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SELF-REGULATED LEARNING IN ACCOUNTING: A COMPARATIVE ANALYSIS BETWEEN CLASSROOM AND DISTANCE MODALITIES*

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ABSTRACT

This research has conducted a comparative analysis of the profile of classroom and distance Accounting students as to the use of self-regulated strategies in learning. Through the sample of 302 students from two private higher-education institutions located in Bahia, it was verified how the mode of teaching, the semester, the age and the gender can be associated with the use of self-regulated learning strategies. Data has been treated by means of tests of averages (t test), descriptive analysis and factor analysis. The results showed that the strategies most employed by accounting students were the setting of goals, planning and learning. When explaining self-regulated strategies, through the teaching, semester, age and gender modes, the results indicate that the averages are significantly different for teaching and age modes. The study contributes in the sense of rethinking the teaching-learning models based on the storage of information aimed at encouraging the development of autonomous skills that promote the permanent learning based on the grounds of teaching for learning or learning how to learn, which are characteristics indicated by international bodies and necessary for professional excellence.

Keywords: Accounting. Self-regulation. Learning. Teaching in accounting.

1 INTRODUCTION

Learning relationships have been historically established by the simultaneous occurrence of the learning subjects in previously defined space and time. The advent of higher education additionally to the insufficiency of the offer of higher education courses has opened space for the emergence of distance education characterized by the separation of teachers and students in order to require more autonomy in learning processes (Gatti, 2001).

Autonomy is one of the particularities pointed out by the international bodies Accounting Education Change Commission (AECC) (1990) and the American Institute of Certified Public

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Accountants [AICPA] (2000) as desirable in the development of permanent learning characteristics. According to Chen and Paul (2003), in distance education learners are active in the learning process, because they control the rhythm of studies and determine the sequence of activities.

In this perspective, Zimmerman and Martinez-Pons (1986) state that individuals who control their learning are self-regulated if they select learning methods and strategies. These individuals are still able to structure their study context and adapt their learning strategies to their academic goals.

Several studies have pointed out that individual characteristics affect learning (Chen & Paul, 2003; Dias & Leite, 2010; Cavanaugh, Lamkin, & Hu, 2012; Bergamin, Ziska, Werlen, & Siegenthaler, 2012). Self-regulation is associated with different academic outcomes (Lynch & Dembo, 2004). Other studies point out that there are significant differences between self-regulated students and others who need external regulation in learning (Arias, Barca Lozano, Gonzalez Cabanach, & Núñez Pérez, 1999; 2010). Self-regulated individuals are decided, persistent, adopt strategies, and evaluate their progress; Different from those who do not set educational goals and consequently end up with a cognitive dependence, thus, little self-regulated in learning (Zimmerman, 2001).

Lima, Lima and Bruni (2015) have assessed the self-regulated learning strategies of accounting students in two public universities in Bahia and associated them by gender, age and semester. The results indicate that there is little adherence to self-regulated strategies as the current semester progresses, a fact that has raised the concern of the authors, since the more advanced students of the course are expected to show greater appropriation of self-regulated strategies. Thibodeaux, Deutsch, Kitsantas, and Winsler (2016) have analyzed the use relationship of self-regulated strategies and academic success insofar as 589 students advanced in psychology and biology at a major American university. The results have shown that, in the first semester, students have gradually used the planning strategy, since they spent more time with socialization, a fact that reflects a lower academic performance.

The purpose of this study is to perform a comparative analysis of the Accounting Sciences students' profile, both from classroom and distance modalities, as to the use of self-regulated learning strategies. In order to achieve the general goal, the following specific objectives are highlighted: a) to analyze self-regulating learning strategies adopted by classroom and distance accounting students; b) to associate the adherence to self-regulated strategies to gender, age, semester and distance and classroom teaching modalities; c) to verify the figures associated with the modality of education, semester, age and gender.

This study aims to contribute to the development of an updated literature review on self-regulation of learning and its relationships with accounting students. Accounting education needs to use attributes that promote students 'independence, even in undergraduate studies, so that subsequent changes in the measurement, recognition, and disclosure of accounting standards are learned without major difficulties, and thus create perspectives for students' preparation (Schleifer & Dull, 2009; Martin & Dowson, 2009). In this paper, we present the results of the study. In this context, it is imperative to teach accounting students how to learn or learn how to learn, in order to promote the development of lifelong self-regulating learning skills recommended by the international bodies (AECC, 1990; AICPA, 2000) to accountants and desirable for professional success.

2 THEORETICAL REFERENCE

2.1 Self-regulation of learning

According to Sternberg (2013), cognitive psychology is the area of study that analyzes how the individual perceives, learns and thinks the information, so as to understand, for example, why certain individuals remember some facts while others do not. Researchers identify two approaches that seek to understand these aspects: the first occurs through internal experiences that seek the understanding of the nature of rationalism by introspection; while the other seeks the understanding based on scientific studies of vital functions by empirical

methods, so that rationalism and empiricism are the foundation for the understanding of the human mind (Sternberg, 2013).

For Eysenck and Keane (1994), the development of communication has fostered discussions on the communication systems' theories that would later serve as basis for the emergence of cognitive psychology. For Lefrançois (2008), Cognitive Psychology analyzes the higher mental processes, such as perception, memory, concept formation, language, thinking, problem solving and decision making in order to infer the mental processes that are learned as meaning.

In the 1970s there were discussions in the theoretical field of psychology about aspects that linked the relation existing between memory and learning, deriving the study of metacognition (Lima & Bruni, 2012). In this sense, metacognition was defined as the domain that the individual has over his own knowledge; and still in the same decade it is understood as the domain of cognitive processes and products (Flavell, 1976). Among several definitions about metacognition, there is a similarity that addresses a common feature of mechanisms, which results in the control and self-regulation of the intellectual process.

Understanding that intellectual self-regulation is possible from metacognition, the research led by Zimmerman aimed at understanding self-regulation in learning or Self Regulated Learning (SLR). With influences of constructivist paradigms, which have the individual as a learning agent (Arias *et al*., 1999; Xu *et al*., 2010; Richter & Schmid, 2010), Zimmerman (2001) argues that individuals are considered to be self-regulated when these are persistent, determined, strategic and capable of assessing their progresses; those who are more cognitively dependent are therefore less self-regulated. For Ribeiro (2003), the self-criticism, the personal reflection, the ability to conduct self-criticism, the modification of study habits are characteristic of metacognitive strategies.

For Simons and Beukhof (as quoted in Figueira, 1994), self-regulation is the ability of the individual to be 'self-taught', able to prepare, facilitate and regulate learning in order to generate feedback and judgment about the process. According to Costa (2001), self-regulation is characterized by the degree of active involvement in the learning process (metacognition, motivation and behavior); cyclical changing behavior (control of effectiveness, involvement and reflection of results); and dependence on motivational aspects (level of involvement with regards to controls and beliefs).

2.2 Model of self-regulated learning proposed by Zimmerman

The model of self-regulation proposed by Zimmerman (2000) is divided into phases, components and processes able to produce learning outcomes. The first phase addresses the anticipation / preparation and establishes the goals and plans to achieve the targets set and occurs with the influence of motivational aspects (self-efficacy), the objective is to value learning. In the second phase there is the execution and control that aims to fulfill the objectives outlined in the first stage. There is a need for self-monitoring through the use of learning strategies and attention control. The last step takes place with the self-reflection and self-reaction, which involves the judgment, the self-assessment and the attribution of causes to targets established in the first phase, resulting in satisfaction or dissatisfaction, in the presence of reactions (self-reflection) and defenses, with resistance and abandonment or satisfaction and personal valuation. These three phases correspond to a cyclical process that, through feedback, enables changes and continuous improvements (Polydoro & Azzi, 2009; Zimmerman, 2000).

Self-regulated learning promotes autonomy, in which the identification of errors is essential to aggregate new knowledge, so as to lead in a pleasurable way to success and to the growth of new learning. For Jones, Alexander and Estell (2010), the student is expected to have self-regulating behaviors, motivation and the ability to regulate learning so that it is possible to self-monitor and self-manage learning. Self-regulated learning was grounded in Psychology and Sociology, and Korkmaz & Kaya (2012) present a context in which students define tasks, set goals, create plans, use tools, tactics, and strategies to carry out their activities. For Zimmerman (2000), the development by teachers of self-regulating strategies is key in the promotion of self-

regulated learning (Zimmerman, 2000) and can be passed on to students throughout the course. It is integrated as self-regulatory training (Zimmerman, Bonner, & Kovach, 1986).

Zimmerman and Martinez-Pons (1986) have developed 14 self-regulated learning strategies. According to these authors, the use of these strategies gives the student valuable tools. Its use is highly correlated with academic success rates. The strategies are: a) self-evaluation; b) organization and transformation; c) establishment of objectives and planning; d) information search; e) notes; f) environmental structure; (g) self-claims; h) repetition and memorization; i) help from teachers; j) help from close peers; k) help from experts; l) review of annotations; m) review of tests; and n) review of the bibliography.

When comparing the level of self-regulated learning between classroom and distance students in higher education, Sizoo, Malhotra and Bearson (2003) have failed to find significant differences between the two modalities, except that, in distance modality, when female students have presented higher frequencies in the appropriation of self-regulated strategies than in the classroom.

Barnard-Brak, Paton and Lan (2010) carried out a study in higher education, in the distance modality, having identified the presence of five self-regulated learning profiles ranging from super-regulation to no or little self-regulation. The results have showed that the five profiles directly influence the academic performance of the interviewees, so that those with little or no self-regulation have lower academic performances compared to those who tend to be super-regulated.

In general terms, there is a consensus among researchers that learners' self-regulating capacity is essential for the best quality of learning, performance, decision making, problem solving and time use (Schunk, 2001; Zimmerman, 2002; Boruchovitch, 2004; Dias & Leite, 2010; Frison & Moraes, 2010; Rosário, Nunes, Magalhães, Rodrigues, Pinto, & Ferreira, 2010; Bergamin *et al*., 2012; Lima & Bruni, 2012; Simão; Frison, 2013).

In this sense, aimed at relating the current semester and self-regulating strategies, Thibodeaux et al. (2016) have examined the association of the use of self-regulating strategies and the academic success, as 589 students advanced in psychology and biology courses at a large American university. The results have showed that, in the first semester, students have used gradually the planning strategy, once they spent more time with socialization, a fact that reflected lower academic performance.

Castel, Murayama, Friedman, McGillivray and Link (2013) have developed researches associating the age of the individual with the self-regulation of learning. The authors have analyzed how youths and adults use metacognitive learning strategies and related them to the study period. The result has showed that adults have greater self-regulating control in study strategies and in time management. On the other hand, Bembenutty (2007) has probed surveys that involved self-regulation and gender. Said author has found that self-regulation strategies and academic performance vary according to genres and ethnicities in a university course. The results pointed out that the final grade of the course and the strategies of self-regulation did not present differences when observed the ethnicity and the gender.

Castro (2016) has analyzed characteristics of self-regulation of learning in higher education in the distance modality. The results pointed out that students of the analyzed modality develop typical self-regulation learning skills and attitudes aimed at maximizing their educational processes. Lima et al. (2015) have analyzed the learning strategies proposed by Zimmerman and Martinez-Pons (1986) and related them to gender, age and current semester in 249 students of the classroom modality of two universities in Bahia. They found that gender and age are factors that influence the student's level of self-regulation. Women and younger students tend to better levels of self-regulated learning. However, nothing could be found on the relation between semester and the adoption of self-regulated strategies throughout the course.

3 METHODOLOGICAL PROCEDURES

The methodology used was hypothetical deductive and exploratory, as it seeks greater familiarity with the phenomenon (Gil, 1991) between the possible relations between classroom and distance learning self-regulation.

The scope was formed by approximately 1000 students enrolled in the first half of 2015 at Viscount de Cairo Foundation (FVC), located in the municipality of Salvador (BA) and Norte do Paraná University (UNOPAR), in the municipality of Feira de Santana (BA). Data collection was carried out through printed questionnaires arranged in two blocks: the first questioning the personal characteristics of the interviewee and the second, in a scalar response interval ranging from 1 (never) and 7 (always), the Students' reactions to learning situations in light of the strategies identified by Zimmerman and Martinez-Pons (1986) on self-regulated learning (Table 1).

Table 1

Self-regulated learning strategies identified by Zimmerman and Martinez-Pons (1986) and equivalent propositions questioned

Self-regulated strategies (Zimmerman and Martinez-Pons, 1986)	Propositions questioned
1. Self-evaluation	1. After completing a work, I always double-check to make sure it is good.
2. Organization and transformation	2. I always try to draw up a plan (scheme) before starting a work.
3. Setting goals and planning	3. If I have a test, I start studying as soon as possible, to be rested and calm on the day.
4. Data Collection	4. Before starting a work, I always go to the library (and other research channels, whether by physical or digital means) to gather as much information on the subject as possible.
5. Taking notes	5. I always try to write down vast notes of a text read or the teacher's lecture.
6. Environmental structure	6. For greater focus, I always look for distraction-free environments.
7. Self-Consequences	7. When I perform a test, if i do well I give myself a reward; otherwise, I have to give up on something I wanted.
8. Repeating and memorizing	8. I use strategies to memorize the matter (or formula) until I know the subject by heart.
9. Help from Teachers; 10. Help from close peers; 11. Help from Experts	9. When difficulties arise and I cannot solve myself, I seek external help (teachers, colleagues, others).
12. Review of notes; 13. Review of tests and 14. Review of bibliography	10. I evaluate my performance; I see what I must improve, in order to prepare myself for a test.

Note. Source: Adapted from Lima, R. N., Filho, & Bruni, A. L. (2012). Self-Regulated Learning in Accounting: Diagnosis, Dimensions and Explanations. Anpad Meeting Yearbook (EnAnpad), Rio de Janeiro, RJ, Brazil, 36.; Zimmerman, B.J., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. American Educational Research Journal, 23, 614-628.

The sample consisted of 335 students present in the classroom in the first half of July 2015, including distance-learning students. Thirty-three questionnaires that were not fully answered were discarded, resulting in the analysis of 302 cases.

To perform data analysis, three quantitative procedures were used to achieve the specific objectives: the descriptive analysis, to identify self-regulated learning strategies; the parametric test of average (t-test) to analyze how the strategies can be explained from the teaching modality, stage (semester), age and gender; and the factorial analysis to verify the figures associated with the teaching modality. In the parametric test of averages, the sample was divided into two groups: by gender (male and female), by current semester (up to the fifth semester and from the sixth semester), by modality of the course (classroom or distance) and age (up to 24 years and above 24 years).

It should be noted that previous research has used the same criterion to analyze the segregation of semester (Lima et al., 2015), the age (Mayville, 2007, Lima et al., 2015), the gender (Bembenutty, 2007, Lima et al.) and the teaching modality (Castro, Miranda, & Leal, 2015).

The hypotheses that guided the fulfillment of the specific targets (b), which seeks to relate the adherence to self-regulated strategies to gender, age, semester and distance and classroom teaching modalities, as well as the theoretical support (according to the theoretical reference) grounding the hypothesis, are shown in Table 2.

Table 2

Hypotheses associated with the objectives of the studies and theoretical grounds

Hypotheses	Grounds
H1 - The female sex presents a greater adoption of self-regulated learning strategies.	Pavesi (2015); Lima and Bruni (2012); Bembenutty (2007)
H2 - Distance modality appropriates strategies that are self-regulated in a similar way as classroom modality	Sizoo *et al.* (2003)
H3 - Age influences the adoption of self-regulated learning strategies.	Lima and Bruni (2012) Mayville (2007)
H4 - There is no relation between the greater use of strategies and the current semester.	Lima and Bruni (2012)

Note. Source: Prepared by the authors (2017).

4 RESULTS AND ANALYSIS

This research carried out a comparative analysis of the profile of 302 students of Accounting Sciences, in classroom and distance modalities, regarding the adoption of self-regulated learning strategies, from two private higher education institutes located in Bahia. The characteristics of the analyzed sample are shown in Table 3.

Table 3
Characteristics of the sample studied

Gender		**Male**		**Female**					**Sum**
	Classroom	**Distance**	**Classroom**	**Distance**					
Fi	41	77	90	94					302
Fi %	13,58	25,50	29,80	31,13					100,00
Age	**Up to 20**	**21 to 25**	**26 to 30**	**31 to 35**	**> 35**				
Distance (Fi)	12	29	56	37	37				171
Fi %	9,60	9,60	18,54	12,25	12,25				56,62
Classroom (Fi)	10	33	32	27	29				131
Fi %	3,31	10,93	10,60	8,94	9,60				43,38
Semester	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Soma**
Distance (Fi)	33	19	26	23	26	12	12	20	171
Fi %	10,93	6,29	8,61	7,62	8,61	3,97	3,97	6,62	56,62
Classroom (Fi)	37	0	0	0	30	6	44	14	131
Fi %	12,25	0,00	0,00	0,00	9,93	1,99	14,57	4,64	43,38
Sum	70	19	26	23	56	18	56	34	302
Sum Fi%	23,18	6,29	8,61	7,62	18,54	5,96	18,54	11,26	100,00

Note. Source: Research data (2017).

Table 3 shows that over 60% (Simple-Fi Frequency) of undergraduate students in accounting courses are female, which converges and ratifies the findings of Lima et al. (2015) on the female representativeness in the courses of Accounting Sciences in the classroom courses. The greater participation of women in accounting courses is an important finding, as it promotes diversity, above all, by exploring the skills in the various areas of accounting practice. However, it is also necessary to encourage the participation of women in scientific production and in the participation of events in accounting area, since, according to Luca, Gomes, Corrêa and Domingos (2011), female participation is relatively low in publishing scientific events compared to male, specially in USP and ANPAD events.

When analyzing the age of the sample, no large disparities between the modalities of classroom or distance learning are observed. However, the data indicates that over 70% of analyzed individuals are older than 26, diverging from the findings of Lima et al. (2015) in two public institutions in Bahia, where 73% of the sample was aged up to 25 years. Such comparison leads to infer that the type of Higher education Institution (public or private) and the modality of education attract different audiences in accounting courses in the state of Bahia.

With this reasoning, students up to 25 years old seek out courses in public universities while those over the age of 26 choose private institutions and / or distance learning. Such choices can be explained by employment needs and / or constitution of family, for example.

The analysis of Table 3 also support that the sample is made up of 56.62% of students from the University of Paraná (UNOPAR), studying Accounting Sciences in the distance modality and 43.38% of students who attend the same course in the classroom modality at Visconde de Cairo Foundation, both at night-time. The growth of distance education in Brazil is undeniable, but the quality of education is cause for doubts and fears. In this context, Nascimento and Junqueira (2011) have assessed whether there is a significant difference in the performance of the discipline “Introductory Accounting” between the students of the distance and classroom modalities, having concluded that there are no such differences, as the final averages analyzed were not significantly different for the two modalities.

The first specific objective of this study is to analyze self-regulated learning strategies adopted by accounting students in classroom and distance learning in two Private Institutions from Bahia that offer the Accounting Sciences course: Visconde de Cairo Foundation (FVC) and Norte do Paraná University (UNOPAR). The results are presented in Table 4, arranged for both modalities.

Table 4 shows that strategy 1 (E1) is the most adopted by students of the classroom (90.1%) and distance (88.3%) teaching modality. Thus, accounting students of both modalities tend to often perform self-assessment when they complete / perform an activity. The greater adoption of this strategy corroborates with part of stage three addressed by Zimmerman (2000) and Polydoro and Azzi (2009), which consists of self-reflection and self-reaction that involve the judgment, evaluation and analysis of established objectives that result in satisfaction or Dissatisfaction. For Melchior (1994), the self-evaluation is the ability to analyze the efforts expended in relation to their capacities and the results obtained to what was requested. It contributes to improving the development of self-assessment or in other situations. Thus, the use of this strategy by accounting students provides a valuable tool for the development of a critical sense of the knowledge learned during the course, an essential strategy in the exercise of the profession for preparing and granting data and financial statements.

Table 4
Use of self-regulated strategies with adoption of a midpoint

Type of modality	Midpoint	Strategies (%)									
		1	2	3	4	5	6	7	8	9	10
Distance	Lower than 4	11,7	18,7	28,1	19,3	25,1	14	71,9	37,4	13,5	5,8
	Greater than 4	88,3	81,3	71,9	80,7	74,9	86	28,1	62,6	86,5	94,2
	Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Classroom	Lower than 4	9,9	30,5	55	21,4	20,6	15,3	66,4	38,2	8,4	17,6
	Greater than 4	90,1	69,5	45	78,6	79,4	84,7	33,6	61,8	91,6	82,4
	Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

Note. Source: Research data (2017).

The average point of data collection instrument used in this research corresponded to the average 4 (four), according to Table 4, as a point of segmentation between greater or lower adoption of analyzed strategies. It can be seen in Table 6 that in distance modality all strategies are used with an index higher than 60%, with the exception of strategy 7 (E7) "self-consequences", so that "self-assessment" and / or "self-punishment" are not used by virtue of success or failures in the performance of an activity. This strategy (E7) is the least used by students in the classroom modality, likewise there was little indication of the use of strategy 3 (E3) "goal setting and planning" (45%), which indicates that most students of classroom modality are not prepared in advance for the performance of tests / evaluations. These latter findings are alarming, since the planning and preparation for accomplishing a goal directly influences the results of the execution. Thibodeaux et al. (2016) point out that students poorly prepared and planned performed less than those who plan an activity. The low adherence of the

E3 strategy by students of the classroom modality can be explained by the use of time in remunerable activities, since, according to Table 4, it consists of a more mature public that usually have established families.

In general, through the descriptive analysis, about 75% of distance students and 71% of students in the classroom use more than 50% of the strategies found in students considered as self-regulated. The general percentage of adoption of strategies between the two modalities did not present great discrepancies, which is in line with the findings of Sizoo et al. (2003), which state that there are no significant differences between the two modalities.

The second specific objective sought to analyze whether the adoption of the strategies can be explained based on gender, age and semester in both education modalities under study. In this analysis the t test for independent samples was applied using self-regulated learning as an independent variable. To perform the tests, the variables analyzed were separated into two groups: gender - male and female; Age - up to 30 years and over 30 years; Semester in progress - until the 4th semester and from the 5th to the 8th semester; and teaching modality - classroom and distance (Tables 5-7).

Table 5

Average equality tests for internship in the course for classroom and distance modalities

					t-Test			**Levene Test**	
	N	Average	Standard Deviation	Standard Error	t	Degree of Freedom	sig.	F	sig
Semester									
Distance									
Up to 4	101	5,3970	0,82601	0,8219	0,960	169	0,339	0,229	0,633
5 to 8	70	5,2714	0,86362	0,10322	0,952	144,227	0,343		
Classroom									
Up to 4	37	5,5216	0,69046	0,11351	2,158	129	0,033	5,478	0,021
5 to 8	94	5,1277	1,02143	0,10535	2,544	96,901	0,013		

Note. Source: Research data (2017).

F-test in the distance modality was 0.229, with significance level (sig.) of 0.633, and 5,478 in the classroom modality, with significance of 0.021 (Table 7). As the sig.> 0.05 the null hypothesis H0 of equality is accepted and it is assumed that the samples were extracted from the population with the same variance for the distance modality; While in the classroom it is accepted that there are significant differences between the averages.

In the distance modality it is not possible to notice an increase or decrease in the use of self-regulated strategies and to study the beginning or end of the course, since the level of significance was above 5%. These results indicate the absence of incentives / development of self-regulated attitudes that promote greater autonomy of the learning during the course of graduation in the distance modality. This finding converges with the results found by Lima and Bruni (2012), indicating the impossibility of establishing a relationship between the analyzed variables. These results suggest that if the development of self-regulating skills is more or less successful (Zimmerman & Martinez-Pons 1986), and if there is no incentive to develop these skills, the students will leave higher education with the same skills they already had when entered it, which is undesirable according to the international bodies of (AECC, 1990) and (AICPA, 2000) for the development of lifelong learning. Gonçalves and Vagula (2012) agree that in the face of the explosion of alternative sources of knowledge and the short time to work all this information, the teacher should also foster the development of autonomous skills in the students, as mediator-teacher, and ensure permanent learning. Thus, it becomes necessary to rethink the role of the teacher in the classroom in order to promote, also, the development of self-regulating skills in accounting students and / or other fields.

However, when the classroom modality average tests were analyzed, it was possible to verify that the semester of students influences the use / adoption of self-regulating strategies.

The average for students up to the fourth semester of accounting was 5.5216 (significance of 3.3%), while those between the fifth and the eighth semester presented an average of 5.1277 (significance of 1.3%). Although there is little difference between the averages, it can be noticed that classroom students up to the middle of the undergraduate course tend to use more self-regulating strategies.

These findings allow us to reject the hypothesis (H2) supported by Sizoo et al. (2003), which establishes the similar appropriation of a self-regulated learning strategy between the classroom and distance learning modalities when analyzing the current stage; as well as to accept the hypothesis (H4) indicated by Lima and Bruni (2013), arguing that there is no relation between the use of strategy and the current semester, except for the course in the classroom modality, with greater use of strategies in initial periods.

Table 6 presents the average equality test when analyzed the female and the male genders and the use of self-regulating strategies in the classroom and distance modality. In both types of teaching it is not possible to establish a relationship between the use of strategies and the gender of accounting students (sig> 5%). This result indicates the rejection of hypothesis 1 (H1), supported by the findings of Pavesi (2015), Lima and Bruni (2012) and Bembenutty (2007), who defend that the female is the one that most adhere to self-regulating strategies. Gonçalves and Vagula (2012), when studying the structural cognitive modifiability, affirm that the stimulus to knowledge of a new object determines whether the individual possesses more or less structure of rigid structural modifiability. Thus, gender is not expected to be a skill-distinction factor, but rather the stimuli that have been developed throughout the life of the individual.

Table 6

Average equality tests for genders in classroom and distance modalities

					t- Test			Levene Test	
	N	Average	Standard Deviation	Standard Error	t	Degree of Freedom	sig.	F	sig.
Gender									
Distance modality									
Male	77	5,2442	0,86686	0,09879	-1,432	169	0,154	0,253	0,615
Female	94	5,4287	0,81513	0,08407	-1,423	158,159	0,157		
Classroom modality									
Male	41	5,0805	0,98697	0,15414	-1,286	129	0,201	0,045	0,833
Female	90	5,3111	0,93526	0,09858	-1,260	73,864	0,211		

Note. Source: Research Data (2017).

Finally, the average equality test was carried out to analyze whether the age influences on the greater or lower use of self-regulating strategies in classroom and distance modalities, according to Table 7. In the distance learning, it is not possible to perceive any relation between ages and the use / adoption of self-regulating strategies, since the level of significance was greater than 5%.

Table 7

Average equality tests for age in classroom and distance modalities

	N	Average	Standard Deviation	Standard Error	t- Test t	Degree of Freedom	sig.	Levene Test F	sig
Age									
Distance modality									
Up to 30	97	5,3021	0,88117	0,89947	-0,774	169	0,440		
> 30	74	5,4027	0,78844	0,09165	-0,786	164,692	0,433	1,820	0,179
Classroom modality									
Up to 30	75	5,0653	0,96443	0,11136	-2,457	129	0,015		
> 30	56	5,4714	0,89640	0,11979	-2,483	122,915	0,014	0,561	0,455

Note. Source: Research Data (2017).

However, when the students of the classroom teaching modality were analyzed, the results of the average equality test have showed significant differences between the self-regulated learning ratio and the age of the students analyzed. Thus, students older than 30 have presented higher average (5.4714, significance of 1.5%), if compared to those younger than 30 (5.0653, significance of 1.4%). These findings are in line with the findings of Lima and Bruni (2012) and Mayville (2007), as they state that age influences the appropriation of self-regulated strategies, therefore, the hypothesis 3 (H3) is accepted. This finding may be explained by the greater development of self-regulatory skills accumulated by older individuals, important characteristics of permanent knowledge.

The Factor Analysis (Table 8) was used to verify the figures associated to the variables: teaching modality (classroom or distance), semester, age and gender. The main function of the different techniques of factor analysis is to reduce a large number of variables observed in a smaller number of factors (Figueiredo & Silva Júnior, 2010).

Table 8

Main Components

Component	Initial Proprietary Values			Square loads extraction sums		
	Total	% variation	% cumulative	Total	% variation	% cumulative
1	**3,454**	**34,543**	**34,543**	**3,454**	**34,543**	**34,543**
2	**1,130**	**11,299**	**45,842**	**1,130**	**11,299**	**45,842**
3	,902	9,019	54,861			
4	,851	8,510	63,371			
5	,811	8,107	71,478			
6	,724	7,237	78,714			
7	,660	6,605	85,319			
8	,580	5,805	91,123			
9	,486	4,858	95,982			
10	,402	4,018	100,000			

Note. Source: Research Data (2017).

The extraction of factors by the Latent Root criterion is the most used in the factorial analysis, admitting Eigen values use greater than one. Thus, the first component can explain 35.54% of the total variance of this modality, while the second component explains only 11.30%.

Table 9

Rotating component matrix with varimax method

Component	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10
1	**,712**	**,735**	**,579**	**,615**	**,476**	**,422**	-,147	,292	**,566**	**,617**
2	-,124	,054	,308	,220	,427	,343	**,791**	**,632**	,088	,340

Note. Source: Research Data (2017).

Menezes (2006) addresses factor loading exclusion criteria aiming at a more homogeneous distribution of the model items: the absolute value of the factor loading is lower than <0.32; similar factor loading in the same factor are lower than 0.1 (<0.1) and a factor is formed by more than one item.

According to this model, items P5 (Score) and P6 (Environmental Structure) were excluded because the values were lower than 0.1, when the two components are compared. Question 7 was also excluded from the study because the average of responses was below the midpoint (4). It does not characterize an adopted strategy, besides the level of significance of the Pearson coefficient being greater than 0,05 in correlation to other questions. Thus, the first component (Table 9) relates to the planning and control of self-learning strategies used by students, and the second component corresponds to the use of rote learning techniques as a self-learning device. Table 10 presents the use of the factors found through the factorial analysis divided by the teaching modality.

Table 10

Factors of self-regulated strategies by education modality

Student's teaching modality		N	Minimum	Maximum	Average	Standard Deviation
Distance	Factor 1: planning and control	171	3,00	7,00	5,7710	,93620
	Factor 2: Memorizing	171	1,00	7,00	4,7193	1,80282
	Valid N (from list)	171				
Classroom	Factor 1: planning and control	131	2,33	7,00	5,4504	1,03501
	Factor 2: Memorizing	131	1,00	7,00	4,9160	1,73222
	Valid N (from list)	131				

Note. Source: Research Data (2017).

Table 10 shows the existence of planning and memorizing factors, as indicated by the factor analysis. It is noticed that the students of the distance modality tend to use more frequently the factor of planning and control, whereas the students of the classroom modality use strategies linked to the memorizing. The quality tests of these data can be observed in Table 11. These findings may reflect the characteristics of each teaching modality. For Niemi, Harju, Vivitsou, Viitanen, Multisilta and Kuokkanen (2014), distance learning students learn to manage time and to become active in the learning process, a statement that may explain the factor reduction in the use of the planning and control, essential to the teaching modality in question. On the other hand, classroom students are constantly subject to verification of learning, usually without the aid of study materials, which may explain the greater use of memorizing strategies.

Table 11

Data quality in factor analysis

Dimensionality	Reference	Result
Kaiser-Meyer-Olkin (KMO) Index	Greater than 0,7 = Desirable	0,820
	Between 0,5 and 0,7 = Acceptable	
	Lower than 0,5 = Unacceptable	
Bartlett sphericity test	Significance level <0,05	0,000
Reliability	**Reference**	**Result**
Cronbach alpha	Greater than 0,60 = Reliable	0,762

Note. Source: Research Data (2017).

For dimensionality analysis, the Kaiser-Meyer-Olkin test was used to verify the suitability index of the sample. The result found was 0.820, which is considered desirable, according to Menezes (2006). Another test referring to dimensionality was Bartlett's sphericity, for which the result of the level of significance was lower than 0.05 (Table 11). In general, the profile of the self-regulated students was identified by means of the average of the answers, according to Table 12.

Table 12

Profile of self-regulated through the average

	N	Minimum	Maximum	Average	Standard Deviation
Self-regulated strategies	302	2,29	7,00	5,5137	,97026

Note. Source: Research data (2017).

Table 12 indicates that the average of students in the classroom and distance modalities was 5.5137 higher than the midpoint of use of strategies by accounting students, data that suggest a high level of use of self-regulation strategies. It is noted that the standard deviation is low (0.97026) demonstrating that the data are not divergent and with low dispersion. This is an important finding, however, it is emphasized that individuals tend to react to the required cognitive needs (Gonçalves & Vagula, 2012) so that the more self-regulated skills are still exercised in the undergraduate accounting studies, the greater the professional success and preparation to deal with information speed and quantity.

5 CONCLUSION

In the light of fourteen self-regulating learning strategies identified by Zimmerman and Martinez-Pons (1986), a comparative analysis was made of the use of self-regulated learning strategies in undergraduate students in Accounting in classroom modality and the distance in two Higher Education Institutions located in Feira de Santana-BA (UNOPAR) and in Salvador, Bahia (FVC).

We sought to analyze the self-regulating learning strategies adopted by students of accounting in classroom and distance modalities and to relate the adoption of self-regulated strategies to gender, age and semester in the respective modalities.

In general, it was not possible to perceive significant differences between the modalities when analyzing the characteristics of self-regulated learning used by students of accounting, a fact that raises concern, since it is desirable (above all) from students of the distance modality a greater autonomy to plan, structure and organize their learning.

Approximately 70% of the sample indicated the use of more than 50% of self-regulating learning strategies in both modes of teaching. The results have indicated that "self-consequence" (E7) is the least used strategy for accounting students, so that there is no "self-assessment" and / or "self-punishment" for success or failures in performing an activity. In the classroom modality, more than half of the sample indicated low use of goal setting and planning

strategy (E3), which indicates that students of this modality do not prepare themselves in advance for the performance of tests / evaluations. Such behavior may influence the results of the evaluations carried out, as it is essential to systematize and practice the contents to be studied in accounting, and "last minute" studies may not be enough and result in lower performance. In the distance modality, the sample has indicated to use more than 70% of self-regulating learning strategies, except for the "self-consequence" strategy (E7).

The average equality tests have indicated the impossibility of establishing relations between the use / adoption of self-regulating learning and semester, gender and age for the distance modality, whereas in the classroom modality students until the middle of the course and those older than 30 years old tend to make better use of self-regulating strategies. The non-adherence to self-regulating strategies throughout the course can be an indication of concern in the continued education of the trainees in accounting, as it is a science that is constantly changing normative, for example.

Factor analysis allowed us to find the presence of two factors: planning and memorizing. It was evidenced that students of the distance modality tend to use with greater intensity the factor of planning and control while the students of the classroom modality use strategies linked to memorizing. However, in general, students of accounting presented a strong use of self-regulating strategies.

The finding of this study and those related to other researches (presented throughout the article) on self-regulation of learning, allow us to converge to the theory of Zimmerman and Martinez-Pons (1986), which relates the potential presence that self-regulating skills provide to the academic life of students. With this finding, it is essential to promote studies that indicate how to work the development of self-regulatory skills in undergraduate courses in accounting sciences. It is also interesting to conduct studies that explore how the use of self-regulating strategies has influenced the performance of accounting professionals.

This study presents some limitations, as the sample studied consists of only two private educational institutions located in Bahia, and analyzes only the variables of gender, age and semester. It is suggested, therefore, the development of another research, involving variables that can better explain the use of these strategies by accounting sciences students as well as expanding the sample.

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