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Self-Regulated Learning (SRL) Strategies in Distance Education in Accounting

Abstract

The objectives of this research were to identify which are the self-regulated learning strategies used by Accounting students in Distance Education (DE) and analyze how these strategies could be explained based on the student's stage (semester) in the course. The research sample comprised students of the undergraduate Distance Education course in Accountancy at three institutions that offer hubs in Salvador (BA) / Brazil. To analyze the data, three quantitative procedures were used to reach the specific objectives, in which, to identify self-regulated learning strategies, descriptive statistics were used and, to verify how these strategies could be explained based on the student's stage (semester) in the course, Factor Analysis and parametric tests of comparison of means (t-test). Based on the findings, it could be inferred that the profile of DE students, considering the self-regulation of learning, showed the significant use of strategies according to the model proposed by Zimmerman and Pons (1986), in which there are significant differences in the students' means between the initial and final stages of the course. The study contributes to the international accounting entities' observations on active and permanent learning. The research also benefits the literature on the "Distance Education" modality and self-regulated learning by demonstrating that this teaching platform can help to achieve learning independence.

Key words: Learning Strategy; Distance education; Self-regulation; International Accounting Entities; Metacognition.

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1. Introduction

The accounting profession has demanded from the academic community, mainly from educational researchers, perspectives to prepare the students for professional life, mainly to learn, maintain skills and seek knowledge (Schleiger & Dull, 2009; Martin & Dowson, 2009). Among the modalities of teaching, Distance Education (DE) is increasingly present as a way to bring formal education as another option for the dissemination and sharing of knowledge through its method of learning, and it is also a way of contributing in the process to broaden and internalize the supply of education.

The Law on the Guidelines and Bases of National Education (Brazil, 1996) opened space under the condition that DE would establish itself in the Brazilian scenario. The instrument with dimensions aiming to guide the accreditation process of HEI and the evaluation of higher distance courses, within the scope of the National Evaluation System of Higher Education (Sinaes), shows that the Control, Production and Distribution System of Didactic Material indicates that the materials used need to promote autonomy for students to learn and control their own development (Brazil, 2007). Considering this, learners who choose DE can learn to manage time and become actors in their learning process. Technological tools can help to improve learning, including self-regulation, especially in the early stages of higher education (Niemi, Harju, Vivitsou, Niittanem, Multisilta & Kuokkanen, 2014).

Barry Zimmerman and other researchers presented the perspective of self-regulated learning (SRL). In this view, the self-regulated student is aware and controls his learning process; select the methods and strategies he uses; organizes and structures both the context of study and the work to be done; identifies the situations in which he needs help; and adapts learning strategies to his academic goals (Zimmerman & Pons, 1986). Bertagnolli et al. (2007) considers "Distance Education" as a form of education that enables self-learning, through the mediation of systematically organized didactic resources, used alone or combined and conveyed by various means of communication.

Bell and Akroyd (2006) concluded that success in distance learning correlates positively with the ability of learners to self-regulate and direct their own learning efforts. In order to analyze the literature, SRL was essential for success in distance learning (Bell & Akroyd, 2006; Lawanto, Santoso, Goodridge & Lawanto, 2014, Puzziferro, 2008; Wang, Shannon & Ross, 2013). Niemi et al. (2014) found that an interactive tutorial based on the Web tool and IQ was beneficial and effective in increasing student self-regulation. Tutoring software was especially useful for students who did not have stable SRL strategies or for students in the early stages of college studies.

Lombaerts, De Backer, Engels and Braak (2009) point out some advantages of autonomous learning: it allows the student to learn better and to seek deepening on the subject of his interest, since the teacher, in view of institutional curricular requirements and available time, develops content considered essential, not permitting conditions to meet the students' options; contributes to enrich students' knowledge; emancipates the student from the teacher's dependence, allowing him to discover and constitute alternatives for the construction of knowledge; prepares the student for the exercise of citizenship and, thus, makes conscious choices in life; and prepares for the job market, developing skills and competences for the conscious exercise of the profession.

In a study, Batista, Cruz, Andrade and Brune (2014) aimed to evaluate the level of student performance in Accountancy courses in the Brazilian Northeast, comparing the results obtained by the "distance" and "in-class" courses on the Enade tests in 2009 and 2012. As a result, DE courses promoted by private HEIs performed better than the courses promoted by the majority of HEIs in the in-class mode, and the results of distance education students were higher than "in-class" teaching. Thus, according to this research, the "Distance Education" modality proved to be a significant variable for student performance on Enade.

According to Wang et al. (2013), DE learning is different from conventional learning. Self-regulated attitudes are especially important when studying in this mode of teaching, as there is no opportunity to interact face-to-face with the teacher. Zimmerman and Schunk (2012) point out that the role of computers in teaching is expanding and offering opportunities for self-regulation. Considering the above, this study seeks to find evidence about the impact that DE teaching has on the independent and proactive stance that the main international entities expect from accounting professionals. Thus, the objectives in the study were to identify which are the self-regulated learning strategies used by DE accounting students and to analyze how these strategies could be explained based on the student's (semester) stage in the course.

According to Becker (2013), despite the advocacy of lifelong learning by international accounting entities, many Accounting classrooms do not develop metacognitive skills (lifelong learning), in which it is still more critical at present. Thus, 25 years after the AECC recommended lifelong learning, the development of metacognitive skills may seem to be an arduous task for accounting teachers who are experts in their discipline but may be less pedagogically prepared. Moos and Ringdal (2012) argue that the educational context can play a particularly relevant role in how students approach the learning process and develop their learning ability.

Thus, as a theoretical contribution, the research analyzes whether students develop self-regulated attitudes in this mode of teaching. With regard to the practical contribution, the results can reinforce the importance of reflecting on teaching-learning developed with the intention of storing knowledge and rethinking measures that lead to autonomous student learning, which makes it vital for the development of professional skills and, in turn, requires the revision of the university's pedagogical practice of accounting education.

2. Literature Review

The changes in the laws and procedures that are used to prepare the financial statements in Brazil are becoming more regular due to the internationalization of accounting standards. In Becker's (2011) understanding, the accountant should have, in addition to the deep, comprehensive and up-to-date knowledge of the area, humanistic culture and mastery of Behavioral Sciences. It should be a citizen with an open vision of the world, able to adapt easily to scenarios of change and to accept continuing education as a condition of life. Parallel to these changes, the autonomy of the students is configured as a necessity in the education process, either in the "in-class" or "distance" teaching modality, in order to train professionals with conditions to learn how to learn in order to be successful in this environment that favors dynamism.

2.1 Distance Education

Distance Education encompasses universes of relationships when teacher and student are separated in time and / or space. These relationships are ordered according to basic elements that involve knowledge, the structure of educational programs, teacher-student interaction and, above all, the nature and degree of autonomy of the individual (Moore, 1993).

Distance education, previously considered impossible, now has an opening of efficient strategies for the feasibility of teaching in the "virtual" modality. Thus, DE made a leap forward in the teaching-learning forms, since it was necessary to adapt to the needs of the limitations that curtail the virtual modality. In this way, the materialization of environments and innovative educational methods, especially with the help of digital technologies, have potentiated DE, so that teaching-learning is contemplated in a new education policy (Silva, Shitsuka & Morais, 2013). It should be borne in mind, in this case, that these technologies are strong allies to motivate, illustrate, present and compose the contents of the classes, in order to make them attractive and interactive, as Hack and Negri (2010) point out.

Although it has an important role in training thousands of people, it is not difficult to find prejudice, understood as an easy course synonym, beyond the four walls of a classroom without the use of chalk, eraser, or other audiovisual resources and the maximum authority of the teacher - prejudice possibly arising from the lack of knowledge that, in addition to several foundations created around the world to implement this modality of teaching, open universities were already created in the United Kingdom (1969), Spain (1972), Australia and Venezuela (1977), India and Denmark (1982) and Japan (1983) and India again (1985), among other countries (Nunes, 2009).

Thus, given the complexity of exercising the accounting profession, resulting from the challenges and beset by various changes, either by adding complexity to the fiscal / corporate norms, or by various functions and social responsibility for the health, education of the communities that are inserted and also for the environment, teaching should be a modality that enables the student to have the conditions to follow the changes that are intrinsically linked since they will be future professionals.

According to the Ministry of Education (1996), "Distance Education" is the form of teaching that should promote self-learning, with the use of organized didactic materials and in order to present various information media, transmitted to various media - characteristics desirable to the profile of self-regulated students, who according to Ames (1992) distinguish themselves by the way they envisage their role in the learning process in which academic success depends on what is built by the student. Technological development allowed new media to be used in didactic-pedagogical mediation (Penterich, 2009). According to Anohina (2005), information and communication technology (ICT), added to the traditional means of teaching, offers new opportunities for acquiring knowledge by allowing the choice of the time, place, pace and quantity of learning.

2.2 Self-Regulated Learning

In the 1970s, there were discussions in the theoretical field of psychology about aspects that permeate the relation between memory and learning, giving rise to the study of metacognition that was first defined as the mastery the individual possesses over his own knowledge. In the same decade, it is made more robust with the mastery of cognitive processes and products (Flavell, 1976).

Based on the metacognition, intellectual self-regulation is possible. Research led by Barry Zimmerman was initiated for the understanding of self-regulation or Self Regulated Learning (SRL). Influenced by the constructivist paradigm, which has the individual as an agent of learning (Arias, Lozano, Cabanach & Pérez, 1999; Zimmerman and Schunk, 2001; Xu, Benson, Mudrey-Camino & Steiner, 2010), it is affirmed that self-regulated individuals are persistent, determined, strategic, and able to assess their progress, unlike those who are cognitively dependent, that is, poorly self-regulated. Self-regulation of learning (SRL) emphasizes students' autonomy and control by monitoring their cognitions, behaviors and emotions geared towards learning goals (Cho & Shen, 2013; Delen, Liew & Wilson, 2014)

For Simons and Beukhof (1987), self-regulation is the ability of the individual to be 'self-teaching', that is, able to prepare, facilitate and regulate learning in order to generate feedback and judgment about the process. For Costa (2001), self-regulation is observed by the degree of active involvement in the learning process (metacognition, motivation and behavior); cyclical behavior of change (control of effectiveness, involvement and reflection of results); and dependence on motivational aspects (degree of involvement with relation of controls and beliefs).

Zimmerman and Pons (1986) identified 14 strategies present in self-regulated students. For these authors, the use of these strategies gives the student valuable tools; their use is highly correlated with academic success rates and teachers' opinions about their degree of self-regulation in the classroom (Table 1).

Table 1

Self-regulated learning strategies identified by Zimmerman and Pons (1986)

	Strategies:	Definition:	Examples: (Rosário, 1999)
1	Self-evaluation	Declarations that indicate the students' assessments about the quality or progress of their work.	"...I checked my work to make sure it was good".
2	Organization and transformation	Declarations that indicate the students' initiatives to reorganize, improving the learning materials.	"...I always make a scheme before elaborating the chemical experience reports".
3	Goal setting and planning	Declarations indicating the setting of educational objectives: planning, phase in time and conclusion of activities related to these objectives.	"... I start studying two weeks before the test and I feel at ease".
4	Information seeking	Declarations indicating the students' efforts to obtain extra information from non-social sources when facing a school task.	"...before starting a task, I go to the school library to collect as much information as possible on the theme".
5	Record keeping	Declaration indicating the efforts to register events or results.	"...during class I take as many notes as possible about what the teacher is presenting".
6	Environmental structuring	Declarations indicating efforts to select or change the physical or psychological environment to promote learning.	"...in order not to get distracted, I isolate myself in the room" or "...to focus on what I am doing, I turn off the sound".
7	Giving self-consequences	Declarations indicating the imagination or putting in practice of rewards or punishments for success or failure in schools.	"...if I go well on the test, I buy some chocolates".
8	Rehearsing and memorizing	Declarations indicating the students' initiatives and efforts to memorize the material.	"...when preparing for a physics test, I write down the formula plenty of times until I know it by heart".
9-11	Seeking social assistance	Declarations indicating the students' initiatives and efforts to seek help from peers (9); teachers (10); and adults (11).	"... if I feel difficulties to study I ask my dad for help, who's a physician".
12-14	Reviewing	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 took" or "To prepare for a test, I solve the outlines of the tests I've already done".

Source: Zimmerman and Pons (1986); Rosário, 1999, adapted.

The self-regulation model proposed by Zimmerman and Pons (1986) is divided into phases, components and processes that come together to produce learning outcomes. The first phase, anticipation / preparation, aims to establish the objectives and strategic plans and achieve the goals chosen. In this phase, there is the influence of motivational aspects, self-efficacy, goals and learning valuation. The second phase, known as execution and control, has the purpose of accomplishing the objectives outlined in the first stage. Self-monitoring is required through the use of learning strategies and attention control. And, finally, the phase of self-reflection and self-actualization, involving judgment, self-assessment and attributions of cause to the objectives established in the first phase. There may be satisfaction or dissatisfaction, presence of reactions (derived from self-reflection) and defense, with resistance and abandonment or satisfaction and personal valuation. This phase is the result of motivational and cognitive constructs, in which the three phases correspond to a cyclical process, since there is previous feedback that allows for changes and continuous improvements (Polydoro & Azzi, 2009; Zimmerman, 2000).

For Corno (1989), the use of self-regulation facilitates the learning process, at the moment when the learner gains maturity to create goals, as well as his proper rhythm of studying, adopting the application of monitoring, elaboration and effort management strategies. Self-regulated learners are often characterized as being determined, strategic, and persistent in their learning process (Rosário, 1999).

Rosário (2001) carried out a study with 558 secondary students in Portugal and identified that students tend to appropriate self-regulation strategies as they progress in teaching, and conclude that there is a greater search for information to increase the depth of the subject studied. Some studies have highlighted the benefits of distance learning to help students develop SRL skills (Bell & Akroyd, 2006; Lawanto et al., 2014, Puzziferro, 2008, Wang et al., 2013).

Valle et al. (2008) assessed 489 students from different public universities in Europe, most of them women in the first cycle (1st to 3rd year) and identified three profiles of self-regulation of learning as a result of the use of strategies. The first corresponds to the low profile, which includes students who use the strategies of elaboration and organization (cognitive strategies). The second, moderate profile, involves students who manage time, study, and self-regulation effort. The third, high profile, covers students who set learning goals and self-efficacy to learn (motivational strategies). For them, cognitive strategies are more predictive of self-regulation of learning than motivational strategies.

In Brazil, Lima Filho, Lima and Bruni (2015) investigated self-regulated learning at two public universities in Bahia, applying the same learning strategies presented by Zimmerman and Pons (1986). Thus, they analyzed the self-regulated learning in students of the "in-class" courses in Accounting, presenting diagnoses, dimensions and possible explanations, contextualized based on gender, age and stage in the course. Through the sample of 249 individuals, it was revealed that gender and age are factors that influence the degree of self-regulation of a student. Younger women and students tend to have better levels of self-regulated learning. In the analysis of the course stage, however, the results did not present a normal distribution, which evidenced the impossibility of perceiving the increase or reduction in the degree of self-regulated learning among the respondents.

Identifying and analyzing the main processes by means of which subjects (students) can regulate their learning as active, independent and responsible subjects are fundamental characteristics for adapting adequately to the demands of society's constant changes (Patterson & Lee, 2010; Garner, 2009).

3. Method

The objectives of the study were to identify which are the self-regulated learning strategies used by DE accounting students and to analyze how these strategies could be explained based on the student's (semester) stage in the course. Thus, the research is characterized, as regards the problem, as quantitative; regarding the objectives as exploratory; and regarding the procedures as a survey. The research sample comprised students of the undergraduate Accountancy course in the "Distance Education" modality at three institutions with a hub in Salvador (BA). It should be pointed out that the institutions chose to keep their name confidential. At institution 1, 81 respondents were reached; at institution 2, 94 respondents were reached and, at institution 3, 76 respondents; as described in Table 2.

Table 2
Characteristics of study sample

HEI	**Institution 1**	**Institution 2**	**Institution 3**						**Sum**
Fi	81	94	76						251
Fi%	32.27	37.45	30.28						100.00
Gender	**Female**	**Male**							
Fi	137	114							251
Fi%	54.58	45.42							100.00
Age	**Up to 20**	**21 - 25**	**26 - 30**	**31 - 35**	**Older than 36**				
Fi	17	47	95	46	46				251
Fi%	6.77	18.73	37.85	18.33	18.33				100.00
Semester	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	
Fi	36	28	20	36	46	44	21	20	251
Fi%	14.34	11.16	7.97	14.34	18.33	17.53	8.37	7.97	100.00

Source: elaborated by the authors.

Table 2 shows that there were 251 respondents from the three institutions, of whom 54.58% were female. According to the study, the age group of 26 to 30 years represents 37.85%, with 6.77% having up to 20 years; and the groups from 31 to 35 years old and superior to 36 years represent 18.33%. The sample consists of individuals who already work and who reconcile this with higher education. In relation to the semester, 18.33% are in the 5th semester, while 14.34% are in the first semester and 7.97% in the 8th semester, that is, at the end of the course.

The data collection instrument consisted of questions aimed at characterizing the respondent, such as gender, age and semester, and questions to identify the self-regulated learning strategies proposed by Zimmerman and Pons (1986), as described in Table 3.

Table 3
Assertions and self-regulated learning strategies

Assertions	Self-regulated learning strategies
1. I assess my performance, I look at what I need to improve and always try to overcome the difficulties detected.	1. Self-evaluation.
2. I always try to elaborate a plan (scheme) before starting a task.	2. Organization and transformation.
3. If I have an exam, I start studying as early as possible so as to feel at ease and calm on the day.	3. Goal setting and planning.
4. Before starting a task, I always turn to the library (and other physical or digital research media) to separate as much information as possible on the theme.	4. Information seeking.
5. I always try to make as many notes as possible on a text I have read or from the teacher's lecture.	5. Record keeping.
6. To improve my concentration, I always seek an environment without distraction.	6. Environmental structuring.
7. When I take an exam, if it goes well, I offer myself a reward; if not, I give up something I really wanted.	7. Giving self-consequences.
8. I use strategies to memorize the topic (or formulae), until I know the topic I have to study by heart.	8. Rehearsing and memorizing.
9. When there is some difficulty and I am unable to solve it alone, I seek external help (teacher, colleagues, others).	9. Assistance from teachers; 10. Assistance from close peers; and 11. Assistance from experts.
10. After concluding an academic task, I review it to make sure it is correct.	12. Review of notes; 13. Review of tests and 14. Review of bibliography.

Source: Lima Filho, Lima and Bruni (2015).

According to the statements about their self-regulation strategies of learning, students were asked to base their answers on their experience, where they should assign a score between 1 (never) and 7 ("always"). The hypothesis of this study, which guided the scope of the objective, i.e. to analyze how self-regulated learning strategies could be explained based on the student's semester, is described in Table 4.

Table 4
Research hypothesis associated with second objective

Research hypothesis	Theoretical framework
H1: establishes that there is a significant relation in which, the more advanced the respondent's course semester, the higher his level of SRL will be.	Bell and Akroyd (2006); Lawanto et al., (2014); Puzziferro, (2008); Wang et al., (2013); Niemi et al. (2014)

Source: elaborated by the authors.

The hypothesis H1 was supported by findings of research that had the same objective. Wang et al. (2013) state that DE learning is different from conventional learning, in which self-regulated attitudes are especially important when studying in this mode of teaching, since the students do not have the opportunity to interact face-to-face with the teacher. Bell and Akroyd (2006) concluded that the success of "distance" learning correlates positively with the ability of learners to self-regulate and direct their own learning efforts. In the literature, SRL was essential for success in distance learning (Bell & Akroyd, 2006; Lawanto et al., 2014, Puzziferro, 2008; Wang, Shannon & Ross, 2013). Niemi et al. (2014) found that an interactive web-based tutoring tool and IQ were beneficial and effective in increasing student self-regulation. Tutoring software was especially useful for students who did not have stable SRL strategies or for students in the early stages of college studies.

For the analysis of the data, three quantitative procedures were used in order to reach the specific objectives. In order to identify self-regulated learning strategies, descriptive statistics were used to verify how these strategies could be explained based on the student's (semester) stage in the course, using Factor Analysis and parametric tests for comparison of means (T-test).

Finally, with the results found for each specific objective, it was possible to achieve the general objective, which was to analyze the profile of Accountancy students in the DE modality regarding self-regulated learning strategies.

4. Results

In this section, the results of the research will be exposed and discussed. Initially, in order to meet the first objective of identifying the self-regulated learning strategies used by DE accounting students, a descriptive analysis of the data is presented. Next, we used factor analysis and the parametric test of comparison of means (t test), aiming to achieve the second objective of verifying how these strategies could be explained based on the student's (semester) stage in the course. Table 5 presents the results of self-regulated learning strategies used by DE accounting students. It should be noted that the final two columns present the total frequencies for responses inferior to four and superior to four, being a midpoint between 1 and 7.

Table 5
Identify the DE students' self-regulated learning strategies

Strategy		Answers							Total	Inferior to 4	Superior to 4
		1	2	3	4	5	6	7			
		Never						Always			
E1	Fi	0	7	12	6	22	55	149	251	25.00	226.00
	Fi%	0.00	2.80	4.80	2.40	8.80	21.90	59.40	100.00	7.56	90.10
E2	Fi	8	1	14	34	51	78	65	251	23.00	194.00
	Fi%	3.19	0.40	5.58	13.55	20.32	31.08	25.90	100.00	9.17	77.30
E3	Fi	6	9	15	52	72	57	40	251	30.00	169.00
	Fi%	0.02	0.04	0.06	0.21	0.29	0.23	0.16	100.00	12.00	67.00
E4	Fi	12	17	18	14	46	50	94	251	47.00	190.00
	Fi%	4.80	6.80	7.20	5.60	18.30	19.90	37.50	100.00	18.80	75.70
E5	Fi	3	16	34	18	58	63	59	251	53.00	180.00
	Fi%	1.20	6.40	13.50	7.20	23.10	25.10	23.50	100.00	21.10	71.70
E6	Fi	3	8	20	6	41	67	106	251	31.00	214.00
	Fi%	1.20	3.20	8.00	2.40	16.30	26.70	42.20	100.00	12.40	85.20
E7	Fi	123	20	5	41	23	24	15	251	148.00	62.00
	Fi%	49.00	8.00	2.00	16.30	9.20	9.60	6.00	100.00	59.00	24.80
E8	Fi	23	27	28	25	61	44	43	251	78.00	148.00
	Fi%	9.20	10.80	11.20	10.00	24.30	17.50	17.10	100.00	31.20	58.90
E9	Fi	1	14	26	12	33	42	123	251	41.00	198.00
	Fi%	0.40	5.60	10.40	4.80	13.10	16.70	49.00	1.00	16.40	78.80
E10	Fi	6	4	5	11	56	56	113	251	15.00	225.00
	Fi%	2.40	1.60	2.00	4.40	22.30	22.30	45.00	1.00	6.00	89.60

Source: elaborated by the authors.

As a result, the students of the DE teaching platform use self-regulated learning strategies, since they score above the midpoint of the scale presented in the data collection instrument, which corresponded to four, except for the giving self-consequences strategy (E7). It is noteworthy that Lima Filho, Lima and Bruni (2015) found the same result for students from two public institutions offering in-class teaching. The self-assessment strategies (E1), review of notes, review of tests and review of the bibliography (E10) and environmental structure (E6) were the most used, with total frequencies of 90.10%, 89.60% and 85.205, respectively. The other strategies present total frequencies superior to 50% for responses higher than four. Zimmerman and Pons (1986) argue that using these strategies gives the student valuable tools. Utilization is highly correlated with academic success rates. Pavesi (2015) argues that, on the one hand, the flexibility of time, place and resources of Virtual Learning Environments (VLE) represent an opportunity for many students to enter higher education, or even to continue their college education. On the other hand, these environments require greater responsibility from the student, who has great autonomy over his learning process. In VLEs, learners can control the pace and sequence of the learning process and customize a range of aspects of the virtual environment by making choices that support the development of their cognitive structure (Testa & Luciano, 2010). After identifying the self-regulated learning strategies used by DE accounting students, from the next table, we sought to verify how these strategies could be explained based on the student's (semester) stage in the course, aiming at the achievement of the second specific objective. Additionally, it was also verified how the strategies could be explained by age and semester. First, factor analysis was used to summarize and reduce data (Hair, Black, Babin, Anderson & Tatham, 2009), as described in Table 6.

Table 6
Principal component analysis for self-regulated learning (SRL) strategies

Component	Initial Eigenvalue			Sums extracted from loadings		
	Total	% Variance	% Accumulated	Total	Squared	
					% Variance	% Accumulated
1	3.255	32.554	32.554	3.255	32.554	32.554
2	1.292	12.922	45.476	1.292	12.922	45.476
3	1.15	11.501	56.977	1.15	11.501	56.977
4	1.057	10.574	67.552	1.057	10.574	67.552
5	0.808	8.084	75.635			
6	0.668	6.678	82.313			
7	0.549	5.491	87.804			
8	0.494	4.935	92.739			
9	0.403	4.028	96.768			
10	0.323	3.232	100			

Source: elaborated by the authors.

In Table 6, the components with the number of factors formed for the self-regulated learning strategies were described, in which four factors were generated, with information percentage for the model of 32.55% for the first factor; the second factor, with 45.47%; the third factor, 56.98%; and 67.55% for the fourth factor. Menezes (2006) presents retention criteria in an analysis of the number of factors, in which the first criterion was the use of the Kaiser test for retaining the number of retained factors, considering only values higher than 1.0; the second criterion was to examine the contribution of retained factors in the variance of the initial eigenvalue, in which it can be noted that factors 2, 3 and 4, although having a value greater than 1.0, do not contribute significantly like factor 1 (3.255).

The Promax oblique rotation method was used to analyze the correlation coefficients. The Promax rotation provides two matrices: a matrix pattern and a structure matrix, in addition to the factor matrix, which outline patterns of intercorrelations between oblique variables (Catell, 1966). Thus, factor loadings determine the patterns and degree of involvement of each variable with the standards. The Pattern Matrix demonstrates which variables are highly involved in terms related to the factor loadings in each pattern or clusters, while the structure matrix informs the extent of the correlation of variables with the patterns in general (Shimada, Chiusili & Messetti, 2010). Cattell (1996) and Menezes (2006) explain that the determination of the factor comes to an end when the affinity of the items with the model factors is verified, in which the constructs of the model are expelled when the absolute value of the main factor loading of the item is lower than 0.32, when similar factor loadings exist in two or more factors in the same item, the difference between the absolute values of the factorial loads of the items being less than 0.10 and the factor should also be formed by two or more items. Table 7 describes the use of the proposed criteria and the correlation coefficients with the Pattern Matrix method.

Table 7
Analysis of correlation coefficients using Pattern Matrix method

Dimension	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
1	0.779	0.71	0.699	0.545				0.411		
2					0.819	0.772	0.583	0.442		
3				0.401			0.565	0.394	0.838	
4								-0.396		0.828

Source: elaborated by the authors.

Based on the criteria, item E8 (rehearsing and memorizing), in dimension 4, was excluded because it presented a value lower than 0.32, items E9 (external assistance) and E10 (reviews) were excluded following the third criterion, in which a factor has to be formed by two or more items. Two dimensions remained: the first one, formed by E1 (self-evaluation), E2 (organization and transformation), E3 (goal setting and planning), E4 (information seeking), the second formed by E5 (record keeping), E6 (environmental structuring), E7 (giving self-consequences) and E8 (rehearsing and memorizing). Thus, the dimensions were entitled according to Corno's (1989) statement, whose self-regulation facilitates the learning process at a time when the maturity of the learner in setting goals has its own rhythm of study, when applying strategies for monitoring, elaborating and managing efforts. Thus, the first dimension was named SRL Planning and the second SRL Execution and Control.

Table 8 shows the dimensionality, reliability and convergence of the factor analysis.

Table 8
Factor Validation Test of Self-Regulated Learning (SRL)

Steps and techniques or Statistics	Rules for validation	Factors
Dimensionality		
Principal components	Only one eigenvalue should exist in the scale	Two eigenvalues in the scale (eigenvalue equal to 10, 574, explaining 67.552% of the variance).
KMO index	Superior to 0.7: Desirable Inferior to 0.5: Unacceptable	KMO equal to 0.711, desirable.
Bartlett's sphericity test		Chi-squared equal to 572.406 with significance level of 0.000.
Reliability		
Cronbach's Alpha		Cronbach's Alpha = 0.762.
Convergence		
Pearson's coefficient	Pearson's coefficients > 0	All Pearson's coefficients were positive and significant

Source: elaborated by the authors.

In Table 9, the coefficient of the KMO test was considered desirable (0.711). The significance of Bartlett's Sphericity test was low, and Cronbach's Alpha (0.762) was also considered desirable. In Table 5, descriptive statistics are presented for the dimensions entitled SRL Planning and SRL Execution and Control.

Table 9
Descriptive statistics of dimensions

Dimension	N	Minimum	Maximum	Mean	Standard deviation
SRL Planning	251	1.00	7.00	4.98	1.98616
SRL Execution and Control	251	1.00	7.00	6.54	0.78756

Source: elaborated by the authors.

In the SRL Planning dimension, the average was 4.98, with standard deviation that shows the dispersion of the data corresponding to 1.98616. In the dimension SRL Execution and Control, the average was 6.54, with dispersion of the data corresponding to 0.78756. By means of the results, it can be inferred that the students use self-regulated learning strategies in a relatively high way, as the means were superior to the midpoint, highlighting the average of the dimension SRL Execution and Control, which approached the maximum value (7.00).

Tables 8 and 9 show the achievement of the second specific objective, which was to verify how these strategies could be explained based on the student's (semester) stage in the course, through the Equality of Means Tests (T test): first, in Table 6, the results for the dimension SRL Planning are shown, followed by the results for the dimension SRL Control and Execution. As previously mentioned, it was also analyzed how the self-regulated learning strategies could be explained based on the gender and age of the students, in line with Valle et al. (2008), Zhao, Chen and Panda (2014), who found gender differences in Distance Education, and Lima Filho, Lima and Bruni (2015) concluded that gender and age are factors that influence the degree of self-regulation of a student in the context of "in-class" education.

It should be emphasized that the sample was segregated into two groups, according to the stage of the course (up to the fifth semester and as from the sixth semester), gender (male and female) and age (up to 24 years and over 24 years).

Table 10
Equality of Means Test for SRL Planning Dimension

	N	Mean	Standard Error	Standard error of means	Levene test		T test		
					F	Sig.	t	Degrees of freedom	Sig. bi
Course semester									
Up to 5th semester	120	5,2901	1,69836	0,14839	2,304	0,253	3,154	249	0,002
As from sixth semester	131	5,9417	1,56267	0,14265			3,166	248,994	0,002
Gender									
Female	137	5,8029	1,58039	0,13502	4,046	0,045	-2,098	249	0,037
Male	114	5,3596	1,73525	0,16252			-2,116	231,276	0,035
Age									
>= 24 years	187	5,6578	1,56936	0,11476	7,370	0,007	-0,914	249	0,362
< 24 years	64	5,4375	1,91796	0,23975			-0,829	93,517	0,409

Source: elaborated by the authors.

The results presented in Table 8 indicate t statistics with significance of the results inferior to 0.05 for the course stage and the gender. Thus, the null hypothesis of equality is rejected. Therefore, it is possible to conclude that the use of self-regulated learning strategies among the students increases between the beginning and the end of the course. It can also be inferred that there are significant differences in self-regulated learning, considering the genders, in which the female gender uses a greater number of self-regulated learning strategies. It was not possible to perceive significant differences though when considering the age of the students. Finally, in Table 9, the results for the dimension SRL Execution and Control are presented for the semester, gender and age.

Table 11
Equality of Means Tests for SRL Execution and Control Dimension

	N	Mean	Standard Error	Standard error of means	Levene test		T test		
					F	Sig	t	Degrees of freedom	Sig. bi
Course semester									
Up to 5th semester	120	6,3958	0,86213	0,0787	11,538	0,001	-2,851	249	0,005
As from sixth semester	131	6,6756	0,68899	0,0602			-2,823	227,647	0,005
Gender									
Female	137	6,54	0,77876	0,80135	0,029	0,865	0,163	249	0,87
Male	114	6,5329	0,80135	0,07505			-0,164	238,176	0,87
Age									
≥ 24 years	187	6,5722	0,81204	0,5938	2,352	0,126	-1,044	249	0,297
< 24 years	64	6,4531	70973	0,8872			-1,115	123,688	2,677

Source: elaborated by the authors.

For t statistics with significance level of the results inferior to 0.05, only for the course stage, we reject the null hypothesis of equality. Thus, it can be inferred that the students increase the degree of use of self-regulated learning strategy during the progress in the educational scale. No significant differences could be perceived when considering the age and gender of the students for the dimension SRL Execution and Control.

The conclusions of Tables 6 and 7 help to infer that there are significant differences in the means of the students between the initial and final stages of the course. Thus, the hypothesis is accepted that a significant relationship exists in which, the greater the current semester of the respondents, the higher their level of SRL. The findings of the study are corroborated by studies by Bell and Akroyd (2006); Lawanto et al., (2014); Puzziferro, (2008); Wang et al., (2013); Niemi et al. (2014). Thus, it can be affirmed that DE learning differs from conventional learning. Self-regulated attitudes are especially important when studying in this mode of teaching, as there is no opportunity to interact face-to-face with the teacher, according to Wang et al. (2013).

Regarding the gender, only for the dimension SRL Planning could a statistical difference of means be inferred, in which the women use more strategies than the men, partially corroborating the studies by Valle et al. (2008), Zhao et al. (2014). It is worth mentioning that the study by Lima Filho, Lima and Bruni (2015) found the same finding, considering in-class teaching.

4.1 Discussion

The results show that "Distance Education" offers characteristics aimed at student autonomy and control, and at the monitoring of their cognitions, behaviors and emotions to achieve the learning goal (Delen, Liew & Wilson, 2014). Students with successful self-regulated learning establish the direct goals of their learning, monitor, regulate and control their own cognition, motivation, and behavior for the purpose of achieving / accomplishing goals. Thus, self-regulated learning is realized as students tackle problems, apply strategies, monitor achievement, and interpret the results of their efforts in an autonomous, task-centered way (Zimmerman & Schunk, 2011).

The self-evaluation strategies (E1), review of notes, review of tests, review of the bibliography (E10) and environmental structuring (E6) were the most used with regard to the self-regulated learning strategies used by DE students, with total frequencies of 90.10%, 89.60% and 85.20, respectively. The other strategies present total frequencies superior to 50% for responses superior to four. When compared to the study by Lima Filho, Lima and Bruni (2015), in the in-class teaching context of two universities in Bahia, the results were higher, since the degree of utilization of the same strategies was greater in the "Distance Education" platform.

When explaining self-regulated learning strategies through the course stage and, additionally, gender and age, the results allowed to affirm that the averages are significantly different for the students in the initial and final stages of the course, both for the dimension SRL Planning and SRL Execution and Control, as discussed at the end of the previous topic. Considering the findings, students who choose DE teaching can learn to manage time and become actors in their learning process. Korkmaz and Kaya (2012) state that the development of cognitive and metacognitive strategies that lead students to learn how to learn becomes a key point for success in the educational context. Technological tools can help to improve learning, including self-regulation, especially in the early stages of higher education (Niemi et al., 2014).

The Accounting Education Change Commission. Objectives of education for accountants (AECC, 1990), the American Institute of Certified Public Accountants Institute of Management Accountants (AICPA, 2000) and the Institute of Management Accountants (IMA, 2008) point to the need for in-class (Accounting) students to acquire permanent learning attributes and skills. Smith (2001) argues that accounting professionals should be critical and assume the role of apprentices throughout their professional trajectory. The results of DE teaching are converging in the perspectives of lifelong learning and active role, according to the use of self-regulated learning strategies (SRL).

For Becker (2013), self-regulation of learning has a positive impact, especially for graduates as they enter the dynamic work environment in today's accounting. Howieson, Hancock, Segal, Kavanagh, Tempone and Kent (2014) explain that change is a constant in modern organizations. In this way, business counseling requires greater ability to deal with uncertainty and problem-solving skills. Thus, professional development, as a process of education, should emphasize "learning to learn".

In this sense, the development and increase in the students' use of strategies in the final stage of the course can explain the result found in the recent study by Batista et al. (2014), in which the authors found that the "Distance Education" modality is a significant variable for student performance on Enade. Becker (2011) affirms, however, that autonomy configures a need of the formative process, either in the "in-class" or "distance" teaching modality, and that it contributes to the training of professionals with conditions to learn how to learn in order to achieve success in this dynamic environment of the accounting profession.

In summary, it can be inferred that the profile of students in the modality of DE teaching, regarding self-regulation of learning, was marked by the significant use of strategies according to the model proposed by Zimmerman and Pons (1986). It is worth noting that the self-evaluation (E1), review of notes, review of tests and review of bibliography (E10) and environmental structuring (E6) strategies were the most used, with total frequencies of 90.10%, 89.60% and 85.20, respectively, as well as significant differences between the students from the initial stage to the final stage of the course.

5. Final Considerations

The objectives of this study were to identify which are the self-regulated learning strategies used by DE accounting students and to analyze how these strategies could be explained based on the student's (semester) stage in the course.

The research sample comprised students of the undergraduate course in Accountancy in the "Distance Education" modality at three institutions with hubs in Salvador (BA). The data collection instrument consisted of questions to characterize the respondent, such as gender, age and semester, and questions to identify the self-regulated learning strategies proposed by Zimmerman and Pons (1986). For the analysis of the data, three quantitative procedures were used to reach the specific objectives, in which, to identify self-regulated learning strategies, descriptive statistics were used; and to verify how these strategies could be explained based on the student's (semester) stage in the course, the Factor Analysis and the parametric tests of comparison of means (t-test) were used.

As a result, the self-evaluation (E1), review of notes, review of tests, review of bibliography (E10) and environmental structuring (E6) strategies were the most used, with total frequencies of 90.10%, 89.60% and 85.20%, respectively. The other strategies presented a sum of frequencies greater than 50% for responses greater than four. In addition, significant differences were shown in the means of the students between the initial and final stages of the course. Thus, it can be inferred that the profile of students in the modality of DE teaching, considering the self-regulation of learning, was marked by the significant use of strategies, according to the model proposed by Zimmerman and Pons (1986).

Additionally, it was also verified how the strategies could be explained by age and semester. Regarding the gender, only for the Dimension SRL Planning was it possible to partially infer that there is a statistical difference of averages, in which the women use more strategies than the men; and in age, there was no difference of means for students up to 24 years and over 24 years.

The results suggest the existence of different profiles, in view of the significant differences between the strategies used throughout the course. In this way, future studies can investigate the different types of profiles when considering gender and age for example.

The study contributes to the discussions of international accounting entities on active learning, lifelong learning, as students, future accounting professionals, need to develop such skills. The study also provides literature on the "Distance Education" modality and self-regulated learning by demonstrating that this teaching platform contributes to the achievement of learning independence through the learning strategies that lead to self-regulation.

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