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## Editorial

### Dear Reader,

The Journal of Accounting Education and Research (REPeC) is a scientific journal issued by the Brazilian Academy of Accountancy (Abracicon), published quarterly in the electronic form.

As from this Volume 11, Issue 1, we assume the responsibility of maintaining the excellent work developed under the mandate of Prof. Valcemiro Nossa, Ph.D. who was at the head of the REPeC until the previous edition. And as a result of the work of the Editorial Team led by that professor, we have witnessed the recent rise of the REPeC to the stratum B1 of Qualis-Capes. Therefore, we appreciate the work of Valcemiro and we face the challenge of building on the advances of the magazine.

Also in 2017, Prof. Gerlando Augusto Sampaio Franco de Lima, Ph.D., from the University of São Paulo (USP), starts to service as the adjunct editor of REPeC, whom we wish success. We are sure that his contributions will be most valuable.

Another novelty that we highlight is the introduction of Ahead of Print in the journal, which seeks to give greater agility to the publication process of the articles, as well as speed in the availability of scientific research, as soon as they are approved for dissemination.

The following is a brief description of each of the papers published in this issue, coming from different regions of the country and related to various topics of Accounting.

The first study, entitled “Behavior and Particularities of Academic Production on “Management Accounting” published in the ISI WEB of Science Core Collection between 1985 and 2014”, by Henrique César Melo Ribeiro and Vanessa Carvalho Miranda Tavares, analyzed the behavior and particularities of the academic production on the Management Accounting theme published in the ISI Web of Science Core Collection from 1985 to 2014, whose results point to the evolution of the theme as from 2007, with Accounting, Organizations and Society and Management Accounting Research as the journals that most published on the subject “Management Accounting”, evidencing the following subjects: education; accounting teaching and research; cost management; management control; strategic management; and Management Accounting system.

Ivam Ricardo Peleias, Erotides Rocha Guimarães, Betty Lilian Chan and Mary Sandra Carlotto are the authors of the study entitled “The Burnout syndrome in accountancy students from Private HEI: a research in the city of São Paulo”, whose objective was to identify the prevalence and the sociodemographic, labor and academic factors associated with the burnout syndrome in final-year Accountancy students. In their results, significant differences can be verified among the students in the three dimensions, in which 46.3% of the students presented problems in Emotional Exhaustion; 11.2% in Disbelief; 31.3% in Professional Effectiveness; and part of the students, when manifesting the feeling of incapacity, increases the chances of exposure to Burnout.

The third work, entitled “The view of the academy and the job market on teaching auditing”, was carried out by Jhonatan Hoff, Luiz Alberton and Rita de Cássia Correa Pepinelli Camargo and sought to identify the perception of audit teaching under the academy and the labor market’s approach, based on the evaluation of the importance professionals and teachers attribute to the main conceptual and normative aspects of the audit area. The results show that, in approximately 75% of the issues raised in this paper, the academy tends to correspond to the market’s expectation of the importance given to such matters within the Audit discipline. The main differences are related to Assurance Service, Audit of Non-Profit Entities, Audit of Government Agencies, Quality Control and Audit of Information Systems.

In the fourth study, entitled “Relevant Skills for Criminal Accounting Expertise: the perception of Federal Police experts and delegates”, Carlos Roberto dos Santos Filho, Flávio Alves Carlos and Fábio Moraes da Costa identified the skills that were considered most relevant for the practice of criminal accounting expertise in the country. Like in international research, the skills perceived as most relevant were written communication, deductive analysis and critical thinking. The less relevant skills were the interview and the resolution and negotiation of conflicts. While experts and delegates understand that written communication is the most present ability, delegates consider that critical thinking and serenity are the most present.

“Self-Regulated Learning (SRL) Strategies in Distance Education in Accounting”, by Thiago Bruno de Jesus Silva, Luis Antonio Lay, Nelson Hein, Vania Tanira Biavatti and Vinícius Costa da Silva Zonato, was the fifth study, which identified the self-regulated learning strategies used by DE accounting students and analyzed how these strategies could be explained based on the student’s (semester) stage in the course. Their findings allowed us to infer that the profile of students in Distance Education, considering self-regulated learning, was marked by the significant use of strategies according to the model proposed by Zimmerman and Pons (1986), in which there are significant differences in the students’ mean scores between the initial and final course stages.

The sixth article, by Fabiana Frigo Souza and Ernesto Fernando Rodrigues Vicente, entitled “**Understanding of Accountancy Graduates in the Relevant Concepts Taught in the Subject Accounting Theory at HEI in Greater Florianópolis**”, identified the students’ understanding of the relevant subjects taught in the discipline Accounting Theory. The results of this research show that students perceive the concepts related to the discipline in a way more linked to standardization and that, for most respondents, the discipline Accounting Theory was considered of fundamental importance and should not be eliminated. Yet, there is little discussion on some subjects, some of which the students are not familiar with at all, like in the case of Agency theory and Earnings Management.

Finally, the entire Editorial Team of REPeC hopes you enjoy your reading!

**Prof. Orleans Silva Martins, Ph.D.**  
**Editor-in-Chief**

# Behavior and Particularities of academic production on “Management Accounting” published in the database *ISI WEB of Science Core Collection* between 1985 and 2014

## Abstract

The objective in this study was to analyze the behavior and the particularities of the academic production on the theme Management Accounting published in the ISI Web of Science Core Collection from 1985 to 2014. Methodologically, this research used the bibliometric and sociometric analysis techniques. The main results were: evolution of the theme as from 2007; Accounting, Organizations and Society and Management Accounting Research, which were the journals that most published on the subject “Management Accounting”; Lukka, K. was the most prolific author; the University of Turku was the institution that stood out; and the United States of America was emphasized in the production on that theme. In relation to the co-authorship networks, their low degree density was observed, leading to a high degree centrality and betweenness. And the themes that were highlighted in this study were: education; accounting teaching and research; Cost management; Management control; strategic management; and management accounting system. It is concluded in a macro way that this study evidenced inherent and contemporary information on the subject “Management Accounting”, focusing on its nuances in the behavior and particularities of its academic production, published in ISI Web of Science Core Collection from 1985 till 2014.

**Key words:** Management accounting; Academic production; International journals; Bibliometrics; Sociometrics.

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## 1. Introduction

“Management Accounting” is a theme (Riccio, Mendonça Neto & Sakata, 2007) that involves support for the decision process and, consequently, decision making (Küpper, 2009; Beuren & Macohon, 2011) in the elaboration of planning and performance management systems (Wanderley & Cullen, 2012), and in providing competences related to economic-financial and control reports (Guerreiro, Fezatti, Lopes & Pereira, 2005), advising managers on the formulation and implementation of the corporate strategy (Lunkes, Feliu & Rosa, 2012). Thus, the role of management accounting is to focus on the strategic business process and thereby create value for the organization (Padoveze, 1999).

For Guerreiro, Cornachione Júnior and Soutes (2011), management accounting, at its present stage (its most recent stage up till now), identified since the beginning of 1985, focuses on the production and / or creation of value thro the effective use of resources, using value creation drivers for consumers, shareholders and consequently for the organization, making use of isolated information or combined with other resources to create new scenarios within the organization (Ribeiro & Espejo, 2013).

In their research, Ribeiro and Espejo (2013), to analyze the thematic options in theses and dissertations defended in the *Stricto Sensu* Post-graduation Programs in Accounting in Brazil between 1973 and 2010, highlighted that the main theme was the Balanced Scorecard (BSC), followed by the Economic Value Added (EVA) and the remainder with lower percentages. This result is understandable, considering the evolution that the BSC represented when it emerged and the fact that it is “contemporary”, that is, it is still consolidating (Ribeiro & Espejo, 2013).

In this scenario, research on the accounting area (Borba, Murcia, Rover & Souza, 2009), especially regarding the academic production on the theme “Management Accounting”, has been gaining a broader dimension in the Brazilian scientific literature context, as can be seen from the studies published in journals that highlight the theme “Management Accounting”, such as Barros, Schckaiban, Gomes and Felin (2008), Cruz, Espejo, Gassner and Walter (2010), Nascimento, Junqueira and Martins (2010), Tavares Araújo and Castro Silva (2010), Lunkes, Rosa, Gasparetto and Baldoino (2011), Lunkes, Feliu, Borba & Rosa (2012), Oliveira and Boente (2012), Ribeiro e Espejo Beuren and Hall (2014), Beuren and Nascimento (2014), Kremer, Da Luz, Suave and Lunkes (2014), Lunkes, Gasparetto, Schnorrenberg and Rosa (2014) and Da Silva and Beuren (2015), and through studies that also exalt management accounting, although not predominantly: Carvalho, Saraiva Junio, Frezatti and Costa (2015), Colauto and Almeida (2013), Ribeiro (2013), Brizolla, Chiarello and Lavarda (2014), Carmo, Xavier, Pereira and Martins (2014) and Cunha, Santos and Beuren (2015).

In the studies that focus on the predominance of the theme “Management Accounting”, the versatility of these issues is verified with regard to the scientific production on the subject, permitting the calibration of a large number of bibliometric and / or sociometric indicators. This entails interesting information on the nuances that make up the management accounting theme in the national and international context, contributing to its better understanding and its importance as an essential subject for the field of accounting knowledge.

Based on these studies, overall, the authors sought to know how the theme “Management Accounting” spread and evolved, through databases of national congresses, especially the National Meeting of the Association of Postgraduate Education and Research in Administration (Enanpad), of Brazilian journals ranked from B1 to A2 and of international journals ranked in Scopus, ProQuest, Science Direct and Accounting, Organizations and Society.

In view of the above, the current research, in addition to highlighting more recent studies on the theme “Management Accounting”, offering a clear contribution contribution, will also seek international papers through the ISI Web of Science database, which according to Guz and Rushchitsky (2009) is one of the largest and most important databases, as it involves several areas of knowledge, disseminating scientific studies. Thus, this database is often used to research the scientific production of topics in the global academic literature. In view of this other factor, another important and essential contribution of this study to the national academic literature is addressed.

The choice of the ISI Web of Science database is justified because several academic studies use it to carry out bibliometric studies as the main source of information. The studies by Bar-Ilan (2008) and Falagas, Pitsouni, Malietzis and Pappas (2008) used the aforementioned database in their respective studies.

Also in the ISI Web of Science database, studies were developed in health knowledge, by Zauber, Winawer, O'Brien, Ho, Gottlieb and Stemberg (2012) and management, especially on corporate governance (Ribeiro, 2014a) and on the same theme in sports (Ribeiro, Costa & Ferreira, 2015) and sustainability (Ribeiro, 2014b). Among other studies carried out in the Web of Science database, its importance is highlighted to compare content, themes and / or fields of knowledge in scientific literature available in the global academic context.

Thus, and knowing that the dissemination of the scientific production of academic research is one of the most important ways of disseminating and socializing scientific knowledge on a global scale (Murcia & Borba, 2008), the research question that will guide this study is: **What is the behavior and particularities of the academic production on the theme Management Accounting published in the ISI Web of Science Core Collection from 1985 till 2014?** In this context, the objective of this study is to analyze the behavior and the particularities of the academic production on the theme Management Accounting published in ISI Web of Science Core Collection from 1985 to 2014.

The start of the study in 1985 is justified because it is the year when the most recent evolutionary stage of management accounting emerged, which continued to date (Guerreiro, Cornachione Júnior & Soutes, 2011; Teixeira, Gonzaga, Santos & Nossa, 2011; Oliveira & Boente, 2012, Ribeiro & Espejo, 2013).

## 2. Theoretical Background

This section is focused on bibliometrics and sociometrics, beyond the theme management accounting.

### 2.1 Bibliometrics and sociometrics

Bibliometrics is a set of constantly developing research methods (Caldas & Tinoco, 2004). It is worth mentioning that bibliometrics is the study of the quantitative characteristics of scientific production (Ribeiro, Costa & Ferreira, 2015) and, consequently, of its dissemination and use of the information disseminated through mathematical and statistical methods (Spinak, 2013). It is a research technique that permits the assessment of the academic production on themes (Souza & Ribeiro, 2013) and / or areas of knowledge in order to contribute and socialize the contents on these subjects and / or fields of knowledge in the global academic literature environment (Hid, Nascimento & Oliveira, 2012).

Bibliometrics also focuses on counting authoring and co-authoring, through the analysis of publications, citations (Silveira & Bazi, 2010) and co-citations (Cronin, 2001). This permits showing what can happen at different academic levels, conjecturing on the quality of these publications (Glänzel, Debacken, Thijs & Schubert, 2006) and permeating the international scene (Smith & Hazelton, 2008). Thus, we can know which countries, territories, languages and areas of knowledge stand out in the diffusion of these publications in the international scientific context (Tsai, 2013).

Bibliometric studies allow for the constitution and socialization of scientific knowledge as evidenced previously, but Daim, Rueda, Martin and Gerdri (2006) emphasize that this type of research also admits the rapport and better apprehension of the past and the prediction for future research, including recent, emerging and / or mature themes, in line with Ribeiro (2013), besides tolerating a large number of bibliometric indicators that allow and assist students to judge and apprehend various themes, without them, embryonic, evolving or legitimized in the international academic literature.

The socialization of knowledge and the development of the theme that is to be understood depends on its exposure and circulation, through its publication and disclosure in books and, mainly, in scientific journals (Hoffman & Holbrook, 1993).

The scope of bibliometric research is to guide the researchers and put them in contact with what has already been produced and published previously on the research subject of interest (Padua, 2004). In this context, Cruz and Ribeiro (2003) emphasize that a bibliometric study can look at an element of studies carried out and disseminated previously on the same subject studied at the time. It can also identify and select the research methods and techniques to be used, as well as provide subsidies for future studies, like in the case of recent studies on the subject investigated.

Another advantage of using bibliometrics, according to Hayashi, Hayashi, Silva and Maycke (2007) is the fact of apprehending the number and frequency of publications chronologically, that is, temporarily permitting and contributing to the evaluation of groups of researchers, that is, of studies and their respective Higher Education Institutions (HEI).

For Michels and Schmoch (2014), there was a significant increase in the use of the bibliometric research technique with the purpose of measuring, investigating, evaluating and analyzing topics of interest in several areas of knowledge. This development was due to the fact that previous analyses on these subjects were merely subjective.

The impact of bibliometric analyses on the global scientific literature, according to Michels and Schmoch (2014), came from nations like Australia, Norway, the United Kingdom and Spain. These countries positively guided the change in the behavior of the students (Weingart, 2005; Bornmann, 2010), contributing to the better understanding and conception of themes, their respective scientific productions and, later, their concomitant propagation and socialization in the global academic setting.

El-Maamiry and Abid-Ghauri (2013) further point out that bibliometrics is much used by libraries and information science, but that it significantly influences other areas of knowledge, since these fields of knowledge use bibliometrics to expose the prominence of their respective activity area in the global scientific context.

In addition to bibliometrics, the present study also emphasizes and highlights social network analysis by understanding society as an objective structure of individuals and their consequent relationships, thus seeking principles that govern the functioning of groups and their partnerships (Moreno, 1992, 1993). Based on the understanding of these relations, it is better to understand the connection among them. This aspect is considered as “sociometrics”.

The first sociometric studies were conducted as from 1932 by Jacob Levy Moreno, who coined the term sociometrics in studies conducted with girls in Hudson, New York. Thus, Moreno (1951) defined sociometrics as an experimental method that is studied by mathematics, assessing the psychological attributes of society and the results obtained through the application of quantitative methods.

Moreno (1992, 1993) explains that, aiming at the organization and spontaneity of the human being and seeking to analyze the principles that govern the functioning of groups, he came to the conclusion that the set of sociometric choices made and perceived by an individual or a population constitutes what the author called a social atom, and can be influenced by individual and / or group preference.

Parts of these groups attach themselves to others and so on and constitute social or sociometric networks, which are responsible for transmitting their opinions publicly. Moreno (1993) also complements that this instrument permits investigating the links between people and to map them, so that they can be understood as a function of the group. It is concluded, therefore, that Sociometrics is the science of human relations measures (Moreno, Bouza & Karsz, 1962).

Thus, the study on the subject “Management Accounting” becomes relevant, since the subject is mature and legitimized in the national academic scenario. This study will jointly study, investigate and analyze articles on the subject though by searching the ISI Web of Science database, which is widely accepted and important in the international scientific context (Guz & Rushchitsky, 2009), thus dealing with a strong contribution to the Brazilian academic literature in the area, mainly due to the fact that the aforementioned study will address the current status of articles published on the research subject.



It is highlighted that, in Brazil, the studies on the subject "Management Accounting" have gained prominence and increasingly gained room in the academic environment through its relation with other subjects, as could be perceived earlier in this study. Another important justification for this study is that its findings guided themes and / or areas of knowledge that relate directly to its main subject, contributing to its better understanding and future development and greater diffusion in the Brazilian scientific scenario.

## 2.2 Management accounting

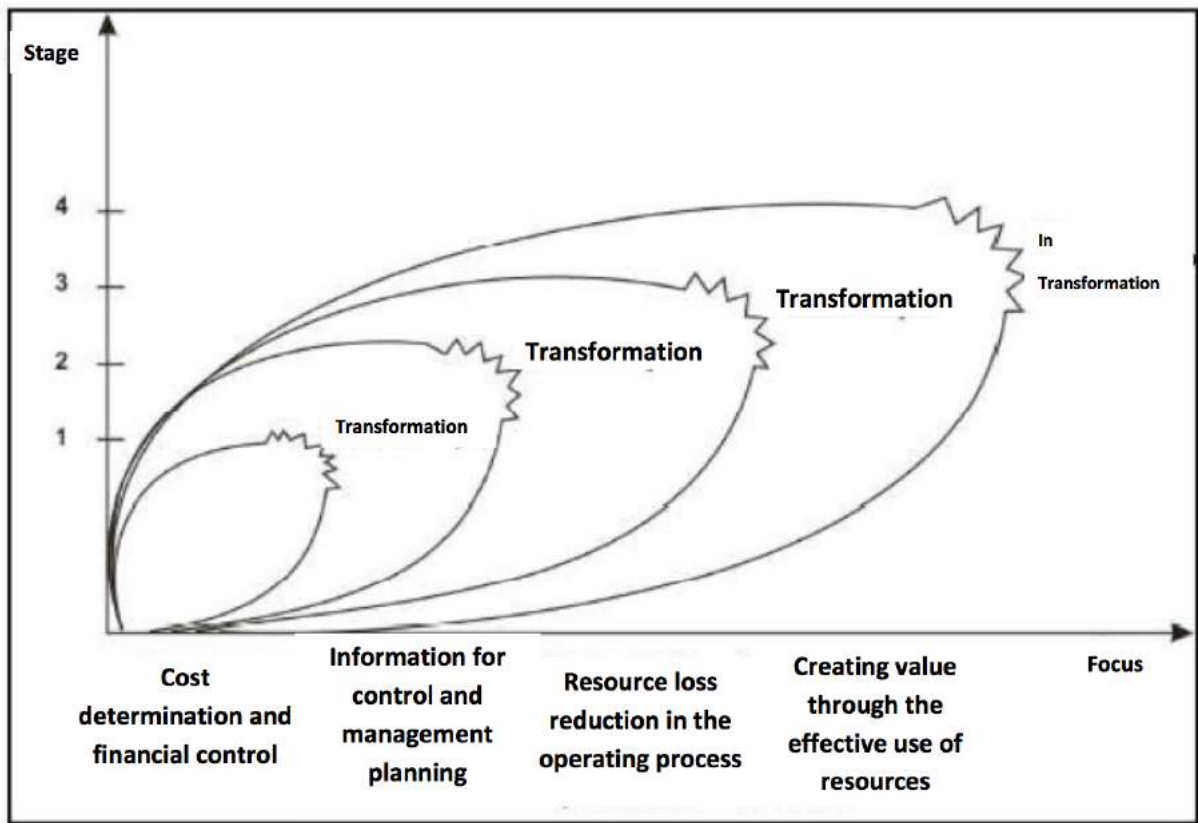
As from the 1960s, the theme "Management Accounting" became mature and legitimized in a tangible way as a social science. In a macro way, this maturation and concretization took place due to the emphasis on empiricism and positivism which, together with the growth of case and field studies on the subject in Europe, have consequently impacted its establishment as an academic discipline in universities (Lunkes et al., 2011; Lunkes, Feliu, Borba & Rosa (2012).

Another justification for the emphasis on management accounting research in the 1960s was based on entrepreneurial motivations, which required new techniques and theories that would provide greater assertiveness towards organizations pondering this new scenario (Cruz et al., 2010).

In this panorama, management accounting interacts with a wide range of management procedures in all companies. Accounting is characterized as a universal institution in which the role of management accounting evolves and spreads according to the needs of companies in the global corporate market (Beuren & Erfurth, 2010). It should be noted that, in the last decades, management accounting has undergone four evolutionary stages (Ribeiro & Espejo, 2013).

According to Ribeiro and Espejo (2013), the four evolutionary stages of management accounting (Figure 1) proposed took into account that, with the improvement of organizations in the financial market, management accounting practices were also evolving and gaining shape, seeking to attend to the information needs. Thus, they ended up attributing a new reality to global business. In a general way, management accounting had clearly outlined phases, which demonstrate their respective ranges throughout their existence, as highlighted below.

The first stage lasted until 1950 and, in that period the main objective was qualified as the determination of cost and financial control, through budget and cost accounting. At this stage, the main mechanisms and methods used were: annual budgets, financial and operational control, absorption costing and variable costing (Guerreiro, Cornachione Júnior & Soutes, 2011; Teixeira et al., 2011).



**Figure 1.** Evolution of stages of Management Accounting

Source: Padoveze (1999).

The second stage was from 1950 to 1965 and, in that period, management accounting was concentrated in the provision of information for planning and management control, through the use of information techniques of decision-making analysis and accountability-based accounting. The following stand out as instruments and methods: standard costing, activity-based costing (ABC), RKW (Reichskuratorium für Wirtschaftlichkeit) and decentralization of decision-making (Briers & Chua, 2001; Guerreiro, Cornachione Júnior & Soutes, 2011; Teixeira et al., 2011).

The third stage began in 1965 and lasted until 1985. During this period, the focus was on minimizing waste of economic resources in processes and projects, with emphasis on process analysis and cost management through strategic management. Value-based management, accountability centers, transfer pricing, target costing, kaisen costing and life-cycle costing are some of the tools and methods focused on this stage (Guerreiro, Cornachione Júnior & Soutes, 2011; Teixeira et al., 2011).

The last stage of Management Accounting identified began in 1985 and lasts until the present day, focusing on the production and / or creation of value by the effective use of resources, using value-creation drivers for the consumer, shareholder value and organizational innovation (Guerreiro, Cornachione Júnior & Soutes, 2011). Strategic planning, BSC, performance assessment method, EVA and MVA (Market Value Added) are the tools and methods that stand out in this stage (Teixeira et al., 2011).

Management Accounting encompasses several resources: human, physical and financial, so that, perfectly integrated, they contribute to good organizational management. Therefore, it is important to note that the business world is competitive and fierce, having a direct impact on the development of companies that have perfected their control systems to face this competition (Oliveira & Boente, 2012). In this panorama, management accounting is essential and preponderant to develop these control systems.

Regarding the control system, the Management Accounting System (SCG) (Chenhall & Morris, 1986) is highlighted, which is the means by which the executive summit evidences the goals and objectives of the organization for employees and managers of business units, and is therefore considered a channel through which the accounting information (Hopp & Leite, 1988; Oliveira & Ávila, 1999) on the organizational performance and efficiency are disseminated to the company managers (Oliveira & Ávila, 1999), influencing decision making (Rocha & Guerreiro, 2010).

Thus, in line with the objective proposed in this study, a perspective of management accounting research is presented, regarding the state of the art of its academic production disseminated and published in Brazilian journals.

### 2.3 Studies on academic production in management accounting

It is known that the publication of the academic production of scientific studies is one of the essential forms for the dissemination of scientific knowledge in fields of knowledge and / or scientific themes (Borba & Murcia, 2006). And articles are essential to understand the phenomena that guide this scientific knowledge (Ribeiro, 2015). It should be noted that, in recent years, the theme of "Management Accounting" has significantly expanded due to numerous changes in the economic, financial and social spheres.

Thus, in order to better understand and capture this theme, several authors carried out bibliometric studies in order to map, investigate and analyze the aforementioned topic in the Brazilian and international literary context, based on several databases, such as theses and dissertations, congress annals, websites of national magazines and international databases. A brief summary of these Brazilian and international studies is provided next, focusing on their respective objectives and their main findings.

Luft and Shields (2003) mapped the research on the theme "Management Accounting" through 275 articles published in six leading journals in the area. Through the connections and disconnections of the academic literature, the authors observed the development of research on the aforementioned topic, helping to contribute to a better understanding of the causes and effects of management accounting at the international level.

Cruz et al. (2010) identified the authors and their respective most relevant HEIs in the development process of management accounting research from 2004 till 2008. In the results with respect to the HEI, it is observed that the main agents of the field include the University of São Paulo (USP). Among the authors, Antônio A. de Souza remained central in the period 2005-2007, and other authors also stood out in each period.

Nascimento, Junqueira and Martins (2010) identified and analyzed the epistemological characteristics of the academic production of management accounting research in Brazil from 2005 till 2008. The results indicate: low use of references that address management accounting theories, low incidence of references to articles published in international journals and high average age of the works cited - 10 years. Regarding theories, it is observed that 83% of the works are based only on accounting concepts or legislation, while 17% use theories of economics, sociology or psychology.

Tavares Araújo and Castro Silva (2010) studied some bibliometric aspects of management accounting in Enanpad between 2003 and 2008. In the empirical research, 251 articles were analyzed. They verified that the Brazilian authors follow the trend to replicate the international studies in management accounting, mainly in the theme “Management Control System”. In general, it was noticed that, apparently, there is a shortage of scientific research in management accounting in the Enanpad congresses.

Lunkes et al. (2011) analyzed the scientific production and the doctoral training in management accounting in Brazil, published in national journals and in doctoral theses from 1962 till 2010. The results show an increase in the publications on management accounting. On the other hand, the doctoral education in management accounting increased in the period, which in a way reflects the growth in doctoral education in Accountancy in recent years.

Lunkes, Feliu, Borba & Rosa (2012) identified and analyzed articles on management accounting published in the main journals and the doctoral education in accounting in Spain. The results show that the publications in management accounting correspond to only 12% of the total. The doctoral education slightly dropped, with the graduation of 549 Ph.D. until 2010, while graduates in management accounting represent 20.5%. In a way, less publications in management accounting end up affecting the newly graduated Ph.D.’s in their research options and vice versa.

Oliveira and Boente (2012) described and analyzed the main characteristics of the academic production profile on the topic “Management Accounting” and explored 50 Brazilian scientific articles from 2002 till 2010. The main findings of this research were: predominance of exploratory research; the State of São Paulo as the largest place of scientific production; and balance in the use of national and international references by article.

Ribeiro and Espejo (2013) analyzed the thematic options in theses and dissertations defended in the *Stricto Sensu* Post-graduation Programs in Accounting in Brazil between 1973 and 2010. They concluded that, in Stage 1, absorption costing and variable costing were predominant; in Stage 2, the budget was highlighted; In Stage 3, ABC costing and strategic planning were evidenced; and, finally, in Stage 4, EVA and BSC were predominant in the theses.

Beuren and Hall (2014) identified the profile of articles that used or referred to the case study strategy in research on the practice of managerial accounting published in international journals in English Language. The results of the research show that the publications of articles developed through a case study in managerial accounting had a growth over the years analyzed, but with a high concentration in few journals. Most of these papers report empirical studies, followed by theoretical and bibliometric studies.

Beuren and Nascimento (2014) analyzed the profile of Management Accounting articles published in *Accounting, Organizations and Society*, from 2005 till 2009. The results of the research demonstrate, besides general characteristics and the authorship of the articles, that, regarding the disciplines of the investigated articles, Sociology stood out, followed by Economics; Production and Management; and Psychology.

Lunkes et al. (2014) described the development of management accounting in Brazil, from the perspective of socio-political and cognitive legitimacy. The results show, descriptively, that management accounting in Brazil presents socio-political legitimacy and still lacks greater recognition and insertion in the professional entities, whereas, in terms of cognitive legitimacy, it is consolidated in research in periodicals and congresses, in view of its strong presence in research lines and researchers, although its insertion in disciplines at the federal universities remains limited.

Da Silva and Beuren (2015) analyzed the intellectual production on the subject of management accounting in hospitals published between 1950 and 2011 and empirically tested whether it is in line with the bibliometric laws and principles. The results show greater adherence of the articles in health journals compared to the accounting area and that the United States has the largest number (48.5%) of published articles. In the empirical application of Lotka and Bradford’s laws and productivity assumptions, the findings did not confirm the assumptions and bibliometric laws tested, which may be indicative of non-consolidation of the subject, with a body of authors, institutions and journals.

Analyzing the studies in this section, a macro range of information on management accounting is observed, in the national and international scenarios, thus revealing the importance of the aforementioned topic for the diffusion, socialization, development and promotion of the field of accounting knowledge. However, none of the investigations seen in this section dealt with the ISI Web of Science Core Collection in a more thorough, extended and contemporary way, as we did in this study, thus showing a differential and a contribution of this research in comparison to the studies published recently.

### 3. Methodological procedures

The objective in this study was to analyze the behavior and peculiarities of the academic production on the subject Management Accounting published in the ISI Web of Science Core Collection from 1985 till 2014. Therefore, bibliometric (Michels & Schmoch, 2014) and sociometric (Rostampoor-Vajari, 2012) analysis techniques were used.

In order to evaluate the activity of science, bibliometrics is based on bibliometric laws, of which the following are evidenced: Lotka's Law, Bradford's Law and Zipf's Law (Da Silva & Beuren, 2015), that is, these bibliometric laws will be important for a better understanding and the information that requires greater transparency. These laws are: Lotka's Law, Bradford's Law and Zipf's Law (Table 1).

Table 1

#### Bibliometric laws

Author	Law	Description
<i>Lotka</i> (1926)	Inverse-Square Law	The number of authors who publish $n$ articles in a given scientific area is about $1/n^2$ of those who publish only 1 article, and the proportion of authors who publish only 1 article should be 60% of all authors. Hence, the authors' productivity is measured through a size-frequency distribution model of the different authors in a group of publications.
<i>Bradford</i> (1961)	Law of Scattering	Measuring the journals' productivity permits establishing the core and dispersion areas on a given theme in a same set of journals.
<i>Zipf</i> (1949)	Law of Least Effort	Measures how frequently the words appear in several texts, producing a ranked list of terms on a given theme. The author affirm that, if words that figure in a considerably long text are listed in decreasing order of frequency, the ranking of a word on the list will be inversely proportional to the frequency of the word ( $P_n - 1/na$ ).

Source: Tavares Araújo and Castro Silva (2010, p. 36).

Quantitative bibliometric research, based on the Laws of Lotka and Bradford (in this study, Zipf's Law will not be used) and on indicators of author, HEI and country collaboration and productivity, carried out through the analysis of articles published in journals indexed in the database of the ISI Web of Science, in the areas of Social Sciences and Economics and Business.

In addition to bibliometrics, this study will also focus on sociometrics (Ribeiro, 2014c). A sociometric study or analysis of social networks of relationship, as it is also known (Cruz et al., 2010), is focused on the investigation of the matrix of relationships constituted among social actors (Galaskiewicz & Wasserman, 1994), represented in this study by the authors.

In the analysis of social networks, there are four basic elements, which are: the nodes, the positions, the connections and the flows (Wasserman & Faust, 1994). Nodes are the actors that make the network; the positions are the positions these actors occupy in the network. The connections entail the degree of density of the network; and, finally, the flows, are the exchange of information in a network (Wasserman & Faust, 1994).

In this context, relationships in a network are measured by pairs of actors, regardless of the structure and location where all actors are evaluated (Guimarães, Gomes, Odelins, Zancan & Corradi, 2009). There are several ways of identifying the structure and interactions of a network, such as network size, density and centrality (Wasserman & Faust, 1994).

Density is considered as the total active ties existing in a certain group of actors, that is, an indicator of the communication potential among the network actors (Guimarães et al., 2009). This structural indicator of the network varies between zero and one. Thus, the closer to zero, the less connected the social network is. However, the closer to one, the more connected the actors in a social network will be (Mendes-da-Silva, Onusic & Giglio, 2013).

And centrality is weighted as an indicator that calculates the acuity of an actor's locale in relation to the other actors in the network, that is, in other words, the amount of linkages this actor has with the other actors (Wasserman & Faust, 1994).

Three are the degrees often used to gauge the centrality of a network, namely: degree centrality; Centrality of closeness; and the centrality of intermediation (betweenness) (Ribeiro, Cirani & Freitas, 2013). Among these, the degree centrality is emphasized, conceptualized as the number of adjacent ties of one actor in relation to others in a network (Wasserman & Faust, 1994), helping to better estimate the positional "activity" of the actors (Rossoni & Guarido Filho, 2009).

The research universe encompassed all the articles of scientific journals available in the ISI Web of Science Core Collection database, especially in the areas of Social Sciences and Economics and Business. Regarding the ISI Web of Science, the scholars Vieira and Gomes (2009) affirm that, for years, it has been the database that covers all the domains of science.

The five fields of knowledge chosen for the data search, Social Sciences and Economics and Business, are due to the belief that these areas can contain research on management accounting in a broad and robust manner.

The sample selection procedure happened as follows: i) choosing the keywords applied in the search filter of the database; ii) data collection in the ISI Web of Science Core Collection database; iii) search for the keywords in the titles, abstracts and keywords of the articles; iv) definition of the sample, by reading the titles and / or abstracts of each article.

In the ISI Web of Science Core Collection, a filter with the keyword "management accounting" was established. This keyword was searched for in the title, abstract and keywords of each article, not simultaneously, thus allowing all articles on the subject studied in this research to be identified and catalogued.

After the definition of the sample, by reading the titles and / or abstract of each article, papers that could not be related to the main theme of this study were deleted, thus obtaining a sample of 242 articles, in a timeframe from 1985 to 2014.

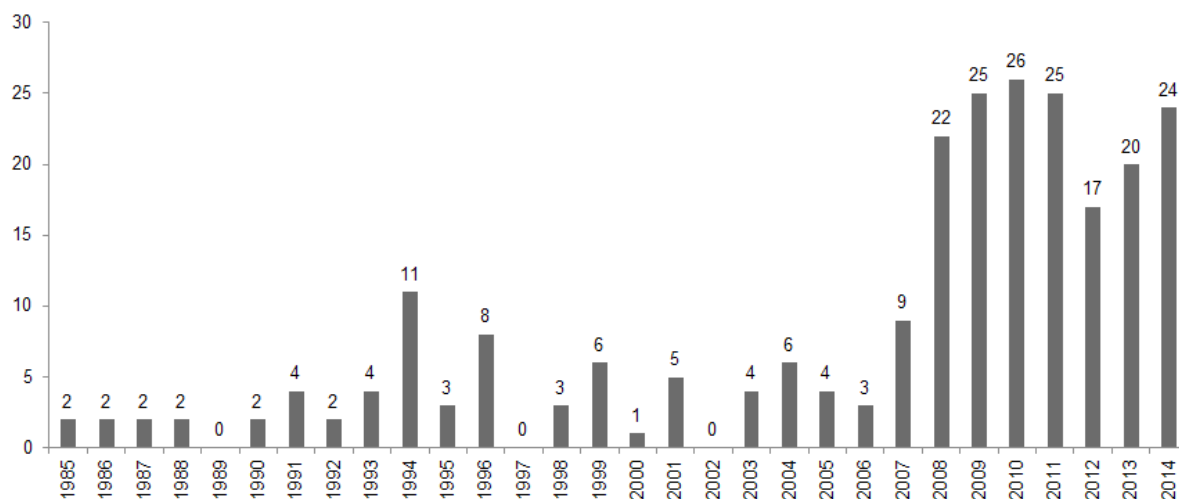
As previously evidenced, the data collection identified 242 articles, which were quantitatively analyzed according to the following indicators: (I) evolution of the topic management accounting; (II) newspapers; (III) authors; (IV) social network of authors; (V) HEI; (VI) countries; (VII) most cited articles; and (VIII) themes addressed. The data on each article were decomposed into information and captured through the software Bibexcel, while the figures were elaborated in UCINET 6 for Windows and Microsoft Excel 2007.

## 4. Results and discussion

This section analyzes and discusses the results of the 242 articles on management accounting found in the ISI Web of Science Core Collection database in a 30-year timespan. Figure 2 shows the evolution of the theme "Management Accounting" between 1985 and 2014.

The analysis of Figure 2 reveals that the theme studied has always been diffused in the years investigated in this research, with peaks of production, such as in 1994 for example. It is well known, however, that the evolution of the management accounting theme started to emerge in 2007, achieving a certain degree of constancy in subsequent years, standing out more in 2010 and suffering a small decrease in 2012.

Information evidenced here shows two behaviors of the theme "Management Accounting", that is, the first as an emerging issue during the period from 1985 to 2008; and the second as a mature and legitimized theme in the international scientific context, between 2009 and 2014. This finding contributes to understand the importance of this theme, not only between 1985 and 2008, but especially during the most recent years. This has influenced its sustainable growth, creating value in the international academic field, regarding the dissemination and socialization of its academic production, through international scientific journals important for that disclosure and dissemination.

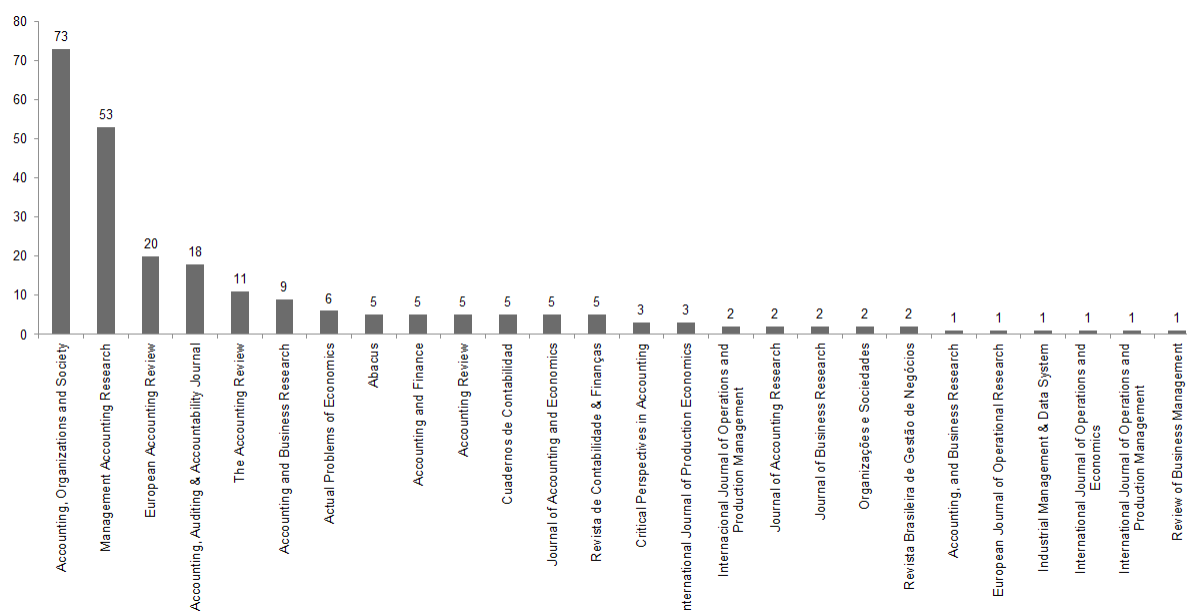


**Figure 2.** Evolution of the theme

Source: research data

Lunkes et al. (2011) and Beuren and Hall (2014) similarly corroborate the findings in this part of our study.

Figure 3 shows the 26 international journals identified in this study. Accounting, Organizations and Society and Management Accounting Research were the journals that excelled in the academic production on the theme “Management Accounting” in this study, with 73 and 53 articles published, respectively. These journals, especially Accounting, Organizations and Society, are also emphasized and highlighted in the authors’ national surveys: Borba and Murcia (2006), Riccio, Mendonça Neto and Sakata (2007), Murcia and Borba (2008), Borba et al. (2009) and Beuren and Nascimento (2014). That reveals the acuity of these journals for the diffusion and dissemination of the scientific knowledge on the theme “Management Accounting” at a global level.



**Figure 3.** Journals

Source: research data

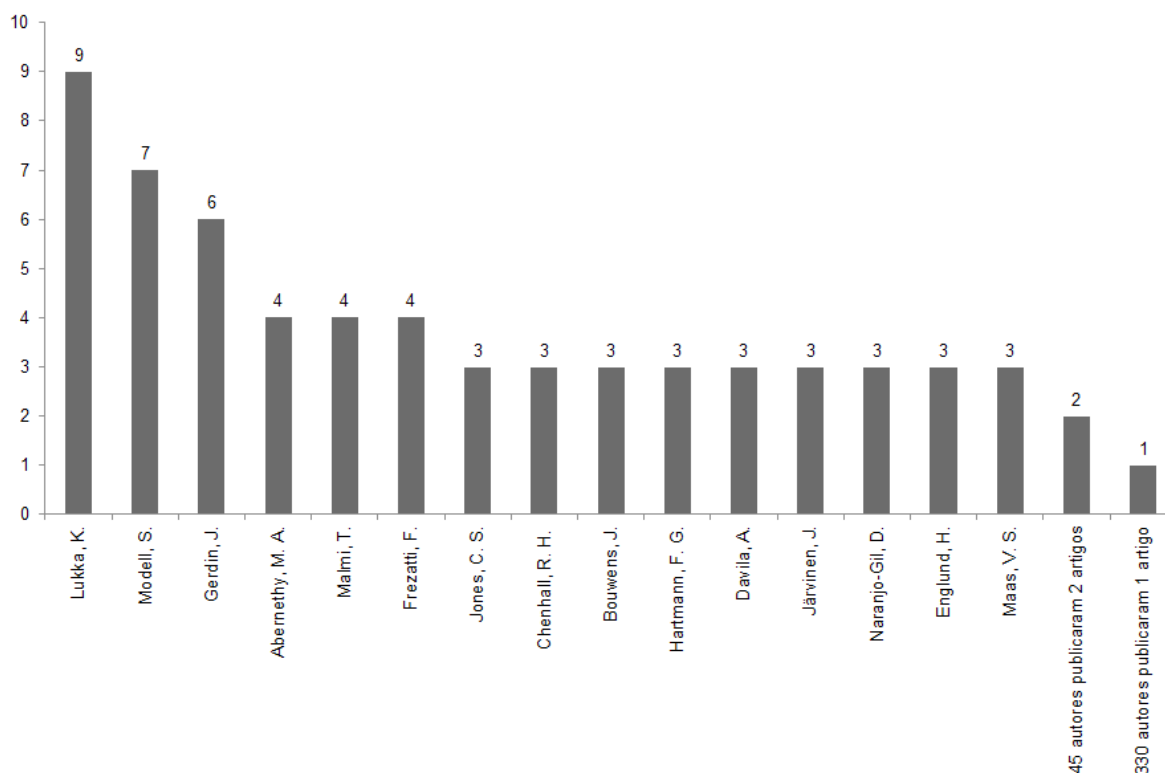
The European Accounting Review, Accounting, Auditing & Accountability Journal and The Accounting Review were also highlighted in this study, with 20, 18 and 11 articles published on the subject. These five journals, which are highlighted in this section, are equivalent to 175 articles published on management accounting from 1985 till 2014, making up approximately 72% of the total of 242 papers identified and assessed in this study. This information refers to the Bradford Law, which assesses the productivity of scientific journals, thus allowing them to constitute the core of journals on a given subject (Ribeiro, 2014c; Ribeiro, Costa & Ferreira, 2015).

The aforementioned core of journals that more systematically and robustly highlight the theme “Management Accounting” at the international level are: Accounting, Organizations and Society, Management Accounting Research, European Accounting Review, Accounting, Auditing & Accountability Journal and The Accounting Review.



Figure 4 shows the 390 authors identified in this study, emphasizing the 15 with greater scientific production on the subject. The researcher Lukka was the most productive in this study, publishing nine articles on the subject mapped; he is followed by Modell, with seven publications; Gerdin with six; Abernethy, Malmi and Frezatti with four each; and Jones, Chenhall, Bouwens, Hartmann, Davila, Järvinen, Naranjo-Gil, Englund and Maas with three.

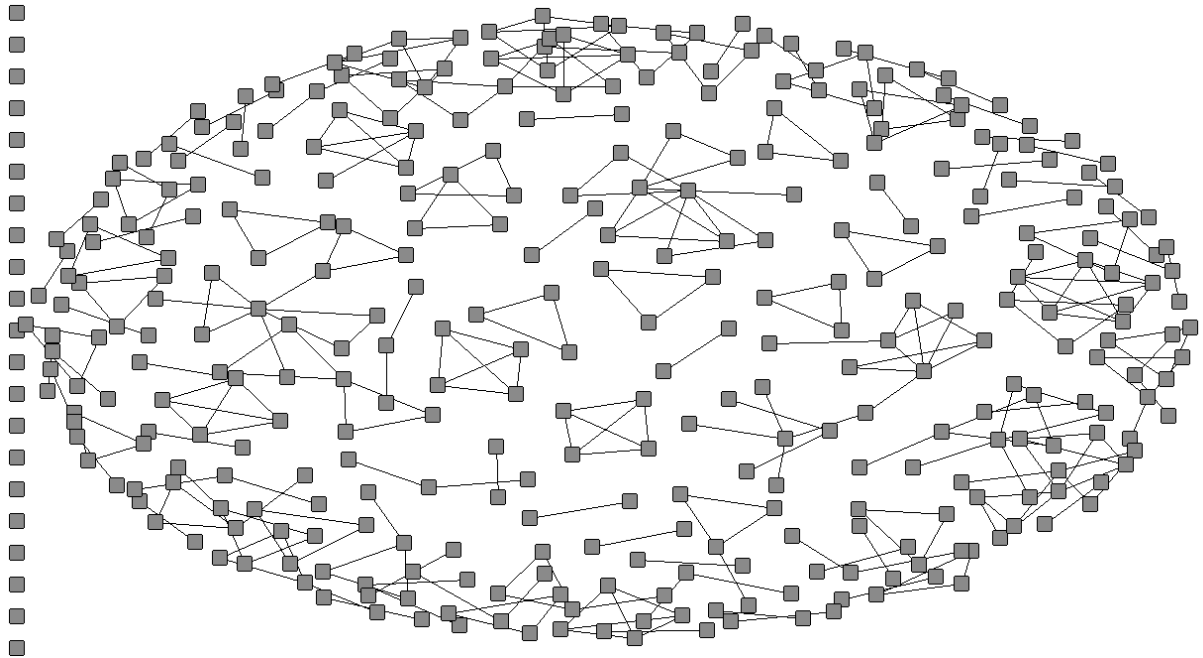
In short, 15 academics published three to nine articles on “Management Accounting”; 45 authors published two articles; and the vast majority, that is, 330 researchers, published one publication each. Such data and information refer to Lotka’s Law that measures the number of authors (Da Silva & Beuren, 2015) who publish n studies in a given field of knowledge (Tavares Araújo & Castro Silva, 2010). That is, few researchers publish much and many researchers publish little (Souza & Ribeiro, 2013), which is shown in Figure 4.



**Figure 4.** Authors

Source: research data

Figure 5 reveals the co-authoring network of the 390 authors identified in this research. The density of the co-authoring network in this study is 0.0045, representing 0.45% of the interactions among the actors in the social network mentioned, thus remaining far below the ideal (Mendes-da-Silva, Onusic & Giglio, 2013).

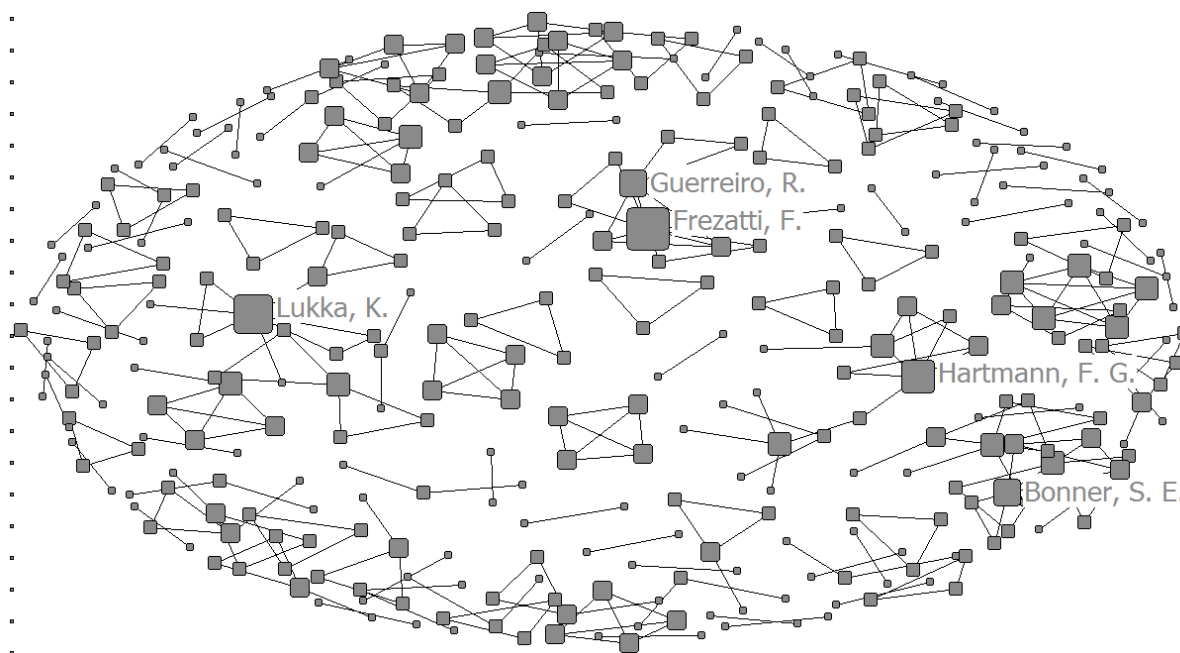


**Figure 5.** Co-authorship network

Source: research data

In other words, 99.55% of the possible active interactions in this group of actors still have not actually happened yet, which substantially compromises the potential for diffusion of information among these network actors (Guimarães et al., 2009), which is equivalent to a social network that is characterized by weak ties, impacting on the degree centrality (Mendes-da-Silva, Onusic & Giglio, 2013).

Figure 6 contemplates the same co-authoring network seen in Figure 5, but emphasizing the degree centrality of the aforementioned social network.

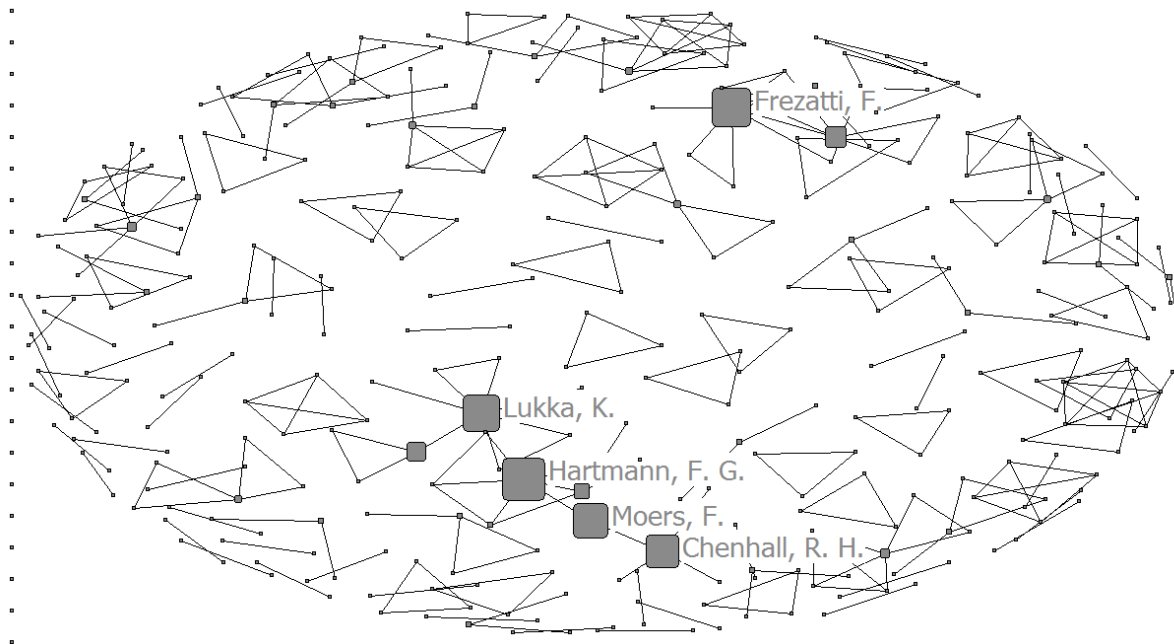


**Figure 6.** Co-authorship network (degree)

Source: research data

The authors Frezatti, Lukka, Hartmann, Bonner and Guerreiro are the most central, with regard to degree in this study. Three of them also figure as the most profitable in the production on the theme "Management Accounting": Frezatti, Lukka and Hartmann. Also considering that the degree centrality focuses on an author's number of adjacent bonds with others in a network (Wasserman & Faust, 1994), contributing to better measure the importance of their position in this social network (Rossoni & Guarido Filho, 2009), one may say that the researchers Frezatti, Lukka, Hartmann, Bonner and Guerreiro are the most important in this network, thus contributing to the spread and dissemination of ideas, information and knowledge on the subject of management accounting in the context of the international academic literature.

Figure 7 identifies the co-authorship network visualized in Figure 5, however, focusing on the betweenness.



**Figure 7.** Co-authorship network (betweenness)

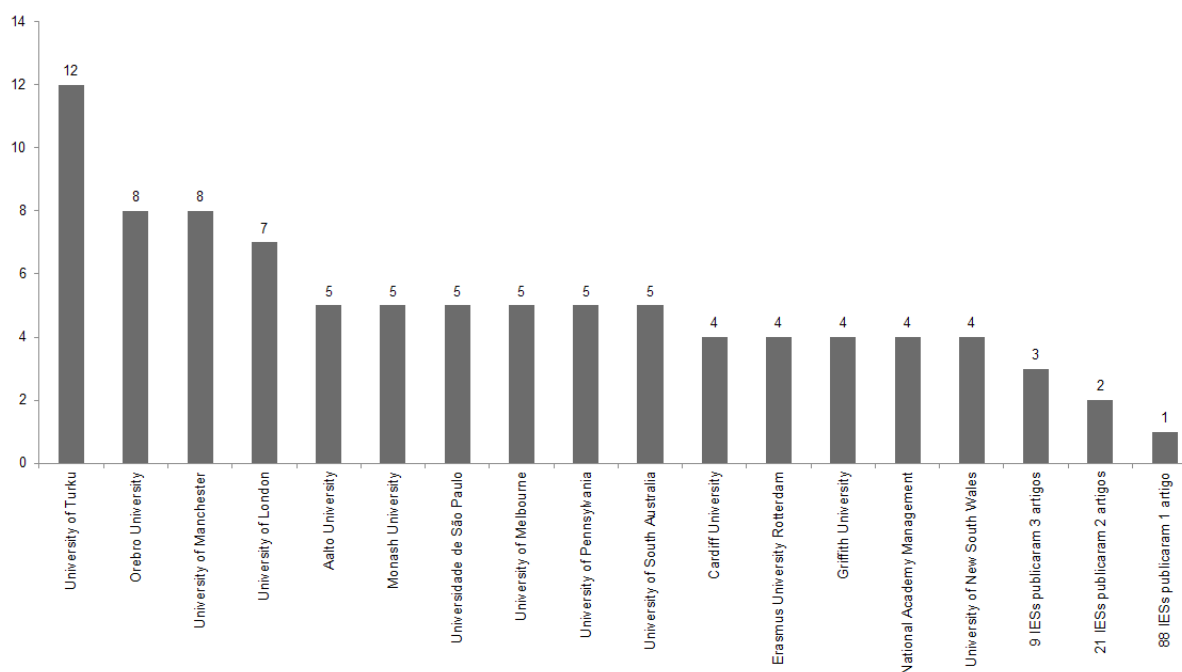
Source: research data

Considering that the betweenness reveals the authors who serve as mediators in a social network (Ribeiro, 2015), in the network shown in Figure 7, these authors are: Hartmann, Frezatti, Lukka, Chenhall and Moers. Of these, four appear as the most productive: Hartmann, Frezatti, Lukka and Chenhall; and of these, three also stand out in the degree centrality, who are: Hartmann, Frezatti and Lukka. Therefore, these are considered the most essential and central in the co-authoring networks conceived in this study.

The academics who were highlighted in this section are seen and considered as a sort of bridge to the accomplishment of the relationship with the other academics in the same network (Ribeiro, 2015), that is, they are the main responsible for the exchange of information in the aforementioned co-authoring network (Ribeiro, Cirani & Freitas, 2013). It should be noted that the intermediation role these researchers admit in the aforementioned social network permits and contributes to the exchange of ideas, information and knowledge among different groups (Rossoni & Guarido Filho, 2009).

Figure 8 shows the 133 HEIs identified in this study, focusing on the 15 best placed, due to their respective scientific productions on the subject analyzed.

The University of Turku was highlighted in this section, with 12 articles published; next, Orebro University and University of Manchester published eight; The University of London issued seven articles; with five publications, Aalto University, Monash University, University of São Paulo, University of Melbourne, University of Pennsylvania and University of South Australia; and with four papers, Cardiff University, Erasmus University Rotterdam, Griffith University, National Academy Management and University of New South Wales are evidenced. Of these, five universities come from Australia, and this country figures among the three that stood out in the publication of articles on the subject “Management Accounting” (Figure 9).

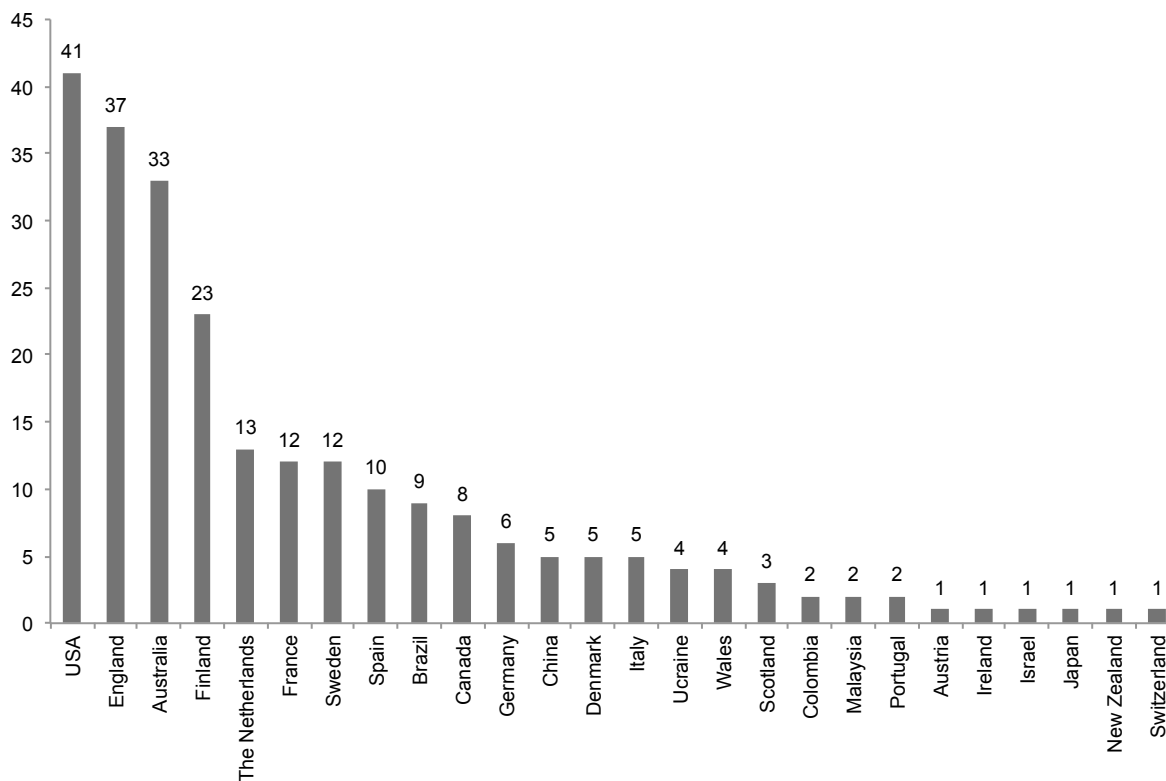


**Figure 8.** HEIs

Source: research data

The University of São Paulo is highlighted, thus showing its importance in the national context regarding the scientific production on the theme “Management Accounting” in the Brazilian scientific literature. Cruz et al. (2010) and Oliveira and Boente (2012), in their respective research, corroborate the statement in general.

Figure 9 shows the 26 countries identified in this study. The United States of America (USA), England and Australia stood out in the scientific production on the theme “Management Accounting”, with 41, 37 and 33 published articles, respectively. Such finding implies that these countries are the central and influential guides in the academic production on this subject. Other bibliometric studies, which focused on the scientific production of other subjects, also verified the assiduity and importance of these nations in the dissemination and socialization of the knowledge on these subjects, were: Ribeiro (2014a), Ribeiro (2014b) and Ribeiro, Costa and Ferreira (2015).



**Figure 9.** Countries

Source: research data

Brazil figures among the 10 countries with the highest academic production on the subject, with nine publications, and these 10 publications come from USP, which in this research published five papers on the subject. This finding indicates that, even though the national academic production is incipient, in the international context on the subject “Management Accounting”, Brazil stands out among the nations that published the most. This demonstrates the importance and maturity that the theme has in the context of the Brazilian academic literature (Lunkes et al., 2011), and that maturity can a posteriori be extended in the medium or long term, also in the international academic scene.

It is understood that citations are important for the construction of scientific knowledge (Silveira & Bazi, 2010). In view of this, Table 2 highlights the 10 most cited articles in the 30-year timeframe on the subject “Management Accounting” in the international context.

Table 2

**10 most cited articles**

10 most cited articles
Feltham, G. A., & Xie, J. (1994). Performance measure congruity and diversity in multi-task principal/agent relations. <i>The Accounting Review</i> , 429-453.
Luft, J., & Shields, M. D. (2003). Mapping management accounting: graphics and guidelines for theory-consistent empirical research. <i>Accounting, Organizations and Society</i> , 28(2), 169-249.
Chenhall, R. H., & Morris, D. (1986). The impact of structure, environment, and interdependence on the perceived usefulness of management accounting systems. <i>The Accounting Review</i> , 16-35.
Chenhall, R. H., & Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques and management accounting: an empirical investigation using a systems approach. <i>Accounting, Organizations and Society</i> , 23(3), 243-264.
Briers, M., & Chua, W. F. (2001). The role of actor-networks and boundary objects in management accounting change: a field study of an implementation of activity-based costing. <i>Accounting, Organizations and Society</i> , 26(3), 237-269.
Malmi, T., & Brown, D. A. (2008). Management control systems as a package—Opportunities, challenges and research directions. <i>Management Accounting Research</i> , 19(4), 287-300.
Abernethy, M. A., & Brownell, P. (1999). The role of budgets in organizations facing strategic change: an exploratory study. <i>Accounting, Organizations and Society</i> , 24(3), 189
Abernethy, M. A., & Lillis, A. M. (1995). The impact of manufacturing flexibility on management control system design. <i>Accounting, Organizations and Society</i> , 20(4), 241-258.
Wruck, K. H., & Jensen, M. C. (1994). Science, specific knowledge, and total quality management. <i>Journal of Accounting and Economics</i> , 18(3), 247-287.
Baines, A., & Langfield-Smith, K. (2003). Antecedents to management accounting change: a structural equation approach. <i>Accounting, Organizations and Society</i> , 28(7), 675-698.

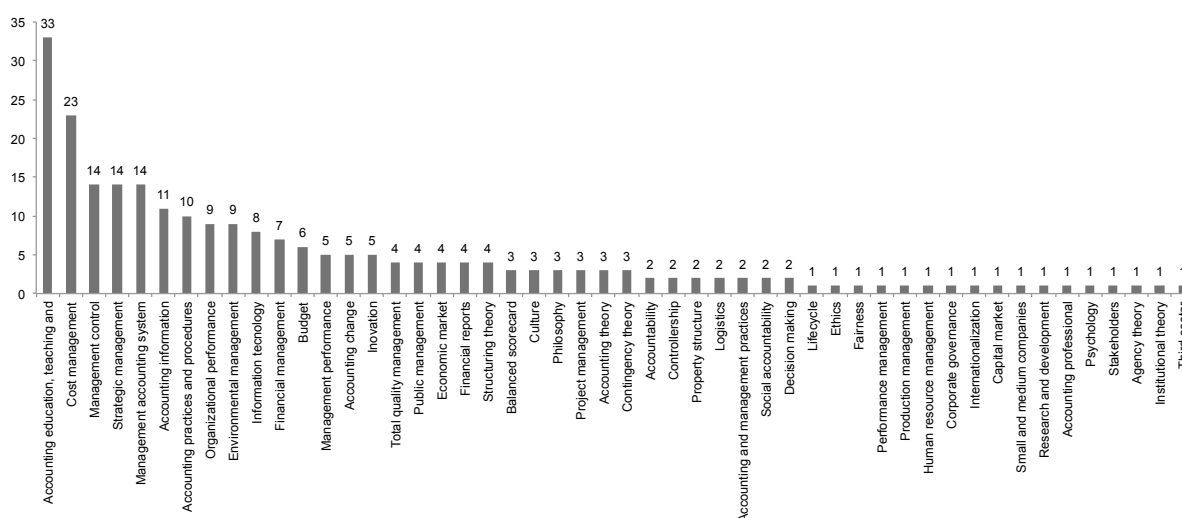
Source: research data

The analysis of the citations reveals the flow published and the evolution of a determined study over a given timeframe, and can therefore serve as a source to measure the direct and / or indirect influence of a specific research by a research group and / or an HEI of academics, or of scientific journals (Caldas & Tinoco, 2004).

It was observed that, of the 10 most cited articles, six are from the journal *Accounting, Organizations and Society*, which in this study was also highlighted as the magazine that most published studies on the subject analyzed. Still on the 10 most cited papers, four are from the 21st century, that is, from the 2000s. Two studies by Chenhall are among the most cited. The aforementioned researcher is also highlighted in this research as one of the most productive and is put in evidence as one of the academics with greater betweenness.

Figure 10 shows the 50 topics on management accounting identified in this study. Accounting education, teaching and research is the most discussed topic, with 33 articles published. It should be mentioned, however, that the subject addressed themes and / or research methods that dealt with education and accounting education, thus seeking to understand the evolution of the accounting area and / or its history in the global context. And in relation to the methods, some studies focused on the analysis, investigation, mapping and / or exploration of several subjects related or directly or indirectly linked to management accounting, through research on their respective academic production.

The subject “Cost Management” ranked second with 23 papers published in 30 years of research on the central theme of this study, that is, management accounting. It is important to highlight that cost management is an intrinsic subject to the theme “Management Accounting” (Briers & Chua, 2001; Carmo et al., 2014), and is important for managers in decision making (Küpper, 2009). It is also highlighted that ABC costing was evidenced in this study.



**Figure 10.** Themes discussed

Source: research data

The themes “Management Control”, “Strategic Management” and “Management Accounting System” were also highlighted in this research, as 14 publications were found on each of them. Therefore, the highlight on these three themes is due to the importance of the MAS, as they accumulate procedures incorporated in management accounting, such as budget and production costs, and at the same comprise the systematic processes used to achieve the objectives of the company’s business, approached from other fields of knowledge. In general, MAS are composed of management controls that enable and evidence the accounting information of routines and processes managers use to facilitate strategic management decisions (Beuren & Oro, 2014).

In sum, 50 themes were identified in this study, the first five of which account for approximately 40% of the total of 242 articles published on management accounting. Fifteen themes were published four to 11 times; 13 subjects were published two to three times; and 17 themes were published only once each.



As this finding offers an opportunity to encourage, spread and disseminate even more on the subject "Management Accounting" in the international scientific literature, those subjects that are directly or indirectly linked to this theme were only published once in 30 years of studies, meaning that they are still embryonic in the international context, thus providing and contributing to a chance to broaden their respective knowledge in the global academic scope, with direct impact on the optimization, disclosure and socialization of the main theme of this study.

## 5. Final considerations

The objective in this study was to analyze the behavior and the particularities of the academic production on the theme Management Accounting published in the ISI Web of Science Core Collection from 1985 to 2014.

As of 2007, there was an evolution in the subject "Management Accounting". The journal Accounting, Organizations and Society stood out in the disclosure of publications on the research subject. Lukka was the most prolific author; the University of Turku was evidenced among the HEI; the US was the focus country in this study; the co-authorship networks had low density and high degree of centrality and betweenness; and the subjects that were emphasized were: Education, Accounting Teaching and Research, Cost Management, Management Control, Strategic Management and Management Accounting System.

The theme "Management Accounting" as observed in this study, is already in a mature and legitimized phase in the international academic context. This assertion can be confirmed through the themes identified and addressed in this study, thus contemplating a range of subjects that are systematically and recurrently interacting in a management accounting system, helping in their own right to improve and disseminate the theme, not only in the global academic sphere, but also in the business environment.

In a way, even if we verify the heterogeneity of the themes addressed in this study, there is still the possibility to better develop them, especially the less publicized themes, based on the temporality addressed in this study. Thus, by improving them, it would influence a trend towards greater development of the theme "Management Accounting", permitting the emergence of new groups of studies, new research, new models, new insights, to add this value to research in management accounting, clearly influencing the growth of the accounting knowledge field.

These emerging studies, developing themes that relate to management accounting, especially emerging issues and embryonic issues, would help to guide, extend and devise new procedures, processes and / or working methods in the business field, collaborating to optimize and further materialize management accounting as the preponderant and unique theme in decision processes and decision making in organizations.

One cannot understand a particular theme if one does not understand it. This study, through the bibliometric and sociometric indicators, permitted and contributed to this, bringing to light new and contemporary data and information on the broad and rich nuances that guide and underlie the theme "Management Accounting" in the academic field, such as, for example, the most cited studies, the social networks of the actors (authors and HEIs), the most prolific authors, the most productive HEI and the countries that stand out in the production on this theme in the world.

This study also contributed to the presentation of contemporary data and information on the subject of "Management Accounting", at the international level, cooperating to help spread, disclose and disseminate knowledge on the subject in the international and Brazilian academic literature, providing a better understanding by part of the researchers already legitimized in the area and by those academics who want and wish for a better judgment and comprehensiveness on the research theme.

It is concluded in this study that efforts like this, that is, to analyze the scientific production on the theme "Management Accounting", also contribute to further discernment and elaboration, not only on the subject matter itself, but also on the inherent and somehow related themes, and which were evidenced in

Figure 10 of this study, contributing to the development of new correlated research and / or studies that use similar and / or different techniques and methods, but which, in a certain way, strengthen the scientific production on management accounting in the international scientific literature.

This study was limited to research publications in the ISI Web of Science Core Collection from 1985 to 2014. Thus, for future studies, an optimization and / or improvement of this study is suggested, extending the search for articles on management accounting to other databases such as Scopus. For future studies, a greater emphasis on the techniques of social network analysis is also suggested, trying to understand the links of other actors, such as HEIs, countries and citations. Another suggestion for future research is to better understand the 50 themes highlighted in this study, focusing in a more analytical manner on all or at least the most outstanding, through a content analysis.

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# The Burnout syndrome in accountancy students from Private HEI: a research in the city of São Paulo

## Abstract

The aim of the study is to identify the prevalence and the sociodemographic, labor and academic factors associated with the Burnout Syndrome in last-year students in accountancy. Burnout is the result of chronic stress and is constituted by changes in the dimensions (a) Emotional Exhaustion, (b) Disbelief and (c) Professional Efficacy. It is an empirical-analytical research with a non-probabilistic sample of 419 students from the evening period at seven private HEIs in the city of São Paulo. The MBI-SS and a questionnaire for sociodemographic, labor and academic variables were used as research instruments. The three dimensions showed significant differences among the students, grouped into five work categories. The verification in three dimensions indicated 46.3% of students with alterations in Emotional Exhaustion, 11.2% in Disbelief and 31.3% in Professional Effectiveness. We found three groups of students with alterations, related to the dimensions they are exposed to. The results obtained are described in two groups, exposed to two or more dimensions that cause Burnout, are described. Group 2 revealed changes in Emotional Exhaustion and in some other dimension, group 3 in the three dimensions. The students at one HEI revealed greater chances of exposure to Burnout in all three groups. The same occurred for the subjects of group 3 at other HEI. Some of the subjects expressed the feeling that not being skilled increases the chances of exposure to Burnout.

**Key words:** Burnout Syndrome. Accounting. Students. Career. Job World

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## 1. Introduction

The entry into undergraduate education and the world of work are milestones indicating the start in the profession. Students create professional expectations, which can be accompanied by traumas and disappointment if they do not achieve success. The professional insertion for many Accountancy students who work during the day and study at night takes place through an internship or formal employment. This double journey can make work compete with academic life. Depending on their professional choices, future accountants find a competitive and globalized field of work, in which technical knowledge, language proficiency, information technology and systems, legislation and ability to work in teams are required, as well as passing the Examination to obtain the Professional Registry.

Graduation alone does not guarantee professional success though. It is necessary to seek the insertion in the career and continuing education, required of other accountants besides the independent auditors, because the companies are demanding towards their employees. The future accountant, whose academic and professional roles sometimes conflict, may manifest symptoms of mental stress, leading to the Burnout Syndrome. If this occurs, there may be failure in disciplines, exchange or withdrawal from the course.

Burnout is a syndrome of emotional exhaustion, depersonalization and low professional accomplishment, which can affect those who provide humanitarian aid to people. Its occurrence for students in pre-professional activities has been studied in Brazil and abroad (Back, Moser & Amorim, 2009; Borges & Carlotto, 2004; Caballero, Abello & Palacios, 2007; Carlotto, Câmara, Otto & Kauffmann, 2009; Carlotto, Nakamura & Câmara, 2006; Martinez & Pinto, 2005; Maroco & Tecedero, 2009; Shulke, Tarouco, Koetz, Ivana & Carlotto, 2011; Tarnowski & Carlotto, 2007; Vasconcelos, Castro, Moura Neto, Rocha, Barros & Abdon, 2012). There are studies in the areas of health, law and with students from other areas.

Until the end of this research, no other studies were found involving accountancy students in Brazil. Abroad, Law (2010) analyzed students in business courses who studied accounting. There are international studies involving accountants (Swenney & Summers, 2002; Kalbers & Fogarty, 2005; Larson, 2001), pointing out that Burnout can start in the student phase in its pre-professional status.

Research in various courses sought to know the risk of illness, so they could provide interventions and solve future difficulties. The predominant double journey (Nossa, 1999, Camargo & Silva, 2006, Peleias, Petrucci, Garcia & Silva, 2008) and the study gap in nighttime students in accountancy in the city of São Paulo motivated this research, aiming to answer the following question: **To what extent are the last-year accounting students of the evening period at HEI in the city of São Paulo exposed to the Burnout Syndrome?**

The general objective is to identify the prevalence and sociodemographic, labor, and academic factors associated with the Burnout Syndrome in last-year accountancy students in the City of São Paulo. Another objective is to verify if there are significant differences between those exposed to Burnout who work in external audit firms, accounting firms, in the accounting areas of firms, trainees and those who did not work. The hypothesis is that there are significant differences among the groups in the sample exposed to Burnout, according to their work categories and the HEIs wherethey study.

We intend to analyze the factors associated with Burnout and to provide support for teachers, Higher Education Institutions (IES), recruiters and managers of the accounting area to improve the planning of activities for these students, positively affecting their performance in the accounting career.



## 2. Theoretical Framework

### 2.1 Academic life, motivation and professional requirements for Accounting students

The beginning of the undergraduate program is one of the marks of the professional education in Accountancy. Admission to the accounting career throughout the course takes place through internship programs, selection processes in companies, with official help or through actions promoted by the HEIs. The professional universe of accountants covers the demands of companies and users of accounting services. (Pires, Ott & Damacena, 2010)

The word career has its etymological origin in Latin. It means road, *carraria*, road for cars (Martins, 2010). It was in the nineteenth century that the term began to define the professional trajectory. Career is a sequence of positions occupied and work done during the working life, based on the understanding and evaluation of the professional experiences of the person along the trajectory. It encompasses policies, procedures and decisions related to the experience in the company. (Dutra & Veloso, 2010).

The accounting career requires completion of the higher education course and passing the proficiency examination. Students with or without the degree of Accounting Technician seek undergraduate education to grow in the profession. This can occur through the influence of parents or relatives, offering the young person prior contact before beginning the Accountancy course.

Brazilian Accountancy students usually work during the day and study at night (Nossa, 1999; Camargo & Silva, 2006; Peleias et al., 2008), which characterizes the double journey. Many practice paid work, making the study an extension of the work day. For them, studying is a project linked to personal disposition, motivated by the improvement of the income and professional ascension to the end of the course (Matsuura, 2008).

There are positive and negative consequences of the interactions between personal and professional life for people's physical and psychological health (Borges, Miranda & Casado, 2010). The role stress theory reveals that multiple roles overwhelm people. In the case of nighttime students, the combination of work and family increases responsibilities and may have negative impacts on health.

Students' motivation stimulates the teaching-learning process, affects the amount of time to study, school performance, academic achievements and causes immediate satisfaction in their lives (Leal, Miranda & Carmo, 2011). Teachers and HEIs are motivators of the students and important links in the teaching and learning process, they need to motivate them, disseminating the opportunities of the profession.

Motivation is not a common theme, because of the profusion of terms and jargon in the literature, such as incentives, motives, goals, and desires. Theories of motivational content focus on the question "What causes behavior to occur or stop?" Responses focus on (1) needs, motives or desires that motivate employees to action; and (2) relationship of employees with incentives that drive and motivate them to perform (Megginson, Mosley & Pietri Jr., 1986).

Leal, Carmo & Miranda (2011) studied the motivation of 259 students to choose Accountancy, of whom 136 reported work experience in the area. The comparison between the variables revealed students interested in deepening the knowledge, obtaining a useful foundation for their future work performance, obtaining the diploma and attending classes to guarantee attendance.

Matsuura (2008) found that the motivations and difficulties of nighttime Accountancy students refer to and are influenced by the place of the HEI, to the detriment of other factors. The fatigue and the arrival at the HEI were the stressors of these students. Matsuura (2008) reported that women from public higher education depend on the traineeship or work, and that the tiredness of transportation and the work day affect the reading and interpretation of texts. However, relating to colleagues, teachers and coordinators allows for social inclusion, indicating that the relationship and personal aspect motivate attendance to the course.

Silva (2008) analyzed graduates of public and private HEIs from the Federal District entering the world of work. When asked about the reasons for studying Accountancy, the author found that the main motivation is to have a training that offers good job opportunities. Other motivations were family influence, the fact of working in the area and holding the Technician degree in Accounting.

Acting in the accounting area requires higher education and professional updating, regulated by Federal Accounting Council (CFC) rules for auditors and preparers of financial statements in certain companies. Accountants are required to master concepts beyond accounting, interdepartmental interaction and knowledge of decision-making processes in companies. Society and companies expect accountants to process, interpret and translate the accounting data demanded by various users.

These requirements motivated studies to evaluate the professional satisfaction and expectation of future professionals versus HEIs and the demands of the job world. Sothe, Bieger, Hein and Domingues (2012) studied students in Business Administration and Accountancy at an HEI in Santa Catarina. They found that dropouts in Accountancy, inferior to those in Administration, may be motivated by the lack of space to work in the profession.

Carvalho, Silva and Holanda (2006) analyzed the perspectives of graduates in Accountancy at *Universidade Estadual do Rio Grande do Norte* in relation to the labor market. They found that 44% of the respondents stated that they did not have sufficient technical capacity to carry out their professional activities.

It is hoped that, in addition to the students' efforts, HEIs will prepare them to meet the demands of the profession, possessing a set of factors that, in turn, improve the teaching and learning process. Undergraduate education should prepare future accountants for professional realities and needs, with an eye to the future, in the field of business understanding and personal skills (Holland, 2000).

The professionals should assume their place in the world of work with a degree, skills and abilities that meet the demands of society and of companies, aware of their social responsibility and their continuous learning (Teodoro, Teodoro, Ribeiro Filho & Cunha, 2009). The accountant has to manage his career, attentive to the personal and organizational factors, in response to the anxieties of society and the companies (Marion, 2003).

## 2.2 Professional and academic implications and illness

Professional insertion refers to the experience, choices, the beginning of the career and professional expectations of the student. Academic life should contribute to the preparation for the world of work, but it may occur in an inadequate way, generating anxiety and leaving the student afraid to make mistakes, such as making clients incur losses or not being acknowledged by colleagues and teachers (Carlotto & Câmara, 2008).

Some do not adapt to the reality of study and work, reaching the conclusion that they did not invest adequately in the training, because they have an image of the profession different from what they found (Dutra & Veloso, 2010; Ferreira, 2010). In disputes for a job, selection processes and professional insertion can exert pressures on individuals, generating stress symptoms.

Accountancy Students, and especially those from the evening course who work double journeys, are charged during the course. From them, group work, reports, practical classes, research and exams that require great preparation are required (Caballero, Abello & Palacios, 2007). The future accountant may be the target of several stressors that, if persistent, make him vulnerable to the Burnout Syndrome.

The illness goes back to the origin of mankind, in search of the cure for diseases in transformation, making it difficult to identify the causes and their understanding. Working students are affected by social agents, the environment and work organization. Social structures emerge as risk factors for the evolution of diseases (França & Rodrigues, 2012). This imbalance affects the quality of services provided, the level of production and profits, as costs and expenses increase with absenteeism, sickness, replacement of employees, transfers, new employees hired and training.

For the student worker who uses physical and mental capacity as a means of financial return for personal and family survival, illness and pain mean frailty, limitation, and concern with their ability. They can reduce performance, making them subjugate the disease and ignore the signs that something is wrong. For companies, it means lower productivity, lower results, need to revise conditions, work processes, union problems and pressure of inspection, in addition to affecting their image towards society.

Often, the model of understanding certain processes is not enough to understand illness. This occurs in diseases that result from efforts to adapt to stressful situations, despite the evidence that the company and labor relations are relevant in the evolution of stress. Labor laws in several countries do not always recognize these stressors as producers of the occupational diseases of modern life.

Modern life and the pressures of work and society contribute to attribute another name to getting ill: stress, a particular relationship between the person, the environment and the conditions he submits to. The person views this relationship as a threat or something that requires more than their abilities or resources, often endangering their well-being or survival (França & Rodrigues, 2012).

Stress is a set of reactions that occur in an organism undergoing adaptation. Stress should be seen as a particular relationship between people, their environment and the circumstances they submit to, assessed as a threat or something that requires more than their own abilities or resources and which endangers their well-being or survival (Seyle, H. *apud* França & Rodrigues, 2012).

Intrinsic factors are crucial milestones for the study of stress (Cooper & Marshall, 1978). Stress can arise from much or little work, time and deadlines pressures, decisions to make, physical fatigue, long working hours, the professional having to deal with the changes in the work and the concern with the costs and expenses caused by errors committed (França & Rodrigues, 2012).

Work stress occurs in the interaction between the person's characteristics and / or working conditions; nevertheless, there are doubts about the importance of these factors as the primary cause (Reinhold, 2002). Individual differences help to predict what is stressful or not for a person. While individual differences should not be ignored, studies suggest that there are certain stressful working conditions for most people, who react differently to pressure. Some are more adept at adapting their behavior and meeting the challenge (Cooper & Marshall, 1978).

Many factors fuel the differences: personality, gender, motivation, inability to face problems in a given area, fluctuations in ability (relative to age), and insight into personal motivations and areas of development. Most studies on individual differences and characteristics have analyzed personality differences between high and low stress of people. From the point of view of career development, each stage of life has its own set of tensions, with different evolutions of individual resources to cope with stress.

The effect of the work environment can cause physical and emotional discomfort if the place is not organized to mitigate the stressors. Problems with function, overload, ambiguity and conflict can be solved through restructurings, when functions and jobs are redefined, identifying outdated practitioners, and preparing a training program.

In the case of work-related stress, one definition refers to the situations in which the person perceives his work environment as threatening to his personal and professional accomplishment needs and / or his physical or mental health. The environment can interfere in the interaction with the work and the place where it is performed, because it contains excessive demands, to the extent that the professional is unable to face such situations (França & Rodrigues, 2012).

The consequences of stress are: absenteeism, escape of responsibilities and individual symptoms of fatigue, restlessness, among others, affecting productivity. Occupational stress from work has been receiving greater attention in recent decades in the business environment and in the academy.

Stressors come from the external environment (cold, heat, unhealthy conditions), the social environment (work) and the inner world (thoughts and emotions, anguish, fear, joy and sadness). In higher education, academic factors such as deadlines and exam weeks can generate stress.

With the pressure exerted on the nighttime Accountancy students who work double journeys, the stress process emerges in a conflicting scenario: between the professional insertion and the training obtained at the HEI. This scenario, with several stressors, may favor the emergence of Burnout.

## 2.3 Professional implications and the Burnout Syndrome

Burnout is a process of chronification of occupational stress, with negative individual, professional, family and social consequences. It is a problem of health and quality of life at work, a psychophysical response due to a common effort, whose result the person considers ineffective and insufficient, getting exhausted, feeling helpless, moving away from the psychological and sometimes physical activity due to excessive stress and dissatisfaction. In advanced stages, it evolves into the continuous sensation of being on the verge of collapse (Bosqued, 2008).

Burnout studies gained greater disclosure through the articles of Freudenberger (1975). Burnout means to fail, to use exhaustion, to become exhausted by excessive use of energy, strength, or resources. This is what happens when people become inoperative in their daily activities with other people. Burnout, a syndrome of emotional exhaustion, depersonalization and low achievement, is not unique to teams of self-help institutions and is present in the industry and business (Freudenberger, 1975).

Emotional exhaustion is marked by the absence or lack of energy with deep emotional exhaustion and the feeling of no longer being able to maintain a psychological level. The evolution of depersonalization is manifested by the lack of sensitivity in the attendance, performing it in a distant and impersonal way (Maslach, Jackson & Leiter, 2010).

The evolution of depersonalization results from emotional exhaustion. Another dimension is low professional achievement; the trend to self-assess negatively, reducing the feeling of competence in relation to the personal gains obtained in working with people (Maslach, Jackson, & Leiter, 2010).

Burnout does not occur because there is something wrong with people, but because of changes in the place and nature of the work. Many work in cold, hostile and demanding work environments, affecting their routine and family life (Maslach, Jackson & Leiter, 2010). Burnout occurs in many ways, which vary in symptoms and degrees from person to person. It causes discouragement, hopelessness, cynicism, isolation, inflexibility, absenteeism, among other factors that affect production. The institutional effects of Burnout are manifested by the drop in production, quality of work, high turnover and increase in occupational accidents, denigrating the image of the institution and causing financial losses (Pereira, Jiménez-Moreno, Kurowski, Amorim, Carlotto, Garrosa & González, 2010).

Burnout reduces business results, engagement, commitment and talent retention. It can lead to loss of talent, medical withdrawal or termination of employment, reducing productivity, health and well-being of people, eroding the company's image and reputation (Casserley & Megginson, 2009).

Burnout materializes over time; often, the person does not perceive the warning signs and delves into a cumulative process of chronic stress (Reinhold, 2002). Burnout makes the person feel that, the more he works or studies, the more frustrated and exhausted he becomes, the more cynical in his behavior and the less effective at what he wants to conquer. This can lead to hopelessness and high potential for leaving the profession (Freudenberger, 1975).

The psychosocial perspective of Burnout evolves as a process that results from the interaction between the work environment and people (Monte, 2005). This approach helps to understand the onset, evolution of the syndrome and symptoms in its various phases. This process can be reversible if individual coping strategies are adequate to manage chronic stress situations. Prolonged exposure to stress symptoms early in the career indicates that Burnout can occur in the academic phase and in the professional insertion of the student in the job world.

The debate about the extent of Burnout in pre-professional activities motivated studies to evaluate the occurrence of the risk of illness in students, which can extend to professional life and permit interventions to solve possible future problems (Martinez & Pinto, 2005). The study of variables in the Burnout levels provides relevant information to manage higher education (Martinez, Silva, Pinto, Soria & Schuller, 2002).

Burnout in students has three specific dimensions: emotional exhaustion - because of the requirements of the study; Disbelief - the emergence of a cynical and distanced attitude towards the study; and professional ineffectiveness - the perception of being incompetent as a student (Martinez et al., 2002). The interest in Burnout is growing and motivates its study in several areas, including college students. The literature reveals that there is no standard way to assess the occurrence of Burnout. Some of the proposed propositions are summarized below.

According to the MBI-HSS - Maslach Burnout Inventory - Human Services Survey (Maslach, Jackson & Leiter, 2010), Burnout can affect those who work with people. Emotional exhaustion stands out; as emotional sources are reduced, people feel unable to maintain a psychological level. Another aspect is depersonalization, which entails cynical attitudes and feelings about patient problems. The insensitive or dehumanized perception of others makes people see their patients as deserving of their problems. The MBI-HSS was developed to separately evaluate the three dimensions of Burnout.

High levels of burnout point to high rates of emotional exhaustion and depersonalization and low professional achievement. Average levels indicate average rates in all three scales. Low levels indicate low scores on the emotional exhaustion and depersonalization scales and high scores on professional achievement.

In another instrument, the MBI-GS (Maslach, Jackson & Leiter, 2010), the high indices surpass the upper third of the distribution, average rates are located in the middle and lower rates in the lower third. Maslach, Jackson and Leiter (2010) report the use of different scales to evaluate the occurrence of Burnout, depending on the places of study.

In Brazil, there is no cut-off point to evaluate Burnout like in some countries. For countries with no valid cut-off point, Shiron (1989) suggests using an alternative to identify Burnout levels based on the frequency of symptoms. People with a frequency equal to or greater than once a week developed Burnout symptoms. People scoring 4 or more on the scale (once per week) for the dimensions of emotional exhaustion and disbelief are considered to possess a high level of burnout. For efficacy, the evaluation is measured in the inverted form.

## 2.4 Studies about Burnout in college students

### 2.4.1 Brazilian studies

The work of Borges and Carlotto (2004) evaluated the occurrence of Burnout in 255 Nursing students, using its three dimensions. More than half of the group (54.9%) attended classes at night and were professionally active (54.5%). The majority (93.7%) did not work in the area. They found an average of 2.81, indicating emotional exhaustion “a few times a month”. In disbelief, the average score was 1.73, indicating little confidence in “once a month” teaching. In professional effectiveness, the score was 5.33, revealing the perceived teaching as useful in vocational training practically “every day”.

The research conducted by Carlotto et al. (2009) studied a sample similar to the previous research. Emotional Exhaustion presented a score of 2.88, indicating emotional exhaustion a few times a month; in disbelief, the mean was 1.40, indicating little confidence in teaching once a month or less; In Professional Effectiveness, the average was 4.90, indicating that the student feels competent as a student every day.

The study by Tarnowski and Carlotto (2007) analyzed 66 Psychology students from a private HEI in Greater Porto Alegre. They found the highest average score for Professional Efficacy (5.12, 5.06), followed by Emotional Exhaustion (1.88, 2.72) and Disbelief (0.85, 1.00). The professional Efficacy presented a high score, against a low score for Disbelief in both groups. Emotional Exhaustion presented a low score in the group at the beginning of the course and close to the average among final-year students.

The research by Carlotto and Câmara (2008) studied the psychometric characteristics of 514 Brazilian students from various health courses at a HEI in Grande Porto Alegre, mostly women. They obtained three factors that presented the same semantic configuration of the Burnout dimensions: emotional exhaustion, professional efficacy and disbelief.

Emotional Exhaustion revealed a predictor model with eight variables, which explained 29.2% of the variance. The intention to leave the course, to be younger, to study more subjects, to engage in a leisure activity, to be dissatisfied with the course, to be taking an advanced semester, to take a complementary course and to have professional experience in the area predict emotional exhaustion.

In Disbelief, the explanatory variables were: intention to leave or stay in the course, leisure activity, satisfaction with the course and age, explaining 20.1% of the dimension under study. The variables thinking of dropping out of the course, not having a leisure activity, being dissatisfied with the course and being younger influence the feeling of disbelief in relation to the studies.

Professional Efficacy was explained by the variables: dropout, leisure activity, professional experience in the area and satisfaction with the course, accounting for 11.4% of the variance in the dimension. The intention to stay in the course, have a leisure activity, have professional experience in the area and be satisfied with the course explain the feeling of professional effectiveness in the studies.

The work of Back, Moser and Amorim (2009) evaluated 76 students of the 2nd nighttime period in Law at a HEI in Curitiba-PR (57% women). They found that 18.42% of subjects (63.6% women) obtained scores to be diagnosed with Burnout. They obtained high scores in Depersonalization and Emotional Exhaustion and low scores in Personal Achievement.

In another research by Carlotto et al. (2009), 239 Psychology students from an HEI in Greater Porto Alegre (87.4% of women) were analyzed with full-time dedication to the course (52.6%). Emotional Exhaustion revealed an average score of 2.50, indicating emotional exhaustion “a few times a month”. In Disbelief, the average index was 1.20, indicating that they did not believe in teaching only “once a month”. In Professional Effectiveness, the score was 5.14, indicating that the student feels competent as a student practically “every day”.

The study by Schulke et al. (2011) analyzed 101 physiotherapy trainees from an HEI (84.8% women), who studied and worked (53.5%). They found an Emotional Exhaustion score of 3.38 on a scale from 1 to 5. In Disbelief, the low score of 1.64 indicated confidence in the course and in the learning received. In Professional Effectiveness, they scored the high rate of 4.85, indicating that students feel competent as a student practically “every day”.

The research by Vasconcelos et al. (2012) analyzed 50 students of the last year of Physiotherapy (76% of women). In Emotional Exhaustion, 54% obtained high scores and 2% low scores. In Depersonalization, 40% obtained a low score and 36% average. In professional performance, 46% got a low score and 44% average.

## 2.4.2 International studies

The work by Martinez et al. (2002) used a scale from 0 to 1 to analyze 1,350 students, 46.1% Spanish and 53.9% Portuguese (74% female). In Emotional Exhaustion,  $\alpha = 0.79$ ; for cynicism,  $\alpha = 0.81$  and, for depersonalization,  $\alpha = 0.73$ . The Spanish students reported higher scores for cynicism, emotional exhaustion, and lower levels of depersonalization. There were significant differences in the three factors, with higher levels of emotional exhaustion and cynicism in the Spanish, against higher scores for depersonalization in the Portuguese students.

The study by Sweeney and Summers (2002) evaluated the impact of Burnout and the effect of work overload on accountants of an American audit firm with 13 offices in seven states during the closing periods at two times; the first, in November of one year, when 426 questionnaires were sent and 284 (67%) answered, constituting team 1; the second, in March of the following year, sending 381 questionnaires and getting back 209 answered questionnaires (55%), corresponding to team 2. They found higher levels of exposure for team 2, evaluated after the closure. The level of exhaustion after closure was not measured when the team returned to a normal life, leaving the duration of these elevated levels obscure.

The study by Martinez and Pinto (2005) analyzed Burnout and its relationship with academic vari-

ables involving 1,988 students (31.2% Spanish and 68.8% Portuguese), of whom 77% were women. They found, using a scale from 0 to 1,  $\alpha = 0.79$  on exhaustion,  $\alpha = 0.81$  for cynicism and  $\alpha = 0.74$  for academic efficacy, which exceeded the acceptable reference coefficient of 0.70 (Nunnally & Bernstein, 1994).

Kalbers and Fogarty (2005) analyzed 298 internal auditors in cooperation with 23 organizations representing industries in the United States, with support from The Institute of Internal Auditors (IAA). Of this total, 59% were women, with an average experience time of 7.1 years, and almost 30% with more than 10 years of experience. Three hypotheses were tested.

The first hypothesis was confirmed. The internal control locus had a significant negative influence on the three dimensions of Burnout. Internal auditors with the fewest symptoms tended to have an internal control locus. The second suggested a negative relation between the perceived skills and the dimensions of Burnout and was confirmed for the low professional achievement. There was no relation between personal abilities and emotional exhaustion, nor between the perception of personal competences and depersonalization. The 2nd was not confirmed for two dimensions. In the third, the negative relation between organizational credibility and Burnout was confirmed; there was no direct association between organizational confidence and reduced personal performance in internal auditors though.

The work of Caballero, Abello and Palacios (2007) analyzed 202 Colombian nighttime students of psychology (77.2% women). They found academic Burnout in 41.6% of the students (distributed between middle and high level), suggesting that they experienced the sensation of not giving more of themselves and cynicism about the value and meaning of work, while 38.2% presented Exhaustion, 29.7% cynicism and 48.6% feel ineffective.

The research by Maroco and Tecedeiro (2009) analyzed 654 Portuguese students in Psychology. They found that the original version of the MBI-SS permits calculating the Exhaustion, Disbelief and Efficacy scores. A person is diagnosed with Burnout in relation to his group if they rank above the 66th percentile of the Exhaustion and Disbelief scores and below the 33rd percentile of the Achievement scores. The decile values and 66 and 33 percentiles of the three MBI-SS factors were described in a table prepared by the authors.

Law's (2010) study examined a sample of 196 Business students in three classes at an American state university. They found, in the dimensions emotional exhaustion, depersonalization and low professional achievement, alphas of 0.88, 0.78 and 0.74, close to the scores found by Maslach; Jackson and Leiter, (2010), which corresponded to 0.90, 0.79, and 0.71.

Larson's (2001) study assessed the differences in susceptibility among 677 internal auditors in the Burnout work strain factors, with data provided by the American Institute of Certified Public Accountants (AICPA). Respondents had a mean age of 34 years, mean practice time of eight years and 64% were men. Women reported slightly higher exhaustion than men (3.08) and (2.93), with single women having higher rates than married women (3.22) and (2.99). The same was not true for single men in relation to married women, (2.92) and (2.93), and the highest rate reported by women was found among single women without children (3,22) and, in men, among singles with children (3.81).

### 3. Method

The research is empirical-analytical and quantitative. Twelve accountancy courses offered at night through in-class education in the city of São Paulo were selected in the E-MEC system, with scores of 2 to 5 on ENADE. Emails were sent to the coordinators, who were contacted by telephone. After the initial contact and explanations about the research objectives, authorization was obtained from seven courses. The courses for which the research was authorized are offered by the Private Higher Education Institutions (IES) described in Table 01. For ethical and confidentiality reasons, we decided not to disclose the names of the HEIs.

Table 01

**HEI That Authorized The Application Of The Questionnaire**

HEI - Campus	Concept	Frequency
A - Center	5	87
B - Center	5	51
C - Center	4	71
D - West	4	39
E - West	4	53
F - Center	3	21
G - West	3	97
<b>Total questionnaires obtained</b>		<b>419</b>

Due to the few studies in Brazil, it was decided to use Carlotto and Câmara's (2006) questionnaire with 15 questions, translated and adapted from the English version by Schaufeli, Martínez, Pinto, Salanova and Bakker (2002). This questionnaire was used for two reasons: 1) it originates from a validated questionnaire and; 2) has been adapted and tested in the Brazilian reality.

The suggestion of Shiron (1989) was adopted to identify Burnout as a function of the frequency of the manifestation of the symptoms. The rate of symptom evolution equal to or greater than once a week, as suggested by Shiron (1989), was used to identify the frequency. The presence of the three dimensions was evaluated by counting the frequency of responses, using a Likert scale: (0) for never, (1) once a year, (2) once a month or less, (3) a few times a month, (4) once a week, (5) a few times a week, and (6) every day.

The final-year students, all working double journeys, were chosen because they were subjects with established professional choices and because they had greater professional experience in relation to students from previous periods. The questionnaires were applied face to face, with the authorization of the HEI and coordinators of the seven courses studied. The findings and their consequent analysis are limited to the sample analyzed.

The present research adopted the following criteria for each dimension as operational definition of possible exposures to the risk of Burnout:

- Emotional Exhaustion (EE) (5 questions): average responses above the cutoff point 4;
- Disbelief (DE) (4 questions): mean responses above cut-off point 4;
- Professional Effectiveness (PE) (4 questions): average of responses below the cutoff point 4;

In order to identify the variables that best help to distinguish between students who (a) are not classified as possibly exposed to the risk of Burnout and (b) those who are exposed, the binary logistic regression model was applied, using the stepwise method to select the significant variables. The level of significance was 5%.

The binary logistic regression model is used when the dependent variable (response) is dichotomous, that is, it presents only two possible values representing success or failure or, more generally, the presence or absence of an attribute of interest (McCullagh & Nelder, 1989; Hosmer & Lemeshow, 2000). This type of model belongs to a class of models introduced by Nelder and Wedderburn (1972), called Generalized Linear Models (MLG or GLM), which are an extension of classical linear models. Thus, the response variable, which previously had to be normal, could be any one of a specific group of distributions, called the exponential distributions family.



Two logistic regression models were developed, altering the definition of the response variable (dependent variable = 1), according to the following criteria:

- Group 2: those considered exposed to the risk of Burnout in terms of Emotional Exhaustion and in another dimension;
- Group 3: those considered exposed to the risk of Burnout in the three dimensions studied.

In the results, we discuss the significant variables in each model. For the development of the statistical tests, the software R was used, available for download at [www.r-project.org](http://www.r-project.org).

## 4. Results and Discussion

Among the 424 questionnaires applied, five were discarded due to errors, lack of completion and incoherent responses. The sample consisted of 419 questionnaires. Some categorical variables were not answered. Therefore, the total number of some responses is lower than the sample number.

### 4.1 Respondents' Profile

The synthesis of the sample profile has been described below in Table 02.

Table 02

**Frequency Of Reasons For Choosing The Hei**

Choice of HEI		Frequency	Percentage
Reason			
1	For being closer to my home	123	29,4
2	For its score at the Ministry of Education	109	26,1
3	Because of the institution's "name"	101	24,2
4	Other	35	8,4
5	For being closer to my job	34	8,1
6	Due to the Student Guide	10	2,4
7	Because of the monthly fee	5	1,1
8	The course I wanted was not offered at the HEI or campus I liked	1	0,3
<b>Total</b>		<b>418</b>	<b>100,0</b>

The ENADE score (2) and the concept attributed to the HEI (3) accounted for 50.3% of the choices and were pointed out as factors that interfere in the choice of the HEI (Pires, Ott & Damacena, 2010). The distance (items 1 and 5) was highlighted, accounting for 37.8% in the choice of the HEI. Matsuura (2008) appointed the distance as a difficulty for the student. These variables accounted for 88.1% of the reasons for choosing the HEI.

The majority (79.0%) did not live with a fixed partner and 58.2% were female. Similar gender results were obtained by Leal, Miranda and Carmo (2011), Borges and Carlotto (2004), Schulke et al. (2011), Vasconcelos et al. (2012) and Tarnowski and Carlotto (2007), and marital status results by Larson (2011).

In the division of time between academic and professional lives, 81.4% reported working eight hours a day, characterizing the double journey, which for Bosqued (2008) can lead to the onset of chronic stress. As for the traineeship, 9.6% were trainees. The variable “only studies” was chosen by 6.92% and 2.15% declared not to work. Considering the fact that the subjects are final-year Accountancy students and that more than 90.0% are professionally active indicates the high employability in the accounting profession.

Of those who did not work, 64.7% were maintained by the families, the others received grants or government incentives. This condition does not reduce their attributions and demands of academic life. Caballero, Abello and Palacios (2007) point out the stress in the academic environment as a factor for the beginning of the illness process.

Of the final sample, 81.6% declared to be professionally qualified. As for the 18.4% who considered themselves unfit, considering the fact that they are final-year students about to graduate, the figures are considerable.

For 84.9%, this is the first degree; 15.1% declared to hold another degree. The low percentage of second degrees can be explained by the mean age (25.1 years) and minimum age of the sample (21 years), which suggests a small time lapse between high school and college entrance.

## 4.2 Statistics on changes and response variables

This step sought to measure the students’ exposure levels, similar to Shiron (1989). In this study, a dummy variable was used, in that “0” indicates possibly unexposed and “1” possibly exposed students. Considering the three dimensions, 194 respondents (46.3%) reported changes in Emotional Exhaustion, 47 (11.2%) in Disbelief and 131 (31.4%) in Professional Effectiveness, as shown in Table 03.

Table 03

### Frequency Of Changes In Burnout Dimensions

Change	Emotional exhaustion		Disbelief		Professional efficacy	
	Frequency	%	Frequency	%	Frequency	%
0	225	53,7	372	88,8	288	68,7
1	194	46,3	47	11,2	131	31,4
<b>Total</b>	<b>419</b>	<b>100,0</b>	<b>419</b>	<b>100,0</b>	<b>419</b>	<b>100,0</b>

Based on these answers, three groups of respondents were created to measure the degree of exposure to the disease (Reinhold, 2002), according to Table 04.

Table 04

### Frequency Of Changes Per Group

Change	Grup 1		Grup 2		Grup 3	
	Frequency	%	Frequency	%	Frequency	%
0	140	33,4	352	84,0	402	95,0
1	279	66,6	67	16,0	17	4,0
<b>Total</b>	<b>419</b>	<b>100,0</b>	<b>419</b>	<b>100,0</b>	<b>419</b>	<b>100,0</b>

Group 1 included 279 students (66.6% of the sample) who reported changes in one of the three dimensions; in group 2, 67 students (16.0%) reported changes in Emotional Exhaustion and in another dimension; in group 3, 17 students (4.0%) reported with changes in the three dimensions. Statistically significant results were analyzed for groups 2 and 3, using logistic regression. Burnout results from the combination of several factors. A person can manifest symptoms in one dimension and overcome them more quickly than when he manifests symptoms in two or more dimensions. The frequencies and percentages for groups 2 and 3 were calculated for exposed and non-exposed students. In the analyses for those exposed, the percentages were considered in relation to the total responses for the two groups. The final column of the following tables includes the totals and percentages of the sum between exposed and non-exposed students.

#### 4.2.1 Description of significant results for group 2

Group 2 combined students with changes in Emotional Exhaustion and in another dimension, varying between Disbelief and Professional Efficacy. Table 5 shows that 16.7% of those who work confirmed the findings by Dutra & Veloso (2010) regarding the problems of adapting to work and study. The pressures and academic charges pointed out by Caballero, Abello and Palacios, (2007) appear in the 10.5% who do not work and showed signs of exposure.

Table 05

##### Exposed And Not Exposed Per Current Occupation Group 2

Current occupation	Not Exposed	Exposed	Total
Work/training	315 (83,3%)	63 (16,7%)	378 (90,9%)
Does not work	34 (89,5%)	4 (10,5%)	38 (9,1%)
<b>Total</b>	<b>349 (83,9%)</b>	<b>67 (16,1%)</b>	<b>416 (100,0%)</b>

Table 6 shows the working students by categories and the origin of the resources of those who do not. Of these, 52.8% of those exposed worked in the accounting area (16.0% in accounting firms, 14.3% in the accounting area of companies and 22.5% in external audit firms). Hernandez (2011) attributes the stress of the accounting professional to the complexity of the activities carried out, the large flow of information, the deadlines and the obligations inherent to their functions. The author asserts that the profession will be one of the most stressful in the future, compromising the quality of life and the health of the workers. No exposure was found among scholars who did not work at the time; however, 14.8% of those maintained by families reported exposure.

Table 06

**Exposed And Not Exposed Per Job Category Group 2**

	Category	Not Exposed	Exposed	Total
Training/Work	Works at accounting firm	89 (84,0%)	17 (16,0%)	106 (25,5%)
	Other company categories in accounting	72 (86,0%)	12 (14,3%)	84 (20,2%)
	Accounting entrepreneur	2 (100,0%)	0 (0,0%)	2 (0,5%)
	Works at external audit firm	38 (77,5%)	11 (22,5%)	49 (11,8%)
	Other company categories in other areas	91 (84,3%)	17 (15,7%)	108 (26,0%)
	Others	23 (79,3%)	6 (20,7%)	29 (7,0%)
Does not work/only studies	Others	2 (100,0%)	0 (0,0%)	2 (0,5%)
	The family pays for the education	23 (85,2%)	4 (14,8%)	27 (6,5%)
	Grantee	9 (100,0%)	0 (0,0%)	9 (2,2%)
<b>Total</b>		<b>349 (83,9%)</b>	<b>67 (16,1%)</b>	<b>416 (100,0%)</b>

Professional skills and abilities need to be developed during the academic life (Pires, Ott & Dama-cena, 2010). This responsibility can cause pressure from HEIs and exacerbate students' level of exposure. In some cases, withdrawal from the course may occur, as pointed out by Sothe et al. (2012).

Table 7 shows the percentage of exposed and unexposed students in group 2, by HEI. The students at HEI C reported higher exposure percentages, 26.8%, followed by HEI E (19.2%), F (19.1%), D (18.4%), B (15.7%), A (14.9%) and G (6.5%).

The charge for efficiency, productivity and competitiveness in the academic scope can generate insecurity, anguish and low self-esteem. The sum of these elements can in many cases explain the high rates of exposure to Burnout found in universities.

Table 07

**Exposed And Not Exposed Per Hei Group 2**

Institution	Not Exposed	Exposed	Total
A	74 (85,1)	13 (15,0%)	87 (20,9%)
G	90 (93,8%)	6 (6,3%)	96 (23,1%)
B	43 (84,3%)	8 (15,7%)	51 (12,3%)
C	52 (73,2%)	19 (26,8%)	71 (17,1%)
E	42 (80,8%)	10 (19,2%)	52 (12,5%)
F	17 (81,0%)	4 (19,1%)	21 (5,1%)
D	31 (81,6%)	7 (18,4%)	38 (9,1%)
<b>Total</b>	<b>349 (83,9%)</b>	<b>67 (16,1%)</b>	<b>416 (100,0%)</b>

The feeling of professional incapacity demands attention (Borges & Carlotto, 2004). For this reason, 45.3% of the respondents deserve caution in reporting exposure to Burnout. The percentages of exposed students described in Table 08 indicate that this part of the sample may present problems of emotional exhaustion and professional effectiveness, which is why special care may be required.

Table 08

**Exposed And Not Exposed Per Professional Training Group 2**

Professional Training Professional	Not Exposed	Exposed	Total
No	51 (67,1%)	25 (32,9%)	76 (18,3%)
Yes	298 (87,7%)	42 (12,4%)	340 (81,7%)
<b>Total</b>	<b>349 (83,9%)</b>	<b>67 (16,1%)</b>	<b>416 (100,0%)</b>

Next, the summarized results of the logistic regression model are presented, applying the stepwise selection method of variables, significance being set at 5%.

Table 09

**Result Of Logistic Regression Model**

Parameter	Category <sup>a</sup>	Estimate	Standard Error	p-value
Intercept		-1,0559	0,1729	<,0001*
Institution category	C	0,4594	0,1607	0,0043
Professional training	No	0,6559	0,1503	<,0001

\*Variables significant at 5% significance.

In this model, only the variables related to the teaching institution and professional training were significant. Next, the Odds Ratios are presented for each variable.

Table 10

**Odds Ratio**

Variables	Burnout		Odds Ratio
	Not Exposed	Exposed	
<b>Institution category</b>			
C	52 (73,24%)	19 (26,76%)	2,506 (1,135; 4,706)*
Others	297 (86,09%)	48 (13,91%)	1
<b>Professional training</b>			
No	51 (67,11%)	25 (32,89%)	3,713 (2,060; 6,694)*
Yes	298 (87,65%)	42 (12,35%)	1

\*Variables significant at 5%.

The information in Table 10 reveals that:

- For the Institution variable: being a student at HEI C increases the chance of being exposed to Burnout by 2.506 times when compared to studying at the other HEI included in the research;
- For the Professional Training variable: not feeling able to practice the profession increases the chance of being exposed to Burnout by 3.713 times when compared to feeling able.

In addition, the Hosmer and Lemeshow (1980) test was applied, which indicated that the adjusted model is appropriate (the null hypothesis was not rejected, with p-values of 0.7674 and 0.9015, respectively).

#### 4.2.2 Description of significant results for group 3

Group 3 combined students who reported changes in the three dimensions. Table 11 indicates that 4.0% of those working had exposure signs, which may be associated with internal factors of the work environment (Cooper & Marshall, 1978). The non-working group reported a higher percentage of exposure, about 5.3%.

Table 11

##### Exposed And Not Exposed Per Current Occupation Group 3

Current occupation	Not Exposed	Exposed	Total
Work/training	363 (96,0%)	15 (4,0%)	378 (90,9%)
Does not work	36 (94,7%)	2 (5,3%)	38 (9,1%)
<b>Total</b>	<b>399 (95,9%)</b>	<b>17 (4,1%)</b>	<b>416 (100,0%)</b>

Those who declared working were grouped into categories, intended to measure the level of exposure by sector of activity. Table 12 indicates that those who work in external audit firms have a higher level of exposure, 6.1%. Alberton and Beuren (2003) say that the high levels of stress in external auditors can be explained by the various skills and abilities required for the position.

Alberton and Beuren (2002) emphasize that auditors undergo periodic evaluations, which measure accounting, tax, corporate, auditing knowledge and fluency in English, as well as other attributes, such as flexibility, loyalty, professional ethics, relationship with corporate policy, appearance, behavior, motivation and people management. These requirements help to understand the repeated stress rates among external auditors in the three groups in this research.

Students who work in accounting firms (5.7%) are possibly exposed. Of those who work in the accounting area of other companies, 2.4% show signs of exposure. Accounting businessmen showed no symptoms of exposure. For those who did not work, whose families paid for their studies, the exposure amounted to 7.4%. Like in Group 2, no grantholders showed exposure to Burnout. These findings are shown in Table 12.

Leal, Miranda and Carmo (2011) and Matsuura (2008) found that accounting students working in the accounting area may be exposed to high levels of stress. The disputed selection processes, the high recruitment requirements and the demands of the companies, inherent to the responsibility of the accounting professional, help to explain the high levels of stress (Villela & Nascimento, 2003).

Table 12

##### Exposed And Not Exposed Per Job Category Group 3

Category	Not Exposed	Exposed	Total	
Training/Work	Works at accounting firm	100 (94,3%)	6 (5,7%)	106 (25,5%)
	Other company categories in accounting	82 (97,6)	2 (2,4%)	84 (20,2%)
	Accounting entrepreneur	2 (100,0%)	0 (0,0%)	2 (0,5%)
	Works at external audit firm	46 (93,9%)	3 (6,1%)	49 (11,8%)
	Other company categories in other areas	106 (98,2%)	2 (1,9%)	108 (20,0%)
	Others	27 (93,1%)	2 (6,9%)	29 (7,0%)
Does not work/only studies	Others	2 (100,0%)	0 (0,0%)	2 (0,5%)
	The family pays for the education	25 (92,6%)	2 (7,4%)	27 (6,5%)
	Grantee	9 (100,0%)	0 (0,0%)	9 (2,2%)
<b>Total</b>	<b>399 (95,9%)</b>	<b>17 (4,1%)</b>	<b>416 (100,0%)</b>	

Not everyone can cope with the high level often required (Marion, 2003). Table 13 indicates that HEI C students continue with the highest exposure rates, corresponding to 8.4%. Findings showed 7.9% of exposure at HEI D, 4.8 at F, 3.1% at G, 2.3% at A, 2.0% at B and 1.9% at E.

The cyclical result found in groups 2 and 3, in which HEI C students reported higher exposure rates to Burnout, continues to be explained by the HEI's requirements. In seeking to form qualified accountants who meet the demands of the world of work, some HEIs may require greater effort and dedication. This possible requirement may cause the findings by Carvalho, Silva and Holanda (2006), in which 44.0% of those graduated and active in the accounting area reported not having sufficient technical capacity to carry out their activities.

Regarding the responsibility of HEIs, Teodoro et al. (2009), Holland (2000) and Marion (2003) alert that it is not enough to contribute to the insertion of the professional in the job world, with the undergraduate degree. Competences and skills are needed to support the demands of organizations. In addition to these responsibilities, HEIs are expected to promote further development of skills and competences, raising the requirements and demands posed on their students.

Table 13

**Exposed And Not Exposed Per Hei Group 3**

Institution	Not Exposed	Exposed	Total
A	85 (97,7%)	2 (2,3%)	87 (20,9%)
G	93 (96,9%)	3 (3,1%)	96 (23,1%)
B	50 (98,0%)	1 (2,0%)	51 (12,3%)
C	65 (91,6%)	6 (8,5%)	71 (17,1%)
E	51 (98,1%)	1 (1,9%)	52 (12,5%)
F	20 (95,2%)	1 (4,8%)	21 (5,1%)
D	35 (92,1%)	3 (7,9%)	38 (9,1%)
<b>Total</b>	<b>399 (95,9%)</b>	<b>17 (4,1%)</b>	<b>416 (100,0%)</b>

Maslach, Jackson and Leiter (2010) suggest that poor achievement can explain changes in Professional Effectiveness. Table 14 indicates 11.8% who do not feel professionally qualified and showed signs of exposure, in addition to the 2.4% who feel they are fit to perform the function. These students reported changes in the three dimensions, and therefore deserve further attention.

Table 14

**Exposed And Not Exposed Per Professional Training Group 3**

Professional Training	Not Exposed	Exposed	Total
No	67 (88,2%)	9 (11,8%)	76 (18,3%)
Yes	332 (97,6%) (97,65%)	8 (2,4%)	340 (81,7%)
<b>Total</b>	<b>399 (95,9%)</b>	<b>17 (4,1%)</b>	<b>416 (100,0%)</b>

Table 15 summarizes the results of the logistic regression model, using the stepwise selection method of variables, significance being set at 5%.

Table 15

**Result Of Logistic Regression Model**

Parameter	Category	Estimate	Standard Error	p-valor
Intercept		-2,7138	0,2555	<,0001*
Institution category	C / D	0,6319	0,2561	0,0136*
Professional Training	No	0,8790	0,2561	0,0006*

\*Variables significant at 5%.

Table 16

**Odds Ratio**

Variables	Burnout		Odds Ratio
	Not Exposed	Exposed	
<b>Institution category</b>			
C / D	100 (91,74%)	9 (8,26%)	3,539 (1,297; 9,657)*
Others	299 (97,39%)	8 (2,61%)	1
<b>Professional training</b>			
No	67 (88,16%)	9 (11,84%)	5,801 (2,126; 15,832)*
Yes	332 (97,65%)	8 (2,35%)	1

\*Variables significant at 5%.

The information in the above table reveals that:

- For the Institution variable: being a study at HEI's C and D increases the chance of being exposed to Burnout by 3.359 times when compared to studying at the other HEI's included in the research;
- For the Professional Training variable: not feeling apt to practice the profession increases the chance of being exposed to Burnout by 5.801 times when compared to feeling apt.

In addition, it is highlighted that the results of the Hosmer and Lemeshow (1980) test suggest that the adjusted model is appropriate (the null hypothesis was not rejected, p-values of 0.7812 and 0.6551, respectively).

## 5. Conclusions

Burnout results from chronic stress, which leads to change in the Emotional Exhaustion, Disbelief, and Professional Efficacy dimensions. In order to identify whether the prevalence and labor, socio-demographic and academic factors contributed significantly to the exposure to Burnout in final-year Accountancy students at seven HEIs in the city of São Paulo, the study was conducted with 419 students. Of these, 46.3% reported changes in Emotional Exhaustion, 11.2% in Disbelief and 31.3% in Professional Effectiveness.



In the two analyzed groups, the most significant variables to distinguish between those exposed and not exposed to the risk of Burnout were HEI and professional qualification. The research findings allowed us to answer the question and to confirm the hypothesis that there are significant differences between the groups of the sample exposed to Burnout, according to their work categories and the HEIs where they study.

Society and organizations require more than just a data verifier. Elaborating accounting and financial reports is a daunting task. The future accountant needs to translate, interpret information and adapt it with the efficiency and speed required for decision-making processes. This scenario can lead to work stress, evolving into Burnout.

HEI C and D students reported higher chances of exposure in both groups. The need to maintain or increase the ENADE grade and preserve the name of the HEI causes the institution to raise the requirements for the students. Some of the students considered themselves to be professionally incapable. Among those who considered themselves to be qualified, there were failures in Professional Effectiveness.

The findings suggest the need for preventive actions that may mitigate the identified symptoms. The quest for well-being, physical and mental health, improvements in working conditions, quality of life, among other attitudes, are essential actions to reduce the number of workers who gradually and silently fall ill.

The obtained results are limited to the sample studied. It is recommended that other stakeholders explore the theme at other HEIs in the same region or in other locations, with a view to deepening and analyzing, in a comparative and complementary way, the results obtained. Continuity in research will contribute to the early identification, prevention and, when appropriate, indication of treatments for the Burnout Syndrome.

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# The view of the academy and the job market on teaching auditing

## Abstract

The objective of this study was to identify the perception of audit teaching according to the academy and the labor market, based on the evaluation of the importance professionals and teachers grant to the main conceptual and normative aspects of the audit area. In order to achieve the proposed objective, the perception of the teachers responsible for the audit discipline and the auditors working in the labor market was collected through a questionnaire structured in the form of a Likert scale. The research sample comprised all the federal and state universities that offer accounting courses and all the audit companies registered in the database of the Brazilian Securities Commission (CVM). The responses were treated using the non-parametric Mann-Whitney and Spearman's correlation tests. The results show that, in approximately 75% of the topics raised in this study, the academy tends to correspond to the expectation the market holds about the importance given to such contents within the audit discipline. The main differences are related to Assurance Service, Audit of Non-Profit Entities, Audit of Governmental Agencies, Quality Control and Audit of Information Systems, which do not receive emphasis within the academy, according to the market perspective. The results presented here can be used for teachers to evaluate the disposition of the contents covered within the discipline, considering the relevance attributed by the market.

**Key words:** Teaching. Auditing. Audit Topics.

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## 1. Introduction

The recent years have been the most dynamic and turbulent period in the history of auditing. The global expansion of the markets, in addition to the financial scandals, which culminated in Enron's failure and Arthur Andersen's downfall, as well as the approval of the Sarbanes-Oxley Act and the creation of the Public Company Accounting Oversight Board (PCAOB), brought substantial changes to the profession of the auditor. Subsequent to such events, in the international context, a new accounting standard was introduced in Brazil with the advent of Law 11.638 / 2007, which deals with the adoption of the International Accounting Standards (IAS), also known as International Financial Reporting Standards (IFRS), which lead to important changes in the measuring, recognition and disclosure of the operations carried out by the companies (Nogueira Júnior, Jucá & Macedo, 2010).

Based on these episodes, Castañeda, Carvalho & Lisboa (2007) cite that the audit profession in Brazil is inserted in this context of convergence through the Federal Accounting Council (CFC) and the Institute of Independent Auditors of Brazil (Ibracon), in search of alignment, not only with respect to the IFRS, but mainly with the International Auditing Standards. As a result of this process, the audit activity tends to keep track of global trends in the practical and normative sense.

Indirectly, such changes have an impact on audit teaching. As the professional practice seeks to evolve to meet the demands of the market, the audit teaching process needs to be continually re-evaluated, so that it can adequately prepare future professionals in the field (Armitage, 2008). And that is the greatest challenge of the courses in Accountancy - design the curricula and content so that they meet the needs and evolutions of the profession. In particular, in the case of auditing, a gap exists between teaching and practice (Dombrowski, Smith, & Wood, 2013; Silva, 2008).

As regards the changes in the professional field, audit teaching remained oblivious to economic developments, distancing itself abruptly from market practices, as pointed out by some authors, such as Armitage (2008), Chaffey, Peurseem and Low (2011), Dombrowski et al. (2002), Humphrey (2008), Johnson, Baird, Caster, Dilla, Earley and Louwers (2003), Madeira (2001) and Ricardino Filho (2002). In Brazil, the audit teaching did not go through any relevant updates in the last fifty years, and the growth of the profession in the area was not adequately matched by the courses in Accountancy, according to Madeira (2001) and Ricardino Filho (2002).

Despite the importance of the profession, as the auditor is responsible for ensuring the reliability of the financial statements for the accounting information users, Silva (2008) and Armitage (2008) point out that research that seeks to identify the audit teaching process is still incipient, even at the international level. In Brazil, studies in the area were mainly concerned with the evaluation of curricular aspects and labor market perspectives, such as the work of Madeira (2001), Ricardinho Filho (2002, 2003), Silva (2008) and Veiga, Borges and Amorim (2014).

In view of the growing demands of the market, there is a need to carefully analyze the educational institutions responsible for the training of future auditors, especially in relation to the evaluation of education, in order to mitigate the differences between the academy and market expectations (Silva, 2008; Machado, Machado & Guerra, 2014).

In this sense, the following question is raised: what is the perception of teachers and professionals in the area about audit teaching? Therefore, this study aims to identify the perception of audit teaching from the academy and the labor market's perspectives, based on the evaluation of the importance professionals and teachers grant to the main conceptual and normative aspects of the audit area.

The justification of the work lies in the importance of evaluating the content of teaching in auditing, taking into account academic and professional aspects. The comparison between the expectations of the market and teachers in the audit area, based on the importance each of the groups assign to certain themes, allows the teacher to reassess the teaching process, from the perspective of teachers and professionals in the area, thus identifying which subjects the two groups consider to be the most relevant. This approach also allows the academy to absorb changes in the labor market. Moreover, the present comparison provides a basis to identify trends in audit teaching over a linear period, as well as to identify market needs considered by professionals in the area (Armitage, 2008; Chaffey et al., 2011).

In addition to this brief introduction, a review of the literature is presented in which the fundamental concepts for the understanding of the research are discussed; the methodological procedures and the description and analysis of the data are presented in the following sections; and finally, the conclusions and recommendations for future studies.

## 2. Theoretical Framework

### 2.1. The market and audit teaching

The expansion of global markets, especially since the 1990s, has begun a process of significant change in the audit profession. In a globalized context, where investors, governments, regulators and other stakeholders demand the disclosure of accurate information about the activities performed by companies, the scope of the audit goes beyond verifying the financial statements in accordance with the principles and standards (Johnson et al., 2003). In addition, it is also necessary to consider risk performance, risk assessment and management. In addition, Niyama, Moraes da Costa, Alves Dantas & Ferreira Borges (2013) still consider the performance of the auditor as fundamental for the functioning of the capital market, in order to provide security about the reliability of the accounting information published, thus contributing to an environment of greater confidence and credibility.

In addition to the changes in business relationships, Armitage (2008) adds that the major changes in the field of auditing came with financial scandals in the early 2000s, culminating in the failure of Enron and the overthrow of Arthur Andersen. These events led to the creation of the Sarbanes-Oxley Act and the Public Company Accounting Oversight Board (PCAOB). Nevertheless, as far as the Brazilian context is concerned, a new accounting standard has been recommended since the enactment of Law 11.638/2007, which deals with the adoption of International Accounting Standards, also known as International Financial Reporting Standards (IFRS). These lead to important changes in the measurement, recognition and disclosure of the operations carried out by the companies, mainly with respect to aspects related to: "(i) the representation of the financial statements; and (ii) the economic essence of the transactions as a basis for their recognition" (Nogueira Jr. et al., 2010, page 6).

In this sense, Castañeda et al. (2007) add that, as a result of the convergence process, the audit activity in Brazil tends to converge with the international standards. In this context, the Brazilian audit is based on a mutual cooperation between the Federal Accounting Council (CFC) and the Brazilian Institute of Independent Auditors (Ibracon), and mainly with the publication of the Brazilian Accounting Standards applied to auditing, elaborated according to its international equivalent, issued by the International Federation of Accountants (Ifac), also known as the *NBC TAs*.

For Armitage (2008), such practical changes have an impact on audit teaching. To the extent that professional practice seeks to evolve to meet the demands of the market, the teaching process needs to be continually re-evaluated, so that it can adequately prepare future professionals in the area. In this sense, Ricardino Filho (2002) points out that, to reduce the risk of issuing inadequate opinions about the financial statements under examination to acceptable levels, the development of tools or the understanding of complex business relationships is not enough. In the first place, the professionals need to be properly prepared for the practice.

In that sense, Silva (2008) configures the university as an institution aimed at preparing future professionals for the labor market. The analysis of the changes that occur around them turns into an indispensable element in the elaboration of the political-pedagogical project, aiming to prepare professionals in accordance with the requirements of the market. In addition, it is important that courses in Accounting are able to train professionals capable of interacting as agents of change, in continuous evolution. And it is precisely at this point that the greatest challenge of courses in Accountancy lies - to design curricula and content to meet the needs and evolutions of the profession. Armitage & Poyzer (2010) argue that the responsibility to keep curricula updated mainly rests on teachers, who must be aware of changes in the profession in order to incorporate them into the class schedule. Nevertheless, Siriwardane, Kin Hoi Hu & Low (2014) argue that success in the training process consists in the academic understanding of market needs.

A better understanding of such needs can be achieved from the analysis of the information pointed out about the professionals working in the field of auditing and the knowledge needed to exercise the profession. In accordance, Humphrey (2008) emphasizes that, for the development of knowledge in auditing and for the advancement of teaching processes in the area, researchers and auditors have to work together to move in the same direction in the theoretical and practical sense. Chaffey et al. (2011), however, point out that professionals are all too often ignored in surveys.

In addition, Humphrey (2008), referring to the American context, considers the lack of attention given by researchers to the gap between the labor market and audit teaching to be frustrating. The author further illustrates that contemporary auditing research may be more fruitful if it focuses directly on the understanding of the audit practice and the influence of regulatory institutions on the profession. The author argues that researchers are reluctant to understand the profession in a more critical and less quantitative dimension. Humphrey (2008) identifies that the scientific field in the area has distanced itself from the understanding of the professional practice. The author argues that, within the academy, relatively little is known about the practice, yet the legitimacy of knowledge in auditing remains poorly researched. For the author, the greatest difficulty lies in the approximation of research with specific points of practice.

The gap between the academy and the labor market in the context of auditing has already been argued in earlier work, such as Armitage (2008), Chaffey et al. (2011), Dombrowski et al. (2013), Humphrey (2008), Johnson et al. (2003), Madeira (2001) and Ricardino Filho (2002, 2003). Specifically in the Brazilian context, Madeira (2001) and Ricardino Filho (2002) assert that the teaching of auditing in Brazil has not undergone any relevant update in the last fifty years, so that academic education has abruptly distanced itself from market practices and the courses in Accountancy did not appropriately match the growth of the audit profession.

For a better understanding of both the gap between the two contexts and the precariousness of the audit teaching mentioned above, it is necessary to discuss the curricular contextualization of the Audit discipline within the course of Accountancy, taking into account its emergence and the main discussions about it.



## 2.2. Curricular aspects and background research

The emergence of the Audit discipline in Brazil goes back to 1945, as explained by Silva (2008). The author cites that auditing was initially inserted in the courses of Accountancy by means of Decree-Law 7.988 in the year 1945, when the discipline was named Accounting Revisions and Expertise. Only in 1992, when the discipline was already called Accounting Audit, was it classified as mandatory knowledge.

In the Brazilian context, higher education institutions have autonomy, according to the curricular guidelines of the courses in Accountancy, to determine the content of their teaching plans (Machado et al., 2014). For Madeira (2001), the curricular standardization presents advantages and disadvantages. On the one hand, standardized curricula allow teaching to be somewhat uniform, independent of the educational institution or its location. However, uniformity alone is not a guarantee of teaching or even of learning. The author asserts that, when too standardized, curricula end up impinging on the teaching process, limiting the possibilities of teachers, including the use of creativity.

It is important to note that, for Silva and Moreira (2008, p.7), “the curriculum does not constitute a neutral element of disinterested transmission of social knowledge. Rather, the curriculum is implied in knowledge relations, conveys particular and interested social views, produces particular individual and social identities.” Thus, the preparers of the curricula should find, according to Johnson et al. (2003), the balance between teaching, skills development and building professional awareness. In this sense, Siriwardane et al. (2014) argue that the audit profession involves a wide range of knowledge and skills, so that the training of future auditing professionals does not fall exclusively within universities, and audit firms also have a responsibility to develop the auditors’ knowledge.

As regards the behavioral skills required to maximize the efficiency and effectiveness of the audit firm’s work, Camargo, Camargo, Dutra and Alberton (2014, p. 46) indicate that the competencies assigned as the most important to the auditors vary according to the functional framework of these auditors, thus suggesting that these “are not static and that the skills that are important at the beginning of the auditor’s career may be replaced by others as the professional gains more experience.” From this perspective, “by combining the skills transmitted by the formal institutions and the skills acquired in their professional practice and by their personal training initiatives, individuals become the agents and main builders of their qualification”. The universities act as mediators in this process regarding the incentive to seek knowledge (Silva, 2008, p.35).

What human capital issues are concerned, including the teaching and training of audit professionals, the Advisory Committee on the Auditing Profession (ACAP) produced a report in 2008 with recommendations to improve the profession in the United States. The committee alerts that the link between the profession and the academy is underdeveloped and recommends the orientation of curricula to the market, seeking to continually evolve to meet the needs of the profession. In addition, the committee believes that the direct consequence of the harmony between teaching and practice is the better quality of audit services, as new professionals will be prepared to solve specific problems in the area.

In addition to the aforementioned report, it is important to mention the creation of the Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting-ISAR in 1976, which aims to promote the strengthening of the accounting profession and, among other things, to discuss subjects related to vocational training (Silva, 2008).

In 2011, ISAR, through the United Nations Conference on Trade and Development (UNCTAD), announced the revision of an elaborated curriculum proposal for the teaching of Accounting, seeking the design of a global curriculum, in order to enable, in addition to the harmonization of accounting education, the training of professionals able to act in a globalized context. The curricular proposal offered by UNCTAD (2011, p.80-86), in its item 3.8, regarding the teaching of auditing, recommends the following structure, which is summarized as follows:

- 3.8.1 Nature, goal and extent of auditing
- 3.8.2 Audit Standards and International Auditing Standards
- 3.8.3 Basic Audit Principles and Concepts
- 3.8.4 Basic Audit Structure
- 3.8.5 Audit Assessment and Planning
- 3.8.6 Collection and Analysis of Evidence
- 3.8.7 Development of Audit
- 3.8.8 Audit Report Structure
- 3.8.9 Internal Audit-Objectives and Functions

In the Brazilian context, the Brazilian Accounting Foundation (FBC), based on CFC Decree 13/2006, elaborated a National Content Proposal for undergraduate courses in Accountancy, which proposes the following in terms of auditing:

Basic Audit Concepts; Technical and Professional Audit Standards; Audit Planning; Sample Selection and Risk Assessment; Internal Control; Work Roles; Audit Opinions; Equity Accounts Audit; Income Accounts Audit; Audit Reports; Peer Review (FBC, 2008, p.69).

According to Ricardino Filho (2002), the legal provisions and the pronouncement of professional entities on the curricular structure denote the concern with ensuring that the Accountancy courses be taught in such a way that their framework is inherently connected to the activity, since Accounting education is one of the prerogatives to exercise the audit profession.

As for the aggravating gap between theory and practice, Ricardino Filho (2002) characterizes the situation of audit teaching in Brazil as, at least, worrisome. The author argues that the audit disciplines do not yet have the appropriate emphasis within the course of Accounting, in the same way as most of the teachers responsible for the discipline do not have the minimum masters or doctorate training.

Moreover, Chaffey et al. (2011) add that, ignoring the complex nature of various subjects in the audit curriculum, many Accounting programs offer only a relatively short module for auditing teaching. Moreover, there is no clear consensus as to what should be taught or what teaching methods should be employed, thus creating a great challenge for the educator.

In the research conducted by Ricardino Filho (2002), which aimed to identify if the teaching of the Auditing discipline in Brazilian higher education institutions demonstrate the conditions to fulfill their role of minimally pre-qualifying the future militants in the area for the performance of their professional and social role, it was revealed that the teachers in charge of the discipline had little or no experience in the market and no training in the field or no master's or doctoral courses. In addition, the author identified that the material used to support the course included practices that had lapsed since the 1990s, which only superficially address subjects related to the International Audit Standards, fundamental concepts such as relevance, risk of Auditing and statistical sampling.

Seeking to parallel audit teaching within the academy and the courses offered by the main audit firms with the curriculum proposal advocated by ISAR, the author found evidence of the gap between the academy and the market. However, it is important to point out that, in this case, the differences are already expected as, while the universities are focused on teaching, in a broader conception, the training offered by audit firms is focused on the technical aspect (Ricardino Filho, 2002).

As regards the importance of specific topics in the Audit discipline, Armitage and Poyzer (2010) show that the most important topics for teachers are audit risk, understanding internal control, obtaining evidence, understanding of the financial statements and fraud-related issues. For auditors, on the other hand, the results revealed that the most important topics are audit risk, ethics issues, audit documentation, understanding of internal control and analytical procedures.

Soares, Soares, Lanzarin and Casagrande (2012) identified that the most recurrent contents in the audit subjects were: “Basic Audit Concepts” (100%), “Audit Procedures and Techniques” (92%), Audit and Audit Types “, with 88% each; and the less recurrent contents were “Errors and Fraud” (21%) and “Audit Practice”, with 25%.

In the study by Silva (2008), the author sought to analyze the perception of the audit professionals regarding accounting audit teaching in the Brazilian undergraduate courses in Accountancy, as well as to evaluate the current stage in its adoption as a specific discipline in undergraduate Accountancy courses at HEIs in Brazil. The results present differences between the opinions of teachers and audit professionals, especially regarding the distribution of the discipline content, requirement of prerequisites and professional experience of the teacher.

As observed, no research was found in the national scope that seeks to evaluate the content of teaching in auditing, taking into account academic and professional aspects, according to the approach proposed in this work. Therefore, it is highlighted that research is needed to identify the expectations of the market and teachers in the area of auditing, with a view to supporting the academy to reevaluate the teaching process, taking into account aspects the labor market points out as relevant.

### 3. Methodological Procedures

According to the methodological precepts of Gil (2002), the approach to the problem in this research is characterized as predominantly quantitative. Regarding the objectives, the research is classified as descriptive, since the intention was to know the opinions of professionals and teachers in the audit area about the importance of the contents taught in the Audit discipline. Regarding the procedures, this research is characterized as a survey, because a group of teachers and a group of professionals in the area was questioned, seeking knowledge about the problem studied.

This work resembles, in essence, the study developed by Armitage (2010). However, in order to reach the proposed objective, a questionnaire was developed as a data collection tool, based on the works of Armitage (2008), Armitage and Poyzer (2010), Silva (2008), the curricular proposals advocated by the United Nations Conference on Trade and Development (UNCTAD) (2011) and the Brazilian Accounting Foundation (2009), in addition to the Brazilian Accounting Standards applied to Independent Auditing (NBC PA) and Brazilian Accounting Standards applied to Auditing (NBC TA), which were elaborated according to their international equivalent issued by Ifac, thus seeking to address pedagogical, conceptual, practical and normative aspects.

The questionnaire was structured in the form of a five-point Likert scale (1 “little emphasis” - 5 “Much emphasis”), containing 44 topics on audit teaching, which were distributed into six groups: (i) Teaching of General Audit Concepts; (ii) Audit Evaluation and Planning; (iii) Collection and Analysis of Evidence; (iv) Execution of Audit Work; (v) Audit Report; And (vi) Other Audit Areas. Each of the groups contained the option “other topics”, if the participant wanted to add some subject not mentioned in the questionnaire. The questionnaire also addressed issues related to the participants’ training and professional experience. An open question was also asked if the respondents were interested in manifesting other relevant aspects the Audit discipline should address and that were not addressed in the questionnaire.

In order to identify the professionals' perception about the relevance of certain subjects in audit teaching, the auditors were asked to score the emphasis with which they believed that such matters should be addressed in the audit discipline. The same question was asked to the teachers in a very similar way, but they were asked to indicate the contents pointed out according to the emphasis with which they were addressed during the discipline. Both the questionnaire sent to the teachers and to the auditors enabled the respondents to indicate the alternative "The subject is not addressed" and "The subject does not need to be addressed", respectively. In these situations, the value of zero was assigned for the statistical treatment of the data.

To identify the auditors' perception, the sample selected for the survey comprises 376 audit firms registered in the Brazilian Securities and Exchange Commission (CVM) database. As for teachers, the sample was restricted only to the federal and state public universities recognized by the Ministry of Education (MEC), which offer a course in Accountancy, totaling a sample of 72 universities.

The questionnaire was sent to the auditors using the e-mails registered in the CVM database, while the questionnaire corresponding to the teachers was sent to the e-mail of the course coordination registered on the university's website, requesting that the questionnaire be sent to the teachers responsible for the audit discipline. When the subject teacher's email was made available, the questionnaire was sent directly to him. The contacts were consulted on June 1, 2015 and the e-mails with the research link were sent on June 9, 2015 and forwarded on June 22, 2015. A total of 13 responses were obtained from the teachers and 35 from the auditors, which indicates a sample representativity of 18.05% and 9.30%, respectively.

The answers obtained were treated using Microsoft Excel® and SPSS® statistical software. To test the normality of the data, the Shapiro-Wilk test was carried out, which rejected the normality hypothesis. Non-parametric Mann-Whitney tests and Spearman's correlation were used to evaluate the differences between the responses obtained by the two groups.

## 4. Result Analysis

The respondents' profile is characterized by 27 (77%) auditors working in non-Big Four audit firms; and eight (23%) working in Big Four companies. As for teachers, 11 (85%) are affiliated with federal universities and two (15%) with state universities. Most of the professors have at least a Master's degree (38%) and a PhD degree (46%), while the rest holds only an undergraduate or specialization degree (16%). Contrary to the results presented by Ricardino Filho (2002), the teachers in charge of the audit discipline, respondents of this research, mostly hold a Master's and Ph.D. It should be taken into account, however, that this finding may be due to the research sample, which was limited to federal and state public universities.

From the point of view of the auditors, the minimum training for the exercise of teaching in auditing is the master's degree (54%), or at least the specialization level (26%). The undergraduate and doctoral degrees were marked by only two respondents each. Three auditors, who answered the survey (9%), believe that the minimum requirements for teaching in the area come from auditing practice rather than the academy. The majority of the auditors (97%), except one, agree that the training of the professors who teach the Audit discipline in the undergraduate courses in Accountancy should be compulsory in Accounting. This perspective is matched by the academics who participated in the research, since all teachers who answered the survey have a degree in Accounting.

The auditors were questioned about the professional experience of the teacher responsible for auditing. Almost all the respondents (34), that is, 97% agreed that they should ideally have at least experience in an independent audit firm. On the academic side, it was verified that all the respondent teachers have experience in the accounting area, however, only two (15%) acted as independent auditors. Two others acted exclusively as accountants, while the others have experience in controllership and auditing departments of public and private companies.

The teaching method the auditors considered as more appropriate involves the set of lectures, case studies, resolution of exercises and seminars. The teachers partially shared the same opinion, who use the combination of these methods as an approach for the development of their classes. It was noticed, however, that many of them only use lectures as an approach to the process of teaching and learning in auditing.

The auditors were asked to attribute the emphasis they believe should be given to issues related to teaching general audit concepts addressed in the course. The same question was asked in a very similar way to the teachers, however, they were asked to indicate the contents indicated according to the emphasis that is given in the content of the discipline.

Table 1 shows the perceptions about the subjects related to the teaching of general audit concepts by each of the groups investigated.

Table 1

**Teaching of General Audit Concepts**

Topic	Auditors			Teachers			DM	Mann Whitney Sig.
	Ranking	Mean	SD	Ranking	Mean	SD		
Professional Skepticism	5th	4,40	1,14	6th	4,231	1,01	0,17	0,404
Professional Judgment	6th	4,37	1,14	7th	4,231	1,01	0,14	0,490
Nature, Goal and Extension of Auditing	2nd	4,57	0,95	1st	4,769	0,44	-0,20	0,862
Audit Standards and International Audit Standards	3rd	4,46	0,98	3rd	4,692	0,63	-0,24	0,520
General Objectives of the Auditor	8th	4,23	1,03	2nd	4,769	0,60	-0,54	0,600
Fundamental Principles and Concepts of Auditing	4th	4,46	1,15	4th	4,538	0,66	-0,08	0,639
Certification Requisites	9th	3,51	1,25	9th	3,692	1,03	-0,18	0,771
Ethical Requisites	1st	4,63	0,55	5th	4,308	0,85	0,32	0,254
Legal Accountability of Auditors	7th	4,26	0,89	8th	4,154	0,90	0,10	0,679

Legend: SD – Standard Deviation; DM – Difference of Means.

Source: research data.

As shown in Table 1, within this topic, the subject the auditors considered most relevant concerns the “Ethical Requirements”. The same item is considered only the fifth most important from the point of view of teachers. Issues related to Ethics were also seen as one of the most important issues to be addressed in the classroom, from the viewpoint of auditors, in the research by Armitage (2008) and Armitage and Poyzer (2010). It is important to highlight that, in Brazilian Accountancy courses, the Ethics discipline is a compulsory curricular component. Nonetheless, the curriculum suggested by UNCTAD (2011) for the Accounting course also cites Ethics as a specific discipline. Thus, even if the differences between the teachers and professionals’ perceptions regarding this subject were not statistically significant, according to the Mann-Whitney test, one must take into account the possibility that this subject is not too emphasized within the audit discipline, in view of the existence of a discipline specifically focused on the development of ethical awareness and the stimulation of practices with that purpose.

As for the teachers, it was verified that, within this topic, they present subjects related to the “Nature, Purpose and Extension of the Audit” with greater emphasis. Both auditors and teachers attach the same level of importance to matters related to “Auditing Standards and International Auditing Standards”, “Fundamental Principles and Concepts of Auditing” and “Certification Requirements”, both groups attributing minor emphasis to the latter. Although differences were found in these subjects, none of them were significant, according to the Mann-Whitney test.

Table 2 presents the perceptions of the auditors and teachers on the issues related to the audit evaluation and planning. As noted in Table 2, while teachers are concerned with emphasizing issues related to “Analytical Procedures,” auditors do not value the same theme equally.

Table 2

**Audit Assessment and Planning**

Topic	Auditors			Teachers			DM	Mann Whitney
	Ranking	Mean	SD	Ranking	Mean	SD		Sig
Environment favorable to fraud	11th	3,83	1,25	6th	4,462	0,78	-0,63	0,089*
Financial statement analysis	6th	4,14	1,12	9th	4,000	1,00	0,14	0,564
Assessment of risk control	3rd	4,26	1,01	4th	4,462	0,88	-0,20	0,418
Designation of technical tea, and timetable	12th	3,80	1,05	12th	3,769	1,17	0,03	0,933
Understanding of internal control structure	7th	4,14	1,06	2nd	4,692	0,63	-0,55	0,047**
Forms of fraud	10th	3,86	1,14	11th	3,923	1,50	-0,07	0,575
Materiality in planning and execution of auditing	2nd	4,37	1,11	7th	4,385	0,77	-0,01	0,572
Work roles	8th	4,11	1,37	8th	4,308	0,95	-0,19	0,949
Planning of evidence collection (audit sampling)	5th	4,17	1,12	5th	4,462	0,78	-0,29	0,527
Analytic procedures	4th	4,23	1,00	1st	4,692	0,63	-0,46	0,110
Responsibility of auditor for the fraud	9th	4,06	0,94	10th	4,000	1,00	0,06	0,873
Audit risk	1st	4,43	1,09	3rd	4,538	0,88	-0,11	0,606

Legend: SD – Standard Deviation; DM – Difference of Means.

Obs.: \*,\*\* Significant at 10% and 5%, respectively.

Source: research data.

Also in Table 2, issues related to “Forms of Fraud” and “Auditor’s Responsibility for Fraud” were noted with similar degrees of importance. Likewise, the agreement of both groups on the relevance of topics related to “Evidence Collection Planning” and “Technical Team Designation” and “Timeline” is noticeable.

Significant divergences were identified in the importance attributed to “Understanding the Internal Control Structure” (Table 2), which is addressed with greater emphasis in the discipline, while the auditors do not attribute that much importance to the subject. Similar to the results found in the present study, Armitage and Poyzer (2010) note the same divergence regarding the importance professionals and teachers attribute to the “Understanding of the Internal Control Structure” in the American context.

On the other hand, significant differences can be observed with respect to the understanding of the “Environment Favorable to Fraud”, whose subject, although it is the sixth most emphasized by the teachers within this topic, is not seen with the same importance by the auditors. The greater importance attributed to teachers’ understanding of the “Environment Favorable to Fraud” was also identified in Armitage and Poyzer (2010), who consider that this divergence corroborates the indication that the academy is concerned that the student understands how the organizational environment contributes to the fraudulent process, thus providing a basis for the improvement of fraud detection techniques.

In Table 3, the perceptions of the auditors and teachers on the subjects related to the “Collection and Analysis of Evidence” are displayed.

Table 3  
Collection and Analysis of Evidences

Topic	Auditors			Teachers			DM	Mann Whitney
	Ranking	Mean	SD	Ranking	Mean	SD		Sig.
Appropriate and Sufficient Audit Evidence	1st	4,26	0,98	1st	4,385	0,96	-0,13	0,642
Types and Forms of Evidence	2nd	4,23	0,88	2nd	4,308	0,85	-0,08	0,791
Sampling Methods	3rd	4,00	0,91	3rd	3,923	1,19	0,08	0,931
Probabilistic Sample	4th	3,77	1,11	4th	3,846	1,14	-0,07	0,865
Non-Statistical Sampling	5th	3,66	1,11	5th	3,846	1,14	-0,19	0,620

Legend: SD – Standard Deviation; DM – Difference of Means.

Source: research data.

Regarding the expectation of professionals in the field as opposed to the emphasis on topics related to “Collection and Analysis of Evidence”, are addressed in class, as shown in Table 3, it is observed that no significant differences were found between the groups. The data presented in Table 3 demonstrate a consensus, both from an academic and professional point of view, regarding subjects related to this topic, considering that both groups assigned a similar degree of importance to each item. It is possible to verify that, concerning the collection and analysis of evidences, the subjects related to the Evidence of Adequate and Sufficient Audit and Types and Forms of Evidence are evaluated as the subjects that deserve more attention within the discipline.

Table 4, which demonstrates the auditors’ perception of the importance of approaching issues related to the “Execution of Audit Work” in comparison to the depth that such matters are addressed in the audit discipline.

Table 4

**Execution of Audit Work**

Topic	Auditors			Teachers			DM	Mann Whitney
	Ranking	Mean	SD	Ranking	Mean	SD		Sig.
Work roles	2nd	4,11	1,13	1st	4,385	0,87	-0,27	0,486
Organization of audit work	4th	4,06	0,94	2nd	4,077	0,64	-0,02	0,853
Going concern	3rd	4,06	0,94	3rd	3,769	1,09	0,29	0,405
Initial work – Initial balances	6th	3,97	0,98	4th	3,769	1,17	0,20	0,599
Review of subsequent events	8th	3,89	1,11	5th	3,692	1,60	0,19	0,971
Stakeholders	5th	4,00	1,08	6th	3,308	1,75	0,69	0,247
Formal representations	7th	3,97	0,95	7th	3,308	1,38	0,66	0,117
Quality control	1st	4,14	1,00	8th	3,231	1,42	0,91	0,032**
Information systems audit	9th	3,74	1,22	9th	2,308	1,84	1,44	0,010**

Legend: SD – Standard Deviation; DM – Difference of Means.

Obs.: \*\* Significant at 5%.

Source: research data.

As shown in Table 4, significant differences were found in the perspective of issues related to “Quality Control” and “Information Systems Audit”, as the p-value of these items is inferior to 0.05, thus rejecting the hypothesis that the investigated groups view these items with the same importance.

Although the item related to the “Information Systems Audit” occupied the same position in both groups’ ranking, as perceived, the academy undervalues this subject, that is, while the auditors tend to consider the need to elaborate this content in further depth, the teachers do not share the same opinion, who do not put greater emphasis on this topic. A possible reason for such a difference is explained by Ricardino Filho (2003) who, when analyzing the bibliography adopted within the audit discipline, found that the books the teachers used go back to the 1990s and do not deal with subjects related to information systems.

The groups’ views on the approach to matters related to the Audit Report are presented in Table 5.

Table 5

**Audit Report**

Topic	Auditors			Teachers			DM	Mann Whitney
	Ranking	Mean	SD	Ranking	Mean	SD		Sig.
Audit Report Structure	1st	4,20	1,13	1st	4,923	0,28	-0,72	0,014**
Recommendations for Company Management Policy	2nd	4,03	1,12	2nd	3,231	1,64	0,80	0,098*
Internal Control Report	3rd	4,03	1,07	3rd	3,769	1,01	0,26	0,353

Legend: SD – Standard Deviation; DM – Difference of Means.

Obs.: \*\* Significant at 5%.

Source: research data.



As Table 5 shows, even though the items received the same classification among the groups in the ranking, it is noticed that the emphasis with which the subjects related to the “Structure of the Audit Report” and “Recommendations for the Company Management Policy” are discussed in class, it differs significantly from the emphasis with which auditors believe that such a subject deserves to be debated. The teachers consider the “Structure of the Audit Report” more important, while the auditors attribute significantly more importance to the “Recommendations for the Company’s Management Policy”. Regarding the importance identified by auditors in relation to the approach of other audit areas within the Audit discipline, there were significant differences between market expectations and the focus on such issues within the academy, as can be seen in Table 6.

Table 6  
Other Audit Areas

Topic	Auditors			Teachers			DM	Mann Whitney
	Ranking	Mean	SD	Ranking	Mean	SD		Sig.
Assurance Services	1st	3,77	1,19	1st	2,231	2,01	1,54	0,014**
Audit for Non-Profit Entities	2nd	3,74	1,09	2nd	1,846	1,68	1,90	0,001***
Audit for Public Entities	3rd	3,71	1,07	3rd	2,077	1,55	1,64	0,001***

Legend: SD – Standard Deviation; DM – Difference of Means.

Obs.: \*\* Significant at 5%.

Source: research data.

Based on the results shown in Table 6, it can be seen that the group of auditors tends to give more importance to the approach of issues related to Assurance Services, Audit for Non-Profit Entities and Audit for Public Entities. On the other hand, these subjects are not treated with the same relevance within universities, since the teachers considered the subjects referenced in this topic much less important when compared to the auditors. The importance attached to these items leaves room for the understanding that they are addressed peripherally within the Audit discipline or often not even raised in class. In this field, it can be seen that the academy does not correspond to market expectations, in terms of improving matters related to other areas of auditing.

The answers obtained by the two questionnaires were submitted to the Spearman correlation test, to identify the agreement between the two groups about the themes pointed out in the survey. The Spearman test showed a positive and significant correlation between the two questionnaires at the tolerated error rate of 0.05 (coefficient = 0.757,  $p = 0.000$ ). That is, in approximately 75% of the contents addressed in the questionnaire, teachers tend to emphasize them to the same extent as the auditors believe that these should be emphasized within the Audit discipline, thus demonstrating the existence of some agreement about the important subjects in the Audit discipline.

Next, the research sought to identify personal opinions of each of the respondents about Audit teaching, through an open question. On the part of the teachers, initially, the statements point to problems related to the discipline’s timetable, which does not have sufficient time for due deepening in the most relevant issues of the audit area, nor does it permit the theoretical-practical contextualization which some of the respondent teachers consider fundamental. Nonetheless, the auditors argue that, in the vast field of auditing, the teaching of this knowledge branch within the university is limited to a more general and superficial contextualization. Silva’s research (2008) identified that the average length of the course is 86 hours / classes, although the author considers that the ideal for learning would be an average workload of 190 hours / class. In addition to Silva (2008), the works of Chaffey et al. (2011) and Ricardino Filho (2002) had already raised concerns about the discipline’s timetable, which is far below the minimum necessary for a proper approach of the themes required in the area.

The concern with the practical approach of knowledge in auditing is evident in the auditors' contributions, who choose technical requirements as essential within the curricular curriculum of the Audit discipline. Contradicting this positioning, the teachers' collaboration leaves implicit the concern to offer theoretical-practical directions that permit the resolution of eminent problems in daily business, which go beyond the operationalization of techniques. Additionally, the teachers appointed the use of debates in the form of a seminar on the scientific production in auditing as a teaching method.

The respondent auditors also raised the need for the focus on the Independent Audit environment in Brazil and in the world, involving issues related to the organizational structure and its functioning. From the perspective of the teachers, in addition to the elements raised by the auditors, teachers also find it important to discuss the historical antecedents of the audit, both in Brazil and in the global context, in addition to the discussion of corporate scandals that have been triggered in recent years. Some auditors also emphasize the relevance of addressing issues such as Compliance and Due Diligence, as well as a further deepening of the NBC TA and PA standards. The auditors also raised the importance of the discussion about the Principle of Independence within the discipline of Audit, which the auditors consider to be a fundamental principle for the exercise of the audit profession.

## 5. Conclusions

The objective of this study was to identify the perception of Audit teaching, in the academy and the labor market approach, based on the evaluation of the importance professionals and teachers attribute to the main conceptual and normative aspects of the audit area. To reach the proposed objective, a questionnaire was sent to the teachers responsible for the audit discipline and to the auditors working in the labor market. The results show that, in approximately 75% of the subjects raised in this study, the university tends to correspond to the expectation that the market holds about the importance given to such contents within the audit discipline.

The most significant differences perceived between the opinions of the groups relate mainly to matters related to the "Assurance Service", the "Non-Profit Entity Audit", the "Audit of Government Entities", "Quality Control", "Information Systems Audit" and "Company Management Policy Recommendations", which the market believes should be more emphasized within the audit discipline than they are. On the other hand, teachers tend to attach greater importance to issues related to the "Structure of the Audit Report", the "Understanding of the Internal Control Structure" and the "Environment Favorable to Fraud" than the market believes are really necessary.

The results also indicate that teachers face problems related to the discipline's timetable, thus making it impossible to deepen the content required for the practice of auditing, nor does it allow the teacher to address the desired theoretical-practical contextualization, limiting Audit teaching to a more general and superficial view. Chaffey et al. (2011), Silva (2008) and Ricardino Filho (2002) had already raised concerns about the discipline's timetable, which is far below the minimum necessary for a proper approach to the subjects required by the area.

An evolution was observed in the qualification of the faculty of the audit discipline when compared to the results of the research by Ricardino Filho (2002), which identified that only a small part of the teachers in charge of the discipline possessed an M.Sc. or Ph.D. Most respondents possess an M.Sc. or Ph.D. and experience in the labor market. It should be kept in mind that this finding may be due to the research sample, which was limited to federal and state public universities.

The appointed results demonstrate a certain level of agreement about the importance of the main contents of the Audit discipline, based on the market view in comparison to the academy. They do not permit assessing whether gaps exist between the two perspectives, since vocational training involves a much broader and more complex process than the content approach.

Considering the constant changes in the demands of the labor market and the limited workload of the Audit disciplines, however, the results presented here can be used for teachers to evaluate the disposition of the contents covered within the discipline, as well as to incorporate questions and requirements, taking into account the relevance attributed to such matters in the training of the auditor from the point of view of the labor market.

For future work, the sample used in this research should be expanded, as well as to evaluate the content of the audit discipline in other perspectives, such as the view of the graduates from the Accountancy courses who have just entered the labor market, besides the discussion of teaching methods used within the discipline. The debate about the practical and pedagogical knowledge desired for the exercise of Audit teaching is still interesting. Moreover, it is suggested that the gap between market expectations and the academy regarding the audit discipline is evaluated from the point of view of the Problem-Based Learning (PBL) method, thus aiming to improve the Audit discipline. Nevertheless, the discussion involving subjects related to the approximation between the two worlds deserves to be approached in further detail, mainly seeking to identify to what extent this harmonization benefits the teaching and learning process.

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# Relevant Skills for Criminal Accounting Expertise: the perception of Federal Police experts and delegates

## Abstract

This research aimed to identify which skills are considered most relevant to the practice of criminal accounting expertise in Brazil. As in international research, the skills perceived as most relevant were written communication, deductive analysis and critical thinking. Among the less relevant skills were the interview and the solution and negotiation of conflicts. In the second part, while experts and delegates jointly consider written communication to be the most present skills, delegates diverge from experts in terms of critical thinking and serenity. In addition, the respondents indicated skills that had not been investigated, and the most cited skills were proactivity, objectivity and updating. In the light of forensic accounting, the research method used was the survey, using a predefined questionnaire with open and closed questions, which 144 respondents answered. The study was divided into three parts: the first about the perceived relevance of the skills, the second about the perceived practical application of skills and the third part allowed the respondents to contribute with suggestions of skills that were considered relevant but did not figure among the skills investigated. The study contributes to the establishment of curricular guidelines for undergraduate and postgraduate courses related to the training of skills considered relevant for the training of future professionals and for the improvement of criminal accounting experts. Finally, we observe that the skills investigated and suggested can contribute to all areas of accounting expertise.

**Key words:** forensic accounting; criminal accounting expertise; skills.

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## 1. Introduction

Due to the scandals involving companies and governments around the world and also in Brazil, it is natural that steps should be taken to detect and prevent fraud, as well as to produce evidence. To meet this demand, the accounting profession has undergone changes and draws attention to a new market, with a new generation of accountants, the forensic accountants (Davis, Farrell & Ogilby, 2010).

Some studies propose to discuss the competences, knowledge and technical skills the forensic accountants need to have to adequately perform their functions, as well as the profile of this professional (Astutie & Utami, 2013, Boys, 2008; Davis et al., 2010; Digabriele, 2008; Harris & Brown, 2000). Considering that one of the objectives of forensic accounting is to identify how crimes are perpetrated, expertise in accounting principles and auditing standards, without the ability to identify correlations between such rules and any irregular transactions that affect the equity of companies and private persons reveals a trend in the training of accountants to disregard the importance of studying the prevention and detection of fraud, embezzlement and inadequate accounting practices (Silva, 2012).

In the explanation of the fraud, the forensic accountant can contribute to the understanding of the general conditions that permitted its occurrence, working with the concept of cause and effect, facilitating the formulation of theses, theories and assumptions until its confirmation (Silva, 2012). Given the international discussion about the skills the forensic accountant needs (Digabriele, 2008, Davis et al., 2010, Astutie & Utami, 2013) and the similarity of the objectives of his performance with that of the federal criminal expert, it should be investigated whether these abilities are truly perceived as important. In addition, we sought to use the experience of experts and delegates of the Federal Police to investigate how they perceive the existence of these skills in the conduct of criminal accounting expertise.

The Federal Police Department (DPF), with a focus on combating fraud in the federal criminal area, has a technical staff of fraud investigation experts, who work to clarify several accounting and financial crimes of great national repercussion. Thus, the research problem of this study arose: **what are the most relevant skills of a Federal Criminal Accounting Expert according to the users and practitioners of expertise in Brazil?** The objective of this research was to compare the perception of federal criminal experts and Federal Police delegates on the most relevant skills expected from a federal criminal accounting expert in the light of forensic accounting, as well as the perceived skills in the current context in which they develop their activity.

The relevance of this study rests on two main pillars: the first because it is a research on the perception of professionals working with federal criminal accounting in Brazil, being one group of practitioners and another of users, picturing the skills considered important and those considered to be present in the federal criminal accounting expertise, an essential element in the criminal prosecution process. The second, by working on a rising and latent theme, which is forensic accounting, whose abilities and definitions indicate that it is somewhat different from what is treated as accounting expertise, thus being a subject that is still flourishing in Brazil.

Research has shown that Brazilian users and professionals perceive writing skills, deductive analysis and critical thinking as more relevant, in line with international empirical research (Digabriele, 2008). However, the comparison of the perceptions on the existing skills revealed convergences, such as considering written communication and deductive analysis among the most present, and divergences between practitioners and users in relation to specific legal knowledge skills, serenity, interview and unstructured problem solving.

In this scenario, the results contributed to the knowledge on the skills considered relevant and the existing gap, with a view to planning actions to improve the qualification of criminal experts, and also gave rise to the discussion by the users of the system about the characteristics that need to be re-evaluated, also in the curriculum of future forensic accountants at the undergraduate and post-graduate levels.

## 2. Theoretical Framework

Accounting expertise in Brazil constitutes the set of technical-scientific procedures intended to bring to the decision-making entities evidence necessary to support the fair settlement of the litigation or the actual verification, by means of an expert accounting and / or technical accounting opinion, in accordance with legal and professional standards and with specific legislation wherever relevant (Federal Accounting Council [CFC], 2015). There is a broad approach in defining the performance of accounting expertise, since it can act in Labor, Civil and Criminal justice and in the extrajudicial area.

In the international area, criminal accounting is called Forensic Accounting (Oliveira, 2002). The first person to create the name Forensic Accounting, in print, was probably Maurice E. Peloubet in 1946 (Crumbley, Heitger & Smith, 2013). Forensic is defined as belonging to the court of justice (Black, 1971). Forensic accounting is the action of identifying, recording, settling, extracting, classifying, reporting and verifying past financial data or other accounting activities to solve current or potential legal disputes, or using such past financial data to project future financial data to solve disputes (Crumbley et al., 2013).

The term fraud derives from the Latin word “*fraus*” and indicates an action taken in bad faith, which corresponds to an intentional act or omission intended to deceive individuals or legal entities, resulting in losses to the victim and / or gains to the fraudster (Silva, 2012). In theory, a forensic accountant has been trained and has expertise in investigating and resolving suspicions or allegations of fraud by analyzing documents to include financial and non-financial information, interviews, third party inquiries, including commercial databases (Skalak, Golden, Clayton & Pill, 2011).

The correlation between forensic accounting and auditing in the work of preventing and combating fraud should also be noted. However, auditors have no responsibility to plan and perform audit procedures to detect errors that are not considered significant (including those caused by error as well as fraud). Business management also increased the responsibility of designing and implementing internal controls to prevent and detect fraud as a result of the Sarbanes-Oxley Act (West Virginia University [WVU], 2007).

Forensic accounting complements the gap in expectation of the audit result, which raises issues on a number of aspects, such as: (1) the role and responsibilities of auditors; (2) the nature and significance of the audit report releases; (3) the quality of the auditor’s role; and (4) the structure and regulation of the profession (Humphrey, Mozier & Turley, 1993). The interrelationship between auditing, fraud and forensic accounting is dynamic and has been changing over time due to political, social and cultural events. In addition, often, the skill set required in one area is able to leverage skills and abilities while working in another area (WVU, 2007).

With regard to the skills required to perform the forensic accounting function, there is a need to come up with solutions to the complicated accounting maneuvers that have overshadowed the financial statements. Forensic accounting skills are becoming increasingly invoked within a business communication system that emphasizes accountability and accountability of the stakeholders (Bhasin, 2013). Skill is the ability to perform some activity, it is the way to undertake an action more quickly, easily and efficiently. It is a capacity developed through physical, motor and psychosocial training, techniques, methods, rules and exercises. Similarly to competences, skill is influenced by human nature and varies from person to person, depending on the innate personal characteristics (Peleias, 2006).

Based on the literature, the following set of skills could be identified, investigated to highlight their importance for the practice of forensic accounting, as shown in Table 1:

Table 1

**Skills Investigated and Research Sources**

Item	Skill	Origin
1	Deductive analysis – ability to focus on financial contradictions that do not fit into the normal pattern of a task.	Digabriele, 2008; Astutie and Utami, 2013.
2	Critical thinking – ability to decipher the difference between opinion and fact.	Digabriele, 2008; Davis et al., 2010; Bhasin, 2013; Astutie and Utami, 2013;
3	Unstructured problem solving – ability to address each (unique) situation and be prepared to solve problems using a non-structured approach.	Digabriele, 2008, Davis et al., 2010; Bhasin, 2013;
4	Technical Flexibility – ability to take distance from standardized procedures and carefully examine the situations through atypical signs of alert.	Digabriele, 2008;
5	Analytic proficiency – ability to examine what should be provided instead of what is provided (feasibility analysis).	Digabriele, 2008
6	Oral communication – ability to communicate effectively in discourse through an expert's testimony and general explanation of opinion bases.	Digabriele, 2008; Davis et al., 2010; Bhasin, 2013; Astutie and Utami, 2013;
7	Written communication – ability to communicate effectively, in writing, through reports, tables, graphs and opinion bases.	Digabriele, 2008; Davis et al., 2010; Bhasin, 2013; Astutie and Utami, 2013;
8	Specific legal knowledge – ability to understand basic legal procedures and legal aspects, including rules of evidence.	Digabriele, 2008; Bhasin, 2013; Davis et al. 2010; Astutie and Utami, 2013;
9	Serenity – ability to stay calm under pressure.	Digabriele, 2008;
10	Asset screening – ability to identify hidden or concealed goods or amounts.	Davis et al., 2010.
11	Interview skills – ability to collect personal testimonies.	Davis et al., 2010.
12	Investigation skills – ability to possess a highly inquisitive attitude. Be willing to investigate opinions and/or facts that may suggest fraud.	Davis et al., 2010; Bhasin, 2013;
13	Conflict solving and renegotiation – ability to solve controversies.	Davis et al., 2010.

Source: elaborated by the authors.

Digabriele (2008) investigated relevant skills for forensic accountants, based on the perception of forensic accounting professionals, accounting academics and forensic accounting service users. The author found that critical thinking, deductive analysis and written communication are the most relevant, while specific legal knowledge, serenity and unstructured problem solving are among the least relevant skills. Also, based on the analysis of the main components, the author identified two groups, which were named “knowledge and skill” and “performance”.

Astutie and Utami (2013), based on research conducted with forensic accountants, academics, lawyers and society, found that the most relevant skills are investigative flexibility, analysis and synthesis of findings discovered and legal knowledge and insight. Davis et al. (2010) investigated 17 skills, based on respondent lawyers, academics and forensic accountants. The most relevant skills encountered were critical and strategic thinking, oral communication, the ability to simplify information and written communication.



### 3. Method

This research is classified as descriptive, as it shows how part of the research population perceives the skills expected from a federal criminal accounting expert in comparison with the skills identified in the international literature for forensic accounting, establishing correlations between some research variables and the perceptions verified (Oliveira, 2011).

#### 3.1 Research Population

The present study was carried out within the scope of the National System of Criminalistics, including federal criminal experts, graduated in Accounting and / or Economics, in a universe of 250 professionals.

Considering that the research aimed to identify the perception of the largest group of users of the accounting reports, the research was also applied to Federal Police delegates, seeking to identify, according to their needs, the skills that will be discussed in this study. Currently, it is estimated that 450 delegates of the Federal Police in Brazil act at the police stations on financial crimes, such as pensions, misappropriation of public funds, tax evasion, money laundering and fraud in biddings.

#### 3.2 Data Collection

For the field work, the survey method was used, since a predefined questionnaire was used to issue quantitative descriptions of a population (Freitas, Oliveira, Saccol & Mascarola, 2000). Open and closed questions were used, in which the respondents chose between two or more fixed alternatives presented.

A pre-test of the research questionnaire was performed in a sample and, based on the answers, the formulation of the questions could be adjusted. The initial questionnaire was submitted face-to-face to the experts and delegates with expertise in the area, as they were responsible for the PF accounting expertise guidelines (chief accounting and financial experts) or for the guidelines of the financial research process (head delegates of the police stations for financial crimes), with a view to the aim of conducting a preliminary test on the content and form. Among the adjustments made, the assembly of the questions about the skills investigated in two blocks is highlighted. In the first one, the perceived importance of the skills was questioned and, in the second, the perceived practical application of the skills.

We chose closed questions in which the perceived importance and the existence of the skills for the criminal experts in the exercise of criminal accounting expertise was discussed, in order to produce an instrument that could, in a relatively short period of time, reach a significant number of respondents (Lakatos & Marconi, 2003). Open-ended questions were included though to absorb opinions on skills the respondents considered necessary, which may not have been listed in the baseline studies.

A Likert scale was chosen, since this scale permits presenting a set of items in the form of assertions. These statements were presented to the respondents to express themselves as follows: “not applicable”, “I disagree”, “I partially disagree”, “neutral”, “I partially agree” or “I agree”. The questionnaire was divided into four parts: the first part aimed at outlining a profile of the respondents and contained basic information, such as: position, gender, age group, level of academic education, training area and time of experience in the position; the second part of the questionnaire aimed to identify the level of importance attributed to the skills defined in recent studies on forensic accounting for federal criminal accounting expertise, according to the professionals and the main users of this information.

In order to use the practical experience of the respondents and with a view to broadening the understanding of this subject, a third part of the questionnaire was created, also in relation to international research (Digrabiele, 2008; Davis et al., 2010) Its aim was to verify the perception on the current level of existence of the same skills in federal criminal accounting expertise. Finally, an open question was presented, representing the fourth part of the questionnaire to give the respondents the freedom to suggest the importance and existence of other skills not listed, but that should be correlated with the federal criminal accounting expertise activity.

A total of 350 electronic questionnaires were sent via e-mail (Google form) and physical forms were applied, as can be verified in Appendix A (Brasília, Espírito Santo, Rio de Janeiro, Rio Grande do Norte and Alagoas). In response, 152 answers were obtained, being 44 physical and 108 electronic forms. Eight physical forms were discarded as some questions were left blank. The final sample consisted of 144 respondents, being 93 experts and 51 delegates.

### 3.3 Tests applied

Considering the means chosen and the objectives outlined, the quantitative data were analyzed to permit a comparison with the results obtained in previous studies (Digrabiele, 2008; Davis et al., 2010; Astutie & Utami, 2013), in which the ANOVA test was used, as follows:

- Pearson's Chi-Square test was used to compare the perceptual differences between the two groups analyzed (practitioners and users of criminal accounting expertise) in relation to important and existing skills. These tests are considered appropriate to verify if two variables are independent, that is, they evaluate if two or more independent samples differ relatively in a certain characteristic (Bracarense, 2012). Thus, the quantitative analysis identified and quantified points that indicated or helped to capture and interpret the respondents' perceptions about the subject, demonstrating whether they recognize some aspects pointed out in the bibliographic research carried out as pertinent, as well as the comparison between them.
- As regards qualitative data (open question), content analysis was applied as a set of constantly improving methodological instruments, which apply to the various forms of communication that exist (Bardin, 1997). The content analysis performed in the present study was based on the calculation of frequencies of the additional skills mentioned (Bardin, 1977), followed by their interpretation, associating the results with the theoretical framework used.

## 4. Results Found and Analysis

### 4.1 Profile characteristic of research sample

A total of 350 questionnaires were sent, of which 152 were answered (43.43%), eight of which were discarded, using 144. In this group, 51 (35.42%) were Federal Police Delegates and 93 (64.58%) Federal Criminal experts. In addition, 90.28% of the respondents are male and 9.72% of respondents female.

As for the age group of the respondents, half is between 31-40 years of age (50%), followed by 41-50 years (33.33%). Concerning the level of training, 44.44% have a bachelor's degree, followed by specialization *lato sensu* (34.72%), a master's degree (13.89%) and only two have a doctorate degree, which represents 1.39%. Regarding the time of experience in their respective positions, most respondents possess between six and 10 years of experience (56.25%), followed by 11-15 years (27.08%).

The geographic concentration of the participants per region was Central-West (37.5%), Northeast (26.24%), Southeast (22.2%), North (7.6%) and South (6.2%). It is worth noting that respondents from all states and the Federal District participated, with a majority from the Federal District (25.69%), followed by Rio de Janeiro (9.03%).

With regard to training, 13.73% of the delegates and 16.13% of the experts hold a second degree. Most experts have a degree in Accounting (83.87%), followed by Economics (13.98%) and only two experts have a degree in Economics and Accounting at the same time (2.15%). It was evidenced that fourteen experts possess a degree in Law (15.05%).

## 4.2 Descriptive statistics

To identify the perceived importance and practical application of the skills, according to the respondents, data were consolidated in three ways: aggregated perception of users and practitioners; perception of practitioners only; and perception of users only. First, Cronbach's alpha coefficient was calculated to verify the reliability of the questionnaire used in the research. It was verified that, in the evaluation of the importance and practical application of the skills, the questionnaires are reliable, according to the coefficients of 0.81 and 0.91, respectively.

### 4.2.1 Joint perception of skills' importance

Regarding the joint view of practitioners and users, according to Table 02, the three most important skills were: (1) written communication, (2) deductive analysis and (3) critical thinking. This finding was in line with Digabriele's (2008) research, which only diverged in terms of order, pointing out the following most important skills: (1<sup>st</sup>) critical thinking, (2<sup>nd</sup>) deductive analysis and (3<sup>rd</sup>) written communication.

Relevant differences were verified in relation to the study by Astutie and Utami (2013), showing the following ranking of the investigated skills in terms of importance: (1) technical flexibility, the skills ranked second was not investigated in this research and (3) legal and specific knowledge. The convergence identified with the study by Digabriele (2008), both for the activities considered more relevant and less relevant, may result from the approximation between Brazilian procedures and the bases of the theories and practices adopted by the Americans, also with regard to the proximity of the Federal Police with the Federal Bureau of Investigation (FBI).

Table 2

**Perception of users and professionals on importance of skills and international studies**

Professionals and users (N=144)				Digabriele (2008)	Astutie and Utami (2013)
I - Importance of activities	Mean	Standard Deviation	Ranking		
Written communication	4.85	0.49	1	3	7
Deductive analysis	4.75	0.60	2	2	**
Critical thinking	4.72	0.65	3	1	4
Asset screening	4.69	0.65	4	*	**
Technical flexibility	4.59	0.79	5	5	1
Unstructured problem solving	4.56	0.75	6	7	**
Analytic proficiency	4.50	0.92	7	4	**
Serenity	4.38	0.97	8	8	**
Investigation	4.10	1.24	9	*	**
Oral communication	4.00	1.15	10	6	7
Specific legal knowledge	3.91	1.16	11	9	3
Conflict solving	3.49	1.40	12	*	**
Interview	3.16	1.50	13	*	**

Source: research data. Obs.: \* Skills not investigated by Digabriele (2008); \*\* Skills not investigated by Astutie and Utami (2013), who further investigated the skills analysis and synthesis of result found (2<sup>nd</sup>), detail oriented (5<sup>th</sup>) and Skepticism (6<sup>th</sup>).

In the study by Digabriele (2008) nine skills were investigated, and Astutie and Utami (2013) investigated seven skill variables that may influence the comparison of the results. Skills the respondents identified as most relevant are findings that may be important for the training of professionals and the education of students. Written communication is also worth mentioning, an essential skill for the production of expert reports.

The skills ranked as less important in the joint vision of users and practitioners were: (13<sup>th</sup>) interview, (12<sup>th</sup>) conflict solution and negotiation and (11<sup>th</sup>) specific legal knowledge. Digabriele (2008) pointed out as less relevant skills among the nine skills investigated, (9<sup>th</sup>) specific legal knowledge, (8<sup>th</sup>) serenity and (7<sup>th</sup>) unstructured problem solving. The results of Astutie and Utami (2013) presented the following skills as less relevant among the seven skills investigated: (7<sup>th</sup>) oral and written communication, (6<sup>th</sup>) skepticism and (5<sup>th</sup>) orientation to details.

The different number of skills surveyed can lead to distortions in the comparison of the less relevant skills, as the study by Astutie and Utami (2013) presents oral and written communication as the least relevant, when considering that the product of the criminal expert is the report, in which the writing skills should be evidenced.

#### 4.2.2 Joint perception of practical application of skills

In relation to the joint perception of users and practitioners on the practical application of the investigated skills, in Table 3, the following were classified as more present: (1) written communication, (2) deductive analysis and (3) critical thinking. It should be noted that the three most important are the same as the first three most existing, in the same ranking. It is verified, however, that the respondents were more critical in their perception of the existence of the skills, with lower averages in comparison with the average importance of these same skills.

Table 3

##### Users and professionals' perception on practical application of skills

Professionals and users (N=144)					
Practical application of skills	Mean	Standard deviation	Practical application of skills	Mean	Standard deviation
Written communication	3.97	1.02	Technical flexibility	3.52	1.25
Deductive analysis	3.90	1.15	Oral communication	3.10	1.23
Critical thinking	3.87	1.10	Investigation	3.06	1.36
Serenity	3.71	1.10	Conflict solving and negotiation	2.92	1.21
Unstructured problem solving	3.61	1.17	Specific legal knowledge	2.86	1.27
Asset screening	3.55	1.18	Interview	2.68	1.35
Analytic proficiency	3.53	1.33	-	-	-

Source: research data.

The skills the respondents perceive less include: (13<sup>th</sup>) interview and (12<sup>th</sup>) specific legal knowledge. In this case, the inclusion of specific legal knowledge among the less present skills can be considered as a reason for attention for the managers of the Forensic System and the forensic accountant trainers, since the specific legal knowledge corresponds to the ability to understand the basic legal procedures and legal issues, including rules of evidence, which may be essential for the pursuit of the activity.

#### 4.3 Comparison between users and professionals' perception on forensic accounting expertise

Non-parametric tests were applied to compare the medians (Wilcoxon's rank sum) to check for differences in the users and practitioners' perspective on the importance and practical application of the skills.

##### 4.3.1 Perception difference between users and professionals on importance of skills

Concerning the importance of the investigated skills, significant (95% confidence) differences can be observed in five skills according to Table 04, demonstrating higher medians for the experts than for the delegates. These are: "specific legal knowledge", "investigation", "interview", "serenity" and "critical thinking".

Table 4

**Comparison between users and professionals' perception on importance of skills**

Variables of skills' importance	User (N=51)		Professional (N=93)		Difference	
	Mean	Standard deviation	Mean	Standard deviation	z	P-value
Deductive analysis	4.76	0.62	4.74	0.59	0.71	0.48
Critical thinking	4.51	0.92	4.84	0.40	-2.45	0.01*
Unstructured problem solving	4.39	0.96	4.66	0.58	-1.53	0.12
Technical flexibility	4.67	0.62	4.55	0.87	0.60	0.55
Analytic proficiency	4.25	1.29	4.63	0.60	-1.02	0.30
Oral communication	4.12	1.32	3.94	1.05	1.88	0.06
Written communication	4.90	0.41	4.82	0.53	1.27	0.20
Specific legal knowledge	3.37	1.25	4.20	1.01	-4.18	0.00*
Serenity	4.10	1.14	4.53	0.84	-2.62	0.00*
Asset screening	4.69	0.81	4.70	0.55	0.90	0.36
Interview	2.59	1.70	3.47	1.28	-3.03	0.00*
Investigation	3.55	1.54	4.41	0.92	-3.63	0.00*
Conflict solving and negotiation	3.20	1.59	3.65	1.27	-1.48	0.13

Source: research data. Obs.: \* Significant at 0.05.

The daily skills required from forensic accountants in the context of the Federal Police are mostly executed internally, due to the need for document analyses and the production of reports, which can restrict the users' usage and assessment possibilities of the interview and criminal investigation skills. The latter should not be mixed up with the scientific investigation the forensic accountants perform daily.

#### 4.3.2 Perception differences between users and professionals on practical application of skills

Concerning the perceived presence of the skills, in Table 5, a higher median was verified for the experts related to "specific legal knowledge", as well as for the "solution of unstructured problems". The delegates revealed higher medians for "interview" and "serenity" skills.

Table 5

**Comparison between users and professionals' perception on the practical application of the skills**

Variables of practical application of skills	User (N=51)		Professional (N=93)		Difference	
	Mean	Standard Deviation	Mean	Standard Deviation	z	P-value
Deductive analysis	3.73	1.23	4.00	1.09	-1.25	0.21
Critical thinking	3.65	1.18	3.99	1.05	-1.79	0.07
Unstructured problem solving	3.35	1.21	3.75	1.13	<b>-2.07</b>	<b>0.04*</b>
Technical flexibility	3.33	1.28	3.62	1.22	-1.42	0.15
Analytic proficiency	3.47	1.41	3.56	1.30	-0.28	0.77
Oral communication	3.22	1.30	3.04	1.20	0.69	0.49
Written communication	4.08	1.02	3.91	1.03	1.02	0.31
Specific legal knowledge	2.43	1.20	3.10	1.24	<b>-3.14</b>	<b>0.00*</b>
Serenity	3.94	1.21	3.58	1.01	<b>2.18</b>	<b>0.03*</b>
Asset screening	3.41	1.30	3.62	1.11	-0.84	0.40
Interview	2.27	1.42	2.90	1.27	<b>2.54</b>	<b>0.01*</b>
Investigation	2.80	1.47	3.21	1.28	-1.51	0.13
Conflict solving and negotiation	2.69	1.29	3.05	1.16	-1.68	0.09

Source: research data. Obs.: \* Significant at 0.05.

The “specific legal knowledge” was the only skills that confirmed a difference in the perceived importance and perceived practical application of the skill. As this skill is needed to develop forensic accounting, the result reveals the need for criminal experts to inform their clients better on the meaning of this skill for the accomplishment of their activity, sorting out the possible confusion with legal activity, which is reserved to Law graduates.

#### 4.4 Pearson's Correlation

Pearson's correlation was applied to the variables inquiring on the importance of the skills for criminal accounting expertise, with a p-value of 0.05 or less. Based on Pearson's test, in Table 6, the highest correlations with statistical significance at 5% were: “written communication” with “deductive analysis”, “conflict solution and negotiation” with “interview” and “serenity” with specific legal knowledge. Lower correlations that were also significant at 5% were: “interview” with “technical flexibility” and “serenity” with “analytic proficiency”.

Table 6

**Pearson's correlation on importance of skills\***

Skills	1	2	3	4	5	6	7	8	9	10	11	12	13
1-Deductive analysis	---												
2-Critical thinking	0.31	---											
	0.00												
3-Unstructured problem solving	0.22	0.35	---										
	0.01	0.00											
4-Technical flexibility	0.26	0.21	0.41	---									
	0.00	0.01	0.00										
5-Analytic proficiency	0.13	0.21	0.25	0.35	---								
	0.13	0.01	0.00	0.00									
6-Oral communication	0.28	0.14	0.12	0.15	0.27	---							
	0.00	0.10	0.14	0.07	0.00								
7-Written communication	<b>0.49</b>	0.32	0.35	0.32	0.20	0.31	---						
	<b>0.00</b>	0.00	0.00	0.00	0.02	0.00							
8-Specific legal knowledge	0.15	0.17	0.30	0.06	0.28	0.39	0.22	---					
	0.08	0.04	0.00	0.49	0.00	0.00	0.01						
9-Serenity	0.27	0.35	0.45	0.12	<b>0.16</b>	0.19	0.28	<b>0.48</b>	---				
	0.00	0.00	0.00	0.15	<b>0.05</b>	0.03	0.00	<b>0.00</b>					
10-Asset screening	0.27	0.16	0.31	0.37	0.29	0.34	0.36	0.31	0.16	---			
	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.06				
11-Interview	0.14	0.32	0.28	<b>0.16</b>	0.22	0.35	0.12	0.47	0.38	0.25	---		
	0.10	0.00	0.00	<b>0.05</b>	0.01	0.00	0.16	0.00	0.00	0.00			
12-Investigation	0.18	0.34	0.22	0.25	0.12	0.24	0.26	0.31	0.15	0.41	0.44	---	
	0.03	0.00	0.01	0.00	0.16	0.00	0.00	0.00	0.08	0.00	0.00		
13-Conflict solving and negotiation	0.12	0.27	0.25	0.25	0.24	0.33	0.21	0.35	0.32	0.22	<b>0.49</b>	0.33	---
	0.15	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	<b>0.00</b>	0.00	

Source: research data. Obs.: \* significances highlighted in italics

Regarding the most significant correlation, written communication with deductive analysis, forensic accountants should not only be able to identify financial contradictions with expertise, but should also be attentive to the ability to effectively translate their findings to the lay public that will make use of the expert report. Regarding the significant correlation of conflict solution and negotiation with the interview, it can be inferred that these are skills related to the forensic accountants' skill, while performing their work, to create an environment conducive to the understanding and collecting of information that can be important, due to the establishment of trust in the professional.

#### 4.5 Principal Components Analysis

Principal components analysis was applied to the perceived importance of the 13 skills and their perceived existence in today's experts, with a view to identifying clusters of variables and their meanings.



#### 4.5.1 Principal components analysis of the importance of the skills

Concerning the importance of the skills, four groups of principal components were found, followed by Varimax rotation.

In the first component rotated, the sum of the squared loadings corresponds to 2.68, explaining 20.65% of the variance among the thirteen items. Five of the items had loadings of 0.32 or higher in this component (“oral communication”, “specific legal knowledge”, “interview skills”, “conflict solution and negotiation” and “investigation”). This component was named “legal, investigative and attitudinal knowledge”, representing skills that require knowledge of legal and interpersonal relationships, which may be necessary to formalize and obtain scientific evidence, in Table 7.

Table 7

**Rotation of loadings of principal components of skills’ importance**

Skills	Legal, investigation and attitudinal knowledge	Analytic performance	Reflection and strategy	Method
Oral communication	0.49	-0.09	-0.29	0.29
Specific legal knowledge	0.47	-0.17	0.14	-0.02
Interview skills	0.45	-0.01	0.19	-0.21
Conflict solving and negotiation	0.36	0.11	0.14	-0.18
Investigation skills	0.32	0.19	-0.03	-0.02
Technical flexibility	-0.11	0.67	0.02	0.02
Analytic proficiency	0.14	0.45	-0.04	-0.12
Asset screening	0.25	0.35	-0.24	0.19
Unstructured problem solving	-0.09	0.31	0.47	0.01
Serenity	0.12	-0.18	0.57	0.09
Critical thinking	-0.03	0.07	0.47	0.13
Deductive analysis	-0.01	-0.05	0.06	0.66
Written communication	0.00	0.11	0.06	0.57
Sum of squared loadings	2.68	1.81	1.78	1.63
Explained variance percentage	20.65	13.89	13.69	12.54

Source: research data.

For the second component rotated, the sum of the squared loadings is 1.81, explaining 13.89% of the variance among the 13 items, with four of the items showing loadings of 0.31 or higher in this component (“technical flexibility”, “analytical proficiency”, “Asset screening” and “unstructured problem solving”). This component was called “analytical performance” and corresponds to a group with technical bias of forensic accounting.

For the third component rotated, the sum of the squared loadings equals 1.78, explaining 13.69% of the variance among the 13 items. Three of the items had loadings of 0.47 or higher in this component (“unstructured problem solving”, “serenity” and “critical thinking”). This component was called “reflection and strategy”, since it includes skills that can contribute to the definition of technical strategies, aiming at solving problems in the practice of forensic accounting.

Finally, for the fourth rotated component, the sum of the squared loadings is 1.63, explaining 12.54% of the variance among the 13 items. Two of the items had loadings of 0.57 or higher in this component (“deductive analysis” and “written communication”). This component has been called “method”, as it involves analysis and communication skills, which can contribute to the effective solution of financial contradictions and to communicate with the claimant of the criminal accounting expertise.

On the whole, the four components account for 60.76% of the variance among the 13 important skills items. Regarding the comparison with the international surveys, it is verified that Digabriele, 2008 processed the Principal Components Analysis and found two relevant groups, which are:

- **Knowledge and skill**, including the following skills: deductive analysis; critical thinking; unstructured problem solving; research flexibility and analytic proficiency;
- **Performance**, including the skills: oral communication; written communication; specific legal knowledge and serenity.

#### 4.5.2 Principal component analysis of perceived practical application of the skills

Regarding the perceived practical application of the skills, three clusters of principal components were found, after which the Varimax rotation was performed.

For the first component rotated, the sum of the squared loadings is 3.48, explaining 26.81% of the variance among the thirteen items. Five of the items had loadings of 0.38 or higher in this component (“deductive analysis”, “critical thinking”, “unstructured problem solving”, “technical flexibility” and “analytical proficiency”). This component was called “analytical and strategic performance”, because it represents skills that allow the forensic accountant to master the analytical techniques necessary to solve the case under examination, thus permitting the establishment of an adequate strategy, as shown in Table 8.

Table 8

##### Varimax rotation of variables regarding practical application of skills

Skills	Analytic and strategic performance	Communication and serenity	Diligence
Deductive analysis	0,49	0,10	-0,18
Unstructured problem solving	0,48	-0,06	0,04
Technical flexibility	0,47	-0,17	0,12
Analytic proficiency	0,38	0,03	0,05
Critical thinking	0,37	0,12	-0,05
Written communication	0,02	0,59	-0,14
Oral communication	-0,11	0,51	0,10
Serenity	0,03	0,40	-0,01
Interview	-0,07	-0,02	0,59
Investigation	0,05	-0,05	0,53
Conflict solving and negotiation	0,05	0,00	0,46
Asset screening	0,09	0,29	0,17
Specific legal knowledge	0,04	0,27	0,23
Sum of squared loadings	3,48	2,55	2,53
Explained variance percentage	26,81	19,66	19,51

Source: research data.

For the second component rotated, the sum of the squared loadings is 2.55, explaining 19.66% of the variance among the 13 items. Three of the items had loadings of 0.40 or higher in this component (“oral communication”, “written communication” and “serenity”). This component was called “communication and serenity” because it represents skills that allow the forensic accountant to report the findings due to expert examinations, even in situations of pressure, like in the case of a testimony in court.

For the third component rotated, the sum of the squared loadings is 2.53, explaining 19.51% of the variance among the 13 items, three of the items had loadings of 0.46 or higher in this component (“interview”, “investigation” and “Conflict solution and negotiation”). This component has been called “due diligence” as the skills are related to the need for the forensic accountant to seek information and / or solutions.

Together, the three components account for 65.99% of the variance among the 13 skills items that exist.

## 5. Other skills appointed as important

Respondents were asked to indicate three skills considered important for the development of the federal criminal accounting activity and which were not listed in the previous questions. Next, they were asked to evaluate the perceived practical application of the skills suggested by the respondents themselves. It was not compulsory to indicate three skills, as 0, 1, 2 or 3 were allowed, which resulted in 194 suggested skill items. As the respondents felt comfortable writing, some of the skills had to be summarized and other correlated ones were joined in order to consolidate the data.

Table 9 shows the 16 most suggested skills and the respective assessments by the respondents. The skills pointed out by at least three respondents were selected.

Table 9

### Ranking of main skills not investigated and suggested as important (in %)

Main skills suggested	I disagree	I partially disagree	Neutral	I partially agree	I agree	Total frequency*
Proactivity	13.33	13.33	20.00	46.67	6.67	15
Objectivity	15.38	15.38	15.38	53.85	0.00	13
Updating	12.50	12.50	0.00	75.00	0.00	8
Integration with the research team	37.50	12.50	0.00	50.00	0.00	8
Commitment	33.33	16.67	0.00	50.00	0.00	6
Clarity	0.00	20.00	40.00	40.00	0.00	5
Work in team	0.00	0.00	20.00	80.00	0.00	5
Celerity	50.00	25.00	25.00	0.00	0.00	4
Use of worksheets and database	0.00	0.00	25.00	50.00	25.00	4
Deductive analysis	33.33	0.00	33.33	0.00	33.33	3
Concentration	0.00	33.33	0.00	66.67	0.00	3
Cooperation	0.00	66.67	0.00	33.33	0.00	3
Creativity	0.00	33.33	0.00	66.67	0.00	3
Impartiality	0.00	0.00	0.00	100.00	0.00	3
Independence	0.00	0.00	0.00	100.00	0.00	3
Persistence	0.00	33.33	0.00	66.67	0.00	3

Source: research data. Obs.: \*The “Total frequency” column is not expressed as a percentage.

The skill the respondents recalled most was “proactivity”, followed by “objectivity” and “updating” and “integration” with the research team. Most assessments indicated partial agreement with these skills, about 46%, perceiving their existence in the execution of federal criminal accounting expertise activities.

## 5.4 Discussion of results

The research questioned the experts and delegates of the Federal Police about their perceptions regarding the relevance of some skills investigated in the international literature and, due to the experience of the respondents, the research could be elaborated in further depth through questions about the practical application of the same skills, including the possibility to suggest other abilities not listed in the research.

Discussing the importance of the skills required for the forensic accountant to engage in investigative practice allowed users and practitioners to list the following most relevant activities (Table 2): “written communication”, “deductive analysis” and “critical thinking”. The results permitted comparisons with the research by Digabriele (2008), in which an alignment of the results was observed, but diverged from the research by Astutie and Utami (2013), in which technical flexibility was the most important.

It was also observed that critical thinking ranks among the first skills in international research, corroborating the perception of the practitioners when the result is separated from the users’ perception, who perceive critical thinking as the fifth most relevant skill. This divergence shows a distancing between practitioners and users in what criminal accounting experts consider essential in the exercise of their duty, the ability to decipher the difference between opinion and fact.

Regarding the perception of the less relevant skills among the participants, the experts and delegates, in the joint or separate results, listed the interview and the solution and negotiation of conflicts. This finding is in line with the result found by Davis et al. (2010), while the specific legal knowledge also figured among the less relevant skills, converging with the work by Digabriele (2008). It can be inferred that the ability “specific legal knowledge” was influenced by the users being legal operators, because this question does not investigate the possibility of legal action by the experts, but the ability to understand basic legal procedures and legal issues, including rules of evidence.

Concerning the interview and the solution and negotiation of conflicts, although it is not common for the criminal accounting expert to carry out the field work, as many data necessary for the materialization of a crime can be reached through a database search, as a result of the technological advances and electronic records of accounting and financial transactions, the forensic accountant should not give up being prepared to perform these skills, as their use may be necessary. In addition to the training of professionals already working in the field, there is a need to develop forensic accounting courses to meet a growing demand of professionals trained in the fight against fraud. In curriculum building, the results of the perceived practical application of skills can be used, according to Table 3, in which the experts and delegates considered that written communication, deductive analysis and critical thinking are more present.

Forensic accountants can be summoned to clarify their findings, which can be done in writing or verbally, and the appearance before a jury, judges, prosecutors and lawyers is a situation of pressure. In this case, one of the most required skills, in addition to “oral communication”, is “serenity”, the seventh skill the professionals consider most present, while delegates consider it to be the second most present. This finding demonstrates that the users consider the experts as professionals able to maintain a calm attitude under pressure.

Materializing the proof of a crime is not one of the simplest tasks. Therefore, various skills need to be developed. In view of this diversity, the respondents were asked to suggest unlisted skills, revealing 16 according to Table 9, the three most remembered being “proactivity”, “objectivity” and “updating”. Criminal accounting expertises are mostly complex and voluminous, which makes one think of the need for “proactivity” and “objectivity” to solve cases.

Regarding the principal components analysis, clusters of skills were found with emphasis on “technical”, “analytical” and “strategic performance”, in which the experts showed a different perception than the delegates. As for strategic insight, legal knowledge, investigative and analytical performance, the result demonstrates that the experts held a more positive perception of the clusters relevant for the construction and development of the skills that can strengthen forensic accounting. The comparison of the principal components with the research by Digabriele (2008) is also noteworthy, in which there is no alignment of the clusters found regarding the importance of the skills.

Notwithstanding the limitations in terms of the other criminal accounting expertise users who were not submitted to the research, this study contributes to decisions aimed at strengthening the skills of criminal experts, through training and capacity building, as well as curriculum development for new university courses in forensic accounting at the undergraduate and postgraduate level.

## 6. Conclusion

Based on international research, skills considered relevant to the practice of forensic accounting were identified and, when submitted to the perception of criminal accounting experts and federal police delegates, it was verified that there is an alignment in the results found, as the skills “critical thinking”, “written communication” and “deductive analysis” are considered the most relevant. There is a need for a discussion in the country about the training and preparation of this professional as a result of the growing demand and these professionals’ direct involvement in solving financial crimes of great repercussion. In addition, scientific production on the subject needs to be stimulated. Although the discussions and productions were incipient, there was no loss in relation to the perception of the relevant skills the Brazilian professionals and users identified in comparison with the international results.

The experts believe that, for an effective contribution to criminal prosecution, critical thinking skills are fundamental, i.e. the ability to distinguish between opinion and fact in criminal accounting expertise, as well as “written communication” makes all the difference in the production of the report. Skills related to fieldwork, such as interviews and the solution and negotiation of conflicts, were not considered relevant among the investigated skills.

There is a need for better clarification to users and society about what criminal accounting expertise is and does, since the skill “specific legal knowledge” also ranked among the least relevant, although a competent forensic accountant is unthinkable without the ability to understand basic legal procedures and legal issues, including rules of evidence. It should be noted that even the experts themselves did not consider this skill among the most relevant, which seems contradictory. Taking advantage of the respondents’ experience was positive because, besides being more critical in the perception of the practical application of the skills, they were able to suggest unlisted abilities, among which “proactivity”, “objectivity” and “updating” were the three most recalled skills.

The results obtained contribute to the improvement of the professionals who already work in the area, as well as to training guidelines, new undergraduate and postgraduate courses, to the structuring of curricula for the preparation of new forensic accountants, since it has been verified that it is not only the knowledge of how things should be done. The forensic accountant should well develop the solution of “unstructured problems,” “investigative skills,” “technical flexibilities,” among other skills that are not part of today’s curricula. Finally, the skills investigated and suggested contribute to all areas of accounting expertise.

Considering that the study capitalized on the practical perception of the skills and the respondents’ suggestions, future research could be carried out to complement the findings obtained thus far and to deepen the results on the practical perceptions and skills the respondents suggested.

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## Appendix A – Questionnaire

Questionnaire about the perception of federal criminal accounting experts and Federal Police delegates about the competences needed for criminal accounting expertise within the Federal Policy in the light of the forensic accounting concept investigated in the North American literature.

Federal criminal expert                       Federal Police Delegate                      Capacity: \_\_\_\_\_

### What is your age range?

20-30 years                       31-40 years                       41-50 years                       51-60 years                       Over 60 years of age

### What is your education level?

Bachelor                       Specialist                       Master's                       Doctoral                       Ph.D.

### What is your educational background? Principal and others.

Accounting                       Economics                       Law                       Other (specify) \_\_\_\_\_

### What is the length of your experience as a delegate or expert?

0-5 years                       6-10 years                       11-15 years                       16-20 years

Next, assess the importance of the skills below, attributing scores between 1 and 6:

	(1)	(2)	(3)	(4)	(5)	(6)
	Does not apply	I disagree	I partially disagree	Neutral	I partially agree	I agree
<b>Part 1 – Concerns on the importance of the skills below for accounting expertise</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
1. Deductive analysis – ability to focus on financial contradictions that do not fit into the normal pattern of a task.						
2. Critical thinking – ability to decipher the difference between opinion and fact.						
3. Unstructured problem solving – ability to address each (unique) situation and be prepared to solve problems using a non-structured approach.						
4. Technical Flexibility – ability to take distance from standardized procedures and carefully examine the situations through atypical signs of alert.						
5. Analytic proficiency – ability to examine what should be provided instead of what is provided (feasibility analysis).						
6. Oral communication – ability to communicate effectively in discourse through an expert's testimony and general explanation of opinion bases.						
7. Written communication – ability to communicate effectively, in writing, through reports, tables, graphs and opinion bases.						
8. Specific legal knowledge – ability to understand basic legal procedures and legal aspects, including rules of evidence.						
9. Serenity – ability to stay calm under pressure.						
10. Asset screening – ability to identify hidden or concealed goods or amounts.						
11. Interview skills – ability to collect personal testimonies.						
12. Investigation skills – ability to possess a highly inquisitive attitude. Be willing to investigate opinions and/or facts that may suggest fraud.						
13. Conflict solving and negotiation – ability to solve controversies.						

Concerns on the existence of the skills in federal criminal accounting expertise	1	2	3	4	5	6
14. Do the criminal federal accounting experts have DEDUCTIVE ANALYSIS skills? Ability to focus on financial contradictions that do not fit into the normal pattern of a task.						
15. Do the criminal federal accounting experts have CRITICAL THINKING skills? Ability to decipher the difference between opinion and fact.						
16. Do the criminal federal accounting experts have UNSTRUCTURED PROBLEM SOLVING skills? Ability to address each (unique) situation and be prepared to solve problems using an unstructured approach.						
17. Do the criminal federal accounting experts have TECHNICAL FLEXIBILITY skills? Ability to take distance from standardized audit procedures and carefully examine the situations through atypical alert signs.						
18. Do the criminal federal accounting experts have ANALYTIC PROFICIENCY skills? Ability to examine what should be provided instead of what is provided (feasibility analysis).						
19. Do the criminal federal accounting experts have ORAL COMMUNICATION skills? Ability to communicate effectively in discourse through an expert's testimony and general explanation on the opinion bases.						
20. Do the criminal federal accounting experts have WRITTEN COMMUNICATION skills? Ability to communicate effectively, in writing, through reports, tables, graphs and opinion bases.						
21. Do the criminal federal accounting experts have SPECIFIC LEGAL KNOWLEDGE? Ability to understand the basic legal processes and legal aspects, including rules of evidence.						
22. Do the criminal federal accounting experts have SERENITY skills? Ability to stay calm under pressure.						
23. Do the criminal federal accounting experts have ASSET SCREENING skills? Ability to identify hidden or concealed goods or amounts.						
24. Do the criminal federal accounting experts have INTERVIEW skills? Ability to collect personal testimonies.						
25. Do the criminal federal accounting experts have INVESTIGATION skills? – Ability to possess a highly inquisitive attitude. Willing to investigate opinions and/or facts that may suggest fraud.						
26. Do the criminal federal accounting experts have CONFLICT SOLUTION AND NEGOTIATION skills? Ability to solve controversies.						
27. Inform three skills not listed above which you consider important to develop criminal federal accounting expertise? Specify. _____						
28. Do the federal criminal accounting experts possess the skills you suggest?						



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

### Abstract

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

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

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## 1. Introduction

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

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

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

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

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

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

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

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

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

## 2. Literature Review

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

### 2.1 Distance Education

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

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

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

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

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

## 2.2 Self-Regulated Learning

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

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

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

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

Table 1

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

	<b>Strategies:</b>	<b>Definition:</b>	<b>Examples: (Rosário, 1999)</b>
1	Self-evaluation	Declarations that indicate the students' assessments about the quality or progress of their work.	"...I checked my work to make sure it was good".
2	Organization and transformation	Declarations that indicate the students' initiatives to reorganize, improving the learning materials.	"...I always make a scheme before elaborating the chemical experience reports".
3	Goal setting and planning	Declarations indicating the setting of educational objectives: planning, phase in time and conclusion of activities related to these objectives.	"... I start studying two weeks before the test and I feel at ease".
4	Information seeking	Declarations indicating the students' efforts to obtain extra information from non-social sources when facing a school task.	"...before starting a task, I go to the school library to collect as much information as possible on the theme".
5	Record keeping	Declaration indicating the efforts to register events or results.	"...during class I take as many notes as possible about what the teacher is presenting".
6	Environmental structuring	Declarations indicating efforts to select or change the physical or psychological environment to promote learning.	"...in order not to get distracted, I isolate myself in the room" or "...to focus on what I am doing, I turn off the sound".
7	Giving self-consequences	Declarations indicating the imagination or putting in practice of rewards or punishments for success or failure in schools.	"...if I go well on the test, I buy some chocolates".
8	Rehearsing and memorizing	Declarations indicating the students' initiatives and efforts to memorize the material.	"...when preparing for a physics test, I write down the formula plenty of times until I know it by heart".
9-11	Seeking social assistance	Declarations indicating the students' initiatives and efforts to seek help from peers (9); teachers (10); and adults (11).	"... if I feel difficulties to study I ask my dad for help, who's a physician".
12-14	Reviewing	Declarations indicating the students efforts-initiatives to reread the notes (12); test (13); and textbooks (14), to prepare for a class or written exercises.	"...before the tests I always review the summaries of the subject I took" or "To prepare for a test, I solve the outlines of the tests I've already done".

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

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

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

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

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

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

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

### 3. Method

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

Table 2

#### Characteristics of study sample

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

Source: elaborated by the authors.

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

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

Table 3

**Assertions and self-regulated learning strategies**

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

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

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

Table 4

**Research hypothesis associated with second objective**

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

Source: elaborated by the authors.

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



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

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

## 4. Results

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

Table 5

### Identify the DE students' self-regulated learning strategies

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

Source: elaborated by the authors.

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

Table 6

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

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

Source: elaborated by the authors.

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

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

Table 7

**Analysis of correlation coefficients using Pattern Matrix method**

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

Source: elaborated by the authors.

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

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

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

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

Source: elaborated by the authors.

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

Table 9  
**Descriptive statistics of dimensions**

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

Source: elaborated by the authors.

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

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

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

Table 10  
Equality of Means Test for SRL Planning Dimension

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

Source: elaborated by the authors.

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

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

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

Source: elaborated by the authors.

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

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

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

#### 4.1 Discussion

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

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

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

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

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

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

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

## 5. Final Considerations

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

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

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

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

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

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

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# Understanding of Accountancy Graduates on the Relevant Concepts Taught in the Subject Accounting Theory at HEI in Greater Florianópolis

## Abstract

This research aims to identify the understanding of the undergraduate students in Accountancy about the relevant concepts taught in the discipline Accounting Theory. To reach this goal, a questionnaire was sent to selected institutions or applied in person, obtaining a total of 65 respondents who had already studied Accounting Theory. The results of this research show that students perceive the concepts related to the discipline in a way more linked to standardization and that, for most respondents, the discipline Accounting Theory was considered of fundamental importance and should not be eliminated. In addition, it cannot be affirmed that there is a relationship between the area and the time of action of the respondents and their perceptions regarding the concepts of the discipline. It was also observed that there is little discussion about some subjects, in which some students are totally unaware, like in the case of Agency Theory and Earnings Management, which may indicate a gap in the teaching of the discipline. For future research, the analysis of distance learning is suggested, as well as research that seeks to analyze the existence of this possible gap observed.

**Key words:** Accounting Theory. Accounting Education. Relevant Concepts.

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## 1. Introduction

The discipline Accounting Theory became mandatory for courses in Accountancy as of Resolution 03, 1992, by the Federal Council of Education (CFE) (Ferreira, Splitter & Borba, 2012). Since then, it has become more representative and, according to Madeira, Mendonça and Abreu (2003, p 104), to be “recognized as the main tool to reduce pragmatism, develop a critical sense and promote the student’s approximation with science and research.”

Accounting Theory is what guides the execution of the activities related to the exercise of the accounting profession. Inanga and Schneider (2005, 233) argue that “in the absence of fundamental accounting theories, accountants are unable to effectively evaluate what they are doing and offer innovation in response to new demands that may arise”. Therefore, it is important that students have discussions and understand the subjects related to Accounting Theory, especially in times of change, in which more interpretative international standards are introduced that require greater capacity to seek information from the accountant. In this sense, Iudícibus (1997: 22) points out that “it is important to understand well what is theory, as well as its various approaches and methods, so that accountants can give satisfactory answers or interpretations to a series of new phenomena that are to challenge our profession.”

In addition to the theoretical discussion on Accounting Theory, there is another problematic aspect that concerns the moment when the discipline should be offered, being at the beginning of the course, in order to help in the theoretical basis of the academic education or to complement existing knowledge, or at the end of the course, departing from the premise that preexisting knowledge is needed on some concepts, so that the student is able to absorb it satisfactorily (Cunha, Borgert, Richartz & Souza, 2014).

In view of the problem on the need for students to internalize content related to the subject of Accounting Theory, as well as the moment when the discipline should be offered to students and considering the consequences of not knowing the concepts that are the basis for Accounting, which influences the exercise of the accounting profession both in relation to the credibility of the accounting professional who carries out his activities without this type of knowledge, as well as the devaluation of the profession as a whole and its informational capacity, the research problem arises: what is the perception of undergraduate students in Accountancy regarding the relevant concepts taught in Accounting Theory? Starting from the problem question, the main objective is to identify the understanding of the undergraduate students in Accountancy regarding the relevant concepts taught in the subject Accounting Theory. In addition, the specific objectives include: (i) verifying students’ contact with some concepts related to Accounting Theory; (ii) identifying students’ perceptions regarding the offering of the subject Accounting Theory; and (iii) verifying if there is a difference in the students’ perception according to the labor market they are inserted in.

The present research contributes to evaluate the issues related to the problems faced in the discipline Accounting Theory. In this sense, the study is justified by the need for a theoretical knowledge base in the practice of the profession (Lima Filho & Bruni, 2012), therefore, it is necessary to verify and follow the teaching of the concepts of the discipline, especially in an environment where the accounting professional has greater decision-making power, through the possibilities of accounting treatment arising from convergence with international standards, thus requiring a more robust theoretical basis (Borba, Poeta & Vicente, 2011). In addition, based on the present research and from the perception of the students, the teachers can give direction to the concepts that should be more discussed in the classroom, and the institutions can evaluate the most opportune moment to offer the discipline which, according to Cunha et al. (2014), influences the degree of discussion, interest and level of learning that the discipline can provide to students.

## 2. Theoretical Framework

In this section, Accounting teaching, Accounting theory, the relevant concepts in the subject and earlier studies are discussed.

### 2.1 Accounting Education

Matters related to the teaching of Accounting in Brazil have long been discussed (Santos, 2003). One of the problems in the teaching of Accountancy is the teachers' need for pedagogical knowledge. Nossa (1999, p.19) states that "teachers who have never undergone any training in the specifically pedagogical area will certainly face problems to be characterized as professionals fit for teaching." In this way, allied to the capacities of the area the teacher masters, (s)he should also master how to educate (Nossa, 1999).

Still in addition to this problem, and due to the changes that have occurred in recent years, especially since the 1980s, there has been a need for the student to learn (Fahl & Manhani, 2006) and, in addition, the need to develop critical capacity (De Araújo & Andere, 2006). In this sense, Marion (2001, p. 35) states that "students should become" thinkers-critics " [...] they need to develop the self-initiating capacity for discovery that allows a process of continuous learning and growth in their professional life", developing, based on the study of Accountancy, the capacity to inquire and make decisions (De Araújo & Andere, 2006).

Beck and Rausch (2015) emphasize that the need for the development of critical thinking in accounting professionals is reinforced by changes in the harmonization of accounting standards. However, before that, Franco and Iudicibus (1983) already showed that teaching the technique only was not enough. In this context, another problem of accounting education is related to theoretical versus practical teaching, especially in public universities, where the professors perform their duties under the exclusive dedication regime.

Regarding this point, Vasconcellos (1994, p. 41) mentions that, "to relate theory and practice is a factor that guarantees the competence for the exercise of university teaching", so that the teacher possesses and transmits or develops in his students the theoretical knowledge and practical knowledge. In accordance, Franco (1996) points out that teachers in Accountancy courses need to complement their theoretical knowledge with practical experience, as well as with up-to-date technical knowledge.

### 2.2 Accounting Theory

Hendriksen and Van Breda (2009, 32) argue that Accounting theory "can be defined as a coherent set of hypothetical, conceptual and pragmatic principles that constitute a general frame of reference to investigate the nature of Accounting." In addition, accounting theory is the framework for sustaining accounting practices (Lima Filho & Bruni, 2012). Therefore, the scope and the programmatic content of the discipline related to this subject are of fundamental importance in the training of accounting professionals (Miranda, Moraes & Nakao, 2008).

In this sense, theory is essential for the creation and development of knowledge and accounting practice, helping professionals to understand the «why» of doing the profession and not only the «practice» (Marion, 1997), considered fundamental by Laffin (2002), who considers that teaching based on doing does not permit analyses with other perspectives and excludes interpretation and intervention in the teaching process.

According to Pinheiro (1997, p.5), "Accounting theory has to be recognized as a means to increase the capacity of Accounting to be useful to its users", since it is based on the development and knowledge of the theory that accountants perform their duties properly and can provide their users with reliable and quality information. Thus, Accounting Theory need to provide an understanding about the fundamentals of accounting knowledge (Madeira et al., 2003), and create in students the ability to make judgments, responding adequately to new demands.

Barth (2008) argues that accounting education cannot concentrate on rules, with the risk that knowledge acquired by students will become obsolete in a relatively short time, and also of not understanding certain concepts and not being prepared for possible changes. It is therefore necessary for educators to teach accounting students to make judgments and to understand that there not always exists only one answer to certain questions, with judgment and decision-making based on the standard. Given the importance of the subject Accounting Theory and its content, below, some concepts are presented that are inherent to the discipline.

### 2.2.1 Concept of Asset

Iudícibus (2009, p.129) argues that the study of assets is that important “that we could say that it is the essential chapter of Accounting because its definition and evaluation is linked to the multiplicity of accounting relationships involving revenues and expenses”.

The definition of an asset is linked to the ownership or control of the entity and the ability to generate future benefits. In this sense, Hendriksen and Van Breda (2009) define it as future potential benefits of service flow or rights under the organization’s control. CPC 00 (R1) (2011) adds to this concept the fact that assets need to be the result of past events.

### 2.2.2 Goodwill

Goodwill is treated by Monobe (1986, p.65, apud Antunes, & Martins, 2002) as the difference between the present value of the company as a whole and the economic value of its assets, and is therefore considered as residual value. Lima Filho and Bruni (2012, p.191), based on Iudícibus (2009), cite that goodwill can be understood as an “expectation of future profitability, which only exists if there is an abnormal profit, since normal profits, when future profits are brought to present value at the opportunity cost, become null. “According to CPC 15 (2011), goodwill “is an asset that represents future economic benefits arising from assets acquired in a business combination, which are not individually identified and separately recognized”.

### 2.2.3 Liability

Lima Filho and Bruni (2012, p.191) cite that, in the liabilities, there is a reversal of the concept in relation to the asset, in which “definitions of liabilities seek to capture future impacts, exchanging benefits generated by sacrifices to be consumed.” Hendriksen and Van Breda (2009, p.410), citing the Financial Accounting Standards Board (FASB), claim that liabilities involve probable future economic sacrifices that result from present obligations. CPC 00 (R1) (2011) defines as “liabilities” “any present obligation of the entity derived from past events, the settlement of which is expected to result in the withdrawal of entity resources capable of generating economic benefits.” Thus, the CPC definition incorporates the need for the obligation to be a result of past events.

## 2.2.4 Revenue and Gain

The concept of revenue is linked to the positive returns related to the company's main activity, while the gains do not have this characteristic (Lima Filho & Bruni, 2012). According to Fasb (1975 apud Hendriksen & Van Breda, 2009), revenues "are inputs or other increases in an entity's assets, or settlements of its liabilities (or both), arising from the delivery or production of goods, services, or other activities corresponding to the normal or principal operations of the entity". On the other hand, Iudícibus (2009), in his concept of revenue, considers the eventual gains, unlike Fasb. For the author, revenues are assets "in the form of cash or rights receivable, usually corresponding to the sale of goods, products or services, and may also derive interest on bank deposits or securities and other eventual gains" (Iudícibus, 2009, p.149).

For CPC 30 (R1) (2012), revenue is the "gross inflow of economic benefits during the period observed in the course of the entity's ordinary activities that result in an increase in its shareholders' equity, except for increases in shareholders' equity related to the contributions of owners". In addition, for the CPC, earnings are part of revenue, defining them as "representatives of other items that fall into the definition of revenue and may or may not arise in the course of the entity's usual activities, representing increases in economic benefits" (CPC 30 (R1), 2012).

Iudícibus (2009, p.159) says that the gains represent "a favorable net result resulting from transactions or events not related to the normal operations of the enterprise". In this line, Kam (1986) cites that "gains are increases in net assets from peripheral or incidental operations, and from other events that may be largely beyond the control of the firm".

## 2.2.5 Expense and Loss

Opposite to the revenues and gains, expenses and losses represent a reduction in terms of results for companies. According to Hendriksen and Van Breda (2009, p.232), expenditure "constitutes the use or consumption of goods and services in the process of obtaining revenues". Likewise, Kam (1986) says that "expenditures are reductions in the value of assets or increase in the value of liabilities, due to the use of goods and services of the principal or central operations of the entity".

According to CPC 00 (R1) (2011), expenses are:

Drops in the economic benefits during the accounting period, in the form of resource outflows or the reduction of assets or assumption of liabilities, resulting in a drop in the net equity, are which are not related to distributions to the holders of the equity instruments.

As some authors argue for the gains, losses can be seen as those reductions in terms of results that are eventual, without being linked to the core activity of the company (Lima Filho & Bruni, 2012). Iudícibus (2009), then, conceptualizes the losses as being a net effect, since there will be no confrontation, like that of the expense with the revenue, and that does not arise from the usual operations of the company. For the CPC, like in the definition of gain, losses "represent other items that fall into the definition of expenses and may or may not arise in the course of the entity's usual activities, representing decreases in economic benefits" (CPC 00 (R1) 2011).



## 2.2.6 Other Relevant Concepts

In addition to the main concepts, others are important for the exercise and understanding of the accounting profession or are considered emerging issues in accounting, some of them being: Environmental Liabilities (Lima Filho & Bruni, 2012; Ribeiro, 2014; Calixto, 2006) (1999), Earnings Management (Murcia, Rover, Souza & Borba, 2008), Agency Theory (Iudícibus, 2012, Ribeiro, 2013, Cardoso, Pereira & Guerreiro, 2007) and Corporate Governance (Murcia et al., 2008; Iudícibus, 2012; Ribeiro, 2013).

Lima Filho and Bruni (2012) define that liabilities are obligations and, therefore, environmental liabilities are treated as present obligations in terms of recovery, preservation and protection related to the environment that will generate future disbursements. This liability, in addition to the evidence of social responsibility, in certain companies, especially those that degrade the environment to some degree, has a significant impact on the results and, consequently, on the organization's capacity for continuity. Thus, the correct disclosure of environmental liabilities impacts the evaluation of these organizations (Ribeiro & Lisboa, 1999; Bae & Sami, 2005).

Earnings Management, Profit Management, Creative Accounting or Accounting Results Management (Matsumoto & Parreira, 2007) is the name given to the use of accounting practices in order to achieve the desired results, leading to distortions of accounting information and, consequently, analyses based on this information (Rodrigues, 2007).

This concept is composed of two words: management and profit or result. Therefore, it is the manipulation of the result, generally in accordance with accepted accounting practices and principles, through discretionary accounting choices, in order to highlight an image of the company according to the interests of the managers (Santos & Grateron, 2003; Matsumoto & Parreira, 2007).

Despite this, as evidenced by Nardi and Nakao (2009), there is no consensus regarding the definition of earnings management, mainly regarding its legality, and it is seen as something negative by some authors, in which there is the intention to deceive the Accounting information users and others as something normal and inherent in the accounting practice and the choices arising from it.

As organizations develop, it becomes necessary for the (principal) owner to transfer responsibilities and controls to managers (agents). This new configuration in terms of control leads to a conflict of interests between the agents and the principal, since each party will make decisions according to its interests and, in addition, the users do not always have the same information, so that an informational asymmetry exists (Nascimento & Bianchi, 2005). In this sense, the Agency theory is related to the fact that each decision taken can benefit one side and, on the other hand, be unfavorable to the other, since each agent has its own interests and will seek to maximize them (Nardi & Nakao, 2009). Additionally, Lopes and Iudícibus (2012) cite the peculiarities involved in the Agency theory, such as the involvement of several people and various incentives, the existence of informational asymmetry and coordination of efforts.

Also regarding the problems between agent and principal, De Carvalho (2002, p.19) states that corporate governance can be understood as "a set of rules aimed at minimizing agency problems." In this sense, Pereira, Bruni, Rocha, Lima Filho and Faria (2010) argue that corporate governance derives from the problems of agency and informational asymmetry, but is not limited to them, seeking to minimize other misalignments in organizations.

## 2.5 Earlier Studies on the Discipline Accounting Theory

Lima Filho and Bruni (2012) carried out a research with Accountancy graduates in Salvador (BA), with the objective of assessing the comprehension of some terms explored in the context of the subject Accounting Theory. To that end, questionnaires were applied, with questions related to the concepts of assets, liabilities, goodwill, revenues, expenses, gains and losses to 591 students who had already studied Accounting Theory. The authors identified that the students have deficiencies in the understanding of relevant accounting concepts and also observed that there is a difference in the understanding of the concepts among the students from public and private institutions and that, at the public institutions, the students presented a better mastery of the investigated concepts.

In their research, Piccoli, Chiarello and Klann (2015) intended to identify the perception of Accountancy academics regarding concepts studied in the discipline of Accounting and its relation with the other disciplines in the course. From the application of a questionnaire to three private institutions in the West and Far West of Santa Catarina, the authors obtained 163 responses. Some of the students had already completed the course and others would take it in the future. The results show that most of the students consider the discipline Accounting Theory important for their profession and that young students (17 to 21 years old) present a greater understanding of the concepts related to the discipline.

Cunha et al. (2014) conducted a study to identify the perception of teachers and students in the discipline accounting in relation to when it is offered during the undergraduate course. The research was carried out with professors of the discipline and students who have already studied or are attending the course at two public universities in Santa Catarina: Federal University of Santa Catarina (UFSC) and State University of Santa Catarina (Udesc). The data were collected through the application of a questionnaire. The authors identified that, at Udesc, approximately 45% of the students affirm that they do not face difficulty to follow the discipline, while at UFSC, only 12% state this. In addition, 85% of Udesc students considered that the course was offered at a timely moment in their course (in two stages, one in the first phase and another in the seventh); at UFSC, then, the discipline is offered at an opportune moment for only 41% of the students (in a single stage, in the seventh phase of the course).

## 3. Methodological Procedures

In this topic, we present the framework and the methodological procedures used to carry out this research, divided into “methodological framework”, “procedures for elaborating the questionnaire” and “population and sample”.

The research was carried out at public and private educational institutions in the region of Greater Florianópolis (SC), selected by convenience; for the data collection, a questionnaire was used. Regarding the objectives, a descriptive research is considered, since data were collected to describe the reality observed (Triviños, 1987). Regarding the procedures, this is a survey, carried out by questioning the students through the questionnaire, permitting the data collection and subsequent analysis (Gil, 2002). Regarding the approach, the research is qualitative, in which, based on the collected data, constructivist analyses were made, based on inductive reasoning (Creswell, Hanson, Plano & Morales, 2007).

The questionnaire was elaborated based on the definition of the general and specific objectives of the research, with questions that would support the resolution of the problem question. To assist in this process, the questionnaire by Lima Filho and Bruni (2012) was used as the basis. In addition, a pre-test was performed with three students, seeking to identify possible problems in the elaboration of the questionnaire or possible doubts during its application, resulting in adjustments to improve the research instrument.

First, all accredited educational institutions in Greater Florianópolis were identified, considering the cities of Florianópolis, São José, Biguaçu and Palhoça, based on data from the Ministry of Education. After identifying the HEIs and obtaining contact with institutions via access to their electronic sites, contact was made via e-mail or telephone with each institution to verify the interest in being part of the research. Thus, the sample is composed of all higher education institutions that offer the Accountancy course in the face-to-face modality in Greater Florianópolis (SC) and that were willing to participate in the research.

After this stage, the questionnaires were definitively applied, by means of an in-class application to students from a period superior to that in which the subject of Accounting Theory is offered at the institution, or by means of a virtual questionnaire on the Google Docs platform. Data analysis was performed using Microsoft Excel, aiming to answer the research objectives.

Sixteen HEI accredited at the MEC were identified, with the offering of the Accountancy course in the “in-class” modality. It was not possible to apply this research at five of the 16 identified institutions, as the institution did not offer this specific discipline, the institution was no longer offering the course in the in-class modality or contact could not be made. The application of the questionnaire occurred between August 3rd and 28th, 2015, obtaining a total of 65 respondents who had taken the discipline Accounting Theory.

## 4. Presentation and Analysis of Results

In this topic, the data analyses and results are presented. The topic is divided as follows: respondents’ profile; concepts applied to Accounting Theory; contact with concepts related to Accounting Theory; the subject Accounting Theory; and the relation between the work area and the length of experience; and concepts of asset and liability.

### 4.1 Profile of Respondents

As for the respondents’ ages, 60% of the students are aged between 21 and 24 years, with the majority, 18.5%, being 21 years old, with a 25-year age range, varying between the lowest (18) and the highest age (43).

Of the 65 respondents, 83% reported having a paid job, of which the majority (30%) work in the public service. In addition, 26% work in other areas (i.e. non-accounting) in companies; 21% work in the accounting area, in companies; 15% in accounting offices; and 8% in others. In addition, in terms of time in the area, the majority (68%) of the respondents have worked in areas related to accounting, of whom 35% have one to three years of experience; 22% have up to one year of experience; 8% have three to six years; and only 3% have more than six years of experience in accounting.

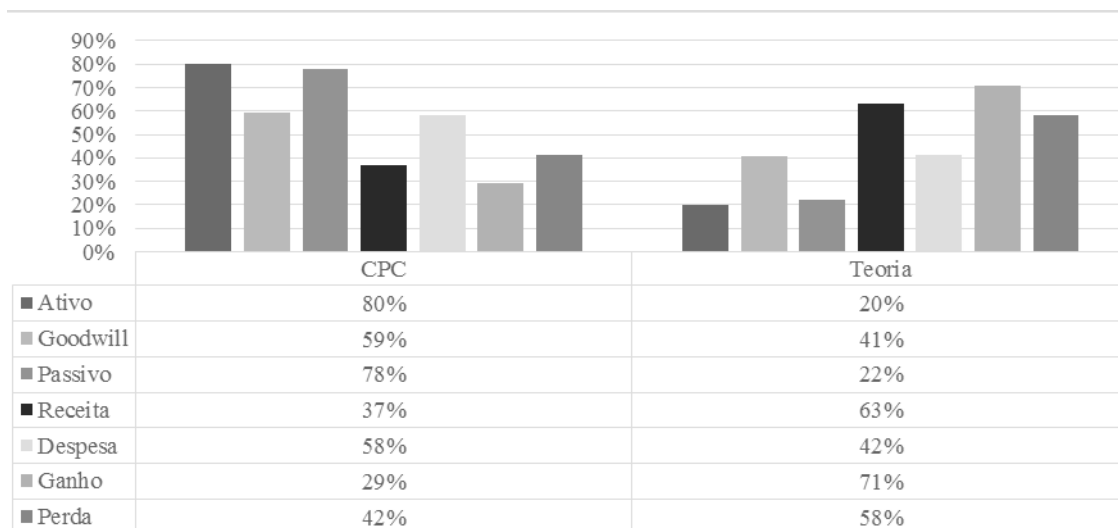
The students were also questioned about other degrees they possessed and 88% of the respondents did not hold any other degree. Of the respondents who have other degrees, only one student (2%) holds a technical degree in accounting; 2% has another degree; and 9% possesses technical degrees in other areas of knowledge.

In relation to the activity after obtaining a bachelor’s degree in Accountancy, most of the students (50%) intend to enter the public sector. In addition, 40% of those surveyed intend to enter the private sector (as an employee or owner); 9% aims at the academic area, as a teacher and researcher; and 1% does not intend to work in the area, proceeding with another degree after the completion of the Accountancy course.

## 4.2 Concepts applied to Accounting Theory

The aim in this block is to verify the students' perception on some concepts taught in Accounting Theory, with a view to identifying if the students see these concepts more aligned with the theory or with the accounting standards.

As a standard, the pronouncements issued by the Accounting Standards Committee (CPC) were considered. As for assets, 80% of the students considered that the CPC concept best expresses its understanding, as displayed in Figure 1.



Source: Research data (2015) TRAD: Asset, Goodwill, Liability, Revenue, Expense, Gain, loss

**Figure 1.** perception of students on Accounting Theory concepts.

This situation, in which the concept issued by the CPC was considered to best express the student's understanding, also happened for the concepts of goodwill, liabilities and expenses, where 59%, 78% and 58% of the students, respectively, marked the concept according to the CPC.

The concept of revenue, according to the theory, was considered to be more representative of the respondents' understanding in 63% of the cases, and the same case occurred with the concept of gain and loss. In the first case, 71% of the respondents considered the concept of the theory more representative and, in the second case, the concept according to the theory was considered more representative for 58% of the respondents.

These results partially corroborate the findings by Piccoli et al. (2015), in which it was identified that the students do not fully master the concepts of assets, liabilities, revenue and expenditure, being perceived as simple concepts, without theoretical deepening, while the students understood the concepts of loss and gain in a more complex way. In addition, the concepts selected as being more representative of the students' understanding of the subjects, overall, were those issued by the CPC, which indicates that students have focused their thinking and knowledge on the rules issued by the entities, not glimpsing the questions in a broader sense, with a theoretical background, which is similar to the findings by Lima Filho and Bruni (2012), in which the students showed definitions for the investigated concepts in a way that is not reflective, outdated and beyond the context of theoretical discussions.

### 4.3 Contact with Concepts Related to Accounting Theory

In this stage of the research, students were asked about their contact with the following topics related to Accounting Theory: Environmental Liability, Earnings Management, Corporate Governance and Agency Theory.

As can be seen in Table 1, 43% of the respondents already had some contact with environmental liabilities, but all superficially. In addition, 46% never had the opportunity to discuss this issue and 11% have no familiarity whatsoever. Thus, most respondents (57%) do not know or have never had the opportunity to discuss this topic, be it in the subject of Accounting Theory, events or other courses.

Table 1  
**Contact frequency of respondents**

Answers	Environmental liability	Earnings Management	Corporate Governance	Agency Theory
Yes and in depth	0%	3%	28%	14%
Yes but very superficially	43%	12%	58%	29%
I never had the opportunity to discuss this topic	46%	60%	14%	29%
I am not familiar with this topic at all	11%	25%	0%	28%

Source: research data (2015)

Regarding the concept of Earnings Management, the majority of the respondents, 60% never had the opportunity to discuss this issue. In addition, 25% are totally unaware of the topic. Of the 15% who have had the opportunity to discuss this concept, only 3% has done so in depth.

Among the terms researched, corporate governance was the term that most students had the opportunity to discuss. Among respondents, 86% indicated that they already had the opportunity to discuss this concept, of whom 28% already had the opportunity to discuss the subject in depth. Regarding Agency theory, 43% of the respondents said they had already had an opportunity to discuss the matter, but most (29%) superficially. In contrast, 29% said they had never had an opportunity to discuss this concept and 28% did not know it fully.

These results indicate that, although they are emerging issues of relevance in the accounting profession, they have not been approached or discussed in depth in the Accountancy courses, a fact that can lead to deficiencies in professional accounting education.

### 4.4 Accounting Theory Discipline

This block deals with some considerations regarding the supply of the discipline Accountancy, such as its importance and the period when it should be offered.

For most respondents (43%), the subject Accountancy is fundamental in the professional training of accounting students. Only 5% of the respondents consider the discipline of little or no importance, corroborating the results found by Piccoli et al. (2015), in which 80% of the students stated that they considered the discipline important for their learning. In addition, students were asked if the discipline should be broken down into more than one course, and most (52%) responded that it should not be divided. For the 48% who answered that it should be disassembled, 77% of the students stated that there should be two subjects related to Accounting Theory throughout the course.

Regarding the period when the course is offered, 71% of the respondents disagree with the period in which it is offered. These respondents were questioned in what period it should be administered and 87% stated that it should be offered in the initial periods of the course until the 4th phase, and for most of them, the best period to offer the discipline would be the first, corroborating one of the results by Cunha et al. (2014) in which, for 64% of the students studied at Udesc, the discipline should be offered in the first period, serving as the basis for the students' knowledge.

In addition, students were asked whether this discipline could be eliminated and whether each teacher could offer the content of that discipline in his/her subject. For 89% of the respondents, the discipline Accounting Theory should not be eliminated, but its content should be taught in a specific discipline. This result corroborates the results presented by Ferreira et al. (2012), in which teachers were questioned and 64% stated that it is important or very important to have a specific subject in Accounting Theory for the undergraduate program.

#### 4.5 Relation between Activity Area and Time and Asset and Liability Concepts

Firstly, the relation between the respondents' activity area and their perception of the asset and liability concepts was analyzed, followed by the analysis between the activity time and the perception of these concepts. The data demonstrate that the activity area does not influence the students' perceptions regarding the concepts of asset and liability since, in both cases and in all areas of activity, most respondents selected the CPC concept as the concept that best represents their understanding of the topic, as can be seen in Tables 2 and 3.

Table 2

##### Relation between activity area and asset concept

Asset	CPC	Theory	Total	CPC	Theory
Accounting office	7	1	8	88%	13%
Accounting area in a company	7	4	11	64%	36%
Work in other company area	11	4	15	73%	27%
Public service	13	3	16	81%	19%
Others	4	0	4	100%	0%

Source: research data (2015)

Therefore, based on the data, no relation can be observed between the activity area and the students' perception on the concepts of asset and liability.

Table 3

##### Relation between activity area and liability concept

Liability	CPC	Theory	Total	CPC	Theory
Accounting office	6	2	8	75%	25%
Accounting area in a company	8	3	11	73%	27%
Work in other company area	12	2	14	86%	14%
Public service	11	5	16	69%	31%
Others	4	0	4	100%	0%

Source: research data (2015)

As for the length of experience in accounting and its influence on the students' perception about the asset and liability concepts, some relations can be observed. Concerning the asset concept, based on the respondents, it is observed that, among students with up to one year of experience, no difference exists in the perception of one concept or another.

Table 4  
**Relation between length of activity and asset concept**

Asset	CPC	Theory	Total	CPC	Theory
Up to 1 year	7	7	14	50%	50%
Between 1 and 3 years	20	2	22	91%	9%
Between 3 and 6 years	4	1	5	80%	20%
More than 6 years	2	0	2	100%	0%
I have never worked in the area	17	3	20	85%	15%

Source: research data (2015)

In relation to the other ranges of experience, however, there was no doubt about the concept since, in all the bands (except up to one year) the concept chosen as the most representative of the respondents' perception was that of the CPC.

As for the liability, there was also a range in which, apparently, there is no difference between the concepts. For students with more than six years of experience, both concepts had the same representativeness, as can be seen in Table 5, however, with a small number of respondents, which may specifically influence this result.

Table 5  
**Relation between length of activity and liability concept**

Liability	CPC	Theory	Total	CPC	Theory
Up to 1 year	12	2	14	86%	14%
Between 1 and 3 years	15	7	22	68%	32%
Between 3 and 6 years	4	1	5	80%	20%
More than 6 years	1	1	2	50%	50%
I have never worked in the area	17	3	20	85%	15%

Source: research data (2015)

In all other ranges of activity, the concept that prevailed as the most representative was the CPC. Therefore, in relation to the liability, no relation can be defined either between the length of experience and differentiated perception of the concepts.

These results may indicate that the exercise of the accounting profession is not a factor of great influence for the perception of the concepts related to Accounting Theory. Therefore, the knowledge acquired in the classroom, in an amplified way and based on the theory, can help the students in their professional development.

## 5. Conclusions

The objective of this study was to identify the Accountancy students' perceptions on the relevant concepts taught in the subject Accounting Theory, in order to verify if there is a relation between the students' perception and their activity area and their perceptions related to the discipline. In addition, we sought to verify the students' contact with some concepts related to Accounting Theory.

Based on the data obtained, it was observed that the students perceive the concepts of Accounting Theory more related to standardization, since most of the students considered the concept published by the CPC as being the one that most represents their understanding about the investigated concepts. This result entails implications for the current moment of Accounting, marked by the convergence of the standards with international standards, in which there is a greater degree of discretion, whose accounting professionals need to interpret the standards and then make the best possible decision, within the existing possibilities.

The behavior identified in this research reveals that the students have limited themselves to the standards and their specificity, not seeking to interpret the concepts according to the theory, which can lead to the outdatedness of these professionals in a short period of time, due to the changes deriving from the adoption of the international standards. Moreover, with regard to accounting teaching, these results may indicate a gap in the updating of teachers and, consequently, in the way that the standardization is transmitted to the students, not developing their critical capacity and judgment.

As the literature considers Accounting Theory and its understanding important, students also see the subject this way and consider it important that this content be synthesized in a discipline, in order to assist them in understanding relevant accounting concepts.

Overall, the results of this research provide insights for educational institutions to direct the contents of the subject Accounting Theory in order to develop in students the capacity to be critical and debate about the identification and conceptualization of subjects related to the accounting area, both for the main concepts, such as assets and liabilities, and for the emerging themes, and especially for the latter, since they are themes that, due to the current conditions, have an impact on the exercise of the profession and need to be discussed in depth with the students which, according to the results obtained, is not occurring, since most of the students have never had the opportunity to discuss or is not familiar at all with most of the subjects investigated. It is the responsibility of universities to decide to insert current discussions in the disciplines. In addition, this study may help identify educational gaps resulting from the changes accounting has undergone in recent years and the possible downtime of teachers as to the technical knowledge or how to develop the skills currently required in students.

It also contributes to the evolution of the subject investigated, especially when establishing new relationships with factors that may influence the perception of the contents by the students, such as activity area and length of experience. These factors do not influence students' perception of the asset and liability concepts, thus reinforcing the emphasis that needs to be given to the academic teaching of these concepts, in order to allow the students to develop, in this stage of their professional career, the judgment capacity necessary to develop the accounting activity. In professional terms, it contributes to identify the need for continuing education, resulting from the fact that it is perceived that the teaching offered in the undergraduate course is not exhaustive and sufficient for these professionals to be prepared for the changes that may occur, based on the theory. Therefore, they need to update and obtain new knowledge with each modification that occurs in the legislation and in the accounting practice.

It is recommended that this study be applied to educational institutions that offer the course in the "distance" modality, in order to identify differences between the teaching modalities. In addition, we suggest studies that seek to verify the existence of the gaps cited in the teaching of Accounting Theory, as well as to analyze if the way in which the students have been subject to accounting teaching influences their perception on the relevant concepts in Accounting Theory.



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# Guidelines for Authors

## 1. Paper Submission Guidelines

To submit articles to the *Revista de Educação e Pesquisa em Contabilidade* - REPEC, authors should follow the standards and criteria set by REPEC. From January 2013 the guidelines of the American Psychological Association (APA) with regard to citations and references should be followed. Submissions not complying with the standards will be rejected.

Articles submitted to the journal must be original, i.e., cannot have been published or submitted to another journal.

Articles may be written in Portuguese, English or Spanish, with at least 5,000 and maximum 10,000 words, including tables, figures, notes and references. A maximum of 5 (five) authors are allowed per article. All papers accepted will be translated and published in three languages: Portuguese, English and Spanish.

Articles containing tables or figures, they [the tables and figures] should be in a format that allows them to be edited. In case some of these Figures or Tables have been imported from other programs such as Excel, Power Point etc., the source file must also be sent as Supplementary File.

Do not use expressions like *id.*, *ibid.*, *op. cit.*, *loc. cit.* and the like, or reference notes and footnotes. Notes at the end of the text are acceptable, but should be avoided.

The submission of articles should be done electronically, through the [www.repec.org.br](http://www.repec.org.br) website. At the end of the submission an electronic message will be sent by e-mail, confirming receipt of the article.

## 2. Content and Formatting of Papers

At the moment of submission, the articles should contain:

- The **title** in the language of origin of the article (Portuguese, English or Spanish) without identifying the author(s);
- An **abstract** written in the language of origin of the article (Portuguese, English or Spanish) with at least 150 and at most 250 words, single space between lines, in a single paragraph and without paragraph input. At the end of the abstract should be placed **three to five** keywords;
- The article itself, written in Portuguese, English or Spanish, with at least 5,000 and at most 10,000 words, including tables, figures, notes and references.
- The pages of the articles should be properly numbered in the upper right corner, typed with Word for Windows, under the following conditions:

- A4 paper (210 x 297 mm);
- Times New Roman, size 12;
- Spacing: single;
- Paragraph input: 1.25;
- Margins: 3cm top, 2cm bottom, 3cm left, 2cm right;
- Tables and figures in Times New Roman, size 10;
- Citations and references must comply with current standards of the APA (American Psychological Association).

### 3. Tables and Figures<sup>1</sup>

Tables and figures should be used in articles whenever their information make text comprehension more efficient, without repeating information already described in the text.

#### 3.1 Tables

The table should usually show numeric or textual information organized in an orderly exposition of columns and rows. Any other statement should be characterized as textual figure.

The table should be displayed with its information visible and sufficient for their understanding and should be formatted as follows:

Table editor	Word for Windows 97 or superior. In case authors have drawn their tables in Microsoft Excel or in a similar program, please remake the tables using the feature in Word.
Font	Times New Roman, size 10.
Line spacing	Simple.
Spacing before and after paragraphs	3 pt.
Table colors	Use only black and white (grayscale).
Title	The table title must be brief, clear and explanatory. It should be placed above the table, in the top left corner, and on the next line, just below the word Table (with a capital initial), followed by the number that designates it. The tables are presented with Arabic numerals in sequence and within the text as a whole. Eg: Table 1, Table 2, Table 3, and so on.
Citation of tables	When citing tables in the text, type only the number referring to the table, for example Table 1, Table 2, Table 3 and so on. (the word 'Table' should be presented with the first letter capitalized). Never write 'table below', 'table above' or 'table on page XX' because the page numbers of the article may change while formatting.
Table notes	The font used in the notes of the table should be Times New Roman, size 10, single spaced. The notes should be described in the footnote of the table, and they serve to indicate the Source of the information of the table, and other information important to understanding the table.

<sup>1</sup> Most of these guidelines were adapted from the Manual for Submissions of the *Revista de Administração Contemporânea – RAC*, available at [www.anpad.org.br](http://www.anpad.org.br).

### 3.2 Figures

The figure should show a flow chart, a chart, a photograph, a drawing or any other illustration or textual representation.

The figure should be displayed with its information visible and adequate for its understanding, and should be formatted as follows:

Font	Times New Roman, size 10.
Figure colors	Use only black and white (grayscale).
Format	Figures should be submitted in an editable format.
Title	It explains the figure concisely, but discursively. The title should be placed under the figure and numbered with Arabic numerals in sequence, preceded by the word Figure (with initial capital). Eg: Figure 1, Figure 2, Figure 3, etc.. After the title, any other information necessary for clarification of the figure or source must be added as a note.
Captions	The caption is the explanation of the symbols used in the figure and must be placed within the limits of the figure.
Size and proportion	Figures must fit the dimensions of the journal. Therefore a figure should be drawn or inserted into the article so that it can be reproduced in the width of a column or page of the journal to which it will be submitted.
Citations in the main text	When citing a figure in the text type only the number referring to the figure, e.g. Figure 1, Figure 2, Figure 3 and so on. (the word 'Figure' should be presented with the first letter capitalized). Never write 'figure below' figure above ', or even 'figure on page XX' because the page numbers of the article can be changed during formatting.

### 4. Citations and References

To access the full version of the standards of citations and references according to APA (American Psychological Association) [click here](#).