ACCOUNTING CONCEPTS RECOMMENDED BY TEACHERS AND THEIR RELATIONS WITH STUDENT PERFORMANCE

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ABSTRACT

This article aims to analyze whether the understanding of accounting concepts by the teacher is associated with student performance, measured by their performance in the CFC Sufficiency Exams. The study is exploratory-descriptive, with a quantitative approach and makes use of a questionnaire applied to 433 professors in Accounting in Brazil, in addition to the CFC Sufficiency Examination database. For data analysis, descriptive and inferential statistics were used (Correlation Analysis and Beta Regression). The results indicate that professors with publications in high-impact journals, who have had a Ph.D. for a longer time and have been working for less time in teaching are the ones who best contribute to passing the Sufficiency Examination. It is observed that there is a statistically significant correlation with student performance in the Sufficiency Examination in four of the six accounting concepts analyzed. The concepts of Science, Applied Social Science and Art show negative implications for student performance, while the results for the concept of Accounting as a Representation of Reality suggest that the teacher who accepts this concept tends to better enable students to exercise the profession, by higher percentage of passing the CFC Sufficiency Examination, despite not having been supported by beta regression. It is concluded that the understanding that teachers have of accounting concepts and, above all, of its limitations in the decision-making process, has interfered with student performance.

Keywords: Accounting Concepts. Conceptual Structure. Student Income. CFC Sufficiency Exam. Accounting as a Representation of Reality.

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CONCEITOS DE CONTABILIDADE PRECONIZADOS PELOS PROFESSORES E SUAS RELAÇÕES COM O DESEMPENHO DISCENTE

RESUMO

Este artigo tem como objetivo analisar se a compreensão dos conceitos de contabilidade, pelo docente, está associada ao rendimento dos alunos, medido pela performance destes nos Exames de Suficiência do CFC. O estudo é exploratório-descritivo, com abordagem quantitativa e faz uso de um questionário aplicado a 433 docentes em Ciências Contábeis no Brasil, além da base de dados do Exame de Suficiência do CFC. Para a análise dos dados utilizou-se da estatística descritiva e inferencial (Análise de Correlação e Regressão Beta). Os resultados indicam que os docentes com publicações em revistas de alto impacto, que possuem o doutorado há mais tempo e atuam há menos tempo na docência, sãos os que melhor contribuem para a aprovação no Exame de Suficiência. Observa-se que há correlação estatisticamente significativa com o rendimento discente no Exame de Suficiência em quatro dos seis conceitos de contabilidade analisados. Os conceitos de Ciência, Ciência Social Aplicada e Arte evidenciam implicações negativas no rendimento discente, enquanto os resultados para o conceito de Contabilidade como Representação da Realidade sugerem que o docente que aceita este conceito tende a melhor capacitar os alunos para o exercício da profissão, pelo maior percentual de aprovação no Exame de Suficiência do CFC, apesar de não terem sido sustentados pela regressão beta. Conclui-se que a compreensão que os docentes têm dos conceitos de contabilidade e sobretudo das limitações desta no processo decisório, tem interferido no rendimento discente.

Palavras-Chave: Conceitos de Contabilidade. Estrutura Conceitual. Exame de Suficiência. Rendimento Discente. Contabilidade como Representação da Realidade.

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1 INTRODUCTION

The national and international accounting literature does not assume a concept that represents accounting, which supports the *Conceptual Framework for Financial Reporting*. What there are in textbooks and accounting theory represent a range of accounting concepts that coexist and more or less accepted by different groups of accounting professionals. The concepts that stand out refer to accounting as Science (Franco, 2000), Applied Social Science (Iudícibus, 2010), Information Systems (Araújo & Assaf Neto, 2010), Art (Mukherjee & Kanif, 2015), Language of Business (Mukherjee & Kanif, 2015; Warren & Jones, 2017) and

Representation of Reality (Mattessich, 2003). The latter assumes that, as it is a simplification of reality, accounting has limitations that need to be understood by users of accounting information for an effective decision-making process.

Martins (2014) argues that there is a lack of studies that investigate the diversity of accounting concepts and discuss accounting theory, and Iudícibus and Martins (2015) indicate the widespread feeling of a role reversal in this investigation process, in which accounting standard setters became the main responsible for theoretical studies and academics have increasingly distanced themselves from the deeper conceptual aspects of accounting.

In this context, the figure of the teacher is relevant, who need to understand and keep up to date on the accounting structure to deal with the challenges of the classroom and contribute to the adequate training of professionals for the world of work. Studies have indicated a positive association between teacher updating (especially through *stricto sensu* programs) and student performance (Chetty, Friedman, & Rockoff, 2011; Miranda, Casa Nova, & Cornacchione, 2013; Lima & Bruni, 2012; Zonato , Dallabona, Moura, Domingues, & Raush, 2013; Miranda, Lemos, Oliveira, & Ferreira, 2015) demonstrating that academic qualification contributes to improving the qualifications of graduates in accounting.

On the other hand, significant evidence has been presented (Lima & Bruni, 2012; Piccoli, Chiarello, & Klann, 2015; Souza & Vicente, 2017) that students have not mastered relevant accounting concepts. An analysis of the National Student Performance Exam - ENADE, as well as the Federal Accounting Council (CFC) Sufficiency Exam, indicate that the average student performance is below expectations. The average accumulated in the specific components of the 2006 to 2018 editions of ENADE is 33.77% and, for the Sufficiency Exam, 35.45% (2011 to 2021) (CFC, 2021).

Teacher qualification has been shown to be relevant for student performance in accounting (Miranda, Casa Nova & Cornachione, 2013), but no national or international studies were found that analyzed the conceptual mastery of the teacher and the implications for student performance. Given this context, the present study intends to answer the following **question**: Which accounting concepts accepted by teachers are significantly related to student performance? The **objective** of this study is to analyze whether the acceptance of accounting concepts by teachers is related to student performance, measured by performance in the CFC 2017 and 2018 Sufficiency Exams.

Martins (2014) highlights the low amount of research focused on Accounting Theory in the academy. For the author, regulatory bodies have had more research and discussion about theoretical aspects than universities. This study is part of this aspect by focusing on something that is essential to any area of knowledge, which is the conceptualization of itself as an area of knowledge, but which has been little debated, especially on the national scene.

The slow changes that have been taking place in Brazilian literature, mainly related to accounting concepts (adjustments to the USP concept of accounting, increased discussion about Accounting as a Representation of Reality, the need to understand the limitations of accounting, etc.) have signaled the importance of the professor maintain their continuing education, to be able to follow the

theoretical evolution of the area, as well as its effects on the decision-making process.

In the teaching context, accounting professors have their activities influenced by the confluence of various social forces, such as the traditions of university education, the defense of the accounting profession, the pressure of the capital market, the demands of employers, demands for easy solutions by the students, government regulatory impulses, and business school rankings (Graham, 2013). Thus, knowing the scope and possible impacts of the teaching activity is relevant for the training of future professionals in the accounting area.

The study adds relevant contributions on the influence of the way the professor understands the accounting area (and especially the accounting concepts) in the qualification of students to practice the profession. The results also help managers and professors to rethink the accounting science course, especially regarding what has been a priority in the teaching of accounting concepts and theories and their impacts on the professional being trained.

2 THEORETICAL REFERENCE

2.1 Accounting Concepts

Several accounting concepts coexist in the accounting area, sometimes conflicting, other times complementary, still in other cases improvements of previous concepts. Herrmann (1978) argues that since accounting schools of thought, opinions on the subject are diverse and uncertainties persist as to its exact conceptualization. Carnegie, Parker and Tsahuridu (2020) point out that there are still questions about what accounting is today. There was no consensus on the identity, role and work of the accountant and it becomes increasingly important that accounting has a clear and shared definition to better understand what it does.

Accounting is still understood under several more or less accepted prisms such as the concept of Historical Record, Art, Commodity, Service Activity, Process, Information System, Business Language, Science, Applied Social Science and Representation of Reality.

Accounting as a Historical Record is related to summarizing accounting data, classifying them in a way that facilitates the reporting of relevant events. Sterling (1975) states that this view involves the accountant in a process of interpretation, which has occasionally given rise to the description of accounting as an Art and, therefore, to the idea that accounting is much more a matter of taste than objective fact.

The definition of accounting as an Art was introduced by the *American Institute of Certified Public Accountants* - AICPA (1953), conceptualizing it as one that records, classifies and summarizes transactions and events and interprets them. A more mechanistic and procedural connotation of accounting is perceived, despite considering it as Art and mentioning the need for its interpretation. For Davis, Menon and Morgan (1982), this emphasis adopted by the AICPA (1953) was focused on accounting as an Information System. In later years, the AICPA (1970) changes the approach to Service Activity.

The *American Accounting Association* – AAA (1966) highlights accounting as a Process. There are advances in the sense of evoking, from accounting, the support for judgments and decisions by its users. This change in understanding also highlights accounting as an Information System.

Accounting as an Information System seems to have been the dominant image in accounting research for many years. In this proposal, accounting exists only because there are users who need the useful information it can provide (Davis, Mason, & Morgan, 1982). Language of Business is a concept that appears in parallel with other concepts in several didactic works (e.g., Mukherjee & Kanif, 2015; San-Juan, 2007). The image of accounting as a *commodity* relates to the view that accounting information is produced because there is an available demand to 'consume' that information, and supply of it (Leftwich, 1980; Davis, Mason, & Morgan, 1982).

The conceptualization of accounting as a Science is not something new. Lisle (1899) apud Chambers (1995) already portrayed it in this way. When comparing national concepts with those of international books, there is a more pronounced tendency in Brazilian authors to consider accounting as a Science, despite the concept having little evolution in most of the researched materials.

This view of accounting as a science may have been influenced by Resolution 774/94 of the Federal Accounting Council – CFC (1994), in force at the time, which articulated the premise that Accounting is a Social Science with full epistemological foundation. Iudícibus (2010) goes further, conceptualizing accounting as an Applied Social Science. In this same book, from the FEA/USP Professors Team (Iudícibus, 2007), from the 2007 edition, in addition to the definition of Applied Social Science, accounting is also assumed as a model, a simplification of reality.

The perception of accounting as a Descriptor of Current Economic Reality (equivalent to the Representation of Reality) presented the first major alternative view challenging the image of historical reading of reality that had prevailed for many years (Davis, Mason, & Morgan, 1982). Davis, Mason, and Morgan (1982, p. 311) mention that it is noteworthy that "although the picture of economic reality never became the dominant picture in accounting theory, it had substantial influence on the development of accounting thought, encouraging historicists. to refine their positions in important ways."

This aspect of Accounting as Representation of Reality, albeit slowly, has been incorporated by researchers into accounting theory and, to a certain extent, into accounting standardization itself. The publication by Martins (2005) seems to redirect the focus of discussions about accounting in Brazil, when appropriating the concept of Accounting as a model of Representation of Reality. This paradigm shift can be observed in important textbooks/works (Iudícibus, Martins, & Gelbcke, 2008; Tibúrcio Silva, & Tristão, 2008; Martins, Diniz, & Miranda, 2020; Martins, Miranda & Diniz, 2020) reinforcing the evidence of the expansion of use of this concept over time.

Table 1 indicates the main accounting concepts that currently coexist and are discussed in textbooks.

Table 1
Main Accounting Concepts

Concept Feature	Concept Definition	Authors Supporting the Concept
Representation of Reality	Accounting is the **representation of reality**. As it is a representation (model, simplification) and not reality itself, it shows the company's situation as close as possible to reality, but never the reality itself, as information will always be lacking to fully understand what is happening. The user of accounting information needs to take this into account.	Iudícibus, Martins, & Gelbcke, 2008; Martins, 2005; Mattessich, 2003; Martins, Diniz, & Miranda, 2020; Martins, Miranda, & Diniz, 2020
Science	Accounting is the **science** that studies and controls the assets of entities, through the registration, expository demonstration and interpretation of the facts that occurred therein, in order to provide information on its composition and variation, as well as on the economic result resulting from the management of the company. patrimonial wealth.	Franco, 2000; Goyal & Goyal, 2012; Szuster, Cardoso, Szuster, Szuster, & Szuster, 2007
Applied Social Science	Accounting is an **applied social science**, with a methodology specially designed to capture, record, accumulate, summarize and interpret the phenomena that affect the patrimonial, financial and economic situations of any entity, be it an individual, non-profit entity, company, or same public law person, such as State, Municipality, Union, Autarchy etc.	Iudícibus, 2010
Information System	Accounting is an **information system** that measures, processes and communicates information, primarily of a financial nature, about an identifiable economic entity for the purpose of making economic decisions.	Araujo & Assaf Neto, 2010; Needles, Anderson, & Caldwell, 1984; Tulsian, 2009
Art	Accounting is the **art** of collecting, analyzing, recording and publishing, summarizing and reporting financial transactions in a meaningful and orderly manner to provide useful information essential for decision making. Accounting also includes the function of interpreting the meaning of information relationships reflected in financial statements.	AICPA, 1953; Mukherjee & Kanif, 2015; San-Juan, 2007
Language of Business	Accounting is the **language of business** The basic function of any language is to serve as a means of communication. This is because accounting is the means by which companies' financial information is communicated to users.	Flesher & Flescher, 1980; Horngren, Harrison, & Robinson, 1996; Meigs, Meigs, & Meigs, 1995; Mukherjee & Kanif, 2015; San-Juan, 2007; Warren & Jones, 2017

Source: *Prepared by the authors*.

It appears that, despite isolated efforts, there is no universally accepted concept for accounting. What we have are distinct concepts, defended by the main authors of accounting books that, generally, relate to the object of accounting, the patrimony.

It is noteworthy that the concept of Accounting as a Representation of Reality has been gaining ground in the national literature. This concept assumes the existence of limitations in accounting because it is an approximation,

simplification of reality, which prevents the observation of the complete scenario, that is, it reinforces the idea that Accounting points out trends, it is not exact. This perception is in line with Mattessich (2003, p. 455-456) when he mentions that "these representations are deliberately biased towards a specific purpose... the consumer of accounting data can take this bias into account and judge whether a specific representation is appropriate for a specific purpose. its purpose or not".

Lames and Miranda (2018) point out a close link between the qualitative characteristics of the information recommended by *The Conceptual Framework for Financial Reporting* and the limitations of accounting, indicating that there is coherence between that structure and the concept of Accounting as a Representation of Reality.

Despite the various social implications of accepting the Accounting Concept as a Representation of Reality, this study investigates its pedagogical aspect, that is, it seeks to assess whether, in institutions where teachers understand that accounting is a form of representation social, with limitations in subsidy to the decision-making process, their students tend to present higher levels of academic performance.

Considering the relevance of teacher professional development and its implications for the training of accountants who are "fit" to practice the profession (or, minimally approved in the Sufficiency Exam), in section 2.2 some relevant points that permeate teacher preparation are discussed, together with the product addition, namely academic, professional and pedagogical qualifications.

2.2 Professional Development and Teacher Qualifications

Teaching has required continued development processes from its participants over the years (García, 1995) to be successful. This professional development, in line with García (1999) and Oliveira-Formosinho (2009), goes through initial training (undergraduate), continuing education (postgraduate *lato* and *stricto sensu*, training courses, etc.) and in-service training. (training activities, courses, studies with other teachers, etc.). This development gives rise to knowledge and skills that can be evidenced in teaching qualifications.

For Miranda, Casa Nova and Cornacchione (2013) the teaching knowledge can be summarized in three aspects: academic qualification (preparation of the teacher for the exercise of research on the topics they teach), professional qualification (the teacher's relationship with the accounting practices in force in the professional field) and pedagogical qualification (systematized preparation for teaching). These descriptors summarize the basic elements for the analysis of teacher development and improvement.

Considering that Brazilian legislation (Brasil, 1996) provides that training for teaching should take place primarily in master's and doctoral programs, there have been advances in the accounting area, since in 1998 there were only two teaching institutions (Master's and Doctorate at USP and at PUC São Paulo) that offered *stricto sensu* programs and are currently offered by 31 HEIs (32 masters and 15 doctorates) (Brasil, 2021).

This increase in the offer of *stricto sensu* training programs has a positive impact on the professional development of teachers and accountants, especially in terms of academic qualifications. Vasconcelos, Cavalcanti and Monte (2012)

find that there are skills, notably technical and scientific knowledge, with significant differences when comparing teachers with higher degrees compared to those with lower degrees, and the same occurs with workload, time in the profession and participation in research and extension projects.

On the other hand, students understand as reference teachers those who hold the following teaching knowledge: didactic knowledge, mastery of content and experiential knowledge. The results point, among other things, to the importance of the teachers must be linked to market practices (Miranda, Casa Nova, & Cornacchione, 2013). In this way, continuous professional development is necessary for teachers who want to prepare their students for the world of work.

In order to fully appropriate the triad necessary for the development of this research (concepts of accounting, professional development of teachers and student performance), a brief discussion about student performance in the light of currently available metrics, carried out in the section 2.3.

2.3 Student Income

Despite the debates, sometimes in protest, sometimes in defense of the student assessment system currently in place, the ENADE and the CFC Sufficiency Exam are the two metrics available to measure the performance of Accounting students in the context of national, given the content expressed in the course's curricular guidelines for professionals in training (Brasil, 2004).

ENADE evaluates courses every three years, including in Accounting Sciences (INEP, 2009, 2021). The average income earned in the editions already carried out (2006, 2009, 2012, 2015 and 2018) is 37.13%. Considering the specific knowledge of the area, the result is even more worrying, since the average is 33.77%.

The CFC Proficiency Exam also indicates unsatisfactory results. As shown in Figure 1, the results from 2011 to 2021 have an average approval rate of 35.45% of the participants. The peak of approval was reached in 2011, with 58.29% of those enrolled, and the worst result happened in the second half of 2015, when only 14.68% of the accountants passed the exam. The first edition of 2021 had the second worst performance (20.24%).

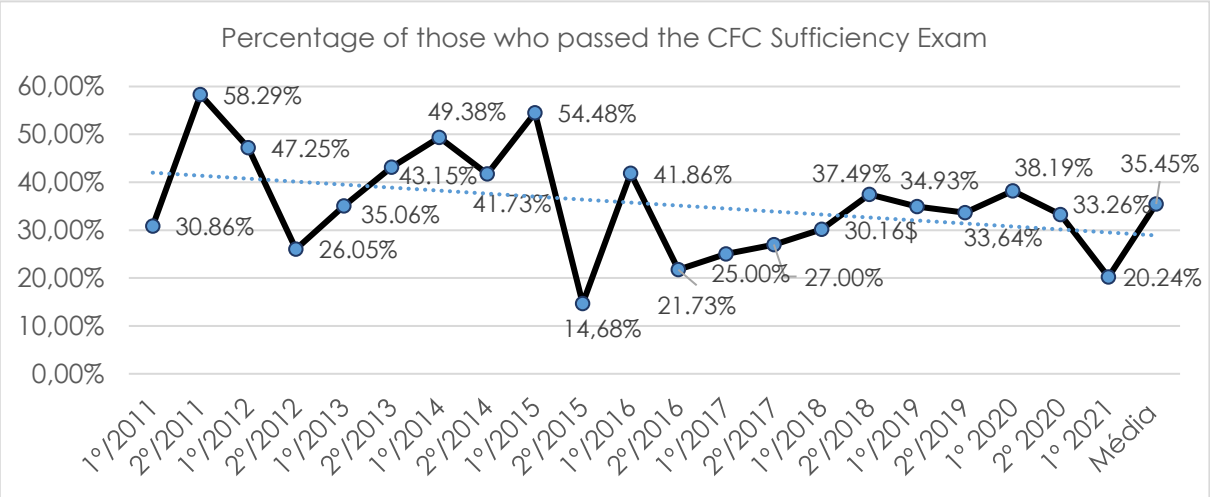

Figure 1 Evolution of the Pass Percentage in the CFC Sufficiency Exam
Source: Prepared by the authors based on "Statistical Reports of the Sufficiency Exam", CFC (2021).

The CFC Sufficiency Exam and the ENADE show similar average results, corroborating the assertion that students graduating from Accounting Sciences courses are in a worrying situation regarding their preparation to practice the profession. Arantes and Silva (2020) verify that the Sufficiency Exam makes little demand for more complex cognitive levels, otherwise the results could be even worse. However, what is perceived is that students do not have mastery of the relevant concepts of accounting. Lima and Bruni (2012) find that there are failures in understanding relevant concepts, and Souza and Vicente (2017), as well as Piccoli, Chiarello and Klann (2015) show that students have not mastered relevant aspects of Accounting Theory. Lima and Bruni (2012) complement by mentioning that teacher updating contributes to improving this context.

On the one hand, deficiencies in the future accounting professional are observed, and on the other hand, the impacts of teaching qualifications on their training, through their preparation, updating, titling and work regime, among others, serving as a direction for what is to be intend in this research. This understanding of accounting content (including concepts) seems to reflect positively on student academic performance.

3 METHODOLOGICAL PROCEDURES

The research population is composed of professors in Accounting Sciences in Brazil who teach specific accounting disciplines. The study makes use of the empirical-analytical approach, through an exploratory-descriptive study. It is characterized as exploratory because of the little existing knowledge about the subject, and descriptive because it seeks to establish relationships between the agreement with the concepts, by the professor, and the percentage of students' approval in the Sufficiency Exam of the HEIs in which these professors are linked (Raupp , & Beuren, 2009). The research makes use of a quantitative approach and of documentary and field procedures.

The collection technique used was the questionnaire, prepared and validated by Lames (2018) using the Apparent Validity method (Martins, 2006). This

questionnaire systematizes the main accounting concepts currently used in textbooks. It also includes questions that capture the demographic profile of respondents, their teaching qualifications (academic, professional and pedagogical) and agreement with accounting concepts. The professors were presented with the definitions of each accounting concept (as shown in Table 1), to which the professor assigned a grade from 0 (zero) to 10 (ten) according to their agreement.

The research, approved by the ethics committee, was applied through the online survey platform *SurveyMonkey* by sending invitation emails to 6,780 professors in Accounting Sciences in Brazil, extracted from the E-Mec Platform. Additionally, the research link was sent with a request to the coordinators of undergraduate courses to forward the research to professors in the area.

Of the 500 questionnaires answered, 433 were validated (out of 180 HEIs), due to the need for the researched to be a professor in the accounting area, to have identified the HEI he/she teaches, for this HEI to have students participating in at least two of the four editions of the CFC Sufficiency Exam (1st/2017, 2nd/2017, 1st/2018 and 2nd/2018). The CFC Sufficiency Exam database was used together with the results of the research with the professors, which contains the exam statistics. The calculation of the total percentage of approval in these four editions was made by accumulating the number of students approved in the four exams and then calculating the percentage in relation to effective participants in these editions.

As a performance indicator, the Sufficiency Exam was chosen for the following reasons: because it is an indicator of specific national coverage in the accounting area; for being more punctual, offering two editions a year.

The data from the questionnaire and CFC Sufficiency Exam were grouped and correlated, giving rise to the database used in the research. The analysis was performed using descriptive statistics, Correlation Analysis and Beta Regression using the R statistical software. For the Beta Regression, the variables listed in Table 2 were used.

Table 2
Description of the research variables

Construct	Variable Name	Theoretical foundation
Dependent Variable	Pass Percentage in CFC Sufficiency Exams 2017-2018	Alves, Yoshitake, & Sales (2015)
Academic Qualification	Have a PhD in Accounting Sciences	Miranda, Casa Nova, & Cornacchione, 2013; Lemos & Miranda 2015; Miranda, Lemos, Oliveira, & Ferreira, 2015
	Have a Master's in Accounting Sciences	Miranda, Casa Nova, & Cornacchione, 2013; Lemos & Miranda 2015; Miranda, Lemos, Oliveira, & Ferreira, 2015
	Degree Time - Master's	Lima e Bruni, 2012; Miranda, Lemes, Lima, & Bruno Júnior, 2014
	Titration Time - Doctorate	Lima e Bruni, 2012; Miranda, Lemes, Lima, & Bruno Júnior, 2014
	Teaching Practice Area	Academic Variable to Investigate

	Publications in journal B2 or higher in the 2016-2018 Triennium	Bell; Frecka, & Salomon, 1993; Miranda, Casa Nova, & Cornacchione, 2013
Professional Qualification	Time of Operation in the Accounting Market	Miranda, Lemos, Oliveira, & Ferreira, 2015; Sousa; Ferreira, & Miranda, 2015
	Knowledge of the Conceptual Framework	Variável exploratória – com base nos textos de Martins, 2014; Iudícibus, & Martins, 2015
	Registration in Class Bodies (e.g., CRC, CVM, CNAI, CNPC, ACCA)	Miranda, Lemos, Oliveira, & Ferreira, 2015
	Professional Practice Area (market)	Martins, 2014; Iudícibus, & Martins, 2015; Miranda, Lemos, Oliveira, & Ferreira, 2015
Pedagogical qualification	Teaching time	Miranda, Lemos, Oliveira, & Ferreira, 2015
	Pedagogical Training	Vasconcelos, Cavalcante, & Monte, 2012; Miranda, Casa Nova, & Cornacchione, 2012; Miranda, Lemos, Oliveira, & Ferreira, 2015, Ferreira, 2015
Teacher	Genre	Smirnov & Thurner, 2017
	Work Regime	Lemos & Miranda 2015; Ferreira, 2015; Miranda, Lemos, Oliveira, & Ferreira, 2015
IES	Administrative Category	Rodrigues, Santos, Santana & Lemes, 2017
	Geographic Region	Rodrigues, Santos, Santana & Lemes, 2017
	Academic Organization	Rodrigues, Santos, Santana & Lemes, 2017
Accounting Concepts	Concept of Accounting as Applied Social Science	Conceptual variable to investigate
	Accounting Concept as a Representation of Reality	Conceptual variable to investigate

Source: Adapted from Lames (2018)

It is noteworthy that the categories Academic Qualification, Professional Qualification and Pedagogical Qualification were elaborated based on studies by Miranda, Casa Nova and Cornacchione (2013). For the variable "Knowledge of the *Conceptual Framework*", the professor indicated his level of knowledge on a scale from 0 (zero) to 10 (ten).

4 ANALYSIS AND DISCUSSION OF RESULTS

4.1 Sample Characterization and Analysis of Teacher Qualifications

Among the 433 teachers analyzed, there is a predominance of males (61%). As for the geographic region, the largest number of respondents belong to the Southeast (41.11%) and South (30.9%) regions, as they are the regions with the highest number of Accounting Sciences courses, followed by the Northeast region (14.5 %), Midwest (9%) and North (4.4%), with respondents from all Brazilian states, except Amapá.

Regarding the work regime, there is a predominance of full-time/exclusive teachers (58.2%), followed by hourly teachers (23.3%), with partial teachers representing 18.5% of the sample. The composition was balanced between the administrative categories of federal HEIs (41.57%) and private HEIs (38.11%) and there are fewer state HEIs (20.32%). As for academic organization, the vast majority

of professors who responded to the research come from universities (71.13%), followed by colleges (15.24%) and university centers (13.62%). It was also possible to verify that 91.92% of the researched professors have a degree and 55.66% have a specialization in accounting. 65.12% and 26.33% are respectively masters and doctors in the accounting area. It is noted that only 7.85% of the sample does not have a master's degree, with almost half (48.27%) having a doctorate.

Another item related to academic qualification is the scientific production of professors. In the 2016-2018 triennium, 63.28% published in high-impact journals (Qualis B2 or higher) and 42.73% had between 1 and 3 publications. There are also professors with 6 or more publications (9.93%).

It is also noted that the average number of years dedicated to working in the market is 13.2 years, while 16.85% of those surveyed have no experience outside teaching. On the other hand, it appears that 34.41% of teachers have up to 10 years of experience in the market and 35.40% more than 15 years. As for the professional certifications of professors, only 25.64% of the 433 professors do not have any certification. The most recurrent certification is the enrollment in the Regional Accounting Council, the CRC (74.36%).

The surveyed professors teach subjects in several areas (Table 3), the most frequent being Corporate Accounting (64.20%), followed by Management Accounting (42.04%) and Cost Accounting (12.36%). The number of respondents who work only in teaching, without any connection with the job market, is significant (58.43%). The work regime contributes to this result, as only 11% of those who work only in teaching are "students" and 78.26% are Exclusive/Full Dedication teachers.

Table 3
Teaching practice areas

Area	Area of Expertise in Teaching		Area of Operation in the Market	
	Frequency	**Percentage**	**Frequency**	**Percentage**
Only teaching	Not applicable	Not applicable	253	58,43%
Corporate Accounting	278	64,20%	34	7,85%
Management Accounting / Costs	236	54,40%	26	6,01%
Audit and/or Expertise	79	18,25%	40	9,24%
Accounting Consulting	-	-	33	7,62%
Public Accounting	65	15,01%	30	6,93%
Tax and Tax Legislation	35	8,08%	5	1,15%
Other areas	48	11,09%	12	2,77%
N	**433***	**100,00%***	**433**	**100,00%**

Source: Prepared by the authors.
* The surveyed professors were able to indicate more than one area of activity in teaching. As for Market Operation, it was only possible to indicate the main area.

Additionally, with regard to pedagogical training, 84.53% of the professors reported having some pedagogical training, and most admit to having attended teaching internship courses and research methodology in the *stricto sensu*, which suggests that *stricto sensu* graduate programs in Accounting Sciences have had some contribution in the training of these teachers, meeting the provisions of the LDB (Brasil, 1996).

4.2 Acceptance of Accounting Concepts

The six concepts that stand out the most in the current literature are accepted by professors (averages greater than 5 points), as shown in Table 4.

Table 4
Summary measures of accounting concepts notes

Concepts	Minimo	1º Quartile	Median	Average	3º Quartil	Maximum	Acceptance Ratio
1 [Representation of reality]	0	3	6	5,52	8	10	0,65
2 [Science – Franco]	0	8	9	8,38	10	10	0,94
3 [Applied Social Science – USP]	0	8	9	8,81	10	10	0,98
4 [Information system]	0	6	8	7,23	9	10	0,89
5 [Art]	0	5	7,5	6,68	9	10	0,79
6 [Language of Business]	0	6	8	7,55	9	10	0,75

N = *433. Proportion of acceptance refers to the number of professors who gave the concepts a grade equal to or greater than 5.0 (scale from zero to ten).*
Source: Prepared by the authors.

It is observed that the USP concept of accounting (Table 4), currently understood as Applied Social Science (as of 2010), is the most widely accepted by professors (average = 8.81 and acceptance ratio = 0.98), followed by the concept of Science (8.38 and 0.94), both with at least 75% of the answers greater than or equal to 8. The concept of Accounting as a Language Business also received high acceptance (7.55 and 0.75) and has been a concept associated with the common sense of accounting. Then we can see the acceptance of the concepts of Information Systems, with an average of 7.23 and Art, with 6.68.

The concept of Accounting as a Representation of Reality was accepted with an average of 5.52 and an acceptance proportion of 0.65, having the greatest variability in the evaluation (50% of responses between 4 and 8 points). This note may be related to the fact that the discussion of this concept in Brazilian literature is recent. However, it is possible to notice that important national didactic works have focused on the concept of Accounting as a Representation of Reality, in the last 13 years, such as Iudícibus, Martins and Gelbcke (2008), Tibúrcio Silva and Tristão (2008), Martins, Miranda and Diniz (2020) and Martins, Diniz and Miranda (2020).

Additionally, it is noteworthy that the FEA/USP Introductory Accounting book (Iudícibus, 2007) has always had indications about the limitation of the ability of accounting reports to fully express the economic reality and, from 2007, makes specific mention of accounting as a model, as a simplification of reality, a characteristic inherent to the concept of Accounting as Representation of Reality.

4.3 Analysis of Performance in the 2017-2018 Proficiency Exam versus Accounting Concepts

To analyze the relationship between accounting concepts and student performance, the four editions of the CFC Sufficiency Exam 2017-2018 were

considered. Figure 2 graphically demonstrates the average behavior of the passing percentage in the Exam, considering the groups of acceptance and rejection of accounting concepts.

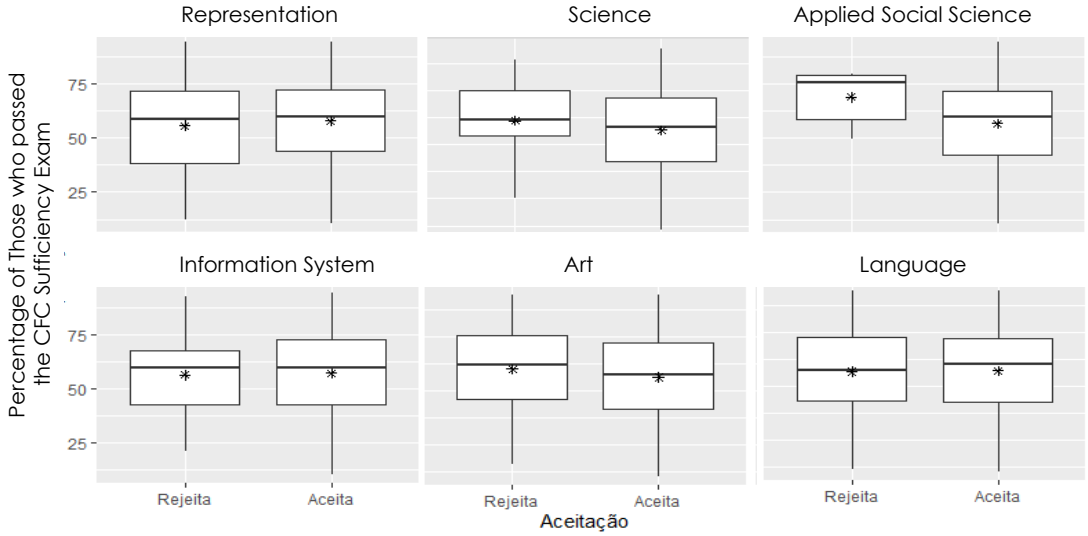

Figure 02: *Boxplot of the percentage of those who passed the CFC Sufficiency Exam for the assessment of concepts*
Source: *Prepared by the authors.*

A slight upward shift in the approval average can be seen when the professor accepts the concept of Accounting as a Representation of Reality. The opposite, with the average passing percentage moving downwards, occurs in the concepts of Science, Applied Social Science and Art. The concepts of Information Systems and Language of Business do not seem to be impacted.

To verify whether these differences are statistically significant, Table 5 presents the correlations of the passing percentage in the 2017-2018 Sufficiency Exam and the acceptance of the concepts by the professors of the respective institutions.

Table 5
Correlation of student performance in CFC Sufficiency Exams 2017-2018 and concept accepted by professors

Concepts	% Approved CFC 2017-2018	
	Correlation Coefficient	p-valor
1 [Representation of reality]	**,081***	,093
2 [Science – Franco]	**-,155*****	,001
3 [Applied Social Science-USP]	**-,102****	,034
4 [Information System]	-,018	,713
5 [Art]	**-,096****	,047
6 [Language of Business]	-,066	,171

Percentage of those who passed the CFC Exam, n = 433.
**** The correlation is significant at the 1% level*
*** Correlation is significant at the 5% level*
** The correlation is significant at the 10% level*
Source: *Prepared by the authors.*

The correlations confirm the graphical analysis in relation to the CFC Sufficiency Exam 2017-2018, as there is a negative and statistically significant correlation for the concepts of Accounting such as Science, Applied Social Science and Art, and a positive correlation for Accounting as a Representation of Reality.

The test allows us to infer that those professors who agree with the concept of Accounting as Science, Applied Social Science and Art, tend to form students with lower performance in the Sufficiency Exam. The greater the agreement with these concepts, the lower the grade in the Sufficiency Exam. On the other hand, professors who agree with the concept of Accounting as a Representation of Reality tend to form students with higher performance in the Sufficiency Exam, and the higher the grade attributed to this concept by the professors, the higher the performance of students in the Exam. These results suggest that the concept of Accounting can work as a *proxy* for academic qualification, specifically with regard to technical and scientific knowledge.

A possible explanation for why income is positive in the concept of Accounting as a Representation of Reality, to the detriment of other concepts, may be in the alignment between this concept and the *Conceptual Framework* (Lames and Miranda, 2018). Considering that the National Curriculum Guidelines for Bachelor's Degrees in Accounting Sciences (Brazil, 2004) establish that the courses must contemplate the study of accounting theory and international accounting standards, naturally encompassing the study of CPC 00 (Conceptual Framework of Accounting), it is coherent that the acceptance of this concept by the teacher is better associated with the student's performance, as this understanding can imply a better student education. In other words, there is a more consistent academic teaching formation.

A regression was sought to understand the behavior of the variables and their impact on students' performance in the 2017-2018 Sufficiency Exam. Whenever the data of the response variable (Sufficiency Examination) were repeated (more than one professor surveyed by HEI), they were grouped by the average of the explanatory variables for each HEI/Course, considering the variables listed in Table 2.

A previous analysis was carried out to select explanatory variables considering only those with p-value less than 0.15 and also keeping the concepts of Accounting as Representation of Reality (the only one with a positive correlation with student performance) and Applied Social Science (the most accepted by teachers). The variables listed in Table 2 were selected to compose the model.

Indicators were added to the variables, as follows: for dichotomous variables (0 and 1) the mean becomes the proportion of 1's. For Academic Organization, Administrative Category and Geographic Region, the median was used. For Teaching Work Regime, the indicator used was 1, if partial or full/exclusive, and 2 = hourly regime. And for Professors' Publications, the average of publications was calculated and the grouping was made for professors without publications, with 1 to 2, 3 to 5 and 6 or more publications.

As the percentage of passing the CFC Sufficiency Exam is limited between 0 and 100%, the assumption of normality of the multiple regression models is not adequate. Adjusting the usual regression line and calculating the residuals, the

results shown in Figure 3 are obtained, evidencing the need to consider a more appropriate model.

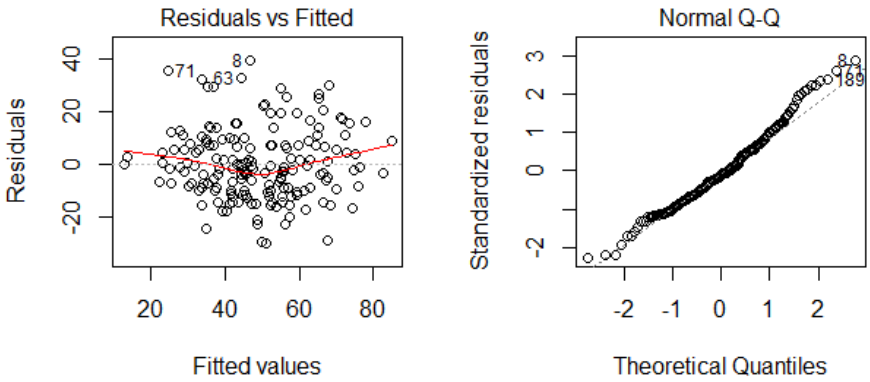

Figure 3 *Model residual plots considering the normal distribution*
Source: *Prepared by the authors.*

Transforming the data into decimals (dividing by 100), values varying between 0 and 1 are obtained. Therefore, it is more appropriate to consider the Beta Regression model (Ferrari and Cribari-Neto, 2004) with the proportion of those who passed the CFC as response variable, and the logit function as a binding function. Table 6 presents the fit of the Beta Regression model.

Table 6
Adjustment of the Beta Regression model for the pass rate in the CFC Sufficiency Exam

Parameter	Estimated	Exp/Estimated	Standard Error	p-value
Intercept	0.4397	1.5522	0.3823	0.2501
Concept of Representation of Reality	0.0090	1.0091	0.0170	0.5962
Concept of Applied Social Science - USP	-0.0071	0.9929	0.0340	0.8343
Professors with 1 to 2 Publications B2 or Higher	0.1197	1.1272	0.1192	0.3154
Professors with 3 to 5 Publications B2 or Higher	**0.3479**	**1.4161**	**0.1373**	**0.0113**
Professors with 6 or more Publications B2 or Sup.	**0.3949**	**1.4842**	**0.1989**	**0.0471**
Master's Completion Time	**0.0500**	**1.0513**	**0.0124**	**0.0001**
Time in Teaching	**-0.0378**	**0.9629**	**0.0101**	**0.0002**
Academic Organization University Center	-0.0455	0.9555	0.1498	0.7614
Academic Organization Faculty	**-0.2926**	**0.7463**	**0.1414**	**0.0385**
State Administrative Category	**-0.3632**	**0.6954**	**0.1480**	**0.0141**
Private Administrative Category	**-0.8456**	**0.4293**	**0.1644**	**< 0.0001**
South Geographic Region	-0.0618	0.9401	0.1174	0.5987
Northern Geographic Region	**-0.8786**	**0.4154**	**0.2190**	**0.0001**
Northeast Geographic Region	**-0.5006**	**0.6062**	**0.1407**	**0.0004**
Midwest Geographic Region	-0.3623	0.6961	0.1964	0.0650
Partial or Full-time Work Scheme	0.2029	1.2250	0.1285	0.1144
Have a PhD in Accounting Sciences	0.2894	1.3356	0.1510	0.0554

Source: *Prepared by the authors*

Beta Regression returns a model-adjusted coefficient of precision of 11.21 and the pseudo-R^2 of 0.5171. The exponential of the parameter estimates refers to the proportion / (1- proportion), which is the "chance" of the Beta Regression. The order of magnitude is the same for the pass percentage results. Thus, a negative estimate, with an exponential-estimate below 1, indicates a reduction in the percentage of passing the Proficiency Exam. The result is not exact, but seeks to measure the explained variability.

It is noticed that the concepts of Accounting as Representation of Reality and Applied Social Science were not significant for the regression results. There was also no statistical significance for work regime and doctoral degree in Accounting. It should be noted that the number of professors per institution (in most cases, low) can represent a restriction. However, despite this limitation, the data generated results with some correlation, but not enough to be supported by Beta Regression.

It appears that a contributory profile for the approval of students in the Sufficiency Exam is related to professors who publish in high-impact journals, completed their master's degree longer ago, but work for less time in teaching. Such findings are consistent with Lima and Bruni (2012) when they confirm that teacher updating is contributing to student performance. The shorter time of teaching experience as a contributory profile seems to reinforce the importance of being in tune with market practices, as noted by Miranda, Casa Nova, & Cornacchione (2013). It also contributes to passing the Sufficiency Exam: being a student at institutions that are preferably classified as 'universities', are 'public' and located in the 'southeast' of the country. These results are consistent with previous studies on academic performance (Lemos & Miranda, 2015; Rangel & Miranda, 2016) and allow reflections on ways to improve the performance of accounting students in facing a professional career that inevitably passes through the Accounting Exam. Sufficiency.

In summary, it can be said that the mastery of the concept of accounting as a representation of reality, on the part of the professor, is positively associated with student performance (Table 5), but it does not come to compose a regression model for predicting student performance (Table 6). This is an important finding, as it reveals the importance of the conceptual domain as a teaching academic qualification and the need to invest in new research on accounting theory, notably on its own conceptualization.

5. FINAL CONSIDERATIONS

The study analyzed whether the acceptance of accounting concepts, by the professor, is associated with student performance, measured by performance in the 2017 and 2018 CFC Sufficiency Exams. It was confirmed that all the concepts analyzed are accepted by the professors participating in the research. The lowest acceptance rate is around 65% for the concept of Accounting as Representation of Reality and the highest, 98%, for the concept of Accounting as Applied Social Science. It is noted that the concept that is in line with *The Conceptual Framework for Financial Reporting* (Lames and Miranda, 2018) and that considers the inherent limitations of Accounting (Mattessich, 2003) is the one with the least acceptance among Brazilian professors.

The study indicates, by associating the acceptance of the accounting concept by the professor with the student performance in the CFC Sufficiency Exam, that four of the six concepts resulted in a statistically significant correlation, indicating that the acceptance of the concepts of Science (Franco), Social Science Applied (USP) and Art have a negative association with student performance. On the other hand, the concept of Accounting as a Representation of Reality resulted in a positive association in student performance in the CRC Sufficiency Exam, suggesting that students of the teacher who accepts this concept tend to present higher performances in the sufficiency exam.

The low acceptance of the concept of Accounting as a Representation of Reality by professors, when compared to the others, combined with its association with student performance, signals the importance of researching the topic, as well as considering it in teacher education. The importance of the conceptual discussion of what accounting is in the training of future professionals is evident, since the relationships identified suggest that the acceptance of the concept of Accounting as Social Representation would work as a *proxy* for the technical-scientific training (academic qualification) of teachers.

The study also indicates, through the Beta Regression model, that professors who publish three or more articles in high-impact journals (in the triennium), who completed their doctorate longer ago and have less time of experience in teaching contribute more to the rates of passing the Sufficiency Exam. Studying at a Public University, especially in the Southeast region, also contributes to the best performance in the CFC Sufficiency Exam. These findings confirm the importance of investing in teacher qualifications as a way of improving student performance.

The practical contribution of the study is related to the disclosure of the relationships that the professor's acceptance of the concepts has in relation to student performance, especially regarding the concept of Accounting as Representation of Reality. The evidence found allows us to affirm that students of professors who accept this concept tend to obtain higher academic performance in the CFC Sufficiency Exam.

The study also reinforces research that indicates that up-to-date and academically qualified teachers better prepare their students for the accounting profession (e.g., Miranda, Casa Nova, & Cornacchione, 2013). The result contributes for managers and professors to rethink the course, especially regarding the need for changes in the teaching-learning process, especially in subjects such as Accounting Theory, due to the difficulty and challenges of the student in understanding the basic concepts of accounting, essential in their training.

This understanding of Accounting as a Representation of Reality, as well as its effects on the decision-making process, allows the teacher to better understand accounting and, therefore, teach with more quality and depth, based on a critical view, which recognizes that accounting has limitations that need to be recognized by users of accounting information. The student, in contact with this teacher, is more likely to obtain a better academic performance, as Lames and Miranda (2018) find that the concept is consistent with the Conceptual Framework that the student studies and on which he is evaluated.

Additionally, professionals who recognize the limitations seem to be better prepared to act in the market, especially in terms of more thoughtful and assertive

decision-making, due to their awareness that accounting is not exact, but an approximation, a representation of reality.

In this study, the potential limitations are related to the number of professors surveyed by HEIs, as well as the difficulty in identifying which professors taught the students who took the Exams.

The study, by privileging didactic approaches, does not consider views that place accounting as an instrument of domination (Hines, 1991), of reproduction of colonialist system and power of local elites (Annisette, 2000), as a mechanism for the expansion of financial capitalism in global wing (Manassian, 2009) or through the tradition of accounting education (Oaks & Berry, 2009), in addition to other conceptual approaches (Riahi-Belkaoui, 2004). However, the relationship identified between the concept of accounting as a Representation of Reality and student performance is encouraging for studies in these perspectives.

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