▪ Advances in Scientific and Applied Accounting, ▪ ISSN 1983-8611 ▪ São Paulo ▪ v.18 n.1 ▪ p. 177-190 ▪ Jan. / April 2025
ASAA
▪ DOI: 10.14392/asaa.2025180107

Accounting competencies from the perspective of transformative learning theory: a study based on serious games

Luciane Reginato[1], Samuel de Oliveira Durso[2], Claudinei de Lima Nascimento[3], Edgard Cornacchione[4]

[1,e 4]Universidade de São Paulo, São Paulo, São Paulo, Brasil.
[2]Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brasil.
[3]Universidade Estadual de Maringá, Maringá, Paraná, Brasil.

[1]lucianereginato@usp.br
[2]sodurso@face.ufmg.br
[3]clnascimento@uem.br
[4]cornachione@gmail.com

Edited by::
Elisabeth de Oliveira Vendramin

Abstract

Objective:This study investigated the development of technical and interpersonal competencies through serious game projects, from the perspective of transformative learning theory.
Method: The research evaluates skills in three competency groups: foundational competencies, accounting competencies, and broad management competencies, considering the Transformative Learning Theory. This is an empirical study that considered the development of 176 game projects monitored over seven years in an accounting course at a prestigious Brazilian research university. The sample included students in the last semester, whose projects were built based on acquired knowledge and experiences in companies. The method encompasses the steps and structure used in this study.
Results: The results pointed to the most chosen themes for the projects, including business administration, general accounting, finance, managerial accounting, financial accounting, public accounting, audit, tax, and ethics. Using the classification of competencies, Analytical Thinking & Problem Solving, Planning Analysis & Control, External Reporting & Analysis, Process Management & Improvements were most evident, with Quantitative Methods and Information Systems being the competencies with the fewest occurrences.
Contributions: The paper contributes to the literature and accounting profession by providing perspectives into the development of key accounting skills through project-based learning and highlighting the alignment between academic training and market demands.

Keywords: Transformative learning; Accounting; Serious Games; Competencies.

How to Cite

Reginato, L., Durso, S. de O., Nascimento, C. de L., & Cornacchione, E. (2025). Accounting competencies from the perspective of transformative learning theory: a study based on serious games. *Advances in Scientific and Applied Accounting,* 18(1), 162–176/177. https://doi.org/10.14392/asaa.2025180107

Submitted: 28 February 2025
Revisions required on: 27 October 2025
Accepted:14 July 2025

Introduction

The objective of this study is to investigate the development of technical and interpersonal competencies commonly used by the accounting profession, through the construction of serious game projects, using the perspective of transformative learning theory. The job market has been characterized by rapid and continuous changes, requiring accounting professionals to demonstrate more proactive and engaged attitudes (Tan & Laswad, 2018). Over the past decade, international organizations have advocated for a specific skillset that should be emphasized during the initial professional development (IFAC, 2019) in undergraduate studies to better prepare students for the evolving job market (ACCA, 2020; Martin, 2018; World Economic Forum, 2016).

Moreover, the COVID-19 pandemic has accelerated workplace transformations (Rinaldi et al., 2020), underscoring the growing significance of the new skillset in achieving success in the field of accounting. In Brazil, in particular, the National Curriculum Guidelines for Accounting programs were revised in 2024, emphasizing the need to develop students' competencies more comprehensively (MEC, 2024). Developing such a broad set of competencies at the undergraduate level is a complex task that requires innovative pedagogical approaches to teaching and learning processes (Durso et al., 2019; Nascimento, 2022).

In this sense, several studies have previously emphasized the discrepancy between the skillset possessed by accounting graduates and the requirements of the market (Berry & Routon, 2020; Dolce et al., 2020; Heang et al., 2019; Nascimento, 2022). Specifically, the acquisition of soft skills appears to present challenges within accounting undergraduate programs (Rebele & Pierre, 2019). For instance, Tan and Laswad (2018) identified 31 skills highly valued by employers in Australia and New Zealand, with a particular emphasis on essential soft skills such as: (a) effective collaboration with colleagues, (b) the ability to present, discuss, and defend perspectives, and (c) demonstrating a positive attitude.

Despite extensive research conducted globally on the subject, there has been limited focus on understanding the comprehensive evaluation of skills importance by undergraduate students pursuing careers in accounting. Existing research with accounting students primarily attempts to assess their perspectives within a predetermined set of options regarding skill development. However, what insights could be identified if students themselves could propose teaching projects aimed at developing skills? By bringing together the projects developed by accounting students, it involved the importance of technical and interpersonal skills in the accounting profession, making it possible to identify trends and areas of improvement in the learning process, thus enhancing undergraduate programs in the field.

To fulfill the objective of this study, an investigation was conducted within a project-based learning course in the accounting undergraduate program at a prestigious Brazilian public research university. This course, mandatory for final-semester accounting students, requires participants to create a serious game project aimed at engaging in and developing accounting-related topics. Apart from the advantages associated with the project-based learning approach in this course (Kokotsaki et al., 2016), the solutions proposed by students can serve as valuable indicators for prioritizing skills necessary for the accounting profession. Additionally, in this Higher Education Institution, accounting undergraduate students are integrated into the job market from the very beginning of the course, working as interns or under formal employment contracts.

To comprehend the phenomenon, this study adopts the Transformative Learning Theory, conceptualized by Mezirow (1975), as a framework. This theory sheds light on the process through which individuals undergo transformative changes in their beliefs, perspectives, and cognitive frameworks by engaging in critical reflection and examining their assumptions and beliefs (Kitchenham, 2008). Extensive literature supports the notion that transformative education yields numerous advantages, fostering the development of critical thinking skills and cultivating a disposition toward lifelong learning (Cottafava et al., 2019; Ryan et al., 2022; Dellaportas et al., 2023).

This study offers a valuable contribution to existing literature by incorporating the perspective of students regarding the challenges faced in the accounting profession. Additionally, it offers practical implications for various stakeholders. For Higher Education Institutions (HEI), the findings of this research can serve as a basis for revisiting the curriculum of accounting undergraduate programs. In the accounting market, the evidence presented in this study holds significance as it reflects the perceptions of newly graduated accounting professionals regarding the challenges they have observed in the field.

2 Theoretical approach

This section highlights the theoretical framework used to understand the phenomenon investigated. It begins with the Transformative Learning Theory, which is used to comprehend the learning process in the context of a project-based course. Then, the framework of Competence Integration is discussed to better understand the professional accounting skills required in today's market. Finally, this section presents a review of previous studies to highlight the findings already present in the literature.

2.1. Transformative Learning Theory

The transformative learning theory emerged from Jack Mezirow's research, which began in 1975. His study examined women who were college students returning to education through programs sponsored by their respective colleges. Mezirow's research revealed that these women had undergone significant personal transformations, leading him to identify ten distinct phases that individuals can experience during transformative learning. After several works with this theme, Mezirow's theory incorporates the eleventh phase for a transformative learning (Kitchenham, 2008). These phases formed the foundation of the transformative learning process. Mezirow drew inspiration from key thinkers such as Thomas Kuhn, Paulo Freire, and Jurgen Habermas (Mezirow, 1975; Kitchenham, 2008).

The Transformative Learning Theory pertains to the process in which individuals modify their structures of assumptions that enable them to understand their experiences. These structures are referred to as "frames of reference" which determine the actions of this individual and incorporate cognitive, conative, and emotional components within the dimensions of "habits of mind" and "a point of view". This process occurs through the critical reflection of these assumptions, as they underpin the interpretations, beliefs, and "habits of mind" or "points of view" of an individual (Mezirow, 1997). According to Magree (2024), the Transformative Learning Theory is particularly important for the process of teaching adults, as is the case in Higher Education Institutions. Studies validate this structure, such as that of Dellaportas et al. (2023), which shows in an accounting ethics course that students, through a trip and guidance on recording their experiences, showed transformative learning. In this case, students revealed not only content learning, but essentially changes in their perspectives on accounting practice.

Other studies point to leader development. Christie et al. (2019) investigated how directors can effectively become leaders through postgraduate studies, emphasizing that managers currently feel better supported in their training as leaders than in the last two decades. Much of this is due to feeling less isolated. Based on their investigations, they discovered that transformative learning has a significant impact on the development of transformational leadership.

In alignment with this perspective, Kitchenham (2008) concurs, affirming that this theory provides insight into the process through which individuals undergo transformative shifts in their beliefs, perspectives, and cognitive frameworks. This transformation is facilitated by engaging in critical reflection and scrutinizing their underlying assumptions and convictions. Mezirow (1997, p. 7) elucidates that such critical reflection can transpire when an individual reads a book, encounters a differing viewpoint, participates in task-oriented problem-solving, or assesses their ideas and beliefs. According to this author, "self-reflection can lead to significant personal transformations".

In formal education, students are encouraged to incorporate these reflective practices into their learning journey. Therefore, it becomes imperative that teaching strategies foster these experiences. Mezirow (1997) highlights that when students actively engage in critical reflection, they can first seek more explanations for their existing viewpoints. Secondly, they can establish novel perspectives alongside their current ones. Thirdly, they can overhaul and transform their existing viewpoints. Lastly, this process can make them more cognizant of the biases inherent in their viewpoints.

2.2. Framework of Competency Integration

Human competence is an attribute demanded by organizations in the world of work, as it benefits them in achieving their institutional objectives and creating value (Sveiby, 1997; Pathways Commission, 2012). The International Federation of Accountants (IFAC, 2019), with the previous work of the International Accounting Education Standards Board (IAESB) and now the International Panel of Accountancy Education (IPAE), promotes the advancement of accountancy education in the world, via the International Education Standards (IES). Considering the Initial Professional Development (IPD) aspect, the standards address four main areas: (a) technical competence (IES 2), (b) professional skills (IES 3), (c) professional values, ethics and attitudes (IES 4), and (d) practical experience (IES 5). These are kept aligned with the observed demand from the job market.

Acknowledging many potential concepts of competencies, according to Sandberg (2000), competence is a combination of knowledge and skills. In the context of accounting education, Lawson et al. (2014) group these knowledge and skills into three interconnected components of competence: (a) foundational competencies; (b) accounting competencies; and (c) broad management competencies.

The authors' premise is that the development and integration of these competencies occur through a combination of education, training, and practical experience in the world of work. This is necessary for the training of accounting professionals, given the breadth of their roles, which extend beyond the preparation of financial statements through techniques and analyses, including the economic substance of accounting events. These roles, according to Lawson et al. (2014), include the need to prepare reports on risks, performance measures, and sustainability. Hence, the authors suggest such integration as a Framework for Accounting Education.

The Foundational Competencies component consists of five competencies, which the authors argue are necessary

for all professionals involved in business: communication, quantitative methods, analytical thinking and problem-solving, human relations, and technology. These competencies align harmoniously with the objectives of international organizations (Martin, 2018; World Economic Forum, 2016). The authors substantiate each of these competencies with previous studies that support their premises and relevance, and they do the same when discussing competencies in the other two components. However et al. (2019) observe that these competencies need to be developed over the long term in the life of an accounting professional, as their development during the undergraduate period is limited.

The Accounting Competencies component comprises six technical competencies: External Reporting & Analysis; Planning, Analysis & Control; Taxation: Compliance and Planning; Information Systems; Assurance & Internal Control; Professional Values; and Ethics & Attitudes. Lawson et al. (2014) argue that these competencies allow accounting professionals to integrate analysis and management methods to support companies in formulating and executing their strategies in the interest of organizational performance.

The final component, Broad Management Competencies, consists of five competencies: Leadership; Ethics & Social Responsibility; Process Management & Improvement; Governance, Risk & Compliance; and Additional Core Business Competencies. For Lawson et al. (2014), these competencies help accounting professionals work together with all members of an organization to create value. The integration of the three components occurs through the impact that the competencies of the Foundational Competencies and Broad Management Competencies components have on the competencies of the Accounting Competencies component, in terms of individual development. Lawson et al. (2015) explore how this integration may occur.

It is important to highlight that the categorization proposed by Lawson et al. (2014) enables the analysis of a wide range of competencies without being restricted to the structural frameworks suggested by regulatory bodies. This flexibility allows for a more integrative and adaptable evaluation of students' competency development in diverse educational and professional contexts.

2.3 Previous Research

Research that investigates the knowledge and skills considered important for the accounting profession by students, professors, and practitioners is not uncommon. Lin et al. (2005), for example, conducted a survey in China involving 845 students, 43 accounting professors, and 181 practitioners. Considering the statistical procedures conducted in this study, the research indicated that teaching methods that engage students in solving problems are considered more effective for learning purposes.

Ott et al. (2011) conducted a study with 1,710 participants (769 accounting majors and 941 licensed accountants) in Brazil to address their perception on relevant topics and methods for accounting initial professional development.

Over the past decades, some studies also have highlighted both technical knowledge and soft skills, such as proficiency in measuring and disclosing the assets of entities, as well as non-technical skills related to leadership, communication, technological proficiency, analytical thinking, and problem-solving (Durso et al., 2019; Howieson et al., 2014; Pathways Commission, 2012; Webb & Chaffer, 2016), as necessary for a successful career in the accounting profession and as challenges to be addressed in accounting education.

Qasim and Kharbat (2020) address emerging technologies such as blockchain, artificial intelligence, and big data from the perspective of incorporating these knowledge areas into the accounting curriculum. The job market demands that professionals, especially those in accounting, master these technologies. Students are aware of these demands and invest in education and training, in addition to their formal university education, to meet these requirements. Furthermore, there is a special appeal for the development of skills that form an accounting leader. In this regard, Miller and Willows (2023) developed a study on the preparation of accounting students to be responsible leaders, showing that they are important; presenting self-knowledge; relating to others; making decisions; having business expertise; managing change and innovating; being ready for opportunities to practice, among others.

It is also very important choose activities in the job market that are geared towards learning at university, complementing the student's education and performance. Niquini et al. (2015) showed the need for students and professors to pay attention to selecting improved work/internship environments for better academic performance.

Regarding developing skills in accounting students through games, as a teaching resource, López-Hernandez et al. (2022) developed a survey that involved 119 accounting students who participated in a board game in the introductory accounting course. There was an improvement in students' performance in terms of learning content and, in addition, participation in the game improved students' self-confidence and motivation to learn. In this line, the study by Reginato et al. (2022) indicated that student's ability to transfer learning to solve real-world problems is increasingly expected, and analyzed the relationship between learning transfer and the development of social skills based on the use

of specialized software in a game-based course that is part of an accounting curriculum. The results showed that accounting students, using business game software, are able to deal with real-world problems in a controlled environment. They were also able to develop social skills, predominantly collaboration and adaptability.

Another interesting point regarding games and student characteristics appears in the study by Kaimara et al. (2020), which showed that the experience with games had a more positive impact for men, while the effectiveness of learning was the same for men and women.

Through an experiment with students, Banasiak and Karczmarzyk (2016) confirmed the hypothesis that the use of educational games during classes with pedagogy students, both in art history and developmental psychology, produces higher educational effects than those of students in the control groups, that is, those who did not have experience with games. Avelar et al. (2025) also identified that, in the context of the accounting undergraduate program, a serious game is effective in engaging students.

The literature shows that games and simulations can improve the technical and non-technical skills of students (Cornacchione, 2012; Reginato & Cornacchione, 2021; Hamari et al., 2014; Barna & Fodor, 2018; Fitó-Bertran et al., 2015) while engaging students in their learning activities (Hamari et al., 2014; Edmonds & Smith, 2017). Levant et al. (2016) developed research with 392 students that participated in a serious game and the students' perception was of improvement of various types of skills that relate to decision-making in a business environment.

In reinforcement, Carvalho and Neto (2023) show the benefits of serious games, which have negative points for the field of accounting education by adding a new validated structure that guides educators to explore the development of student's hybrid skills, essentially with regard to technology-related skills. Furthermore, when it comes to technology, Avelar et al. (2025) developed a game for the business budget discipline, whose contribution was evident, showing the relevance of gamification in the teaching of accounting, the integration of AI in the game, and a new approach to accounting education, which integrates gamification and AI to make learning more innovative and effective in the classroom. There are the reasons why this research addresses this topic, since there is evidence that serious games improve students' skills.

3 Research methodology

This section highlights the methodological steps of the study, designed to demonstrate the long and rich learning trajectory of students studying the course Business Games II, a mandatory course, in the accounting program at the largest research university in Latin America. This was a longitudinal study, considering that the projects were monitored over 7 years, with classes on the same course and at the same university, led by the same faculty, covering the same workload and syllabus. In this sense, the evolution of the phenomena and the sequential observations of the transformation that occurred during the period were respected.

3.1. Program and subject profile

The Business Games II course was taught, as mandatory in the curriculum, for seven years, from 2015 to 2021, being developed to provide students with the application of knowledge obtained in the previous courses of the accounting undergraduate program and to develop an educational game proposal considering the accounting profession and the business rules in a company. Furthermore, the course aimed to analyze the architecture of a game, and discuss and construct rules and respective applications, focusing on accounting as an instrument for recording, measuring, controlling, and supporting decision-making.

During these 7 years, the course was taught to 21 classes, with an average workload of 60 hours per semester, under the responsibility of a faculty member and assisted by a tutor. In addition, there was the involvement of three market specialists in the evaluation board of the projects. The specialists consisted of experts from the fields of gaming, education, and business.

Concerning the syllabus, the following structure was established: (a) concepts about games, to present the importance of this method in the reflection and creation of educational and business strategies; (b) group formation; (c) research on gamification in companies; (d) project planning, including themes and initial ideas; (e) development of the project throughout sessions, according to the schedule; (f) preliminary presentation of the project; (g) taking a quiz involving concepts and approaches included in the course materials; and (h) presentation of the final project. Over the weeks, steps were completed by the students and partial deliveries also occurred considering the stages of the project. At the end of the course, in addition to the document with records of all stages, students were required to submit a prototype of the game to be evaluated by the professor and the board of experts.

The guidelines were made available in face-to-face sessions and in the University's own learning management system. Based on the course's teaching-learning methods, it focused on developing skills, such as a positive attitude towards the area, curiosity, creativity, initiative, persistence, adaptability, leadership, engagement and teamwork, communication, critical thinking, collaboration, and

ability to analyze and present ideas.

3.2. Sample

Among population of accounting students at the University, the sample of this study was composed of all students enrolled and participating in the Business Games II course in the last semester of their undergraduate accounting program at one of best ranked public universities in Latin America. These students developed their projects by applying the knowledge acquired throughout the course and with the experience they already have working in companies. As they were in the last semester of the course at this prestigious institution, the research participants had already had some contact with the job market in the accounting field, either through internships or formal employment contracts. Thus, in addition to having experienced the academic journey of graduating in Accounting Sciences at the analyzed university, they already demonstrated maturity to understand the demands required of professionals entering the job market.

3.3. Projects and Evaluation

In the initial phase of the course, the students were instructed to have contact with a game and evaluate its elements. Then, they were given the task of choosing a topic in the area of accounting and business, thinking of a problem to be solved within the scope of that topic (Is there a need for this topic to be better explored? How can it be adequately taught and disseminated to your audience?), build a plot for a game (digital or analog).

The topic should be chosen among the topics required in the accounting professional entry-level exam applied by the Professional Accounting Organization in Brazil. These topics involved General Accounting; Cost Accounting; Accounting Applied to the Public Sector; Management Accounting; Controllership; Notions of Law and Applied Legislation; Financial Mathematics and Statistics; Accounting Theory; Legislation and Professional Ethics; Accounting Principles and Accounting Standards; Accounting Audit; Accounting Expertise; Applied Portuguese Language, and Business.

The projects' development followed the stages below, as registered in the learning management system and exposed in class:

- Name of the game.
- Game theme (in the accounting/business area).
- Game objectives: Educational and Operational.
- Plot, involving context, setting, characters.
- Game Mechanics (rules, universe inventory, game dynamics and aesthetics).
- Public.
- Inspiration: which game(s) inspired the group?
- Record possible copyright risks and the group's plan to mitigate them.
- Simulation.
- Game Prototype.

At the end of each academic semester, the projects were presented and evaluated by the game's evaluation board (the professor, tutor, and market specialists), that evaluated all the items and stages of the project, as well as manipulated (tried) the prototypes. After the evaluation process, the board organized a ranking to award the best projects of each semester.

In some years, the coordinators of the laboratory of games, from the Accounting Department, organized an important event with participants from civil society to choose the best project, based on a pitch, among those previously selected by the board, with the winner being taken to the market to market the game. In other years, the prizes were online graduate courses, and there was also extensive publicity for student projects in all editions.

It is worth noting that the Accounting Department's games laboratory supported and developed some board and digital games from the course's projects. This laboratory was even internationally recognized (awards) for developing a game on Accounting History.

3.4. Data collection and analysis

The data collection phase included the survey and complete analysis of each of the 176 projects developed over the years. All the data analyzed was generated through the Business Games II course. As there was no direct contact with the students for data collection, the procedures required by Resolution CNS No. 510/2016 were not necessary.

Initially, the elements of the projects were analyzed, which were tabulated in electronic spreadsheets, including the code, year, cohort, title, number and gender of group members, themes, objectives, type, and purpose of the proposal. To guarantee reliability and ensure a rigorous methodological process, another researcher in this study, based on the data collected, codified each of the projects according to the dimensions of Lawson et al. (2014), which were: (a) foundational competencies, (b) accounting competences, and (c) broad management competences.

The Table 1 demonstrate each phase of competencies and skills development:

Table 1

Competencies and Skills developed

Competencies	Skills
Foundational Competencies	Communication
	Quantitative
	Analytical Thinking & Problem Solving
	Interpersonal
	Technological
Accounting Competencies	External Reporting & Analysis
	Planning Analysis & Control
	Taxation: Compliance & Planning
	Information Systems
	Assurance & Internal Control
	Professional Values, Ethics & Attitudes
Broad Management Competencies	Leadership
	Ethics & Social Responsibility
	Process Management & Improvements
	Governance, Risk and Compliance
	Additional Core Business Competencies

After the projects were codified, the data was primarily analyzed using quantitative approaches, with an emphasis on descriptive analysis. Furthermore, the chi-squared non-parametric test (Turhan, 2020) was employed to detect variations in the proportions of themes across the years. All quantitative measures were executed using electronic spreadsheets. To complement the quantitative analysis, a word cloud was generated from students' descriptions of the projects' objectives, highlighting the most used words for this purpose.

It is also important to emphasize that we are utilizing all the projects proposed in the context of the Business Games II course. In this sense, the results serve as evidence for the entire population of games created in this subject. Nevertheless, it is vital to consider that contextual factors associated with the university and its students may exert an influence on the analyzed data. These factors must be carefully considered when evaluating the results.

4 Results and discussion

In the Methods chapter, we discussed the dataset used in this study, which consists of 176 projects originating from a prestigious Brazilian university's accounting program. These projects were undertaken during the period spanning from 2015 to 2021 when the Business Games II course was a mandatory part of the curriculum for accounting students and used a project-based approach. As indicated by the literature, active learning methods, such as those employed in the Business Games II course, have the potential to enhance student engagement and promote meaningful learning (Akkeren & Tarr, 2021). In addition, the results found are aligned with and corroborate previous studies, such as those of Cornacchione (2012), Reginato and Cornacchione (2021), Hamari et al. (2014), Barna and Fodor (2018), Fitó-Bertran et al. (2015), and Edmonds and Smith (2017).

Among the projects, 17.6% were completed by students enrolled in the course in 2015, 10.2% in 2016, 14.2% in 2017, 13.1% in 2018, 18.8% in 2019, 13.6% in 2020, and 12.5% in 2021 (Table 2). Table 2 reveals relevant trends in the dataset. The number of students varied each year, ranging from 74 in 2021 to 125 in 2015, totaling 694 students across the 176 game projects. The average number of students per project also fluctuated, ranging from 3.36 (2021) to 4.61 (2016). Additionally, there is a noticeable declining trend in the average number of students per project over the years under analysis.

It is crucial to emphasize that most students participating in the Business Games II course were male. National data on accounting undergraduate programs in Brazil show a balanced gender distribution, with females comprising 53.8% of students enrolled in face-to-face programs in this field in 2021 (INEP, 2022). Considering that Business Games II is a course typically taken in the final semester of the accounting undergraduate program at this prestigious Brazilian university, this evidence suggests a potential issue with female student retention or barriers to women's enrollment in this institution. Studies such as Kaimara et al. (2020) converge with these results, with the former finding a greater positive impact for the male gender.

Table 2

Descriptive Analysis of the Projects

Year	#of Projects (% of Total)	#of Students (% of Total)	Average of Students/ Project	%of Female Students	% Projects from Evening Cohorts
2015	31 (17.6)	125 (18.0)	4.03	40.0	74.2
2016	18 (10.2)	83 (12.0)	4.61	47.0	55.6
2017	25 (14.2)	109 (15.7)	4.36	33.9	64.0
2018	23 (13.1)	91 (13.1)	3.96	37.4	73.9
2019	33 (18.8)	124 (17.9)	3.75	34.7	60.6
2020	24 (13.6)	88 (12.7)	3.66	38.6	70.8
2021	22 (12.5)	74 (10.6)	3.36	28.4	81.8
Total	**176**	**694**	**3.4**	**37.2**	**68.8%**

Furthermore, an analysis of Table 2 indicates that most projects were undertaken by students enrolled in evening classes. This is a noteworthy observation, as evening class students in the accounting field in Brazil often work in the accounting industry while pursuing their undergraduate degrees, starting from the beginning of their programs (Durso et al., 2021). Consequently, these students in their final year of the course may possess practical accounting experience, which could contribute significantly to the selection of relevant themes for the development of their game projects.

Table 3 offers an overview of the key themes found in 176 game projects created by accounting students. Pointed by the Transformative Learning Theory (Mezirow, 1997;

Kitchenham, 2008), the transformation or the learning aspect can be facilitated by engaging students in critical reflection, and scrutinizing their underlying assumptions and convictions, especially for adult education (Magree, 2024). In addition to the opportunities for student development, the developed projects serve as a valuable source of information. They provide insights, from the perspective of the learners, into the challenges inherent to the training of accountants.

In this sense, it is crucial to regard these games' central themes as the most significant challenges these students perceive within the accounting profession since the game project represents the result of students' process of critical reflection on accounting education and career. As mentioned in the Methods chapter, the objective of Business Games II course is to propose a game that addresses certain gaps in accounting education or practice.

The examination of the data provided in Table 3 reveals that the subject of "Business Administration" served as the central topic for 24.4% of projects developed from 2015 to 2021. Within this category, several projects were identified, focusing on topics such as business management, entrepreneurship, and operational business aspects. This data suggests that graduating accounting students may have certain difficulties in comprehending the broader aspects of business functioning, which are essential for integrating accounting practices into a company's daily operations. Among all the projects, 51.2% were specifically created for an audience of accounting students. It is in this direction that authors such as Sandberg (2000) and Lawson et al. (2014) propose the development of skills so that students are better prepared for the business market.

Table 3

Characteristics of Projects

Central Themes	#of Occurrence (% of Total)	%of Board Game	% of Digital Games	% of Other Options
Business Administration	43 (24.4)	65.1	11.6	23.3
General Accounting	42 (23.9)	69..0	19.0	12.0
Finance	32 (18.2)	59.4	15.6	25.0
Managerial Accounting	16 (9.1)	43,8	43.8	12.4
Financial Accounting	14 (8.0)	57,1	21.4	21.5
Public Accounting	4 (2.3)	100,0	0.0	0..0
Audit	4 (2.3)	100,0	0.0	0.0
Tax	4 (2.3)	100,0	0.0	0.0
Ethics	3 (1.7)	66.7	33.3	0.0
Other Themes	5 (2.8)	60.0	20.0	20.0
Multiple Themes	9 (5.1)	77.8	11.1	11.1
Total	**176**	**65.3**	**17.0**	**17.7**

The second most common central theme among the 176 analyzed game projects was "General Accounting". Within this category, it was possible to note projects aimed at conveying fundamental accounting concepts, including double-entry bookkeeping, distinctions between various accounting domains, and initiatives designed to prepare individuals for the Brazilian accounting professional entry-level examination. Notably, 86.0% of these projects were specifically targeted at accounting graduate students.

The third most prevalent topic, accounting for 18.2% of occurrences, was "Finance." Within this category, there were games designed to instruct on subjects such as investor profiles, personal investment tactics, and approaches for evaluating a company's financial stability. Among these projects, 46.9% were tailored for accounting students.

The subsequent two positions were occupied by "Managerial Accounting" and "Financial Accounting" constituting 9.1% and 8.0% of the total, respectively. These projects were centered around subjects such as cost analysis and compliance with accounting standards. Among the "Managerial Accounting" projects, 50.0% were intended for accounting students, whereas for "Financial Accounting" this proportion reached 85.7%.

In addition, it was possible to note several other central topics that were less prevalent in the analyzed game projects. These include "Public Accounting", "Audit", and "Tax", each with a 2.3% occurrence, and "Ethics" which had only a 1.7% occurrence. Moreover, in five projects (2.8%), multiple central topics were evident, while in nine cases (5.1%), the topics differed from those mentioned above and appeared only once.

Data in Table 4 reveals that most projects created by students during the period from 2015 to 2021 in the Business Games II course had the form of board games, constituting 65.3% of the total cases. Digital games accounted for 17.0% of the projects, while other formats were responsible for 17.7% of cases, which included card games (14.8%), case studies (2.3%), and quizzes (0.6%). It is also interesting to note that only for "Managerial Accounting" the board game had the same frequency as digital games (43.8%). The results indicate that there is room to include more technology in classroom projects, contributing to student learning, as planned by the study by Avelar et al. (2025).

To examine the themes of the projects over the years, we have presented the frequency of game projects for each topic in Table 3. Furthermore, we employed Pearson's chi-square non-parametric test to assess variations in the proportions of these themes, using the total frequency (last column) as the parameter for the population's proportion.

Table 4
Number of Occurrences (%) of Projects by Themes and Year

Central Themes	2015	2016	2017	2018	2019	2020	2021	Total
Business Administration	1	10	3	6	7	8	8	43
	(3.2)	(55.6)	(12.0)	(26.1)	(21.2)	(33.3)	(36.4)	(24.4)
General Accounting General Accounting	2	2	10	7	9	5	7	42
	(6.5)	(11.1)	(40.0)	(30.4)	(27.3)	(20.8)	(31.8)	(23.9)
Finance Finance	2	2	4	6	8	8	2	32
	(6.5)	(11.1)	(16.0)	(26.1)	(24.2)	(33.3)	(9.1)	(18.2)
Managerial Accounting	12	2	0	0	2	0	0	16
	(38.7)	(11.1)	(0.0)	(0.0)	(6.1)	(0.0)	(0.0)	(9.1)
Contabilidade Financeira	5	2	2	1	1	1	2	14
	(16.1)	(11.1)	(8.0)	(4.3)	(3.0)	(4.2)	(9.1)	(8.0)
Public Accounting	2	0	1	0	0	0	1	4
	(6.5)	(0.0)	(4.0)	(0.0)	(0.0)	(0.0)	(4.5)	(2.3)
Audit	1	0	1	0	1	1	0	4
	(3.2)	(0.0)	(4.0)	(0.0)	(3.0)	(4.2)	(0.0)	(2.3)
Tax	0	0	1	0	3	0	0	4
	(0.0)	(0.0)	(4.0)	(0.0)	(9.1)	(0.0)	(0.0)	(2.3)
Ethics	2	0	0	1	0	0	0	3
	(6.5)	(0.0)	(0.0)	(4.3)	(0.0)	(0.0)	(0.0)	(1.7)
Other Themes	0	0	2	0	1	1	1	5
	(0.0)	(0.0)	(8.0)	(0.0)	(3.0)	(4.2)	(4.5)	(2.8)
Multiple Themes	4	0	1	2	1	0	1	9
	(12.9)	(0.0)	(4.0)	(8.7)	(3.0)	(0.0)	(4.5)	(5.1)
Total	**31**	**18**	**25**	**23**	**33**	**24**	**22**	**176**
Chi-squared test [P-value]	56.37 [0.15	12.13 [0.03]	10.46 [0.03]	7.44 [0.02]	10.73 [0.03]	9,77 [0.03]	7.01 [0.02]	

Note. Chi-squared reference for 10 degrees of freedom in a one-tailed test and 5% significance is 18.31.

The data presented in Table 4 reveals some differences across the years. The results of the chi-squared test suggest that 2015 is the sole year for which we have evidence indicating a difference in the proportion of project themes. In this specific year the theme "Managerial Accounting" was the most frequent (38.7%) among the 31 game projects proposed in this year, followed by "Financial Accounting" (16.1%).

For the remaining years, the chi-squared test showed that we have evidence, at the 5% level of significance, that the proportion of themes adheres to the defined parameter. In this sense, it is important to note that from 2016 to 2021 "Business Administration", "General Accounting" and "Finance" themes played pivotal roles in accounting training, considering that these projects represent the critical view of students. The consistency in the recurrence of these themes may suggest, in line with Transformative Learning Theory and considering the maturity of students enrolled in the last semester in this institution (Mezirow, 1997; Magree, 2024), a persistent reflection of the challenges in accounting education as perceived by the learners. Similar findings were reported by Dellaportas et al. (2023), who observed that accounting students tend to select project themes that reflect perceived knowledge gaps and market relevance. The consistent prioritization of these core themes reinforces the notion that serious games offer a space for meaningful engagement and reflective action, where learners consolidate prior knowledge through practical, student-led creation.

In addition to the data analyzed before, Figure 1 shows the word cloud created on the WordClouds.com platform using the texts generated by students to represent the objectives of their projects. It is important to highlight that these texts were originally written in Portuguese and translated into English for this manuscript. This image was constructed using a total of 1,324 words, excluding common stop words and letter case variations.

The most frequently appearing words - accounting, financial, players, game, company, concept, and business - reflect both the thematic core of the projects and the pedagogical intentions of the students. Words like company and business suggest a conscious effort to simulate real-world scenarios through game-based dynamics. This aligns with literature that frames serious games as tools for situated learning and experiential engagement, enabling learners to apply abstract concepts to practical, contextualized situations (Carvalho & Neto, 2023). Additionally, terms such as students, knowledge, and teaching suggest an explicit metacognitive understanding by students that the games are designed not merely for play but as instruments of peer instruction and content reinforcement. This intentionality is aligned with the principles of learning by teaching and transformative learning, where students transition from passive recipients to active agents in the learning process (Dellaportas et al., 2023; Mezirow, 1997).

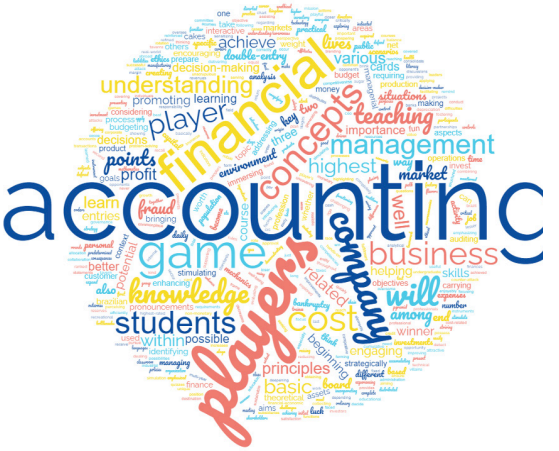

Figure 1
Words Cloud with Projects' Objective

When analyzing the game projects that were developed, it became feasible to classify the skills that these educational strategies could foster in their respective target audiences. To accomplish this, the primary themes, roles, and functions of the proposed games were considered. The results of this categorization process can be found in Table 5. We adopted the classification recommended by Lawson et al. (2014), which divides skills into three groups: (a) foundational competencies, (b) accounting competencies, and (c) broad management competencies.

To the first group, "Foundational Competencies", most game projects had the focus on the development of "Analytical Thinking & Problem Solving" skills, with 86.4% of the cases. It is comprehensible the intensity found for this this skill, because of its importance in facing the challenges of the 21st global market (World Economic Forum, 2016). Such findings also support the view that serious games, when designed intentionally, provide active learning environments that challenge students to analyze, interpret, and make decisions within simulated real-world contexts (Carvalho & Neto, 2023).

It is also worth noting the skills that received less emphasis in the development of the 176 game projects analyzed. In this case, it is possible to note that "Quantitative", "Technological" and "Communication" were the fundamental competencies less stimulated in these projects. These observations could be attributed to the challenges associated with integrating these skills into serious game projects, most of them developed considering the board game format, as highlighted before. Furthermore, Rebele and Pierre (2019) underscored the challenges associated with cultivating skills encompassed within the "Foundational Competencies", which necessitate ongoing efforts and actions throughout an individual's career journey.

Moreover, the underrepresentation of these skills may point to a broader misalignment between traditional pedagogical formats and the increasingly digital demands of the accounting profession. As recent studies have shown, the inclusion of emerging technologies such as data analytics, AI, and ERP systems in educational games not only enhances realism but also better prepares students for modern accounting roles (Avelar et al., 2025). Therefore, the limited development of these competencies in student-designed games underscores a critical opportunity: to innovate game-based pedagogies that explicitly integrate digital tools, numerical reasoning, and collaborative communication - skills increasingly essential in a data-driven, automated professional environment.

Table 5

Most Important Skills Developed by Game Projects (N=176)

Group of Skills	Skills	# of Occurrence (%)	Total
Foundational Competencies	F1 – Communication	3 (1.7)	176
	F2 – Quantitative	0 (0.0)	
	F3 – Analytical Thinking & Problem Solving	152 (86.4)	
	F4 – Interpersonal	19 (10.8)	
	F5 - Technological	2 (1.1)	
Accounting Competencies	A1 – External Reporting & Analysis	59 (33.5)	176
	A2 – Planning Analysis & Control	63 (35.8)	
	A3 – Taxation: Compliance & Planning	9 (5.1)	
	A4 – Information Systems	1 (0.6)	
	A5 – Assurance & Internal Control	9 (5.1)	
	A6 – Professional Values, Ethics & Attitudes	35 (19.9)	
Broad Management Competencies	B1 – Leadership	3 (1.7)	176
	B2 – Ethics & Social Responsibility	7 (4.0)	
	B3 – Process Management & Improvements	122 (69.3)	
	B4 – Governance, Risk and Compliance	7 (4.0)	
	B5 – Additional Core Business Competencies	37 (21.0)	

Regarding the "Accounting Competencies" group, it was observed that most game projects were geared towards fostering "Planning Analysis & Control" skills, accounting for 35.8% of the focus, closely followed by "External Reporting & Analysis" skills at 33.5%. These findings align with the data presented in Table 3, which highlighted that "Managerial Accounting", and "Financial Accounting" were prevalent themes consistently featured

in the analyzed game projects. On the other hand, within this second group, the skills less frequently emphasized in the projects were "Information Systems", "Taxation: Compliance & Planning" and "Assurance & Internal Control". Although they appeared in at least one project, these competencies were not as prominently emphasized among accounting students at the university under examination.

Finally, the analysis of Table 5 indicates that for the third group of skills proposed by Lawson et al (2014), the most frequent was "Process Management & Improvements", corresponding to 69.3% of the game projects. On the other hand, to this group, the skills related to "Leadership", "Ethics & Social Responsibility", and "Governance, Risk & Compliance" were less present. These findings may represent the obstacles encountered by students nearing the completion of their accounting undergraduate program, considering their stage of career maturity.

According to Magree (2024), the Transformative Learning Theory has strong applicability in adult education, as is the case for the students who developed the analyzed games. These individuals, already being integrated into the accounting job market, can critically evaluate their education, rethinking their strategies for developing hard and soft skills. Nonetheless, it is important to emphasize that many of these individuals were still at the beginning of their respective careers in accounting. Thus, the challenges observed in the analysis of the games may reflect the difficulties they face upon completing the course.

Altogether, these findings reveal the multidimensional nature of skill development through serious games and the challenges of bridging academic content, professional expectations, and student perceptions. They also illustrate how students' chosen themes and competencies reflect not only curricular gaps but also deeper cognitive, emotional, and motivational processes inherent to adult learning. The following section presents the conclusions of this study, highlighting its implications for accounting education and future research.

5 Conclusions

This study aimed to explore the development of accounting students' projects, from the perspective of the importance of hard and soft skills required by the accounting profession. The empirical model was based on Mezirow's Transformative Learning Theory.

To this end, we investigated 176 projects developed by students over seven years, between 2015 and 2021, incorporating key skills from the theoretical model. A notable finding was the increase in topics of a more generalist nature, such as "Business Administration," indicating a growing market emphasis on issues extending beyond traditional technical accounting expertise, such as sustainability.

In the foundational competencies dimension, analytical thinking and problem-solving were particularly prominent, validating literature findings that underscore the importance of these skills in the accounting profession. This study demonstrated the essential relationship between the skills developed through game projects and those required in practice.

Regarding accounting skills, planning analysis, control, and report analysis were the most frequently observed, highlighting the students' work with game projects. Students planned and analyzed reports, applying their knowledge of planning, control, and result analysis, which are integral to their coursework, including disciplines focused on financial reporting analysis. Regarding management skills, the study underscored the importance of process management and improvement, reflecting the need for high adaptability and continuous process improvement in the dynamic market environment.

The results met our objective by highlighting a skills model that effectively demonstrates the crucial competencies developed through game projects. These competencies are fundamental in the training and performance of accounting students. In this sense, this research contributes to accounting education by showcasing a method developed through game creation and its positive impact on an undergraduate accounting program. It also provides a potential framework for planning in other higher education courses, as this can be particularly important for the practical implementation, within educational institutions, of the recommendations issued by entities that establish standards or pronouncements on accounting education, such as: a) Resolution No. 1/24 issued by the National Council of Education, which addresses the guidelines for Accounting Sciences programs in Brazil; and b) IES 5 issued by IFAC – International Federation of Accountants, which outlines the practical activities that accounting students should experience throughout their studies.

Methodologically, the research offers a replicable framework for mapping and analyzing skill development through project-based learning. The classification of competencies based on Lawson et al. (2014) can inform future curriculum evaluations and improvements across higher education. Additionally, the study offers valuable perspectives for the market by identifying the skills students perceive as essential for working in the accounting field.

Future studies could expand the sample to include a

broader range of institutions and student profiles, enabling comparative analyses across regions, educational models, or socioeconomic backgrounds. Longitudinal research could track students after graduation to investigate how the competencies developed through serious games influence their integration into the job market, their early career experiences, and professional growth. Exploring the effectiveness of digital versus analog game formats, as well as the influence of gender and prior gaming experience on learning outcomes, would also enrich understanding. Mixed-methods or experimental studies could further validate the pedagogical impact of serious games on academic performance, motivation, and the development of both technical and transversal skills in accounting education.

References

ACCA - Association of Chartered Certified Accountants. (2020). The digital accountant: digital skills in a transformed world. Retrieve from https://www.accaglobal.com/in/en/professional-insights/technology/The_Digital_Accountant.html

Akkeren, J. K. V; Tarr, J. (2021). The application of experiential learning for forensic accounting students: the Mock trial. Accounting Education, 31(1), 39-66. https://doi.org/10.1080/09639284.2021.1960573

Avelar, E. A., Durso, S. de O., & Ferreira, C. de O. (2025). Gamificação aplicada à educação contábil com base em algoritmos de inteligência artificial. Revista De Educação e Pesquisa Em Contabilidade (REPeC), 19. https://doi.org/10.17524/repec.v19.e3615
Banasiak, M., & Karczmarzyk, M. (2016). Games as a tool in education. Experiment in teaching/learning competences by student in the school. The New Educational Review, 4(14), 102-112. https://doi.org/10.15804/kie.2016.04.07

Barna, B., & Fodor, S. (2018). An empirical study in the use of gamification on IT courses at Higher Education. In G. D. Auer M (Ed.), Teaching and Learning in a digital world (p. 715). Advances in Intelligent System and Computing.

Berry, R., & Routon, W. (2020). Soft skill change perceptions of accounting majors: Current practitioner views versus their own reality. Journal of Accounting Education, 53, 100691. https://doi.org/10.1016/j.jaccedu.2020.100691

Carvalho L. B. de, & Neto J. D. de O. (2023). Serious games may shape the future of accounting education by exploring hybrid skills. Accounting Education, 32(6), 670–693. https://doi.org/10.1080/09639284.2022.2088241

Cottafava, D., Cavalià, G., & Corazza, L. (2019). Education of sustainable development goals through students' active engagement: a transformative learning experience. Sustainability Accounting, Management and Policy Journal, 10(3),521-544. https://doi.org/10.1108/SAMPJ-05-2018-0152

Cornacchione, E. (2012). Fidelity and game-based technology in management education. Brazilian Administration Review, 9, 147-167. https://doi.org/10.1590/S1807-76922012000200003

Christie, M., Simon, S., Graham, W., Call, K. & Farragher, Y. (2019), "Bungee jumping and rocket launching: Transformative learning for today's transformational school leaders", International Journal of Educational Management, 33(7),1610-1624. https://doi.org/10.1108/IJEM-09-2018-0288

Dellaportas, S.; Stevenson-Clarke, P.; Joshi, M.; Fazio, T. (2023). Reflective practice and learning in accounting education. Accounting Education, 32(4), 355-381. https://doi.org/10.1080/09639284.2022.2076565

Durso, S. O., Afonso, L. E., Beltman, S. (2021). Resilience in higher education: A conceptual model and its empirical analysis. Education Policy Analysis Archives, 29(156), 1-21. https://doi.org/10.14507/epaa.29.6054

Durso, S. O., Reginato, L., & Cornacchione, E. (2019). Gamification in accounting and students' skillset. Advances in Scientific and Applied Accounting, 12(3),79-100. https://doi.org/10.14392/ASAA.2019120305

Dolce, V., Emanuel, F., Cisi, M., & Ghislieri, C. (2019). The soft skills of accounting graduates: perceptions versus expectations. Accounting Education, 29(1), 1–20. https://doi.org/10.1080/09639284.2019.1697937

Edmonds, R., & Smith, S. (2017). From playing to designing: Enhancing educational experiences with location-based mobile learning games. Australasian Journal of Educational Technology, 33(6). https://doi.org/10.14742/ajet.3583

Fitó-Bertran, À., Hernández-Lara, A. B., & López, E. S. (2015). The effect of competences on learning results: An educational experience with a business simulator. Computers in Human Behavior, 51, 910–914. https://doi.org/10.1016/j.chb.2014.11.003

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? A literature review of empirical studies on gamification. Proceedings of the 47th Hawaii International Conference on System Sciences. Hawaii USA January, 6–9. https://doi.org/10.1109/HICSS.2014.377

Heang, L. T., Ching, L. C., Mee, L. Y., & Huei, C. T. (2019). University Education and Employment Challenges: An Evaluation of Fresh Accounting Graduates in Malaysia. International Journal of Academic Research in Business and Social Sciences, 9(9), 1061–1076. http://dx.doi.

org/10.6007/IJARBSS/v9-i9/6396
Howieson, B., Hancock, P., Segal, N., Kavanagh, M., Tempone, I., & Kent, J. (2014). Who should teach what? Australian perceptions of the roles of universities and practice in the education of professional accountants. Journal of Accounting Education, 259-275. https://doi.org/10.1016/j.jaccedu.2014.05.001

INEP - Instituto Nacional de Estudos e Pesquisas Educacionais Anisio Teixeira. (2022). Microdados do Censo da Educação Superior. Disponível em: https://www.gov.br/inep/pt-br/acesso-a-informacao/dados-abertos/microdados/censo-da-educacao-superior

Kaimara, P., Fokides, E., Olkovóuou, A., Atsikpasi, P.,& Deliyannis, I. (2020). Serious games effect analysis on player's characteristics. International Journal of Smart Education and Urban Society, 11, 1, 75-91. https://doi.org/10.4018/IJSEUS.2020010106

Kitchenham, A. (2008). The evolution of John Mezirow's transformative learning theory. Journal of Transformative Education, 6(2), 104-123. https://doi.org/10.1177/1541344608322678

Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). Project-based learning: a review of the literature. Improving Schools, 19(3), 267-277. https://doi.org/10.1177%2F1365480216659733

Lawson, R. A., Blocher, E. J., Brewer, P. C., Cokins, G., Sorensen, J. E., Stout, D. E., Sundem, G. L., Wolcott, S. K., & Wouter, M. J. (2014). Focusing Accounting Curricula on Students' Long-Run Careers: Recommendations for an Integrated Competency-based Framework for Accounting Education. Issues in Accounting Education, 29(2), 295-317. https://doi.org/10.2308/iace-50673

Lawson, R. A., Blocher, E. J., Brewer, P. C., Morris, J. T., Stocks, K. D., Sorensen, J. E., & Wputers, M. J. F. (2015). Thoughts on competency integration in accounting education. Issues in Accounting Education, 30(3), 149-171. https://doi.org/10.2308/iace-51021

Levant, Y., Coulmont, M., & Sandu, R. (2016). Business simulation as an active learning activity for developing soft skills. Accounting Education, 25(4), 368–395. https://doi.org/10.1080/09639284.2016.1191272
Lin, Z. J., Xiong, X., & Liu, M. (2005). Knowledge Base and Skill Development in Accounting Education: evidence from China. Journal of Accounting Education, 23, 149-169. https://doi.org/10.1016/j.jaccedu.2005.06.003

López-Hernandez, C., Lizarraga-Álvarez, G., & Soto-Pérez, M. (2022). Enhancing learning of accounting principles through experiential learning in a board game. Accounting Education, 32(3), 300-331. https://doi.org/10.1080/09639284.2022.2059770

Magree, J. (2024). The intersection of transformative learning and human education. International Forum of Teaching and Studies, 20(1), 31-38. http://americanscholarspress.us/journals/IFST/pdf/IFOTS-1-2024/IfotsV20n1-art3.pdf

Martin, J. (2018). Skills for the 21st century: Findings and policy lessons from the OECD survey of adult skills. OECD Education Working Papers, No. 166, OECD Publishing, Paris. https://doi.org/10.1787/96e69229-en

MEC – Ministério da Educação. (2024). Resolução CNE/CES Nº 1, de 27 de Março de 2024. Disponível em https://portal.mec.gov.br/index.php?option=com_docman&view=download&alias=257031-rces001-24&category_slug=marco-2024&Itemid=30192

Mezirow, J. (1975). Education for perspective transformation: women's re-entry programs in community colleges. New York: Centre for Adult Education, Teachers College, Columbia University.

Mezirow, J. (1997). Transformative Learning: theory to practice. New Directions for Adult and Continuing Education. Retrieve from https://www.ecolas.eu/eng/wp-content/uploads/2015/10/Mezirow-Transformative-Learning.pdf

Miller, T., & Willows, G. D. (2023). Preparing accounting students to be responsible leaders. Accounting Education, 33(5), 539-573. https://doi.org/10.1080/09639284.2023.2228291

Nascimento, C. L. (2022). Construtos do Gap entre o Ensino e a Prática Contábil à Luz da Teoria de Aprendizagem Experiencial. Tese de Doutorado, Programa de Pós-Graduação em Ciências Contábeis. Departamento de Contabilidade e Atuária, Faculdade de Economia, Administração, Contabilidade e Atuária da Universidade de São Paulo. São Paulo. https://doi.org/10.11606/T.12.2022.tde-22122022-210849

Niquini, R. P, Teixeira, L. R, Sousa C. A. de, Manelli, R. N., Luz, A. A. da; Turte-Cavadinha, S. L., & Frida, M. F. (2015). Características do trabalho de estudantes universitários associadas ao seu desempenho acadêmico. Educação em Revista, 31(1), 359–381. https://doi.org/10.1590/0102-4698122477
Noe, R. A. (2022). Employee Training and Development. Third Edition. McGraw-Hill Companies.

Ott, E., Cunha, J. V. A., Cornacchione, E., & de Luca, M. M. M. (2011). Relevância dos conhecimentos, habilidades e métodos instrucionais na perspectiva de estudantes e profissionais da área contábil: Estudo

comparativo internacional. Revista de Contabilidade e Finanças, 22, 338-356. https://doi.org/10.1590/S1519-70772011000300007

Pathways Commission. (2012). Commission on Accounting Higher Education. Pathways to a Profession: Charting a National Strategy for the Next Generation of Accountants. Sarasota, FL: AAA and AICPA.

Qasim, A., & Kharbat, F. F. (2020). Blockchain Technology, Business Data Analytics, and Artificial Intelligence: Use in the Accounting Profession and Ideas for Inclusion into the Accounting Curriculum. Journal of Emerging Technologies in Accounting,17(1), 107–117. https://doi.org/10.2308/jeta-52649

Rebele, J. E., & St. Pierre, E. K. (2019). A commentary on learning objectives for accounting education programs: The importance of soft skills and technical knowledge. Journal of Accounting Education, 48, 71-79. https://doi.org/10.1016/j.jaccedu.2019.07.002

Reginato, L. & Cornacchione, E. (2021). Building planes and learning standard costing: A student-centered approach. Contabilidade Vista & Revista, 32, 71-103. https://doi.org/10.22561/cvr.v32i1.5595

Reginato, L., Durso, S. O., Nascimento, C. L., & Cornacchione, E. (2022). Transfer of learning in accounting program: The role of business games. The International Journal of Management Education, 20(1). https://doi.org/10.1016/j.ijme.2021.100592

Rinaldi, L., Cho, C. H., Lodhia, S. K., Michelon, G., & Tilt, C. A. (2020). Accounting in times of the COVID-19 pandemic: a forum for academic research. Accounting Forum, 44(3), 180-183. https://doi.org/10.1080/01559982.2020.1778873

Ryan, C. L., Cant, R., McAllister, M. M., Vanderburg, R., Batty, C. (2022). Transformative learning theory applications in health professional and nursing education: an umbrella review. Nurse Education Today, 119, 1-8. https://doi.org/10.1016/j.nedt.2022.105604

Sandberg, J. (2000). Understanding human competence at work: an interpretative approach. Academy of management journal. New York, Vol. 43, Nº 1.

Sveiby, L. (1997). The new organizational wealth: managing and measuring knowledge-based assets. San Francisco: Berret-Koehler.

Tan, L. M., & Laswad, F. (2018). Professional skills required of accountants: what do job advertisements tell us? Accounting Education, 27(4), 403–432. https://doi.org/10.1080/09639284.2018.1490189

Turhan, N. S. (2020). Karl Peason's chi-square tests. Educational Research and Reviews, 15(9), 575-580. https://doi.org/10.5897/ERR2019.3817

Webb, J.; Chaffer, C. (2016). The Expectation Performance Gap in Accounting Education: a review of generic skills development in UK accounting degrees. Accounting Education, 25(4), 349-367. https://doi.org/10.1080/09639284.2016.1191274

World Economic Forum. (2016). What are the 21st-century skills every student needs? Retrieved from https://www.weforum.org/agenda/2016/03/21st-century-skills-future-jobs-students/