

Analysis of the relationship between the students' initial and final perception on the initial disciplines in Accounting Course¹

Abstract

This search aims to identify if there is a relationship between students' initial and final perception on the Accounting disciplines ministered in the first periods of Accounting, Management and Economy courses of a Brazilian public university. The results suggest that, although the 145 students of the three analyzed courses show positive initial perceptions on these disciplines, those from the Accounting courses are more optimist and they conceive the initial disciplines as more relevant for their academic and professional performance than the students of Management and Economy courses do.

Key words: Introductory accounting. Students' perceptions. Higher education quality.

1. Introduction

The Accounting Education Change Commission (AECC) identified the first year of Accounting courses as a critical education compound, not only for Accounting courses but for all business ones (AECC, 1992, 1995). Williams (2011) points that the first accounting discipline is very important both for those who intend become an accounting professional or for professionals in other areas who intend to use accounting information. Thus, several studies have investigated some aspects regarding accounting disciplines in the first year of Accounting courses (Cherry & Reckers, 1983; Baldwin & Ingram, 1991; Cherry & Mintz, 1996; Pincus, 1997; Van-Germeersch, 1997; Geiger & Ogilby, 2000; Mladenovic, 2000; Mandilas, Kourtidis, & Petasakis, 2010; Cunha, Walter, Fernandes, & Winter, 2011). Doran, Bouillon and Smith (1991), Eskew and Faley (1988) and Wooten (1998) analyzed factors that influence the students' performance in these disciplines. Buckless, Lipe and Ravenscroft (1991) observed gender impact on student's performance in the initial accounting disciplines. Moreover, many searchers have discussed the appropriate content of these accounting disciplines (Cherry & Reckers, 1983; Baldwin & Ingram, 1991; Cherry & Mintz, 1996; Pincus, 1997; Van-Germeersch, 1997). Mladenovic (2000) found that the students begin to study with a positive perception on accounting.

Geiger and Ogilby (2000) applied a questionnaire to students in two USA colleges in order to verify the perception of students enrolled in Introductory Accounting discipline. Mandilas *et al.* (2010) applied the same questionnaire to Accounting, Management and Information Systems Courses in a Greek college. The results of both studies suggest that early perception of the students on introductory accounting disciplines affects their performance and may influence even their in choosing the career for acting. Furthermore, these authors found that the students in Accounting courses perception introductory accounting discipline are more positive perception than those of the students of correlated areas.

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Williams (2011) believes that introductory accounting discipline remains a relevant factor for the students in choosing Accounting courses. This discipline likewise remains fundamental not only of Accounting and Management students but also for a growing number of students from other courses. Hence it is relevant to investigate the factors that affect the performance students in Accounting courses and related areas when studying the initial accounting disciplines, because this performance may be influenced by the perceptions and expectations concerning to several aspects of the discipline (Danko, Duke & Franz, 1992; Bernardi & Bean, 1999; 2002).

In this context, we formulate the search problem in the following terms: is there a relationship between the students' initial and final perceptions on accounting introductory disciplines in Management, Accounting and Economy courses? Thus, the aim of this study is to identify the existence of this relationship in the students of a college in Minas Gerais, Brazil. The search sample was 145 students enrolled in these courses during the second semester of 2012. We used Wilcoxon and Mann-Whitney tests in order to verify whether the averages between the students' initial and final perceptions obtained from the questionnaires are significantly different from each other and between the courses. We applied canonic correlation analysis in order to verify the relationship between the students' initial and final perceptions on introductory Accounting disciplines.

To know the students' initial and final perceptions on introductory Accounting disciplines is relevant for two reasons: the first one, their professors may use the results in order to improve the teaching process. The information can provide greater understanding among professors about the content taught and the teaching-learning process. The second reason is that the students could have a more solid formation, as long as the teaching-learning process is more effective at the beginning. This could provide qualified professionals able to deal with practical issues of professional activity. Furthermore, the students can also benefit from the results of this search, because the improvement in professional qualification relates directly to the professional image improvement before the employers, the society and the profession.

This paper has six sections. After this introduction, we present the theoretical framework; in the third section, we formulate the search hypothesis; in the fourth, we describe the study methodology; in the fifth, we present the results and in the last section, we present the conclusions.

2. Literature review

In this section, we present theoretical aspects regarding perception, motivation and performance of students in early accounting disciplines.

2.1 Students perceptions on initial accounting disciplines

Literature shows that perception performs a significant role on choosing a career. Inman, Wenzler and Wickert (1989) point that when the students have to choose a main area for studying, their perceptions affect their decisions. Hermanson, Hermanson and Ivancevich (1995) found that the perception of students in Accounting courses and related areas affects their choices on prioritizing Accounting study. According to these authors, the Accounting courses students have a positive opinion on the employment perspectives and on professional status than the Management and Economy students. For them, the introductory accounting discipline might attract good students to Accounting courses as well keeping good students in the courses (Riordan, Pierre, & Matoney, 1996).

Some studies aimed to identify perceptions of the teachers (Cherry & Mintz, 1996) or even of the students (Paolillo & Estes, 1982; Corey, 1992, Cohen & Hanno, 1993) on the Introductory Accounting discipline. However, Heiat and Brown (2007) found that the students choice in remain in the Accounting courses is significantly affected by their genuine interest on this area.

Cohen and Hanno (1993) sought to predict and explain the choice of accounting as main operating area and they found that the students do not choose it as such because they perceive it as being "boring". Chen, Jones and McIntyre (2004) ascertained that both Accounting courses or Management and Economy related areas students did not value the first year in accounting course. The results of that search indicate that the student groups are not convinced that accounting can help them to succeed in their career.

Geiger and Ogilby (2000) investigated the students' perception on the first year of Accounting courses as well how these perceptions do affect their professional choice. Specifically they analyzed the relationship between the perception changes, endnotes and the decision to choose the area of operation. These authors stated that in selecting accounting as operation area depended on the student's performance in the first year of the course.

Germanou, Hassall and Tournas (2009) analyzed similarities and differences between Accounting courses students from Malaysia or from England, mainly the aspects related to the choice of accounting profession and the association between their perceptions and the intention to continue in accounting career.

Gassner, Espejo, Bufrem, Clemente and Lima (2010) studied differences between perceptions and preferences regarding teaching in students of the accounting courses in federal universities in the south of Brazil, concerning to teaching (structuring and facilitating education, organization of the discipline, and social-emotional environment evaluation strategies). The motivation for this article was the importance of efforts in education to improve student learning and reduce the weaknesses in teaching methodologies and teachers. In this sense, improving these questions could form better

professionals and conscientious citizens. The results showed that the students prefer the professor works out some attributes the teacher, as an explanation of the material in a more oral and less theoretical.

Cunha *et al.* (2011) checked out opportunities of improving introductory accounting discipline from the perception of the students in Accounting and Management Courses in a Brazilian higher education institution in Vale do Itajaí, Santa Catarina. They adapted the applied questionnaire for data collecting from Walter, Tontini and Domingues (2005), completed by applying of a focus group. This search uses also Importance Matrix versus Performance (linear method) and Kano Model (not-linear method) for data analysis. The results show as priority for improving accounting courses: using a laboratory for exercises, modernity of the computer labs and the classroom infrastructure. In the Administration course, the main attributes were the provision of extracurricular activities and modernity of the computer labs.

When analyzing correspondence, Biachi, Raimundini, Santos, Fávero and Schmidt (2010) have demonstrated that there is a relationship between introductory accounting discipline and the variables institution, coursed, students and teachers' profile in Rio Grande do Sul. These authors have also concluded that factor such as where the student course High School and the period of the discipline are quite significant. UFGRS organizes the initial accounting disciplines based on the number of interested students and heterogeneity evaluated in the search causes a negative advance. Due to distinct perceptions and understandings of the students.

Andrade (2002) checked teaching methodologies of introductory accounting in Graduation accounting courses in the ninety Brazilian public universities in order to identify the methodologies used by the professors as well the department structure for using education technologies. Only 22 universities answered the questionnaire. The results showed that 100% of the professors use lectures style although the same proportion wants to use education software for teaching accounting. In this sense, Lobosco (2007) found that the student conceives lecture as a teaching process that does not allow him to transfer acquired knowledge to a situation in real life. He considers as more agreeable and productive a class with situations that involve text study and solving real problems. Friedlan (1995) also analyzed whether the methodology used in classroom affects the students' perception on the discipline. The results suggest that the applied methodology affects significantly the students' perception.

Thus, we can observe that the initial accounting disciplines are deeply important for the student's performance as well to other disciplines development, for the definitive choice in the course (when this choice occurs after the first year) and for his professional choices. We note also that factors such as initial perception, expectations, professors' abilities and college structure may affect the students' performance.

1.2 Factors of impact on students' performance

National and international studies have investigated aspects of introductory accounting discipline (Bernardi & Bean, 1999; Geiger & Ogilby, 2000; Andrade, 2002; Heiat & Brown, 2007; Cunha *et al.*, 2011). These studies have searched whether and how the students' perception on introductory accounting discipline relates to their performance in accounting courses. Moreover, they verified whether the initial and final perceptions of these students related to their performance in the discipline. They also compared the students' perceptions to those of the professors and to teaching methodology in order to check whether they were different or not.

Turner, Holmes and Wiggins (1997) investigated the predictability of scores of students of intermediate accounting and applied some models to verify the variation in students' scores. That search had also as significant variables the personality, social and personal factors as well the place where the student came from. The results highlighted that individual characteristics of the students have greater weight in the obtained scores in the initial tests. The test used in this search may be considered as an important tool for decision-making by educational institutions, due to its high degree of correlation to environmental factors, social and psychic with scores obtained and, therefore, seek the most efficient means for higher performance by the student

Bernardi and Bean (1999) and Danko *et al.* (1992) sought to estimate whether the students' performance in the initial accounting discipline might be a basis for determining the performance of them in the subsequent disciplines. These authors found that the initial performance in the disciplines of accounting influences the performance in the entire course suggesting that the prerequisite system is suitable. In this same path, Bernardi and Bean (2002) stated that the student achievement in the discipline Intermediate Accounting I explained approximately 50% of the performance of the student in the discipline Intermediate Accounting II.

Alves, Corrar and Slomski (2004) verified whether teaching and other education resources such as equipments and specialized environments for studying affect the achievement of students in Graduation Accounting courses in Brazil in the National Course Examination. From the results, they stated that the professors had fundamental weight in the students' performance in three main aspects: mastery of taught subjects employed teaching techniques and used teaching resources. Access to computers had also a considerable impact however; the libraries did not register the same effect. They concluded that government policies have to take into account the increase in the investment of educational resources, new knowledge learning technology, and especially the update and training for teachers.

Stenkamp, Baard and Frick (2009) compared the bad achievement of accounting courses students in a university in South Africa to their perception on Graduation. They analyzed the first year of the course aiming to expand reflections on the factors that affect the students success, measured their perceptions on the factors that affected their success in specific

modules and compared the professors perceptions to those of the students. This study resulted in the identification of the most relevant factors for the failure of students: (a) the lack of prior knowledge of accounting; (b) the language used in the teaching process (English), because students from other region of Africa did not use English as mother language; (c) lack of time to study, because most of them also worked; and d) the professors' abilities in involving the students in teaching-learning process.

As success factors associated to accounting teaching in the first modules pointed by Steenkamp *et al.* (2009) we can state: professional practice, regular attendance to classes, implementation of extracurricular activities and personal motivation. These authors supported their search taking into account the factors that, according to literature, influenced the success of college students mainly regarding the introductory accounting discipline (Table 1). We can note that the main factors are the ability to read, extroversion and introversion, if students are studying the module for the first time and whether these students work partially

Table 1 Factors that affect the success of students in the introductory accounting disciplines

Factors	Theoretical
Ability to read	Bohlman and Pretorius (2002); Pretorius and Bohlman (2003)
Previous exposition to Mathematics	Gul and Fong (1993)
Extroversion and introversion	Gul and Fong (1993); Auyeung and Sands (1994)
Genre	De Lange <i>et al.</i> (1997)
Age	Müller <i>et al.</i> , 2007
Mode of classroom or distance teaching	Woodley (2004)
Motivation	Müller <i>et al.</i> (2007)
Whether it is the first time the students are in this discipline	De Lange <i>et al.</i> (1997); Muller <i>et al.</i> (2007)
Work part-time	De Lange <i>et al.</i> (1997); Kirby and McElroy (2003)

Source: Steenkamp *et al.* (2009, p. 118).

Motivation is essential to any activity and it is indispensable to learning, because motivated students tend to learn more easily (Lima, Kroenke & Hei, 2011). These authors affirm “motivation is also related to previous knowledge which is a tie to a new learning”. This evidences that if there is some previous knowledge on some content the motivation to learn it is greater.

Oliveira, Theóphilo, Batista and Soares (2010) showed the relevance of understanding the students' needs, because the lack of motivation results in negative factors such as emotional tension, boredom, fatigue and low learning. The results showed positive aspects, with high level of motivation in students of the different stages in the course. Nevertheless, roused points that deserve attention, for example, lower levels of student motivation the subsequent periods of the course, compared to students from the early periods and lower motivation with elements linked to pleasure with the university.

2. Research hypotheses

In this study, we test four hypotheses. Geiger and Ogilby (2000) and Mandilas *et al.* (2010) verified that the students of accounting courses perceive introductory accounting discipline in more optimistic way than the students of other courses.

Thus, we formulate the first hypothesis:

H₁. The students of Accounting courses have an initial perception on introductory accounting discipline more optimistic than that of students in other related courses (Administration and Economy).

In order to test the second hypothesis we confront each early perception to the end ones. The results of the study of Geiger and Ogilby (2000) suggest that, except the perception concerned to the professor, the students change their perceptions along the semester so the initial and final perceptions are significantly different. On the other hand, Mandilas *et al.* (2010) highlighted that, among the ten variables in their study, only motivation and score have changed along the semester. To explore this question, we formulate the second hypothesis:

H₂ – The students' perception on accounting disciplines ministered at the beginning of Accounting, Administrations and Economy courses changes along the semester.

In this aspect, we suppose that the perceptions of the students on the introductory accounting discipline may be different from those of the students in other courses. This may also happen to the final perception. Mandilas *et al.* (2010) found that the early perceptions on introductory accounting disciplines for the variables 'relevance to the course', 'appreciation', 'motivation', 'learning expectation' and 'achievement expectation' are significantly different in Accounting and in other related courses. To final perceptions, these authors observed significant differences among the variables 'relevance for career and for the course', 'difficult' and 'boring' besides those found for the early perceptions. Thus, the third hypothesis is:

H₃ - The initial perception of accounting courses students on the introductory accounting discipline is different from those of the students in Administrations and economy courses.

Geiger and Ogilby (2000) and Mandilas *et al.* (2010) verified that the initial perception of the students on introductory accounting discipline might affect their performance in these disciplines. So, the fourth hypothesis is:

H₄ – The early perception of students in Accounting, Administrations and Economy courses on introductory accounting discipline affects their final perception and score in this discipline.

3. Methodology

This is a descriptive study with quantitative approach. We collected data by two questionnaires adapted from Geiger and Ogilby (2000). The first one is composed by eleven questions regarding the initial perceptions on introductory accounting

disciplines (Table 2). The second questionnaire is composed by ten questions concerned to final perception of these students on the introductory accounting discipline (Table 2).

For each one of the ten questions of the questionnaires of initial and final perceptions, the students should point the importance they perceived in a scale from 1 (without importance) to 10 (very important). The score expectation (question nr. 11) is a continuum variable, which the student should indicate a score from 0 to 10 for. The final score (questionnaire 2) of the students in the sample was obtained from the coordination of each course. The final score (questionnaire 2) of the students in the sample was obtained from the coordination of each course.

Table 2 Initial and final perceptions

Variable		Questionnaire 1 – Initial perception	Questionnaire2–Final perception
Course	CUR	1. This discipline will help me to have a good performance in my course.	1. This discipline will help me to have a good performance in my course.
Career	CARR	2. This discipline will help me to have a good performance in my career.	2. This discipline will help me to have a good performance in my career.
Reward	GRAT	3. Have a good performance in this discipline would be personally significant personally rewarding.	4. Have a good performance in this discipline was personally rewarding.
Time	TEMP	5. I hope to spend more time on this course than my other subjects in the semester.	3. I spent more time on this course than my other subjects in the semester.
Appreciation	APREC	6. I look forward to this discipline.	4. I liked to course this discipline.
Difficulty	DIF	7. This discipline will be difficult.	5. This discipline was difficult.
Boring	CHATA	8. This discipline will be boring	6. This discipline was boring.
Motivation	MOT	9. I am highly motivated to do well in this discipline.	7. I was highly motivated to do well in this course.
Learning	APREN	10. I hope to learn a lot in this discipline.	8. I expected to learn a lot in this course.
Professor	PROF	11. The professor will affect my opinion on the importance of this discipline	9. The professor affected my opinion on the importance of this discipline.
Score		12. Which is your expectation of score in this discipline: points	Final score got in (course coordination)

3.1 Sample selection

The search sample is composed by the students enrolled in introductory accounting discipline of Accounting, Administrations and Economy courses of a Brazilian public university (Table 3). Accounting Courses (AC) offers two initial accounting disciplines in the curriculum: one in the first semester (Introductory Accounting I – Int I) and another in the second semester (Introductory Accounting II – INT II). In Administration course (ADM), the introductory accounting disciplines take part of the curriculum of third and fourth semesters (Accounting I and Accounting 2) The Economy course (ECO) offers only one discipline of introductory accounting (Accounting and Balance Sheet Analysis). Except for Economy course, each discipline of Accounting and Administrations Courses discloses a class full-time and another at night.

Table 3 Analyzed disciplines

Course	Discipline	Acronym	Time	Period of ministration
Accounting Courses (AC)	Introductory Accounting I	Int-I	Full-time and at night	1 st . period
	Introductory Accounting II	Int-II	Full-time and at night	2 nd . period
Administration (ADM)	Accounting I	Cont-I	Full-time and at night	3 rd . period
	Accounting II	Cont-II	Full-time and at night	4 th . period
Economy (ECO)	Accounting and Balance Sheet Analysis	C&AB	Full-time	1 st . period

We applied the closed question questionnaires in the first and in the last week of the second semester of 2012. The number of students enrolled in introductory accounting disciplines in Accounting, Administration and Economy courses was 180 and 176 students, respectively (Table 4). However, only 98 (54%) of the students of Accounting courses answered both questionnaires (initial and final perceptions). In Administration and Economy courses, 47 students participated of the study and 27% answered both questionnaires. The complete sample was 145 students of the three courses enrolled in introductory accounting discipline in that semester.

Table 4 Sample by course

Sample composition	CC				ADM		ECO	ADM+ECO		CC + ADM + ECO	
	Int I	Int II	Total	%	Cont I	Cont II	C&AB	No.	%	No.	%
Number of students enrolled in the disciplines – 2 nd semester 2012	85	95	180	100%	57	91	28	176	100%	356	100%
(-) Number of students who did not answer the questionnaires	17	17	34	19%	19	33	1	53	30%	87	24%
(-) Students who answered only the questionnaire of initial perception	10	12	22	12%	0	10	1	11	6%	33	9%
(-) Students who answered only the questionnaire of final perception	<u>18</u>	<u>8</u>	<u>26</u>	<u>14%</u>	<u>20</u>	<u>28</u>	<u>17</u>	<u>65</u>	<u>37%</u>	<u>91</u>	<u>26%</u>
(=) Search Sample – students who answered both questionnaires (initial and final perceptions)	40	58	98	54%	18	20	9	47	27%	145	41%

3.2 Statistical tests

Depending on the variable normality, we evaluated the three first hypothesis using parametric average difference tests (Student t) and not parametric (Wilcoxon and Mann-Whitney) ones. T Student test is applied when the studied variable shows a normal distribution, when we do not know the population variance and when we want to test if a population average assumes or not a specific value (Fávero, Belfiore, Silva, & Chan, 2009). Wilcoxon test is an alternative to compare two population averages, but the variable ought not to show a normal distribution. Mann-Whitney test is used to test two independent samples extracted from equal population averages. Using this test, we can stratify the sample in two groups (e.g. Group 1 Accounting Sciences and group 2 –Administrations and Economy). According to Fávero *et al.* (2009, p. 163), “this is one of the most powerful not parametric tests and it is mandatory when the variable to me measured is in ordinal or quantitative scale. We applied average difference test in order to verify whether there is or not significant difference between initial and final perceptions of the students on the studied disciplines.

In order to choose the most appropriate average difference test we need to identify whether the studied variables present normal distribution. So we used Kolmogorov-Smirnov (K-S) and Shapiro (S-W) tests. K-S is an adhesion test which compares the distribution of cumulative frequency in a set of observed values in the sample with both expected and

theoretical distribution” (Fávero *et al.*, 2009, p. 112). S-W is an alternative to K-S test, which “also checks whether the variable has or not a normal distribution (Fávero *et al.*, 2009, p. 114).

For testing H_4 hypothesis, we used dependence statistic technique named as canonic correlation. It allows to evaluate the relationship between multiple independent variable (metric or not) and multiple dependent variables (metric or not) (Fávero *et al.*, 2009). The analysis of canonic correlations aims to resume the information of each answer variable set in linear combinations. We chose the coefficients of these combinations using by the criterion of maximizing the correlations among the sets of answer variables (Mingoti, 2005). Linear combinations we can construct are called canonical variables and the correlation between them is called canonic one and measures de association degree between two variable sets.

Canonic variables result from linear combinations of X and Y vectors. In each phase of the proceeding, we built two linear combinations, one related to X vector variables and another concerning to Y vector variables. According to Mingotti (2005), in each phase of the proceeding, we build a canonic variable pair named function. This technique ensures that the canonic variables in a function are not correlated to those of the other one. The maximum number of possible canonic functions is equal to the number of variables in the smaller set, being dependent or independent ones (Fávero *et al.*, 2009).

In this search, the eleven representative variables of final perception of the students of introductory accounting discipline in the analyzed courses are dependent variables (Table 2). The explicative variables are the eleven ones that represent the initial perception of them (Table 2).

4. Results

Table 5 presents the amount of answering students segregate by identification variables such as course, discipline, gender, period, first enroll in the discipline and professor gender. We noted prevalence of female students in accounting courses (62%) and of male students in Administration and economy (near to 60%). Approximately 94% of the students coursed the discipline the first time when they answered the questionnaire. Concerning to the age of the students the average of accounting courses students was 20.3 years and those who were enrolled to Economy and Administration together had an average of 21 years. We classified the students who did not sign whether it was their first time in the discipline as “others” in Table 5.

In order to apply the average comparing test we need first to identify whether the variables had normal distribution. Therefore, that we used the Kolmogorov-Smirnov and Shapiro-Wilk tests to verify normality of the initial and final perceptions of the students. The results rejected the normality hypothesis and for that, the parametric test was not applied. Wilcoxon Sign test is the most appropriate to the two first hypotheses is the sign test in this search, because the ordinary and continuous variables do not show normal distribution (Fávero *et al.*, 2009). This test analyzes paired data and takes into account the magnitude of the difference.

Table 5 Answerers' profile

Variables		AC				ADM		ECO	ADM+ECO		AMOUNTCC+ ADM+ECO	
		IntI	Int II	Amount		ContI	ContII	C&AB	No.	%	No.	%
				No.	%							
Gender	Feminine	27	34	61	62%	7	9	3	19	40%	80	55%
	Masculine	13	24	37	38%	11	11	6	28	60%	65	45%
	Amount	40	58	98	100%	18	20	9	47	100%	145	100%
Age	Average	20.4	20.1	20.3		21.6	20.6	20.7	21.0		20.6	
Period	first	40	0	40	41%	0	0	9	9	19%	49	34%
	second	0	48	48	49%	0	0	0	0	0%	48	33%
	third	0	2	2	2%	16	0	0	16	34%	18	12%
	fourth	0	0	0	0%	2	19	0	21	45%	21	14%
	fifth	0	2	2	2%	0	0	0	0	0%	2	1%
	seventh	0	2	2	2%	0	0	0	0	0%	2	1%
	Others	0	4	4	4%	0	1	0	1	2%	5	3%
	Amount	40	58	98	100%	18	20	9	47	100%	145	100%
Time	Full-Time	24	27	51	52%	9	10	9	28	60%	79	54%
	At night	16	31	47	48%	9	10	0	19	40%	66	46%
	Amount	40	58	98	100%	18	20	9	47	100%	145	100%
He is coursing the discipline the first time	Yes	40	53	93	95%	18	18	8	44	94%	137	94%
	No	0	5	5	5%	0	0	0	0	0%	5	3%
	Others	0	0	0	0%	0	2	1	3	6%	3	2%
	Amount	40	58	98	100%	18	20	9	47	100%	145	100%
Professor gender	Feminine	40	58	98	100%	0	10	0	10	21%	108	74%
	Masculine	0	0	0	0%	18	10	9	37	79%	37	26%
	Amount	40	58	98	100%	18	20	9	47	100%	145	100%

Table 6 presents a summary of the initial and final perceptions of analyzed courses students. We note, in initial and final columns in Table 6, that the average of answers in both perceptions is mostly over the neutral point (5 points) in a scale from 1 to 10. The variable 'boring', a negative perception on the discipline presents an average under the neutral point in both perceptions (5 points). Thus, we can conclude that the students of all the analyzed courses at the beginning perceive the introductory accounting discipline as positive.

Table 6 Test of initial and final perceptions averages

Variable	Accounting				Administration and Economy				General					
	I	F	z	p-value	I	F	z	p-value	I	F	z	p-value		
Course	9,77	9,54	-1,00	0,316	8,05	7,48	-0,97	0,330	9,24	8,94	-1,49	0,136		
Career	9,67	9,54	-0,92	0,359	8,26	7,50	-0,86	0,389	9,18	8,96	-1,26	0,209		
Rewarding	9,24	8,04	-4,40	0,000	***	7,71	7,13	-0,19	0,849	8,80	7,88	-3,73	0,000	
Time	6,78	7,47	-1,97	0,049	***	4,03	5,00	-2,73	0,006	***	5,85	6,78	-3,24	0,001
Anxious	6,97	7,16	-1,14	0,255	***	5,55	6,67	-2,34	0,019	**	6,42	6,87	-2,20	0,028
Difficultly	6,81	7,36	-1,89	0,059	**	5,64	6,22	-2,87	0,004	***	6,29	7,17	-3,22	0,001
Boring	3,48	4,57	-2,39	0,017	**	4,00	4,38	-2,07	0,038	**	3,65	4,68	-3,08	0,002
Motivation	8,43	6,95	-4,67	0,000	***	6,86	5,98	-0,84	0,403	***	7,89	6,72	-4,28	0,000
Learning	9,53	8,99	-3,00	0,003	***	8,07	7,68	-0,50	0,618	***	9,07	8,63	-2,57	0,010
Professor	6,68	6,91	-0,85	0,393	***	6,68	6,92	-1,77	0,078	*	6,62	7,08	-1,84	0,066
Score	8,58	6,62	-7,07	0,000	***	8,42	6,64	-5,42	0,000	***	8,56	6,64	-8,82	0,000

Note: ***, ** and * denote the statistical significance of the estimative in 1%, 5% and 10% respectively. *I* represents the initial perception, and *F* represents the final one. *Wilcoxon* test results are represented by *z* and *p-value*.

Concerning to the first search hypothesis, we noted that the students of accounting courses have a medium initial perception on the introductory accounting discipline more optimistic than those in the other analyzed courses (Table 6). This corroborates our hypothesis. The results are similar to those found by Geiger and Ogilby (2000) and Mandilas *et al.* (2010). The z and p -value in the third column represent the results of Wilcoxon test to compare averages. In the 'General' column, we note that except for career and course variables, all the others point significant differences between the initial and final perceptions of the students in the sample. Professor variable is 10% significant and the other ones are 1% significant. The variables time spent with the discipline, appreciation, difficulty and professor influence increased from initial to final perceptions. In comparing the initial and final perceptions of the students, we note that the variables personal reward, motivation, learning expectation and score decreased along the period. The medium final score got by the searched students was 6.62 in Accounting Courses and 6.64 in Administration and Economy courses was significantly smaller than the expected one (8.58 and 8.42, respectively). This means that the student expected the discipline would be easy. These results are confirmed by the significant increase in the average of difficulty variable in both Accounting Courses (from 6.81 to 7.36) and the other analyzed ones (from 5.64 to 6.22). Thus, we accept the first search hypothesis that the perceptions of the students in these courses change along the semester.

The results of this search diverge partially from those found by Geiger and Ogilby (2000) and Mandilas *et al.* (2010). Geiger and Obilby (2000) used t test to state that the variables course, rewarding, boring, motivation and score were significant. That means that initial and first perceptions of the students regarding these variables are statistically different. On the other hand, Mandilas *et al.* (2010), when analyzing together the three courses by Wilcoxon test found differences only in variables motivation and score and they concluded that only for these variables the initial and final average perceptions are different.

They state that the variables rewarding, motivations and learning showed significant differences between initial and final perceptions only in Accounting Courses (Table 7). This evidences significant decrease in the perceptions on the variables rewarding, motivation and learning expectation. For appreciation and professor, only Administration and Economy students showed statistical different averages for these perceptions, which suggest an increase in perception for these variables.

Table 6 presents the average of initial and final perceptions of the students of introductory accounting discipline in the analyzed courses. Moreover, we present the Mann-Whitney test results for comparing the averages between initial perceptions in both groups (Group 1 Accounting Courses; group 2 Administration and Economy). We also compared the averages of final perceptions for those groups. The average initial perceptions are significantly different (1%) for the variables course, career, reward, time, appreciation, difficulty, motivation and learning. All the variables that differ in initial perceptions also differ in the final ones, except for the variables reward and motivation.

Table 7 Average initial and final perceptions test among the courses

Variable	Initial perception					Final perception				
	AC	ADM/ECO	<i>z</i>	<i>p-value</i>	Sig.	CC	ADM/ECO	<i>z</i>	<i>p-value</i>	Sig.
Course	9.77	8.05	-7.20	0.000	***	9.54	7.48	-6.68	0.000	***
Career	9.67	8.26	-6.32	0.000	***	9.54	7.50	-6.45	0.000	***
Rewarding	9.24	7.71	-4.59	0.000	***	8.04	7.13	-1.13	0.260	
Time	6.78	4.03	-5.81	0.000	***	7.47	5.00	-4.25	0.000	***
Anxious	6.97	5.55	-3.53	0.000	***	7.16	6.67	-2.08	0.038	**
Difficulty	6.81	5.64	-3.81	0.000	***	7.36	6.22	-1.77	0.077	*
Boring	3.48	4.00	-1.23	0.219		4.57	4.38	-0.71	0.479	
Motivation	8.43	6.86	-4.12	0.000	***	6.95	5.98	-1.39	0.165	
Learning	9.53	8.07	-5.44	0.000	***	8.99	7.68	-3.62	0.000	***
Professor	6.68	6.68	-0.43	0.666		6.91	6.92	-1.11	0.268	
Score	8.58	8.42	-0.83	0.404		6.62	6.64	-0.49	0.624	

Note: ***, ** and * denote a statistical significance of the estimative in levels of de 1%, 5% and 10%, respectively. *AC* represents Accounting Courses and *ADM/ECO* represents a perception Administration and Economy together. The results of *Mann-Whitney tests* are represented by *z* and *p-value*.

The average of initial perception of the students was similar to the variables boring, professor and score expectation (Table 7). Specifically, analyzing each of the variables in Table 7, we concluded on the students of Accounting course at the beginning of the semester of 2012 (column initial perception):

- More than the students of the other courses (4.03); they expected to spend more time in studying this discipline (6.78) when they compare it to the others in the semester.
- They seemed more anxious in coursing introductory accounting discipline than Administration and Economy students (5.55).
- They believe (6.81) that the discipline will be more difficult than the others (5.64).
- They consider themselves more motivated (8.43) and expect to learn in this discipline (9.53) more than the students of the other analyzed courses (6.86 and 8.07 respectively);
- in a manner equivalent to students of Administration and Economy , they believe that the professor will affect their opinion on the usefulness of the discipline (6.68)

Thus, we can infer that the students of Accounting Courses in the sample perceive, at the beginning of the semester, the introductory accounting discipline as more relevant to their academic and professional performance than the students of the related courses.

At the end of the semester, the students of Accounting Courses significantly believed that the introductory accounting discipline would help them to have a good achievement in the course and in the career, more than the students of other courses. Furthermore, the accounting courses students, when compared to those of other fields perceived that (1) they spent grater time in the discipline; (2) they liked to course the discipline; (3) the discipline was more difficult than expected; (4) they learnt more in the discipline than the other students did. On the other hand, the average final perception of the students

on the introductory accounting discipline in the courses of Accounting, Administration and Economy are similar concerned to the variables gratification, boring, motivation, professor and final score.

From table 7, we can note that the initial and final perception of the accounting courses students on introductory accounting discipline is different from those of the other courses students. This corroborates the third hypothesis in this search.

4.1 Canonic correlations

The results of statistic tests for analyzing canonic correlations are registered in Table 8. First, considering the number of canonic functions (CF) is the is the set with the smallest number of variables (Fávero *et al.*, 2009) and the amount of dependent variables is equal to the quantity of explicative ones, the number of canonic functions is eleven (FC1 to FC11). For each function, we calculated the canonic correlation, the R^2 and F statistics and the redundancy index.

The canonic correlation reflects the strength of the relation in each pair of canonic variables. The canonic R^2 is the result of squared canonical correlation and reflects a portion of the variance explained by the canonical ensemble in other words, the portion of shared variance between the two canonical sets (Fávero *et al.*, 2009). The canonic correlation between the variables, which represents the initial and final perceptions in FC1 function is 0.663 and canonic R^2 is 0.440. We can note that this is a decreasing correlation between the functions, that is, the FC1 function represents the greater explicative power among the variables (Table 8).

Table 8 Statistic Tests of canonic functions

Canonic function	Canonic correlation	Canonic R^2	F statistic	Probability	Redundacy Index
FC1	0.663	0.440	121.000	0.000	11.841
FC2	0.575	0.330	100.000	0.000	3.399
FC3	0.471	0.221	81.000	0.011	1.958
FC4	0.432	0.186	64.000	0.072	1.734
FC5	0.411	0.169	49.000	0.252	1.379
FC6	0.298	0.089	36.000	0.667	0.596
FC7	0.240	0.058	25.000	0.745	0.347
FC8	0.229	0.053	16.000	0.709	0.259
FC9	0.168	0.028	9.000	0.773	0.174
FC10	0.124	0.015	4.000	0.724	0.094
FC11	0.028	0.001	1.000	0.756	<u>0.005</u>
21.786					
Multivariate significance tests					
Statistic	Value	Approximate F statistic		Probability	
Lambda from Wilks	0.154	121.000		0.000	
Trace from Pillais	1.591	121.000		0.000	
Trace from Hotelling	2.256	121.000		0.000	

When analyzed separately, only the three first functions are significant in 95% of confidence level (statistical probability $F=0.000$, 0.000 and 0.011 respectively). However, when we analyze the multivariate tests Lambda from Wilks, Trace from Pillais and Trace from Hotelling, we perceive that the eleven functions took collectively are statistic significant (probability <0.05).

Redundancy index registered in Table 8 is similar to R^2 , which would result from a regression (Fávero *et al.*, 2009). This index shows the percent of variance of a set of variables, which can be explained by the variance in the other set, according to Hair, Black, Anderson and Tatham (2005). For these authors, there is not guide on the minimal acceptable redundancy index. Thus, the amount of redundancy measurement in the dependent and explicative variables is equal to 21.786%. That means the initial perceptions of the students on introductory accounting discipline influence 21.786% of the final perception variance by these students. A great part of this variance is generated by the first canonic function (11.841%).

With the significant F statistic canonic function, we consider that we can continue analyzing the results with acceptable canonic R^2 and redundancy index. Table 9 presents the canonic charges for the dependent and independent variables to the eleven canonic functions. Canonic charge reflects bivariate relationship between one variable and the canonic variable (Fávero *et al.*, 2009). In other words, canonic charge in each variable reflects the variance that this variable shares in the canonic set. Therefore, the greater the coefficient, the more important is the variable in the derivation of the canonical ensemble.

Table 9 Charges between dependent, d independent and canonic variables

Variable	Canonic charge										
	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10	FC11
Dependent Variables (final perception)											
Course	0,794	-0,025	-0,402	0,358	0,045	0,038	0,220	-0,107	0,005	-0,072	0,106
Career	0,864	0,009	-0,207	0,004	0,059	-0,211	0,205	-0,179	0,088	0,132	0,251
Rewarding	0,540	0,286	0,033	0,488	-0,070	-0,301	0,203	0,137	0,177	0,439	0,084
Time	0,472	0,199	-0,079	-0,006	0,777	0,005	-0,172	-0,099	-0,014	0,156	-0,253
Anxious	0,394	0,121	0,350	0,487	0,382	0,166	0,218	-0,158	0,229	0,003	0,415
Difficulty	0,004	0,133	-0,213	-0,310	0,036	-0,246	-0,200	-0,092	0,646	-0,464	-0,312
Boring	-0,466	-0,011	-0,493	-0,377	0,204	-0,283	0,411	-0,092	0,646	-0,464	-0,312
Motivation	0,390	0,372	0,367	0,382	0,112	-0,407	0,052	-0,328	-0,332	-0,099	-0,140
Learning	0,687	0,390	-0,010	0,102	0,059	-0,027	0,323	0,372	-0,184	-0,258	-0,132
Professor	0,053	0,822	-0,350	-0,021	-0,235	0,182	-0,062	-0,250	0,147	-0,049	0,140
Final Score	0,265	0,100	0,305	0,158	-0,155	0,480	0,363	-0,355	0,037	0,367	-0,392
Independent Variables (initial perception)											
Course	0,791	-0,018	-0,402	0,033	-0,100	-0,030	-0,237	-0,111	0,011	0,043	-0,360
Career	0,784	-0,269	-0,024	-0,340	-0,230	0,234	-0,137	-0,195	-0,174	0,033	-0,032
Rewarding	0,733	0,310	-0,029	-0,163	-0,183	-0,064	0,050	0,517	0,037	-0,120	-0,125
Time	0,383	0,206	-0,227	-0,431	0,598	-0,096	-0,209	0,033	-0,252	0,312	0,025
Anxious	0,633	0,366	0,268	-0,032	0,470	0,265	0,088	-0,147	0,177	0,154	-0,129
Difficulty	0,230	0,060	-0,078	-0,569	0,345	-0,285	-0,059	-0,269	0,161	-0,558	-0,018
Boring	-0,402	0,150	-0,430	-0,428	-0,145	-0,083	0,565	-0,175	-0,188	-0,035	-0,183
Motivation	0,682	0,131	0,050	0,169	0,140	-0,230	0,096	-0,368	0,112	0,123	0,492
Learning	0,757	-0,124	-0,357	0,123	0,088	0,322	-0,039	0,122	-0,051	-0,232	0,291
Professor	0,020	0,718	-0,116	-0,048	-0,110	0,239	-0,411	-0,212	-0,292	-0,238	0,208
Initial Score	0,298	-0,102	0,110	0,454	0,207	-0,194	0,200	-0,083	-0,679	-0,214	-0,220

Among the eleven dependent variables, career is that shows greatest canonic charge in FC1 (0.864), followed by the variables Course (0.794), Learning (0.687) and Rewarding (0.540). These variables are the most important ones for this function. Concerning to independent variables, the most relevant to function FC1 were Course (0.791), Career (0.784), Learning (0.757), Rewarding (0.733), Motivation (0.682) and Anxious (0.633). Therefore, taking into account the positive

signs including loads, we can conclude that the initial perception of the students on the variables course, career, rewarding, anxious, motivation and learning have a positive impact on their final perception on the variables course variables, career, rewarding and learning, got from canonic charges exposed in Table 9 and resumed in Table 10.

From the results of Tables 9 and 10, we can infer that:

- FC1 – The student perception of the variables learning, motivation, rewarding and importance of the discipline depends on his degree of motivation, anxiety, rewarding and importance of the discipline to his performance.
- FC2 - the initial perception of the student on the possibility of the professor affect his opinion on the usefulness of the discipline affected his final perception on this variable. This result is coherent to the average test exposed in Table 7, where the initial perception average is not different from the final perception for the professor variable.
- FC4 - the higher the student's initial perception that the discipline will be difficult and boring, less anxiety for students attending this course.
- FC5 - the higher the initial willingness of the student to spend more time with the introductory accounting discipline than with the other subjects of the semester, the greater the time taken for this purpose
- FC9 - the lower the expected grade in the course, the higher the final perception that discipline was difficult and boring.
- FC10 - the higher the initial perception that student discipline is difficult to lower the grade obtained by students at the end of this semester.

Table 10 Relationship between Initial and Final Perceptions

Function	Dependent Variables (final perception)	Independent Variables (initial perception)	Impact
FC1	Course, Career, Rewarding, Learning, Motivation (Second option)	Course, Career, Rewarding, Anxious, Motivation and Learning	positive
FC2	Professor	Professor	positive
FC4	Anxious	Difficulty, Boring (Third Option)	negative
FC5	Time	Time	positive
FC9	Difficulty, Boring	Initial Score	negative
FC10	Final Score (Second Option)	Difficulty	negative

The last stage of canonic correlations involves the validation of results by the sensitivity analysis, according to Hair *et al.* (2005). For him (2005, p. 370), “an appropriate approach is to evaluate sensibility of the results concerning to removing a dependent or independent variable”. Table 11 presents the results of this analysis for FC1. We examined canonic charges to stability when the variables initial score, professor and anxious are omitted in the analysis.

Table 11 shows that FC1 canonic charges are stable and consistent in the three cases where an independent variable (initial score, professor, anxious) is eliminated.

Table 11 Sensibility Analysis

Variável	Standardized Original coefficient	Results F C1aftere liminating:		
	FC1	Initial score	Professor	Anxious
Dependent variables (final perception)				
Course	0.794	0.792	0.787	0.802
Career	0.864	0.867	0.858	0.869
Rewarding	0.540	0.531	0.561	0.531
Time	0.472	0.468	0.481	0.443
Anxious	0.394	0.369	0.399	0.356
Difficulty	0.004	0.028	0.014	0.007
Boring	-0.466	-0.447	-0.472	-0.454
Motivation	0.390	0.362	0.423	0.368
Learning	0.687	0.685	0.717	0.661
Professor	0.053	0.089	0.134	0.024
Score	0.265	0.259	0.275	0.239
Independent variables (initial perception)				
Course	0.791	0.803	0.789	0.805
Career	0.784	0.791	0.763	0.795
Rewarding	0.733	0.746	0.757	0.725
Time	0.383	0.395	0.395	0.37
Anxious	0.633	0.634	0.658	omitida
Difficulty	0.230	0.240	0.231	0.208
Boring	-0.402	-0.383	(0.389)	-0.387
Motivation	0.682	0.679	0.690	0.677
Learning	0.757	0.763	0.746	0.768
Professor	0.020	0.039	omitida	-0.02
Score	0.298	omitida	0.288	0.301

5. Conclusion

This study was carried out aiming to identify whether there is or not relationship between the initial and final perceptions of the students on the accounting disciplines ministered at the beginning of Accounting Courses, Administration and Economy courses in a Brazilian public university in Minas Gerais. 145 students enrolled in these courses in the second semester 2012 composed the sample. We used Wilcoxon and Mann-Whitney tests in order to verify whether the averages of initial and final perceptions of these students are significant different in these courses. We used canonic correlation analysis in order to evaluate the relationship between the multiple independent variables (initial perception) and the also multiple dependent variables (final perception).

The results confirm the four hypothesis of this study and they suggest that: (1) The students in Accounting Courses have an initial perception on the introductory accounting disciplines more optimist then those of the students in other courses (Administration and Economy), although the tree courses have presented positive initial perceptions on these disciplines; (2) the students' perception changes along the semester; (3) the initial and final perception of accounting courses students on the disciplines ministered at the beginning of the course is different from those from Administration and Economy courses; (4) The initial perception of the students on these disciplines affect their final perception and their final score in them.

Specifically, the results point out that the students in Accounting Courses of this sample, at the beginning of the semester, perceive introductory accounting disciplines as being more relevant to their academic and professional performance than the

students of Administration and Economy do. According to the final perception average, the accounting courses students spend more time with the introductory accounting discipline, appreciate them and learn more than the students of the related courses;

Moreover, the canonic correlations suggest that the higher the student's initial perception that the discipline will be difficult and boring, less anxiety for students attending this course. In addition, the lower the expectation of score at the beginning of the semester in the discipline, the greater the final perception that discipline was difficult and boring. The higher the initial perception that student discipline is difficult, the lower the score obtained by students in this end of semester.

These results confirm those found by Geiger and Ogilby (2000) and Mandilas *et al.* (2010). They result in the relevance of considering the students' perception on the introductory accounting discipline as a factor that can affect their performance in these disciplines.

This exploratory study can be used as a basis for understanding the students' perceptions on introductory accounting discipline at the beginning of Graduation courses. The main limitations of this study are the small sample size (only a Brazilian public university) and only one semester. Future researches may avail themselves of a representative sample of the Brazilian states and a greater time horizon.

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