

Using Business Games in Accounting and Business for Skills Development: A Systematic Literature Review

Andreia Marques Maciel de Carvalho

Master in Organization Administration from the University of São Paulo (USP)

Faculty of Accounting Sciences, FACIC (UFU), Uberlândia/MG, Brazil

E-mail: andreia.carvalho@ufu.br

ORCID: <https://orcid.org/0009-0006-5187-093X>

Gilberto José Miranda

PhD in Controllershship and Accounting at FEA (USP) Associate Professor at the Faculty of Accounting Sciences FACIC (UFU), Uberlândia/MG, Brasil

E-mail: gilbertojm@ufu.br

ORCID: <http://orcid.org/0000-0002-1543-611X>

Ricardo Rocha de Azevedo

PhD from the Graduate Program in Controllershship and Accounting at the Faculty of Administration, Economics and Accounting of Ribeirão Preto – FEARP-USP

Professor at the Faculty of Economics, Administration and Accounting of Ribeirão Preto. Avenida Bandeirantes, 3900, Bloco C2, sala 41. Bairro Monte Alegre - Ribeirão Preto / SP CEP 14040-905

Telefone: (16) 3315-4971

E-mail: ricardo.azevedo@usp.br

ORCID: <https://orcid.org/0000-0001-6302-0760>

Abstract

This study aimed to analyze which professional skills have been cultivated through the use of business games in the accounting and business areas, according to specialized literature. To achieve this objective, a Systematic Literature Review type of research was carried out based on the ProcNow-C methodology from 2010 to 2023 in the Web of Science, Science Direct-Elsevier and Scopus-Elsevier databases. A total of 95 articles were initially identified and collected between April and August 2023. After excluding articles ineligible for the scope of the review, the remaining 45 studies were analyzed. The results demonstrate that games, especially digital ones, are widely used in business in general. However, in the accounting area, research has not covered all the technical skills (knowledge) recommended by IFAC. Furthermore, several skills that games can provide to students were identified and aligned with IFAC competencies. Based on these findings, it is proposed that accounting games must be developed and empirically tested in financial reporting, governance, risk and internal control, regulation, information technology and economics. The results can contribute to researchers about the topic and accounting and business teachers.

Keywords: Business Games; Systematic Review; Business; Accounting; Competences.

1 Introduction

Contemporary learning theories highlight that the effectiveness of the educational process is maximized when it is active, experiential, situated, problem-based and provides immediate feedback (Boyle et al., 2011; Smith & Brauer, 2018). Business games, an active methodology that has existed since the 1950s, have been recognized in the literature as a valuable tool for inducing students to experience thoughts and behaviours that replicate real-world situations inserted in the learning context in classroom environments (Faria et al., 2009).

Integrating educational technologies, including games or gaming elements, can make teaching practices more interactive, engaging and fun (Savi & Ulbricht, 2008; Barbosa et al., 2013). Given the growing popularity of games among young people, teachers have adapted games for educational use (Johnson & Mislin, 2011), including in business (Torga et al., 2018).

The origin of business games dates to 1956, when the American Management Association developed the "Top Management Decision Game" in the United States. The Game Was initially adapted from military games for application in the business environment (Santos, 2003). With the advancement of computer technology, business games have evolved, allowing for more complex and accurate models.

In Brazil, the adoption of business games began to become popular in the 1970s, driven by a study by Tanabe (1973). They gained prominence in the 1980s with the use of imported models from the United States (Gramigna, 1994; Lopes, 2001; Sauaia & Zerrenner, 2009). Currently, business simulations are widely used as training and management development tools, bringing students closer to business practice in the academic environment (Quirino et al., 2019).

Business games are relevant in experiential learning as a methodology in which the teacher is the facilitator, with the student as the centre of the action, whose learning is driven by individual experience (Arbex et al., 2006). Games provide experiential learning to students, integrating several practical areas in the curriculum and providing a practical environment for using the theories discussed in class in decision-making (Sauaia & Zerrenner, 2009). This teaching strategy allows students to learn the organizational management process to instruct them to solve problems, carry out diagnoses, and act proactively in the face of business events (Hemzo & Lepsch, 2006).

Games can provide more practical learning for students, allowing them to experience different strategies and specific situations in a simulated way (Zulfiqar et al., 2019). This teaching strategy allows students to evaluate the consequences of their decisions in different business sectors due to reduced time and space in the experience. Furthermore, the game encourages reflection on mistakes and successes (Lacruz, 2004; Liao et al., 2015).

Through games, students can simulate creating and managing different businesses, face challenges and obstacles in a risk-free environment, and achieve rewards (Zulfiqar et al., 2019). As complexity increases in business games, the representation of the real-world business environment becomes better (Faria et al., 2009). In the perception of students and coordinators, teamwork and integrating content from different areas of knowledge contribute to adopting business games in the classroom (Motta & Quintella, 2012; Neves & Alberton, 2017).

The literature has brought discussions and proposals about using specific company games in the teaching-learning process in accounting, such as the "*Jogo da Cerveja*", aimed at the area of Accounting Sciences (Santos, 2003). Casagrande, Bornia, Casagrande and Von Mecheln (2014) introduce the *JE - Tributos* game as support for learning Tax Accounting, highlighting contributions to the approach to themes of the discipline and their assimilation. An additional example is the game Double Entry Bookkeeping or Accounting History (DEBORAH), covering the history of accounting (Malachis et al., 2018).

The students agree that the accounting course curriculum focuses mainly on theoretical and technical knowledge but is insufficient in practical application of this knowledge to solve problems (Al et al., 2020). Games and scripted classes with a game language approach are gaining ground in universities as effective motivational strategies to promote faster learning that applies to reality (Hübner & Silva, 2020). This way, the use of games in accounting and business courses in general proves to be a strategy that can be effective for developing essential skills. These competencies are part of a set of capabilities required by accounting professionals (IFAC, 2011), and have been characterized as knowledge, skills and attitudes (*conhecimentos, habilidades e atitudes in Portuguese*), which the literature generally refers to with the acronym 'CHA'.

The research seeks to fill a gap in the literature by exploring the skills developed by implementing business game strategies in the accounting and business educational context. Undergraduate courses in accounting sciences have been considered to be very theoretical (Castro, 2009), and the business game strategy in teaching can be a great motivator for students in this context by changing the dynamics of the teaching-learning process. It can contribute to the development of necessary skills demanded by professionals who require not only technical knowledge but also practical and decision-making skills.

Given the above, this research sought to answer the following research question: How does using business games help improve skills (knowledge, skills and attitudes) in the accounting and business area? To answer the question, this research aims to analyze which professional skills have been cultivated through business games in the accounting and business areas, according to specialized literature, through publications reviews released in national and international journals between 2010 and 2023.

By revisiting the existing literature, this study seeks to contribute to teachers and researchers, providing an updated view of the topic and detailing strategies to prepare students for the challenges of the job market. Furthermore, by systematizing the results of this approach, it seeks to contribute to the disclosure of content and methodologies necessary in the course, offering insights for elaborating educational policies and improving methodological approaches in the curricular matrices of Higher Education Institutions.

2 Professional skills in the accounting area

The concept of competence has been discussed in the academic sphere and the business environment recently. Different interpretations are developed to conceptualize competence, which is constantly improving and developing. The most common expressions to describe competence were: (i) appropriate integration of knowledge, knowing how to do and knowing how to be; (ii) conceptual and procedural knowledge system; (iii) the person's status; (iv) ability to transfer; (v) integrated set of skills and capacity for action (Scallon, 2017).

Competent action depends on mobilizing certain resources in a context (Le Boterf, 2003; Perrenoud, 2013; Zabala & Arnau, 2020). "This mobilization of resources is at the heart of the definition of competence" (Scallon, 2017, p. 146). This means that, for competence to be applied in a situation, it is necessary to mobilize these components/resources in an interconnected or synergistic way (Perrenoud, 2013).

Competence is, therefore, a set of knowledge, skills and attitudes that underlie high performance, highlighting that superior performance is intrinsically linked to people's intelligence and personality (Fleury & Fleury, 2001). It is important to highlight a terminological particularity that occurs in the accounting area. The IES (International Education Standard) n. 2 of IFAC (International Federation of Accountants) defines the set of knowledge related to the area of "technical competence". This can cause some confusion since, in the context of education, the term competence involves knowledge, skills, and attitudes. Therefore, from now on, when we mention "technical competence", the text refers exclusively to knowledge related to the area.

The main technical skills required in the accounting area are broad and include knowledge and monitoring of tax obligations and updates to legislation, mastery and interpretation of accounting and finance concepts, updating management techniques, ability to communicate and listen effectively, analytical skills, integrity and trust, logical reasoning, strategic vision of results, perception and interdisciplinary application of knowledge, reflection and critical analysis, verbal and written communication, self-assessment, interpersonal relationships, ethical values, participation and commitment, critical view of the world and business, self-criticism and respect (Cardoso et al., 2009).

Market demands, combined with information's impact as a crucial resource, have increased the importance and contribution of accounting professionals. This transformation implies significant changes in the skills required of accountants to ensure effective performance in their activities (Damasiotis et al., 2015).

Essential competencies stand out for the importance of technical knowledge, data analysis and interpretation skills, and the ability to adapt to constant changes in legislation and business practices. (Cardoso et al., 2010)

Both technical skills and interpersonal skills are considered important for accounting professionals. Furthermore, it is necessary to be up to date with changes in accounting laws and regulations and to be able to critically analyze and solve complex problems (Carneiro & Silva Neto, 2015). Interpersonal skills refer to the ability to ensure results through interpersonal interactions, such as personal skills, listening, empathy, communication, motivation, and team management (Tan & Laswad, 2018).

Accounting professionals must adopt ethical conduct, have broad theoretical knowledge in their area and disciplines related to business, demonstrate organization in carrying out their tasks, act responsibly in all their actions and maintain a solid commitment to the profession (Reis et al., 2012). In addition to ethical and problem-solving skills, systemic and analytical skills are necessary, as well as technical-professional competence (Wollinger et al., 2021). However, recruiters' expectations regarding this professional's profile have proven to be unsatisfactory compared to the reality observed in the market, especially concerning problem-solving skills (Miranda et al., 2021).

The use of active methodologies through business games can contribute to improving the academic performance of accounting students, in addition to promoting the development of skills such as responsibility, teamwork capacity, autonomy and reading (Guerra & Teixeira, 2016; Guimarães et al., 2016). In this sense, business games can potentially promote the development of leadership skills, including critical thinking, commitment, agility, innovation, creativity, motivation, conflict management and team building (Tariq & Abonamah, 2021).

Finally, there is a discussion about how accounting professionals have emphasized the importance of the accounting teaching process and the training of accountants globally. In order to assist and contribute to these professionals and their due alignment with the demands and expectations of the global market, the International Accounting Education Standards Board (IAESB) developed the so-called International Education Standards (IES) in the professional accounting education area, which establish knowledge, skills, values and attitudes desired as learning outcomes for each competence, promoting the improvement of accounting teaching and the strengthening of professional competence on a global scale (IFAC, 2019).

Appendix A details the technical competencies, professional skills, values, ethics and attitudes essential to the accounting professional, as defined by IES 2, 3 and 4 (IFAC, 2019). According to standard (IES) n° 2, the technical skills inherent to the accounting professional are: a) Financial Accounting and Reports; b) Management and Accounting; c) Finance and Financial Management; d) Taxation; e) Audit and Assurance; f) Governance, Risk Management and Internal Control; g) Business Laws and Regulations; h) Information Technology; i) Business and Organizational Environment; j) Economy and k) Business and Management Strategy (IFAC, 2019). Standard (IES) No. 3 encourages students to develop intellectual, interpersonal, and communication, personal and organizational professional skills (IFAC, 2019). Standard (IES) n° 4 is related to values, ethics and attitudes, such as ethical principles and commitment to the public interest (IFAC, 2019).

These standards have as their main objective the standardization, within the scope of accounting training programs, the following aspects: admission, program content, technical skills and general training, values, ethics and professional attitudes, practical experience, assessment of skills, continuous professional development and the skills required of

professional auditors (López, 2013). However, there are criticisms about adopting global standards that disregard local particularities. For Mohamed and Lashine (2003), Kerby and Romini (2010) and Buckaults and Fisher (2011), for example, one should also be concerned about the lack of preparation of accounting students to face current professional challenges, such as having skills and communicative, computational, analytical, intellectual, multi and interdisciplinary attributes, as well as knowledge in global issues and presence of reflective and critical thinking.

3 Methodological strategies

The present study adopts the Systematic Literature Review (SLR) as a methodological procedure, which synthesizes research on a topic to validate the construction of the research *corpus*. This approach is based on already prepared materials, analyzing various perspectives about a problem with a qualitative and descriptive approach (Gil, 2017). This systematic review focuses on research on using business games to develop competencies (knowledge, skills and attitudes), known as 'CHA' in the accounting and business area, to identify developed competencies. The analysis refers to publications from 2010 to 2023, in national and international journals. The study comprises a survey of the research *corpus* followed by a systematic analysis of the selected bibliographic material.

In this way, to collect and select sample studies, the research adopted the Knowledge Development Process - Constructivist (ProKnow-C) method (Ensslin et al., 2017). This method is like other review methods, starting from the researchers' interest in a specific gap, defining databases, keywords, time frame and criteria for including and excluding articles in the research scope (Ensslin et al., 2017). As it is a structured process, ProKnow-C is composed of steps divided according to Ensslin et al. (2017), such as (i) preliminary investigation, (ii) selection of articles that will make up the research portfolio, and (iii) bibliometric analysis of the portfolio of articles about the topic studied.

Data collection was conducted through secondary data analysis, using scientific articles available in the Web of Science, Science Direct-Elsevier and Scopus-Elsevier databases, using the criteria presented in Table 1. The choice of these platforms should be according to their scope, which encompasses a variety of research, classifies journals according to productivity, and provides the total number of citations received, allowing the impact, prestige, and influence of journals to be assessed.

To optimize searches, keywords related to the research objective were combined using the Boolean operator "and". This operator acts as a connective, indicating to the system that the search must include all specified keywords (Villegas, 2003). The "Topic" field was selected for these searches, covering title, abstract and keywords. Subsequently, four refinement steps were implemented to improve the results obtained. These platforms offer essential tools that contribute to the search's effectiveness and accuracy.

Table 1
Search criteria

Order	Filter	Description
1	Type of work	Peer-reviewed and open access scientific articles
2	Period	2010 a 2023
3	Language	Articles in Portuguese and English about jogos de empresas, educação contábil, contabilidade, conhecimento, competência, habilidade, atitude - <i>business games, accounting education, accounting, knowledge, competence, skill e attitude</i>
4	Area	The research areas at the bases are accounting, business, education and research
5	Search field	Title, abstract and keywords

The research was carried out in three stages. In the first, freely accessible and peer-reviewed scientific articles were selected, discarding books, book chapters, abstracts, master's dissertations, and doctoral theses written in the chosen languages, Portuguese and English, from 2010 to 2023. The area of evaluation chosen to survey the research corpus was Applied Social Sciences, specifically accounting and business, education, and research.

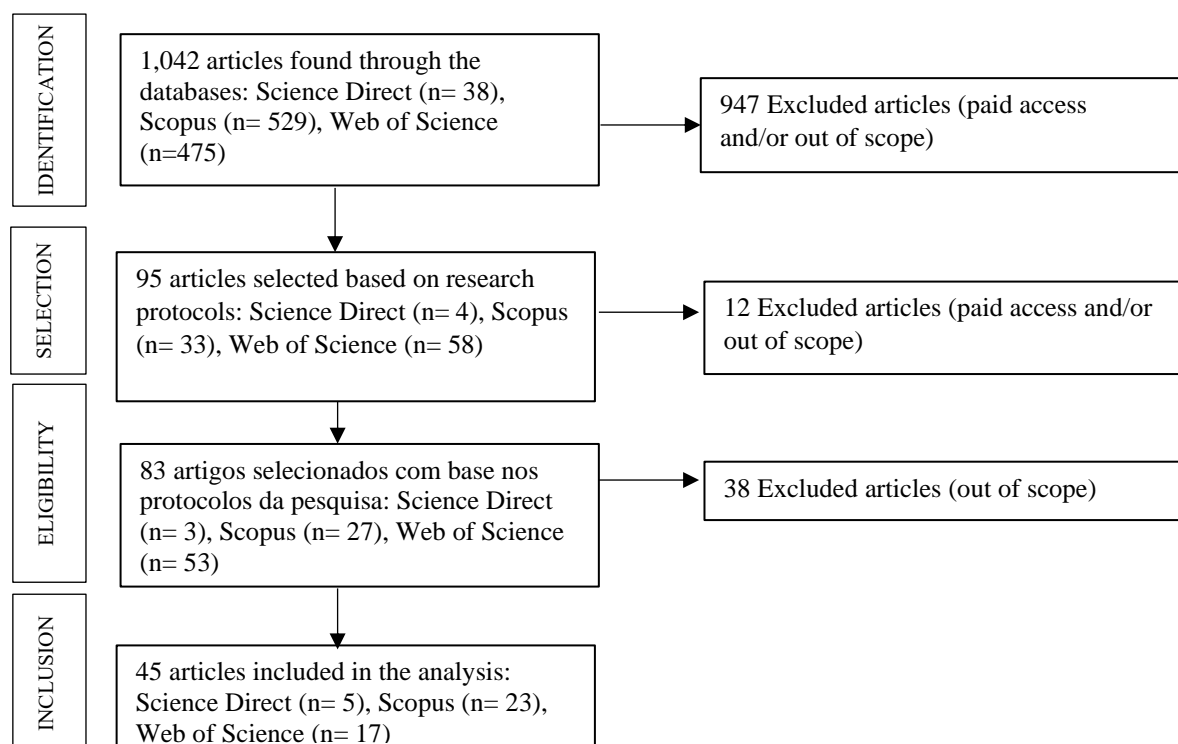
Next, search strategies were defined, using keywords and Boolean operators as defined below, *jogos de empresas and educação contábil*; *jogos de empresas and contabilidade*; *jogos de empresas and conhecimento*; *jogos de empresas and competência*; *jogos de empresas and habilidade*; *jogos de empresas and atitude*; *jogos de empresas and estudante*; business games and accounting education; business games and accounting; business games and knowledge; business games and competence; business games and skills; business games and attitude; business games and students. The majority of articles, 58, originated from the Web of Science database. In addition, 33 works were found from the Scopus database and 4 from Science Direct.

The third phase of the SLR corresponded to the research eligibility criteria and was divided into two steps. The first step was to analyze the theme and abstract in which the articles with the word 'company games' were selected based on a brief reading of the title and abstract. If this word was present in the title or abstract, the words 'accounting education', 'accounting', 'knowledge', 'competence', 'skill', and 'attitude' were searched. The second step was to filter the articles by exclusion criteria, where works only about business games, works only about accounting education, competence and accounting, duplicate works and those that did not have free access were excluded.

In the first step, the titles and abstracts of the works were analyzed to assess their relevance to the research proposal. Then, works outside the scope were excluded, such as those related in isolation to business games, accounting education, accounting, knowledge, competence, skill and attitude, in addition to eliminating duplicates. Finally, a complete and careful reading of the filtered articles was conducted to select only research aligned with the SLR (Figure 1).

Figure 1

Flowchart of the study selection process



After filtering the selected articles, 45 studies were included, forming the *corpus* of this study, which was subjected to content analysis (Bardin, 2011), in three phases: 1) pre-analysis - with the collection of information from article references and a brief content exploration; 2) material exploration - with detailed reading of articles to extract relevant information, categorization or coding; 3) results treatment- which involved the comparison and consolidation of all articles in the categories of analysis, inferences and interpretation. Following Bardin's steps (2011), coding was carried out based on previously established themes, which focused on the competencies in the IFAC framework (2019).

Initially, bibliometric information was collected from the sample to characterize and describe the identified studies. For the systematic analysis and identification of the competencies presented or discussed in the selected research, one of the authors carried out a documentary analysis of each of the articles, followed by a joint discussion to seek agreement. To validate the results, the authors' analysis was compared with additional analysis carried out using ChatPDF artificial intelligence.

4 Results and discussions

Among the 45 studies that comprise the sample (39 articles from international and 6 national journals), 5 address the application of games in accounting, while 40 are related to games in the business area. The main study contexts are administration and accounting at both academic levels (undergraduate and postgraduate). However, there is a lack of specific studies on accounting, as the predominant games assess business skills in general without adopting a specific focus on accounting.

Table 2 presents the main gaps observed and which motivated the studies analyzed. A lot of research is focused on the effectiveness of games, followed by an analysis of their performance. Research generally tends to accept games and takes a non-critical stance about their use.

Table 2
Research Gaps

Gaps	Description	Authors
1	Determine the effectiveness of using games in a given context, with 27 studies (60%).	Carenys et al. (2017); Torga et al. (2018); Musteen et al. (2018)
2	Identify factors that influence performance from games with 12 works (27%).	Super et al. (2020); Koltai e Tamás (2022)
3	Investigate emotional and motivational aspects present in the application of games, accounting for 6 studies (13%).	Buil et al. (2019); Schimid e Schoop (2022)

From the analysis undertaken, it was also possible to verify that there is no predominance of authors investigating the topic but rather a diversity of authors who come from different countries, which suggests that several magazines are open to discussions about the use of games for learning in accounting and business.

When evaluating the effectiveness of video games in comparison to simulations in a higher education environment in the accounting and business areas, it was observed that, although both instructional tools lead to the desired level of knowledge acquisition, the motivation generated by video games contributes to an experience of higher learning (Carenys et al., 2017). In the same way, the application of a collaborative online teaching tool was effective in helping students achieve learning outcomes related to international business opportunities, business model design and planning to pursue these opportunities, as well as improving student's attitudes concerning entrepreneurship as a career path (Musteen et al., 2018).

Super et al. (2020) contributed to the category in which games proved to be effective in application. Although there was no effect on objective team performance, knowledge-sharing norms improved the team's performance perception. The results suggest that knowledge-sharing norms were positively related to team satisfaction but not task satisfaction. Furthermore, aspects of negotiation and gamified negotiation training show greater motivation, engagement, and better systemic and decision-making skills than conventional training (Schmid & Schoop, 2002).

Motivational and emotional aspects are strongly present in games. The students who participated in the business simulations were motivated and focused and perceived the simulations as a useful tool to acquire skills related to decision-making, problem-solving and business information analysis (Urquidi-Martín & Tamarit-Aznar, 2017). Furthermore, Legaki et al. (2021) point out that the game, which incorporates elements such as points, levels, challenges, narrative and a leaderboard, tends to involve and motivate students in the learning process.

Still, about the motivational and emotional aspects present in games, after seeking to understand the factors that promote the intrinsic motivation of players in business simulation games and examining their impact on engagement, the development of generic skills, and the learning perceived through Self-Determination Theory (Build et al., 2019).

Regarding the factors that influence performance from games, when proposing a new method to evaluate the performance of students' groups in a simulation game, Koltai and Tamás (2022) verified that games can provide reliable and detailed information about participants' performance regarding the decisions deficiencies made during the games and about possible ways to improve performance. Students' learning improves through simulation games (Loon et al., 2015). Teaching through online management simulation games positively impacts students' learning performance compared to traditional theoretical classes (Zulfiqar et al., 2021). Thus, using simulation games as an online teaching methodology during the COVID-19 crisis was well accepted by students (Zulfiqar et al., 2021).

Next, the theoretical lenses identified in the articles in the accounting (Table 3) and business (Table 4) areas are synthetically presented.

Table 3
Theories Identified in Accounting Articles

	Amount	%	Area	Reference
Not identified	4	9%	-	Burdon e Munro (2017); Quirino et al. (2019); Ortiz-Martínez et al. (2022); Lassila, et al. (2019)
Integrative Theory of Motivation, and ARCS Model (Attention, Relevance, Confidence, Satisfaction)	1	2%	Psychology	Carenys et al. (2017)

Among the studies in the accounting area, it was identified that the majority do not adopt a theoretical lens in the analyses. Only in the article by Carenys et al. (2017), a theoretical lens was adopted for the analyzes (Integrative Theory of Motivation and ARCS Model (Attention, Relevance, Confidence, Satisfaction), which shows the lack of a theoretical standard and focus on research on empirical analyzes supported only with literature previous.

Table 4 summarizes the theoretical lenses identified in articles in the Business area, which analyzed business games. It is possible to note that business games have been studied from different theoretical lenses in the business area. In addition to educational theories (Experiential Learning Theory and Meaningful Learning Theory), other theories are considered to understand this phenomenon, such as business theories (Stakeholders, Decision and Games),

technology (Technology Acceptance Model) and psychological theories (Self-Determination Theory).

The results about the theoretical lenses identified in the articles highlight the Experiential Learning Theory, which emphasizes the importance of active experience in the learning process (17% of studies), used alone or in conjunction with other theories in 2 articles. The lens appears appropriate, given that business games provide experiential learning to students, as they integrate practical aspects into learning (Sauaia & Zerrenner, 2009). Educational games align with this theory, offering practical activities that allow students to experiment with paths and make decisions. In addition, they emphasize the importance of developing skills, which is facilitated by using games. Furthermore, experiential learning includes the reflection phase about lives that are relevant for analyses.

Table 4
Theories Identified in Business Articles

Theories	N	%	Areas	References
Not identified	11	23	Education	Hernández-Lara et al. (2018); Koltai e Tamás (2022); Wei et al. (2022); Legaki et al. (2021); Neves e Alberton (2017); Emblen-Perry (2018); Mustata et al. (2017); Nobile et al. (2021); Galynska et al. (2021); Grijalvo et al. (2022); Oliveira e Melo (2020)
Experiential Learning Theory	8	17	Education	Memar et al. (2021); Geithner e Menzel (2016); Dias et al. (2013); Jääskä et al., (2021); Montero-Navarro et al. (2020); Urquidi-Martín et al., (2019); Catalo et al. (2015); Schimd e Schoop (2022)
Technology Acceptance Model (TAM)	3	6	Technology	Jagger et al. (2016) ; Zulfiqar et al. (2021) ; Pászto et al. (2021)
Self-Determination Theory	3	6	Psychology	Buil et al. (2019); Grivokostopoulou et al.'(2019) ; Schimd e Schoop (2022)
Learning Theories (Experiential and Constructivist)	2	4	Education	Loon et al. (2015); Butzke e Alberton (2017);
Decision Theory	1	2	Business	Torga et al. (2018)
Game Theory	1	2	Business	Torga et al. (2018)
Mapping, Bridging and Integration Model (MBI)	1	2	Psychology	Pillay e James (2013)
Social Constructivist Learning Theory	1	2	Education	Musteen et al. (2018)
Social Exchange Theory	1	2	Psychology	Super et al. (2020)
Meaningful Learning Theory	1	2	Education	Urquidi-Martín e Tamarit-Aznar (2017)
Behavioral Theory in Negotiations	1	2	Psychology	Rua et al. (2022)
Stakeholders Theory	1	2	Business	Feng et al. (2020)
Cognitive Flexibility Theory	1	2	Psychology	Cornacchione Jr. (2012)
Benefit Sharing Model	1	2	Psychology	Wang (2019)
Game Development Lifecycle	1	2	Education	Roedavan et al. (2021)
Game-Based Learning Foundation	1	2	Education	Roedavan et al. (2021)
Bloom's Taxonomy	1	2	Education	Ferreira et al. (2021)
Motivational Theories	1	2	Psychology	Riivari et al. (2021)
Various Theories (1)	1	2	Psychology and Technology	López et al. (2021)

Notes: (1) Theories: Technology Acceptance Model, Unified Theory of Technology Acceptance and Use, Theory of Planned Behavior and Theory of Reasoned Action

It was identified that 23% (11 studies) of the sample did not mention the use of a theoretical basis. This suggests that the games serve a training that executes techniques, with little training in critical thinking. Therefore, no dominant theoretical body supports the explanation of phenomena in the research analyzed.

Regarding the methodological approaches used, 87% (39 articles) adopt a mixed approach, 11% (5 articles) are quantitative, and 2% (1 article) adopt exclusively a qualitative approach, which demonstrates the low use of the latter in research on this topic. Regarding methods, 80% of the research used experiments and simulations combined with the application of questionnaires and testing effects for evaluation in educational environments.

Data analysis is predominantly quantitative and involves statistical methods, although some studies also incorporate questionnaires with open questions for qualitative analyses. Questionnaires and interviews are commonly used to obtain data on students' perceptions of educational games. The questions address topics such as engagement, motivation, understanding concepts, and preference for the learning method. However, it is important to note that these approaches focus mainly on the students' perspective, failing to consider the teachers' perceptions.

The non-existence of the predominance of certain types of games used in the studies was identified. In most analyses, the games are digital, video games or online simulations, with only one article that did not use a digital game (Montero-Navarro et al., 2020). No board games or physical games were identified in the areas of accounting or business, which may suggest a migration to digital games due to the ease of access to digital resources to apply the games, as digital games are often more accessible due to the ease of online availability. Furthermore, features such as simulations, interactive graphics, and immediate feedback can be effectively incorporated into digital games, making the learning experience more engaging.

Skills development through the application of games has predominated among skills, abilities, and attitudes. Governance, internal control, regulations, information technology, and economics are not being addressed in accounting through games, as no studies with this focus have been found. The games predominantly focus on management accounting, auditing, organizational environment, strategy, and management (Table 5). As for these last three, perhaps it is the influence of the games used in business, which is why games predominate over management.

According to Oliveira et al. (2013), business games contribute positively to knowledge consolidation by simulating business reality based on successive decision-making. This contributes to the development of skills and promotes motivation and interdisciplinary thinking.

Next, the research summarizes the competencies identified in the publications analyzed, segregating the analyses into two blocks: publications from the accounting area followed by the business area. In the first part, the research summarizes studies with the competencies recommended by IES 2, 3, and 4 (IFAC, 2019) for the accounting area (Table 5).

Table 5
Relation of the analyzed studies with the skills recommended by IES 2, 3 and 4 in the accounting area

References	Accounting																
	IES 2											IES 3				IES 4	
	A	B	C	D	E	F	G	H	I	J	K	A	B	C	D	A	B
Burdon e Munro (2017)					x			x			x		x	x			
Quirino et al. (2019)		x				x		x	x		x	x	x		x		
Ortiz-Martínez et al. (2022)	x		x					x					x	x			
Lassila et al. (2019)			x					x	x								
Carrenys et al. (2017)	x	x	x			x		x					x				x

Total	2	2	3		1	2		5	2		2	2	4	2	1	1	
%	40	40	60	0	20	40	0	100	40	0	40	40	80	40	20	20	0

Notes: IES 2A: financial accounting and reporting; IES 2B: management and accounting; IES 2C: finance and financial management; IES 2D: taxation; IES 2E: audit and assurance; IES 2F: governance, risk management and internal control; IES 2G: business laws and regulations; IES 2H: information technology; IES 2I: business and organizational environment; IES 2J: economics; IES 2K: business strategy and management; IES 3A: intellectual; IES 3B: interpersonal and communication; IES 3C: staff; IES 3D: organizational; IES 4A: ethical principles; IES 4B: commitment to the public interest.

The technical skills analyzed in accounting research, from the perspective of IES 2H, which deals with knowledge about information technology, were identified in all studies that make up the sample. This result was expected as the researched literature focuses on studies applying business games, digital games and simulations (Schimd & Schoop, 2022). On the other hand, IES 2C, which covers content about finance and financial management, is present in 60% of studies in the accounting area. IES 2A, which deals with technical competence in financial accounting and reporting, IES 2B, which deals with management and accounting, IES 2F, which addresses knowledge about governance, risk management and internal control, IES 2I with a focus on business and organizational environment and IES 2K, which includes knowledge about business strategy and management, appear in 40% of the studies investigated. Finally, the other IES have less or no presence.

The IES 3 provides the accountant's professional skills segmented into four categories (Table 5). IES 3B, which covers interpersonal and communication skills, is useful for the professional's interaction with other knowledge areas and appears in the majority of studies investigated (80%). IES 3A, which deals with intellectual skills that contribute to identifying and solving problems, critical analysis and decision-making, and IES 3C, with a focus on personal skills, that is, attitudes and behaviors of the accounting professional, are present in 40% of the studies surveyed, identifying communication skills, teamwork, problem-solving and critical analysis (Quirino et al., 2019). Finally, IES 4A on ethical principles is present in only one study (20%) developed by Carrenys et al. (2017).

In the second part, the research summarizes the competencies identified in the publications analyzed with the competencies recommended by HEIs 2, 3 and 4 in the Business area (Table 6).

Technical skills, analyzed from the perspective of IES 2H, which deals with knowledge about information technology and publications in the accounting area, were also identified in all the studies analyzed. IES 2K, which covers business strategy and management content, was identified in 55% of the researched studies.

The IES 2B, which deals with technical competence in management and accounting, appears in 18% of the studies investigated, highlighting skills such as knowledge in financial and management accounting (Dias et al., 2013). The IES 2C competencies (financial knowledge and financial management), dealing with competencies related to technical accounting knowledge, notably analysis and interpretation of financial information (Zulfiqar et al., 2021), were identified in 13% of publications. IES 2I, whose theme is business and organizational environment, appears in 13% of studies. In relation to IES 3, the guidance provides professional skills segmented into four categories (IES 3A, IES 3B, IES 3C and IES 3D). IES 3A (intellectual skills for identifying and solving problems, critical analysis and decision making) is present in 93% of the studies surveyed, identifying communication skills, teamwork, problem-solving and critical analysis as main elements.

The IES 3B (interpersonal and communication skills) appears in 80% of studies, with guidelines for learning objectives and standards for knowledge sharing, which are aimed at positive results from team-based simulation game learning activities developed through active encouragement of experimentation, exploration and communication among team members (Super et al., 2020).

With 65%, IES 3C comes from the personal skills that concern the attitudes and behaviors of the accounting professional, which deal with unpredictable project situations and the stakeholders' influences (Geithner & Menzel, 2016) and, which students have improved at the time of negotiation due to acquired skills (Rua et al., 2022).

The IES 3D, which deals with organizational skills, is present in 25% of studies. The skills highlighted in the research report that students developed skills, such as taking risks in business problem-solving with a critical mindset, developing competitive strategies based on company knowledge, managing relationships with competitors, adapting and continuous assessment of the business environment (Memar et al., 2021). As for attitudes and values, IES 4A, which deals with ethical principles, are present in 63% of the researched studies.

Table 6

Relation of the studies analyzed with the competencies recommended by IES 2, 3 and 4 in the Business area

References	Business																
	IES 2											IES 3				IES 4	
	A	B	C	D	E	F	G	H	I	J	K	A	B	C	D	A	B
Hernández-Lara et al. (2018)				x				x	x		x	x	x	x	x		
Oliveira e Melo (2020)		x	x					x				x	x			x	
Van den Bossche et al. (2011)								x					x	x			
Pillay e James (2013)								x			x	x	x		x	x	
Koltai e Tamás (2022)								x	x		x	x					
Wei et al. (2022)								x			x	x					
Legaki et al. (2021)								x			x	x	x	x			
Neves e Alberton (2017)								x				x	x		x		
Emblen-Perry (2018)						x		x				x	x		x	x	
Mustata et al. (2017)								x				x	x	x			
Nóbile et al. (2021)								x			x	x			x	x	
Galynska et al. (2021)								x			x	x	x	x			
Grijalvo et al. (2022)								x			x	x	x	x			
Memar et al. (2021)								x			x	x	x	x	x		
Geithner e Menzel (2016)								x			x	x	x		x		
Dias et al. (2013)	x							x			x	x				x	
Jääskä et al. (2021)								x			x	x	x			x	
Montero-Navarro et al. (2020)								x				x	x	x			
Urquidi-Martín et al. (2019)								x			x	x		x		x	
Catalo et al. (2015)								x			x	x		x			
Jagger et al. (2016)								x			x	x	x	x		x	
Zulfiqar et al. (2021)							x	x			x	x	x	x		x	
Pászto et al. (2021)								x				x	x	x		x	
Buil et al. (2019)		x			x			x			x	x	x			x	
Grivokostopoulou et al. (2019)		x	x					x			x	x	x	x	x	x	
Schimd e Schoop (2022)								x				x	x	x			
Loon at al. (2015)								x				x	x	x		x	
Butzke e Alberton (2017)								x						x		x	
Torga et al. (2018)								x	x		x	x	x	x		x	
Musteen et al. (2018)								x		x		x	x			x	
Super et al. (2020)								x				x	x	x		x	
Urquidi-Martín e Tamarit-Aznar (2017)		x						x				x	x	x		x	
Rua et al. (2022)								x	x			x	x	x	x	x	
Feng et al. (2020)		x	x					x			x	x	x	x		x	
Cornacchione Jr. (2012)		x						x					x			x	
Wang (2019)		x						x				x		x		x	
Roedavan et al. (2021)			x					x				x	x	x		x	
Ferreira et al. (2021)	x		x					x				x	x	x			

Riivari et al. (2021)								x			x	x	x	x		x	
López et al. (2021)				x				x	x		x	x	x		x	x	
Total	4	7	5	2	1	1	1	10	5	1	22	37	32	26	10	25	0
%	10	18	13	5	3	3	3	100	13	3	55	93	80	65	25	63	0

Notes: IES 2A: financial accounting and reporting; IES 2B: management and accounting; IES 2C: finance and financial management; IES 2D: taxation; IES 2E: audit and assurance; IES 2F: governance, risk management and internal control; IES 2G: business laws and regulations; IES 2H: information technology; IES 2I: business and organizational environment; IES 2J: economics; IES 2K: business strategy and management; IES 3A: intellectual; IES 3B: interpersonal and communication; IES 3C: staff; IES 3D: organizational; IES 4A: ethical principles; IES 4B: commitment to the public interest.

Several attributes related to intellectual, interpersonal, communication, and personal skills are highlighted, such as team performance, knowledge-sharing standards, decision-making, understanding the consequences of choices, and critical thinking (Koltai & Tamás, 2022). An increased focus on students' activation and engagement in the learning process with knowledge and skills development was revealed (Memar et al., 2021).

It can also be observed that some skills found in the studies are outside the scope of IFAC, such as preparation for the workplace, competition, giving feedback, transferring skills to the real world, intercultural skills, working under pressure and adapting to new situations, critical thinking, sustainability, management of renewable resources, need to adapt teaching methods, cultural sensitivity, mental openness, communication, problem-solving, knowledge application and self-efficacy (Catalo et al., 2015; Jagger et al., 2016; Urquidi-Martín et al., 2019; Schimid & Schoop, 2022). This means that the studies are not carried out considering only the body's skills and expand the list of skills that the games cover, which suggests that the skills of the accountant and business professional go beyond those foreseen by IFAC.

Research generally points to applying relevant ethical requirements for professional behavior following the area's standards. Students can explore their values and make decisions within the context of rule-based requirements (Jagger et al., 2016). Students gain insights into the impact of their ethical decision-making on others (Jagger et al., 2016).

Finally, there is a discussion about how many games, even though they are not explicitly designed for accounting, contribute to the skills development recommended by IFAC. This aspect highlights the interdisciplinary nature of the business area, demonstrating that games have the potential to develop diverse skills for the broad field of business, including accounting and management. The studies consider the simulation contexts of a functioning audit (Burdon & Munro, 2017), simulation of a stock exchange (Torga et al., 2018), execution of international strategies (Musteen et al., 2018), conducting commercial negotiations (Schimid & Schoop, 2022); working capital management (Carenys et al., 2017) and knowledge of sustainable strategies (Emblen-Perry, 2018).

Based on the analysis of the studies, a research agenda can be proposed that can help both the practical application of business games in the teaching-learning process and advance the literature about the topic.

- It is noted that research on business games covers common situations in organizations, but there is a lack of specific contexts in the accounting area. No studies addressed more specific topics such as taxation, business laws and regulations, economics and values as a commitment to the public interest. This highlights the need for studies that explore these contexts and situations.
- Considering that research more frequently discusses students' perceptions (Burdon & Munro, 2017; Torga et al., 2018; Quirino et al., 2019), there is a gap in knowledge about teacher perception concerning the use of games in the teaching-learning process. Therefore, investigations that analyze teachers' perceptions of the potential (or problems) of business games for developing skills in the accounting area are welcome.

- Still based on the lack of research about teacher's perception regarding the potential of business games, an aspect that can be the target of research is the analysis of the benefits and challenges regarding the use of business games in the accounting area, in addition to deep understanding about the teachers' perception, seeking to understand what they think and analyzing possible reasons for resistance.
- The literature generally takes a positive view of the use of games (Quirino et al., 2019; Jääskä et al., 2021), and the negative aspects have been little explored. Future research could analyze challenges and difficulties to be overcome with the use of games, such as the high demand for time needed to prepare and monitor activities, difficulties faced in engaging students in active learning activities, or even unexpected effects by the introduction of corporate games, failing to take a positive view of their use.
- Researchers could explore possible discrepancies in the perception of using business games in the learning process, investigating how students and teachers perceive the usefulness of business games and the learning results achieved and identifying possible reasons for divergences.
- Preparation of teaching cases proposing business games, detailing how they are applied and the results.
- Other systematic reviews can be developed, focused on national databases, such as SPELL—Scientific Periodicals Electronic Library, which could make relevant contributions to national accounting research.
- Researchers can analyze how artificial intelligence (AI) is being used to develop teaching using company games. For example, one can analyze the differences in the application of games in the traditional format, their effects on student engagement, or even differences in skills development.

5 Final considerations

The study set out to answer the following research question: how does the use of business games help to improve skills (*conhecimentos, habilidades and atitudes* - CHA) in the accounting and business area? To answer the question, literature was identified that relates discussions about using business games in accounting and business to develop skills. The motivation for this study arose due to the great theoretical focus of the accounting course and the motivational relevance of the business games strategy in teaching, an approach increasingly used in universities. From this, a systematic literature review was carried out to map skills development through company games.

Concerning the technical skills developed by the company's gaming strategy, it was identified that, in terms of knowledge related to IES 2, studies about information technology, strategy and business, and management and accounting predominate. The most explored accounting topics are financial accounting and reporting, management and accounting, financial management, taxation, auditing, business and organizational environment, and business strategy and management.

Additionally, it was found that all the skills recommended in IES 3 (intellectual, interpersonal and communication, personal and organizational) were identified in the games, both for the accounting and business areas. Concerning IES 4 on attitudes, there are games to develop ethical principles in the business area, but there is a lack of studies about commitment to the public interest. These findings have broad implications for the study agenda on the theme, as presented in the previous topic.

It is concluded that games have been widely used in business; however, in accounting, their application does not encompass all the technical skills IFAC recommends. The literature suggests the use of auditing, financial management, and strategy games in this field. Games have the potential to develop skills aligned with IFAC guidelines, as well as skills that go

beyond such standards, highlighting competitiveness, cultural aspects and the transfer of simulation skills to real-world situations.

We also note the alignment of using the theoretical assumptions of the Experiential Learning Theory in much research about business games since the strategy provides a rich environment in practical experiences and fundamental challenges for the learning process. Furthermore, the significant use of experiments and questionnaires to collect data to investigate the use of games in learning contexts stands out, and the predominance of digital games, compared to physical games (such as board and cards), seems to be in disuse. Finally, a wide range of possibilities for future research can be seen, as listed in the agenda at the end of the previous section.

Conducting a systematic review has intrinsic limitations. The availability and quality of existing literature may vary, justifying the selection of multiple databases for collection. Furthermore, the definition of inclusion and exclusion criteria may introduce a bias in the selection of studies, given the subjectivity in interpreting these criteria, which may affect the identification of relevant articles. Common procedures in systematic reviews were adopted to ensure greater reliability in the results.

The research has three main implications. First, it has implications for researchers, who can increasingly use the results to advance research about using games to improve the teaching-learning process. Second, it can contribute to teacher's work; through the reviewed literature, one can reflect on the use of business games in classes, and the articles can provide ideas for games to be used in contexts in which they can be applied. Third, it is proposed that accounting games be developed relating to the competencies proposed by IFAC, such as financial reporting, governance, risk and internal control, regulation, information technology and economics.

References

- Al Mallak, M. A., Tan, L. M., & Laswad, F. (2020). Generic skills in accounting education in Saudi Arabia: students' perceptions. *Asian Review of Accounting*, 28(3), 395-421. <https://doi.org/10.1108/ARA-02-2019-0044>
- Arbex, M. A., Corrêa, H. P., Melo Jr, A., Ribas, C. A., & Lopes, P. C. (2006). O uso de jogos de empresas em cursos de graduação em administração e seu valor pedagógico: um levantamento no estado do Paraná. *Anais do Encontro Nacional da Associação Nacional de Pós-Graduação e Pesquisa em Administração*.
- Barbosa Neto, J. F. & Souza, F. (2013). Jogos educativos em dispositivos móveis como auxílio ao ensino da matemática. *RENOTE*. 11. 1-10. <https://doi.org/10.22456/1679-1916.41623>
- Bardin, L. *Análise de Conteúdo*. São Paulo: Edições 70, 2011.
- Boyle, E., Connolly, T. M., & Hainey, T. (2011). The role of psychology in understanding the impact of computer games. *Entertainment Computing*, 2(2), 69-74. <https://doi.org/10.1016/j.entcom.2010.12.002>
- Buil, I., Catalán, S., & Martínez, E. (2019). Encouraging intrinsic motivation in management training: The use of business simulation games. *The International Journal of Management Education*, 17(2), 162-171. <https://doi.org/10.1016/j.ijme.2019.02.002>
- Burdon, W. M., & Munro, K. (2017). Simulação – tudo vale a pena? O impacto da simulação na perspectiva de estudantes de ciências contábeis. *Revista Internacional de Educação Gerencial*, 15(3), 429-448. <https://doi.org/10.1016/j.ijme.2017.07.001>
- Butzke, M. A., & Alberton, A. (2017). Estilos de aprendizagem e jogos de empresa: a percepção discente sobre estratégia de ensino e ambiente de aprendizagem. *REGE-Revista de Gestão*, 24(1), 72-84. <https://doi.org/10.1016/j.rege.2016.10.003>
- Cardoso, R. L., Mendonça Neto, O. R., & Oyadomari, J. C. (2010). Os Estudos internacionais de competências e os conhecimentos, habilidades e atitudes do contador gerencial

- brasileiro: análises e reflexões. *Brazilian Business Review*, 7(3), 91-113. <http://www.spell.org.br/documentos/ver/7818/os-estudos-internacionais-de-competencias-e-os-conhecimentos--habilidades-e-attitudes-do-contador-gerencial-brasileiro--analises-e-reflexoes/i/pt-br>
- Cardoso, R. L., Riccio, E. L., & de Albuquerque, L. G. (2009). Competências do contador: um estudo sobre a existência de uma estrutura de interdependência. *Revista de Administração-RAUSP*, 44(4), 365-379.
- Carenys, J., Moya, S., & Perramon, J. (2017). Is it worth it to consider videogames in accounting education? A comparison of a simulation and a videogame in attributes, motivation and learning outcomes. *Revista de Contabilidad-Spanish Accounting Review*, 20(2), 118-130. <https://doi.org/10.1016/j.rcsar.2016.07.003>
- Carneiro, A. de Freitas, & Silva Neto, J. M. da (2015). Competências essenciais dos profissionais contábeis em face da nova contabilidade pública sob a perspectiva dos contadores de Rondônia. *Revista de Gestão, Finanças e Contabilidade*, 5(3), 100-122. <http://dx.doi.org/10.18028/2238-5320/rgfc.v5n3p100-122>
- Casagrande, M. D. H., Bornia, A. C., Casagrande, J. L., & Von Mecheln, P. J. (2014). Jogos de empresas no ensino da contabilidade tributária. *Contabilidade Vista & Revista*, 25(1), 34-58. <https://revistas.face.ufmg.br/index.php/contabilidadevistaerevista/article/view/2114>
- Castro, A. F. de (2009). Visão e características do ensino da contabilidade adotado no Brasil. *Revista Mineira de Contabilidade*, 2(34), 6-13. <https://revista.crcmg.org.br/rmc/article/view/367>
- Catalo, M., Antheaume, N., & Ismail, H. (2015). Transferring methods to teach business administration from one cultural context to another. *Future Business Journal*, 1(1-2), 51-64. <https://doi.org/10.1016/j.fbj.2015.11.001>
- Cornacchione Jr, E. B. (2012). Fidelidade e tecnologia baseada em jogos na educação gerencial. *BAR-Revista Brasileira de Administração*, 9, 147-167. <http://dx.doi.org/10.1590/S1807-76922012000200003>
- Damasiotis, V., Trivellas, P., Santouridis, I., Nikolopoulos, S., & Tsifora, E. (2015). IT competences for professional accountants. A review. *Procedia-Social and Behavioral Sciences*, 175, 537-545. <https://doi.org/10.1016/j.sbspro.2015.01.1234>
- Dias, G. P. P., Sauaia, A. C. A., & Yoshizaki, H. T. Y. (2013). Felder-Silverman learning styles and learning with business games. *Revista de Administração de Empresas*, 53, 469-484. <https://doi.org/10.1590/S0034-75902013000500005>
- Emblen-Perry, K. (2018). Enhancing student engagement in business sustainability through games. *International Journal of Sustainability in Higher Education*, 19(5), 858-876. <https://doi.org/10.1108/IJSHE-05-2017-0075>
- Ensslin, L., Ensslin, S. R., Dutra, A., Nunes, N. A., & Reis, C. (2017). BPM governance: a literature analysis of performance evaluation. *Business Process Management Journal*, 23(1), 71-86. <https://doi.org/10.1108/BPMJ-11-2015-0159>
- Faria, A. J., Hutchinson, D., Wellington, W. J., & Gold, S. (2009). Developments in business gaming: A review of the past 40 years. *Simulation & gaming*, 40(4), 464-487. <https://doi.org/10.1177/104687810832758>
- Feng, Y., Audy, J. F., Rönnqvist, M., & D'Amours, S. (2020). An educational game with dragons' den experiences for supply chain management training. *INFORMS Transactions on Education*, 21(1), 1-17. <https://doi.org/10.1287/ited.2019.0226>
- Ferreira, T. E. D. L. R., Araújo, M. L. F., & Leão, M. B. C. Uso de jogos no processo de ensino e aprendizagem da administração financeira no ensino superior. *Revista Contemporânea de Educação*, 16(36), 22-43. <https://doi.org/10.20500/RCE.V16I36.42550>

- Fleury, M. T. L., & Fleury, A. (2001). Construindo o conceito de competência. *Revista de Administração Contemporânea*, 5, 183-196. <https://doi.org/10.1590/S1415-6552001000500010>
- Galynska, O. M., Shkoliar, N. V., Dziubata, Z. I., Kravets, S. V., & Levchyk, N. S. (2021). Innovative Teaching Technologies as a Way to Increase Students' Competitiveness. *International Journal of Education and Information Technologies*, 15, 215-226. <http://dx.doi.org/10.46300/9109.2021.15.22>
- Geithner, S., & Menzel, D. (2016). Efetividade do aprendizado através da experiência e reflexão em uma simulação de gerenciamento de projetos. *Simulação & Gaming*, 47(2), 228-256. <https://doi.org/10.1177/1046878115624312>
- Gil, A. C. (2017). *Como elaborar projetos de pesquisa* (Vol. 6, p. 175). São Paulo: Atlas.
- Gramigna, M. R. M. (1994). *Jogos de empresa*. São Paulo: Makron Books
- Grijalvo, M., Segura, A., & Núñez, Y. (2022). Computer-based business games in higher education: A proposal of a gamified learning framework. *Technological Forecasting and Social Change*, 178, 121597. <https://doi.org/10.1016/j.techfore.2022.121597>
- Grivokostopoulou, F., Kovas, K., & Perikos, I. (2019). Examining the impact of a gamified entrepreneurship education framework in higher education. *Sustainability*, 11(20), 5623. <https://doi.org/10.3390/su11205623>
- Guerra, C. J. O., & Teixeira, A. J. C. (2016). Os impactos da adoção de metodologias ativas no desempenho dos discentes do curso de ciências contábeis de ensino superior mineira. *Revista de Educação e Pesquisa em Contabilidade (REPeC)*, 10(4). <https://doi.org/10.17524/repec.v10i4.1437>
- Guimarães, M. L. F., Cittadin, A., Giassi, D., Guimarães Filho, L. P., & Bristot, V. M. (2017). Reflexos do uso de metodologias ativas no ensino da Contabilidade de Custos. *ABCustos*, 11(3), 62-87. <https://doi.org/10.47179/abcustos.v11i3.410>
- Hemzo, M. A., & Lepsch, S. L. (2006). Jogos de Empresas com Foco em Marketing Estratégico: uma análise fatorial da percepção dos participantes. *Revista Brasileira de Gestão de Negócios-RBGN*, 8(20), 23-33.
- Hernández Lara, A. B., Serradell-Lopez, E., & Fitó Bertran, M. À. (2018). Os jogos de negócios promovem habilidades? Um estudo transcultural a partir da visão dos alunos. *Capital Intangível*, 14(2), 315-331. <https://doi.org/10.3926/ic.1066>
- Hubner, M. L. F., & Silva, J. F. M. D. (2020). Metodologias ativas e as novas perspectivas do ensino de Catalogação nos cursos de Biblioteconomia. *Informação & Informação*, 25(3), 52-86. <https://doi.org/10.5433/1981-8920.2020v25n3p52>
- International Federation of Accountants. (2011). Competent and versatile. Disponível em: <https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/publications/competent-and-versatile-how-professional-accountants-business-drive-sustainable-success>
- International Federation of Accountants. (2019). *Handbook of International Education Pronouncements*. New York: IFAC. Disponível em: https://www.ifac.org/_flysystem/azure-private/publications/files/Handbook-of-International-Education-Standards-2019.pdf. Acesso em 27 dez. 2023.
- Jääskä, E., Aaltonen, K., & Kujala, J. (2021). Game-based learning in project sustainability management education. *Sustainability*, 13(15), 8204. <https://doi.org/10.3390/su13158204>
- Jagger, S., Siala, H., & Sloan, D. (2016). Está tudo no jogo: um modelo de aprendizagem 3D para a ética nos negócios. *Revista de ética empresarial*, 137, 383-403. <https://doi.org/10.1007/s10551-015-2557-9>
- Johnson, N. D., & Mislin, A. A. (2011). Trust games: A meta-analysis. *Journal of Economic Psychology*, 32(5), 865-889. <https://doi.org/10.1016/j.joep.2011.05.007>

- Koltai, T., & Tamás, A. (2022). Performance evaluation of teams in business simulation games with weight restricted data envelopment analysis models. *The International Journal of Management Education*, 20(3), 100688. <https://doi.org/10.1016/j.ijme.2022.100688>
- Lacruz, A. J. (2004). Jogos de empresas: considerações teóricas. *Caderno de pesquisas em administração*, 11(4), 93-109. https://cdn.administradores.com.br/app/uploads/2022/01/29172832/academico_482_190226_152152.pdf
- Lassila, E. M., Moilanen, S., & Järvinen, J. T. (2019). Visualizando um "bom jogo": analytics como motor de cálculo em ambiente digital. *Revista de Contabilidade, Auditoria e Prestação de Contas*, 32(7), 2142-2166. <https://doi.org/10.1108/AAAJ-11-2017-3252>
- Le Boterf, G. (2003). *Construire les compétences individuelles et collectives: La compétence n'est plus ce qu'elle était*. Éditions d'Organisation, 2003.
- Legaki, N. Z., Karpouzis, K., Assimakopoulos, V., & Hamari, J. (2021). Gamification to avoid cognitive biases: An experiment of gamifying a forecasting course. *Technological Forecasting and Social Change*, 167, 120725. <https://doi.org/10.1016/j.techfore.2021.120725>
- Liao, Y. W., Huang, Y. M., & Wang, Y. S. (2015). Factors affecting students' continued usage intention toward business simulation games: an empirical study. *Journal of Educational Computing Research*, 53(2), 260-283. <https://doi.org/10.1177/0735633115598751>
- Lim, Y. M., Lee, T. H., Yap, C. S., & Ling, C. C. (2016). Employability skills, personal qualities, and early employment problems of entry-level auditors: Perspectives from employers, lecturers, auditors, and students. *Journal of Education for Business*, 91(4), 185-192. <https://doi.org/10.1080/08832323.2016.115399>
- Loon, M., Evans, J., & Kerridge, C. (2015). Learning with a strategic management simulation game: A case study. *The International Journal of Management Education*, 13(3), 227-236. <http://dx.doi.org/10.1016/j.ijme.2015.10.004>
- Lopes, P. da C. (2001). *Formação de administradores: Uma abordagem estrutural e técnico-didática*. 2001. Tese de Doutorado. Tese (Doutorado em Engenharia de Produção) – Universidade Federal de Santa Catarina, Florianópolis.
- López, F. R., Arias-Oliva, M., Pelegrín-Borondo, J., & Marín-Vinuesa, L. M. (2021). Serious games in management education: An acceptance analysis. *The International Journal of Management Education*, 19(3), 100517. <https://doi.org/10.1016/j.ijme.2021.100517>
- Malaquias, R. F., Malaquias, F. F., & Hwang, Y. (2018). Understanding technology acceptance features in learning through a serious game. *Computers in Human Behavior*, 87, 395-402. <https://doi.org/10.1016/j.chb.2018.06.008>
- Memar, N., Sundström, A., & Larsson, T. (2021). Ensinando causalidade e efetivação na sala de aula: um jogo de produção-comércio. *Revista de Educação Gerencial*, 45(3), 438-478. <https://doi.org/10.1177/1052562920951971>
- Miranda, C. de S., Lima, J. P. R. de, & Souza, T. C. de (2021). Habilidades dos recém-formados em Contabilidade: análise da percepção dos profissionais de recrutamento. *Revista de Contabilidade da UFBA*, 15, e2105-e2105. <https://doi.org/10.9771/rc-ufba.v15i0.42987>
- Montero-Navarro, A., Rodríguez-Sánchez, J. L., Gallego-Losada, R., & González-Torres, T. (2020). Os jogos de arame. Uma experiência de jogo dentro de uma classe de classe. *WPOM-Working Papers on Operations Management*, 11(1), 14-24. <https://doi.org/10.4995/wpom.v11i1.12823>
- Motta, G. D. S., & Quintella, R. H. (2012). A utilização de jogos e simulações de empresas nos cursos de graduação em administração no estado da Bahia. *REAd. Revista Eletrônica de Administração (Porto Alegre)*, 18, 317-338. <https://doi.org/10.1590/S1413-23112012000200002>

- Mustata, I. C., Alexe, C. G., & Alexe, C. M. (2017). Developing competencies with the general management II business simulation game. *International journal of simulation modelling*, 16(3), 412-421. https://www.ijstimm.com/Full_Papers/Fulltext2017/text16-3_412-421.pdf
- Musteen, M., Curran, R., Arroteia, N., Ripollés, M., & Blesa, A. (2018). A community of practice approach to teaching international entrepreneurship. *Administrative Sciences*, 8(4), 56. <https://doi.org/10.3390/admsci8040056>
- Neves, F. S. & Alberton, A. (2017). Jogos de empresas: O que os discentes aprendem? Um estudo com discentes de graduação e pós-graduação. *Revista Espacios*, v. 38, n. 45, p. 14–31, 2017. <https://www.revistaespacios.com/a17v38n45/a17v38n45p14.pdf>
- Nóbile, C. I., Gauna Domínguez, C. del V., Aude Berozonce, M. P., & Pérez, J. (2021). Metodologias ativas e gestão do conhecimento para promover a criatividade e a inovação em sala de aula. *Innoeduca. Revista Internacional de Tecnologia e Inovação Educacional*, 7(1), 61–74. <https://doi.org/10.24310/innoeduca.2021.v7i1.9887>.
- Oliveira, M. A., & Melo, N. H. da S. (2020). Jogo de empresas e mercado de ações: uma análise do aprendizado dos alunos em um curso de Administração. *Administração: Ensino e Pesquisa*, 21(3), 316-347. <https://doi.org/10.13058/raep.2020.v21n3.1787>
- Oliveira, A. J. de, Raffaelli, S. C. D., Colauto, R. D., & Casa Nova, S. P. de C. (2013). Estilos de aprendizagem e estratégias ludopedagógicas: percepções no ensino da contabilidade. *Advances in Scientific and Applied Accounting*, 6 (2), 236-262. doi:10.14392/ASAA.2013060206
- Ortiz-Martínez, E., Santos-Jaen, J. M., & Palacios-Manzano, M. (2022). Games in the classroom? Analysis of their effects on financial accounting marks in higher education. *The International Journal of Management Education*, 20(1), 100584. <https://doi.org/10.1016/j.ijme.2021.100584>
- Pászto, V., Pánek, J., Glas, R., & van Vught, J. (2021). Jogo de simulação de spationomia – aprendizagem lúdica no ensino superior de economia espacial. *Revista Internacional ISPRS de Geo-Informação*, 10(2), 74. <https://doi.org/10.3390/ijgi10020074>
- Perrenoud, P. (2013). *Desenvolver competências ou ensinar saberes?: a escola que prepara para a vida*. Penso Editora.
- Pillay, S., & James, R. (2013). Jogos entre culturas: experimentando pedagogias alternativas. *Educação+ Formação*, 55(1), 7-22. <https://doi.org/10.1108/00400911311294924>
- Quirino, M. C. de O., Azevedo, Y. G. P., Gomes, H. B., & Lins, D. C. (2019). Jogos de Empresas no Ensino Contábil: Competências Desenvolvidas e Dificuldades Percebidas na Implementação do Jogo Puerto Rico®. *Revista de Contabilidade & Controladoria*, 11(3), 8. <http://dx.doi.org/10.5380/rcc.v11i3.70992>
- Reis, L. G. dos, Paton, C., & Nogueira, D. R. (2012). Estilos de aprendizagem: uma análise dos alunos do curso de ciências contábeis pelo método Kolb. *Enfoque: Reflexão Contábil*, 31(1), 53-66. <https://doi.org/10.4025/enfoque.v31i1.13853>
- Riivari, E., Kivijärvi, M., & Lämsä, A. M. (2021). Learning teamwork through a computer game: for the sake of performance or collaborative learning?. *Educational technology research and development*, 69, 1753-1771. <https://doi.org/10.1007/s11423-021-10009-4>
- Roedavan, R., Pudjoatmodjo, B., Siradj, Y., Salam, S., & Hardianti, B. D. (2021). Modelo de desenvolvimento de jogos sérios baseado na base de aprendizagem baseada em jogos. *Revista de Pesquisa e Aplicações de TIC*, 15(3), 291-305. <https://doi.org/10.5614/itbj.ict.res.appl.2021.15.3.6>
- Rua, T., Aytug, Z., & Lawter, L. (2022). NegotioPoly: a holistic gaming approach to negotiation teaching. *Organization Management Journal*, 19(4), 143-154. <https://doi.org/10.1108/OMJ-02-2021-1160>

- Santos, R. D. (2003). "Jogos de empresas" aplicados ao processo de ensino e aprendizagem de contabilidade. *Revista Contabilidade & Finanças*, 14, 78-95. <https://doi.org/10.1590/S1519-70772003000100006>
- Sauaia, A. C. A., & Zerrenner, S. A. (2009). Jogos de empresas e economia experimental: um estudo da racionalidade organizacional na tomada de decisão. *Revista de Administração Contemporânea*, 13, 189-209. <https://doi.org/10.1590/S1415-65552009000200003>
- Savi, R., & Ulbricht, V. R. (2008). Jogos digitais educacionais: benefícios e desafios. *Renote*, 6(1). <https://seer.ufrgs.br/index.php/renote/article/view/14405/8310>
- Scallon, G. (2017). *Avaliação da aprendizagem numa abordagem por competências*. PUCPress.
- Schmid, A., & Schoop, M. (2022). Gamification of electronic negotiation training: effects on motivation, behaviour and learning. *Group Decision and Negotiation*, 31(3), 649-681. <https://doi.org/10.1007/s10726-022-09777-y>
- Smith, A., & Brauer, S. (2018, março). Uso do Kahoot! jogo para aumentar a motivação e compreensão do aluno em um curso de Termodinâmica. Na *Conferência da Seção Sudeste da ASEE*. <https://sites.asee.org/se/wp-content/uploads/sites/56/2021/04/2018ASEESE123.pdf>
- Super, J. F., Betts, T. K., Keller, H., & Humphreys, J. R. (2020). Resultados de Jogos de Simulação: Um Exame Multinível de Normas de Compartilhamento de Conhecimento, Sistemas de Memória Transativa e Orientações para Objetivos de Aprendizagem Individual. *Simulação & Gaming*, 51(6), 830-858. <https://doi.org/10.1177/1046878120943255>
- 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/10.1080/09639284.2018.149018>
- Tanabe, M. (1978). *Jogos de empresas*. Dissertação de Mestrado, Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo, São Paulo. doi:10.11606/D.12.1978.tde-30112022-163838. Recuperado em 2024-01-01, de <https://www.teses.usp.br/teses/disponiveis/12/12133/tde-30112022-163838/>
- Tariq, M. U. & Abonamah, A. A. (2021). Role of Game-Based Teaching in Leadership Skills Development. *Academy of Entrepreneurship Journal*, 27(2), 1-15. <https://www.abacademies.org/abstract/role-of-gamebased-teaching-in-leadership-skills-development-10144.html>
- Torga, E. M. M. F., Barbosa, F. V., Carrieri, A. D. P., Ferreira, B. P., & Yoshimatsu, M. H. (2018). Finanças comportamentais e games: simulações no ambiente acadêmico. *Revista Contabilidade & Finanças*, 29, 297-311. <https://doi.org/10.1590/1808-057x201804830>
- Urquidi-Martín, A. C., & Tamarit-Aznar, C. (2017). Meaningful learning in business through serious games. *Intangible Capital*, 13(4), 805-823. <https://doi.org/10.3926/ic.936>
- Urquidi-Martín, A. C., Tamarit-Aznar, C., & Sánchez-García, J. (2019). Determinants of the effectiveness of using renewable resource management-based simulations in the development of critical thinking: An application of the experiential learning theory. *Sustainability*, 11(19), 5469. <https://doi.org/10.3390/su11195469>
- Van den Bossche, P., Gijssels, W., Segers, M., Woltjer, G., & Kirschner, P. (2011). Team learning: building shared mental models. *Instructional science*, 39, 283-301. <https://doi.org/10.1007/s11251-010-9128-3>
- Villegas, B. (2003). Rápida y pertinente búsqueda por internet mediante operadores booleanos. *Universitas Scientiarum*, 8, 51-54. <https://www.redalyc.org/articulo.oa?id=49900808>
- Wang, G., & Yu, L. (2019). Differential game analysis of scientific crowdsourcing on knowledge transfer. *Sustainability*, 11(10), 2735. <https://doi.org/10.3390/su11102735>

- Wei, C. L., Wang, Y. M., Lin, H. H., Wang, Y. S., & Huang, J. L. (2022). Developing and validating a business simulation systems success model in the context of management education. *The International Journal of Management Education*, 20(2), 100634. <https://doi.org/10.1016/j.ijme.2022.100634>
- Wollinger, H., Martins, Z. B., & Marinho, S. V. (2021). Relação entre estilos de aprendizagem e a percepção das competências adquiridas: um estudo com discentes do curso de graduação em Ciências Contábeis. *Revista de Contabilidade do Mestrado em Ciências Contábeis da UERJ*, 26(2), 39-59. <https://doi.org/10.12979/rcmccuerj.v26i2.75633>
- Zabala, A., & Arnau, L. (2020). *Métodos para ensinar competências*. Penso Editora.
- Zulfiqar, S., Sarwar, B., Aziz, S., Ejaz Chandia, K., & Khan, M. K. (2019). An analysis of influence of business simulation games on business school students' attitude and intention toward entrepreneurial activities. *Journal of Educational Computing Research*, 57(1), 106-130. <https://doi.org/10.1177/0735633117746746>
- Zulfiqar, S., Al-reshidi, H. A., Al Moteri, M. A., Feroz, H. M. B., Yahya, N., & Al-Rahmi, W. M. (2021). Entendendo e prevendo a intenção empreendedora dos alunos por meio de jogos de simulação de negócios: uma perspectiva da COVID-19. *Sustentabilidade*, 13(4), 1838. <https://doi.org/10.3390/su13041838>

Appendix A – IAESB Competencies

Figure 2

IES 2 - Technical skills	
A	Financial Accounting and Reporting.
B	Management and Accounting.
C	Finance and Financial Management.
D	Taxation.
E	Audit and Assurance.
F	Governance, Risk Management and Internal Control.
G	Business Laws and Regulations.
H	Information Technology.
I	Business and Organizational Environment.
J	Economy.
K	Business Strategy and Management.
IES 3 - Professional skills	
A. Intellectuals	
	<p>Evaluate data and information from a variety of sources and perspectives through search, integration, and analysis.</p> <p>Apply critical thinking skills to solve problems, inform judgments, make decisions, and reach informed conclusions.</p> <p>Identify when it is appropriate to consult specialists.</p> <p>Recommend solutions to unstructured and multifaceted problems.</p> <p>Respond effectively to changing circumstances or new information to solve problems, inform judgments, make decisions, and reach informed conclusions.</p>
B. Interpersonal and Communication	
	<p>Demonstrate collaboration, cooperation and teamwork when working towards organizational goals.</p> <p>Communicate clearly and concisely when presenting, discussing and reporting in formal and informal situations.</p> <p>Demonstrate awareness of cultural and linguistic differences in all communications.</p> <p>Apply active listening and effective interviewing techniques.</p> <p>Apply negotiation skills to reach solutions and agreements.</p> <p>Apply consultative skills to minimize or resolve conflicts, resolve problems, and maximize opportunities.</p> <p>Present ideas and influence others to provide support and commitment.</p>
C. Personal	
	<p>Demonstrate commitment to lifelong learning.</p> <p>Establish high personal standards of performance and monitor through reflective activities and feedback from others.</p> <p>Manage time and resources to meet professional commitments.</p> <p>Anticipate challenges and plan possible solutions.</p> <p>Keep an open mind to new opportunities.</p> <p>Identify the potential impact of personal and organizational bias.</p>
D. Organizational	
	<p>Perform tasks in accordance with established practices to meet prescribed deadlines.</p> <p>Review one's own and others' work to determine whether it complies with the organization quality standards.</p> <p>Apply people management skills to motivate and develop others.</p> <p>Apply delegation skills to deliver tasks.</p> <p>Apply leadership skills to influence others to work toward organizational goals.</p>
IES 4 - Values, ethics and attitudes	
A	Ethical principles.
B	Commitment to public interest.