al., 2017, Aguiar & Silva, 2017, Kraus, Silva & Zonatto, 2017, Lima Filho et al., 2015), among those identified by Zimmerman and Martinez-Pons (1986).

The "goal setting and planning" strategy (E3) (42.08%) is the second least used by the students. The little use of this strategy could be related to the accumulation of weekly activities, including the various works, tests, seminars, allied to the little time available to dedicate to the academic activities. On the other hand, it is considered highly detrimental to the completion of the established task, as preparation and strategy setting for success do not occur. This result converges with the findings of Polydoro and Rosário (2012), which identified little use of the E3 strategy and found that academic procrastination in the preparation of studies is positively related to self-regulation, that is, the more students postpone the studies to accomplish an activity or evaluation, the lower their perceived self-regulated learning will be.

The second specific objective identified the dimensions associated with Accounting students' self-regulated learning strategies. Hair, Black, Babin, Anderson and Tatham (2006) suggest that the sample should be greater than 50 observations, with at least 100 cases being advised to ensure more robust results. The ratio between the number of cases and the number of variables should exceed five to one or more (Hair et al., 2006). This study analyzed 713 cases and considered 10 variables, fulfilling both prerequisites for the application of the test. Table 3 shows the main components of factor analysis for self-regulated learning strategies.

Table 3
Principal component analysis for self-regulated learning strategies

	Total	% variance	% Cumulative	Total	% variance	% Cumulative	Total	% variance	% Cumulative
1	2.935	29.345	29.345	2.935	29.345	29.345	2.212	22.118	22.118
2	1.164	11.639	40.984	1.164	11.639	40.984	1.887	18.866	40.984
3	.967	9.674	50.659						
4	.896	8.957	59.615						
5	.833	8.334	67.949						
6	.762	7.621	75.570						
7	.731	7.313	82.883						
8	.630	6.298	89.181						
9	.557	5.566	94.747						
10	.525	5.253	100.000						

Source: research data, 2018.

The analysis of Table 3 indicates the presence of two factors for the self-regulated learning strategies that explain 40.98% of the total variability. For Hair et al. (2006) and Shimada, Chiusoli, and Messetti (2010), a criterion for factor retention is the Kaiser test, which considers values greater than 1.0 (eigenvalue> 1). As observed in the data, the first factor (eigenvalue = 2.93) can explain 29.34% of the total variance and the second (eigenvalue = 1,16) 11.64%.

According to Catell (1996) and Menezes (2006), verifying the affinities between the items is necessary to conclude the determination of the factor. The latter authors assert the need to exclude the factors that present a factor loading inferior to 0.32, those that present similar factor loadings in two or more factors with differences inferior to 0.10 and the factor that presents only one item. The oblique rotation results are shown in Table 4.

Table 4
Analysis of correlation coefficients using Pattern Matrix method

Dimensions	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
1	.328	.440	-.055	.079	.377	**.424**	-.629	**.716**	**.500**	**.652**
2	**.611**	.535	**.391**	**.702**	-.428	.219	.362	-.001	.355	.306

Source: research data, 2018.

The Promax oblique rotation method was used to analyze the correlation coefficients. By means of the Promax rotation, a standard matrix and a structure matrix (including the factorial matrix) are provided, which presents clusters of intercorrelations between the oblique variables that are grouped according to the factor loading, that is, according to the degree of involvement with the standards (Catell, 1966). By means of the Pattern Matrix, those factors can be indicated that are strongly involved when the factor loadings are observed in each cluster (Shimada et al., 2010).

According to Menezes (2006), the conclusion of the factor analysis finishes when the affinities of the items with the model factors are examined. The variables of a factorial model are excluded according to the following criteria: (a) when the absolute value of the main factor loading of the item is lower than 0.32; (b) when there are similar factor loadings in two or more factors in the same item (the difference between the absolute values of the factor loadings of the items is inferior to 0.10); and (c) a factor is formed by two or more items (Menezes, 2006).

With this context, the item "organization and transformation" strategy (E2) was excluded from the analysis because it presents similar factor loadings in the first and second dimensions inferior to 0.10. The strategies (E5) and (E7) were also excluded because the absolute value of the main loading of the item is less than 0.32, criterion (a). After this analysis and exclusion, two factors that aggregate those self-regulated learning strategies remained: Factor one, which added the items "environmental structure" strategy (E6), "repetition and memorization" strategy (E8), "Search for help" strategy (E9) and "data review" strategy (E10). And the second factor was the "self-assessment" strategy (E1), "goal-setting" strategy (E3) and "information seeking" strategy (E4). The dimensions found were titled: Factor 1 "Execution Dimension" and Factor 2 "Planning and reaction dimension".

The dimensions were validated according to the Netemeyer et al (2003) criteria, using the Kaiser-Meyer-Olkin (KMO) index, the Sphericity test, Bartlett, and Cronbach's Alfa. The results indicated acceptable KMO (0.698 and Chi-square = 292.276); significant Bartlett's sphericity (.000); reliable Cronbach's Alpha (0.671); and positive and significant Pearson coefficients.

In Table 5, the average coefficient of the usage dimensions of the self-regulated learning strategies are shown, calculated through descriptive statistics. The students use the organization and preparation dimensions more than the fixation and self-reaction dimensions and, overall, they make moderate use of self-regulated strategies. The low standard deviation (0.041101 and 0.03862) ensures that it is a homogeneous sample.

Table 5

Descriptive statistics for self-regulated learning dimensions

Dimensions	N	Minimum	Maximum	Mean	Standard deviation
Execution	713	1.00	7.00	5.2847	0.04110
Planning and reaction	713	1.00	6.33	4.6639	0.03862

Source: research data (2018).

This section sought to verify the dimensions associated to the use of self-regulation strategies through Factor Analysis. Two dimensions were found, called "execution" and "planning and reaction".

The final objective of this study analyzed the relationship between self-regulated learning and the demographic and academic variables of Accounting students at Higher Education Institutions in Salvador (BA). Before carrying out multiple regression and verifying the relationships between the variables and to achieve robust and consistent results, some preliminary tests are needed to analyze if the variables present the basic assumptions to perform a multiple regression. The assumptions tested were: Normality - verifies whether the dependent variable or response has a normal distribution; Autocorrelation - analyzes the correlation between variables; Multicollinearity - verifies possible multicollinearity problems.

The analysis of the first assumption presented normal distribution in "bell format" for the response or dependent variable, satisfying the first assumption. The Kolmogorov-Smirnov test revealed 0.88 sig. and, thus, being superior to 0.05, the hypothesis of data normality is accepted. The second assumption analyzed the correlation between the research variables using Pearson's Correlation coefficient. Dancey and Reidy (2006) present the following classification for the Pearson analysis: r = 0.10 to 0.30 (weak); r = 0.40 to 0.6 (moderate); r = 0.70 to 1 (strong). The data revealed moderate values. In general, correlation values were significant and did not present high values. According to Bruni (2012, p.240), the VIF test indicates that "coefficients and tests can lead to erroneous conclusions if the exogenous, independent variables present high cross-correlations" and, according to Miloca (2002), the VIF value cannot exceed four, although some authors tolerate five. The results were in accordance with the literature, thus presenting no multicollinearity problems, based on which the regression results could be analyzed.

Table 6 presents the results of the scenarios when analyzing the influence of demographic factors, considering the factors generated by the factor analysis (execution and planning and reaction factors) and the mean self-regulated learning index as a dependent variable.

Table 6
Multiple analysis of Demographic Factors

	"Execution" factor			"Planning and reaction" factor			SRL index		
Variables	Coefficient	T-statistics	sig.	Coefficient	t-statistics	sig.	Coefficient	t-statistics	sig.
(Constant)	4.772	18.803	0	4.19	17.526	0	-0.282	-1.744	0.082
Gender	0.154	1.887	0.06	**0.3**	3.915	0	**0.143**	2.755	0.006
Age	-0.067	-1.819	0.069	-0.057	-1.65	0.099	**-0.057**	-2.448	0.015
Time of study	**0.226**	6.041	0	**0.169**	4.807	0	**0.156**	6.545	0
Father's education	**-0.063**	-2.402	0.017	-0.032	-1.29	0.197	**-0.049**	-2.952	0.003
Mother's education	0.046	1.719	0.086	-0.009	-0.338	0.735	0.016	0.916	0.36
Work or training	-0.029	-1.038	0.3	-0.035	-1.339	0.181	-0.019	-1.107	0.269
N	713			713			713		
R^2	0.08			0.079			0.105		
F (sig.)	10.246			10.142			13.788		

Source: Research data, 2018.

Based on the results, the demographic variable that positively influences the self-regulated learning was the time of study, while the father's education level exerted negative influence. The variables mother's education level, gender, work and age were not significant in the model. This finding converges with studies by Freitas (2005), who pointed out that students who study on the eve of tests tend to be less self-regulated than those who study daily. Self-regulation theorists indicate that learning is a personal experience that requires the students' active, dedicated and informed participation (Zimmerman, Bonner & Kovach, 1996) - and that daily time planning promotes skill-fixing to be successful (Bandura, 1986). Like any other activity, repetition tends to provide greater possibility for perfection, for example, an Accounting student who invests more time solving lists of exercises in Accounting Theory tends to be more knowledgeable of different applications than the student who only solved only one list or part of the lists. In conclusion, a direct relationship exists between longer study time and self-regulated learning.

The negative relation between the father's education level and self-regulated learning was another finding of this research. The non-standard beta was -0.063 and sig. was 0.017. In the exploratory study by Castro (2007), in Portugal, a significant and positive association was found between parental education and students' self-regulatory behavior and perceived self-efficacy. The literature by Zimmerman & Martinez-Pons (1986) and Rosário (1999) indicates that more educated parents tend to positively influence individual self-regulation. A possible explanation for the divergent finding of this study may be related to the economic profile of the Accounting students being low to medium income (Iudicíbus, 2012), that is, students would be more motivated towards a possibility of change in their economic structure and thus more self-regulated in their studies. That is, hypothesis one (H1) of this study may be partially accepted, as not all demographic variables were statistically significant for self-regulated learning.

Table 7

Multiple analysis of Academic Factors

Variables	Coefficient	t-statistics	sig.	Coefficient	t-statistics	sig.	Coefficient	t-statistics	sig.
(Constant)	5.418	36.225	0.000	4.928	35.092	0.000	4.928	35.092	0.000
Semester	-0.019	-1.098	0.273	**-0.036**	-2.175	0.03	**-0.036**	-2.175	0.03
Type of HEI	-0.034	-0.383	0.701	-0.075	-0.912	0.362	-0.075	-0.912	0.362
N	713			713			713		
R^2	0.103			0.008			0.008		
F (sig.)	11.688			2.712			2.712		

Source: Research data (2018).

The analysis of Table 7 reveals that the semester variable presented a beta coefficient of -0.036 and sig. of 0.30, suggesting a negative relation between the advancement in the Accounting course and self-regulation in learning. That is, advancement in the course does not allow students to appropriate and develop more self-regulated learning strategies. The international literature has indicated that formal teaching and learning spaces promote the use and development of students' self-regulated learning skills (Ames, 1992; Abreu, 1991; Almeida, 1993; Castro, 2007). Paradoxically, the Brazilian literature has pointed out that accounting students at the beginning of the course are more self-regulated than when they advance (Silva, et al., 2017; Aguiar & Silva, 2017; Lima Filho, Lima & Bruni, 2013). This scenario allows us to emphasize at least three notes and reflections: first, international studies, mainly in Portugal, use intervention programs in learning to develop students' cognitive and metacognitive skills, circumstances that promote increased self-regulation skills as, for Zimmerman & Martinez-Pons (1986) and Rosário (1999), the learning of the strategies permits their application in multiple scenarios; secondly, that it is necessary to study why there is less use of self-regulated strategies as the student progresses in the course, whether due to demotivation, dissatisfaction, work, among others; third, it is assumed that Accounting teachers may not be using didactic actions that promote the use of these self-regulation strategies, being a strongly technical structure.

A third scenario was analyzed, which aimed to verify the relationship between self-regulated learning and Social and Academic factors, expecting that both factors can simultaneously explain the student's Self-Regulated Learning. No further inferences were possible in the analysis though.

5. Conclusion

This study aimed to analyze whether demographic and academic factors can influence the use of Self-Regulated Learning strategies, elucidating these aspects based on a survey conducted with Accounting students through the participation of 713 students, located in the city of Salvador, Bahia.

The students use the self-regulated learning strategies with a frequency of over 68%. Among self-regulation strategies, the strategies the Accounting students used most were self-evaluation (E1), search for social help (E9), environmental structure (E6) and data review (E10). Zimmerman and Martinez-Pons (1986) argue that the greater the students' use of the strategies, the greater the self-regulation, which will consequently influence their performance.

The second specific objective examined the dimensions of the self-regulated strategies and found that the 14 characteristics Zimmerman identified as frequently used by self-regulated students were evidenced in this study by two factors. The first factor, implementation, grouped the "environmental structure (E6), "repetition and memorization" (E8), "search for help" (E9) and "data review" (E10) strategies. The second factor, called planning and reaction, grouped the "self-assessment" (E1), "goal setting and planning" (E3) and "information seeking" (E4) strategies.The third objective was to verify if demographic and academic factors of Accounting students could influence the self-regulation of learning, which corresponded to the two hypotheses tested. The results were analyzed according to the "execution" and "planning and reaction" factors (grouped by means of factor analysis) and the self-regulated learning index and concluded that the variables gender, study time, age and father's education level were significant. Thus, young women, who spend more time in school and have parents with lower education levels, indicated a more self-regulated behavior in their learning.

By means of the "execution" and "planning and reaction" factors and the self-regulated learning index, a significant and negative relation was indicated only for the semester variable, which permitted the partial acceptance of the hypothesis established. In the meantime, undergraduate accounting students are more self-regulated at the beginning of the course than when they graduate. This finding is alarming, as the university environment should provide mechanisms for developing self-regulated skills instead of reducing them.

Although the statistical findings have mostly presented similar results for the academic factors analyzed in SRL in Brazil, this study used different data analysis techniques. Based on the statistical test results, other evidence could be verified and presented of a characteristic that influences the self-regulation of the learning: the negative relation for the father's education level only. A possible explanation for the finding may be associated with the economic profile of the Accounting students being low to medium income, that is, students would feel more motivated towards a possibility of change in their economic structure and thus more self-regulated in their studies. As for the female gender being more self-regulated, it converged with the Brazilian literature and was contrary to the international literature, a fact that deserves attention in the sense of possible explanations. The variables "study time" and "work or training" presented logical relations of "greater investment, greater return", so that the more time allocated to studies, the greater the students' self-regulation. There is a lack of explanations, however, for the observation that accounting students advance in the course and become less self-regulating.

It is emphasized that research was not identified that addressed how the Brazilian educational context articulates to promote the dissemination and promotion of self-regulated learning in university settings. There are also few studies that report cases of pedagogical interference in order to promote metacognitive and self-regulated aspects in students. Therefore, future discussions about these aspects are indicated as gaps.

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