

The use of 5.0 Technologies to foster the development of skills in accounting – The case of the Model of Simulator of Business Environment

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ABSTRACT

This article aims to address technical, transversal and digital competences and their development in the context of accounting. The development of artificial intelligence and digitalization technologies has significantly changed the world. Higher education institutions are not yet prepared for this reality. They must find a way to equip their teachers with digital skills in the first instance, and then move on to make changes to the course curriculum to adapt the content to 5.0 technology. At Porto Accounting and Business School of Porto Polytechnic, these technologies have been implemented in a pivotal environment called the Model of Simulator of Business Environment. This model includes two curricular units that are part of the final year of the degree course in accounting and administration, Business Simulation Project I and II. This model is characterised as an active methodology in the teaching and learning process. Students are at the centre of this process and responsibility for their learning lies with them. Technical, transversal and digital accounting skills are the basis for building this model. This article presents the competences worked on to prepare students for the labour market. A set of activities proposed to the students in the working sessions is presented, with an explanation of the competences that are intended to be powered. The theoretical basis and the experience of more than 20 years working with this Model leads us to reflect on its future. This future includes the introduction of AI and tools that bring digitalisation in its true sense.

Keywords: Simulator of Business Environment, Accounting, Artificial Intelligence, Technical, Transversal and Digital Skills

INTRODUCTION

Higher Education – teaching technological, digital and soft skills

A lot has been written about competencies, skills, abilities, attitudes over the years. It is important to connect knowledge over the last years regarding soft skills. The term competence refers to various cognitive capacities

and skills that are needed to act - meaning to mobilize resources to match different situations that require results. Competence is the ability to perform a job, and consists of a set of skills.

The concept of competence implies more than just the acquisition of knowledge and skills; it involves the mobilization of knowledge, skills, attitudes and values to meet complex demands. Acquiring these competencies leads to desirable individual development and well-being, and to flourishing cultures and societies.

Soft skills are a set of intrapersonal and interpersonal skills that include common sense, the ability to deal with people, and a positive flexible attitude. Soft skills are the combination of social and people skills with personal careers attributes. The advantages of soft skills lie in the fact that they are not restricted to a specific field, they can be transferable to different contexts.

Digital skills emerged from the 4.0 Technological Revolution and in the last five years from the introduction of artificial intelligence and the 5.0 technologies in industry and economy.

In 2016, the 4th Industrial Revolution, characterized by artificial intelligence, cognitive technologies and the Internet of Things, was mentioned for the first time. A technological revolution is in progress and it will affect all areas of our lives, particularly in the workplace, where it is predicted that many of the jobs we know today will gradually disappear, due to the replacement of machines by workers in the workplace, especially in the industrial and economic sector (Sus, A. & Sylwestrzak, B. 2021; Caputo, F. et al. 2019). The effects of the technological revolution are progressing faster than the measures taken to manage them. In terms of production and costs it is an improvement for companies, but for workers it is a threat.

The new challenge facing this new technological revolution will be to adjust people's competitive profile so that they can adapt as best and as quickly as possible to the new jobs and, consequently, to the new demands of the labour market. At the start of the fourth industrial revolution, the pursuit of excellence continues to inspire new approaches that reveal new pillars of management performance (Barth, J. et al. 2022; Cardoso et al. 2008). But, at the same time, it also recalls higher ideals or aims often present in pedagogical reflections of the past Quality 4.0 (alignment between quality management and Industry 4.0 requirements) is about strengthening organizational capabilities with the use of technology to produce high-performance products and service experiences, which requires new ways of managing organizations and people (Cillo, V., et al. 2019). If Industry 4.0 is about digitally connecting machines to enable a seamless flow of data and the highest possible optimization, Industry 5.0 is believed to bring humans back into the game for collaboration and introduce the human touch to manufactured products while simultaneously focusing on sustainable manufacturing (Sony, M. 2020; Nahavandi, S. 2019).

The European Commission has termed Industry 5.0 as the vision of industries to think beyond increasing productivity and efficiency and contribute to society by placing the workers at the center of the production process. The emphasis was on research and innovation that is sustainable, human-centric, and resilient (Industry:5.0, 2020).

To thrive in this new world, it is not enough to adopt the attractive technological innovations, but it also requires the integration with the need to adopt strategic and sustainable solutions, combined with creative leadership to support innovation and agility (Caputo, F., et al. 2019). More specifically, the search for soft skills that can compete with organisational challenges manifests sustainability orientation as fundamental to sustainable organisational performance (Succi, C., & Wieandt, M. 2019). Over the past decade, social science scholars have shifted their attention towards training methodologies related to the teaching of technical, transversal and digital skills.

Digital skills and the comprehension of artificial intelligence (AI) are a part of everyday life. It is fundamental that higher education institutions (HEI) start to teach digital skills due to their role in information support and learning sources (Machado, A., et al. 2024).

To ensure that professional accountants are effective, they need to broaden their knowledge base from the application focus that they may traditionally have had.

The Association of Chartered Certified Accountants (ACCA) points out the fact that accountants and students of accountancy must have a set of competencies, namely related to digital and sustainable environments. The future of the profession depends on the preparation of professionals in this area of knowledge in terms of technical, digital, and sustainability skills. The concern with the investment in the digitalization of the profession cannot evolve disconnected from the concern with the environment. Accounting and its professionals have a fundamental role in this narrative (Silva, C., et al. 2024).

The assessment of technical, soft and digital skills is necessary in order to value the process of learning and the personal growth and empowerment. The perception that individuals and employers have about the acquisition and strengthening of their soft skills is going to generate in them the self-awareness of their level of cognitive development in each soft skill. Thus, the appreciation and the recognition by employers will enhance the promotion of the person and the professional.

“As trends such as globalization and advances in artificial intelligence change the demands of the labor market and the skills needed for workers to succeed, people need to rely even more on their uniquely (so far) human capacity for creativity, responsibility and the ability to “learn to learn” throughout their life” (OCDE, 2023).

The use of active methodologies, to promote the development and subsequent assessment of those skills, is fundamental in order to provide a practical teaching at schools. The use of business games, role play, flipped classroom and simulations are active methodologies that enable students to experience a simulated practice within a learning context.

METHODS

Methodology followed

The main purpose of this study is to present an active teaching and learning methodology in use in accounting education. The perception of its development over the years and the need to evolve in the current digital 5.0 context. Therefore, this article offers an explanation of how this methodology works, in order to show how its use in accounting teaching promotes the development of a set of technical, transversal and digital competences.

The methodology used is practical action-research. The authors involved in the teaching of accounting with the use of this active methodology are parties involved as responsible and teachers/tutors. Over the years, several studies have been carried out on the impact of this active methodology on the development of competences for the profession.

Methods

The method used in the practical action-research methodology took into account the context in which it was developed. Therefore, the practical modality of this research methodology has as its goal to emerge in reality using the Socratic model and reflection, in order to work/act in the context.

As one of the authors is the creator of the active methodology that is the subject of this article and one of the authors is a teacher and currently responsible for the methodology, their involvement in the context was monitored by the other external authors in order to avoid bias in the study.

Therefore, there were analysed a set of activities/tasks that are posed as challenges to the students during the work sessions. The activities were analysed according to a triad of competences to be developed: technical, transversal and digital. Thereafter, we present the methodology under study, called the Model of Simulator of Business Environment (SBE), and the analysis of two selected tasks and their impact on the promotion and development of these competences. This study aims to present how this methodology currently works and to reflect on the changes that have to be implemented in order to evolve towards 5.0 technologies, integrative at the level of: technologies, AI, digitalisation, people, sustainability (environmental, economic and social).

This active methodology is presented below, namely its characteristics, application, development, assessment and future.

It is not the scope of this study to present a set of conclusions, but only to reflect on the technologies and their use in the SBE versus their future so that it is aligned with the digital 5.0 era.

A Specific active methodology to foster skills' development

The main objectives of higher education should pass by teaching students to think critically and not to memorize small facts; to reflect about the themes and to bring up questions; to develop the capacity of imaginative narrative and the ability to decipher meanings; to form future citizens able to live in an era of

growing cosmopolitanism, and, so, to create a “community that knows how ratiocinate together about the problems, debating them in a Socratic manner; not to confuse education with the strict preparation for a profession and with the learning of the wiles of a craft” (Delors, J. 2001).

The approach by competences in school has as main purpose to develop in students the critical reflective thinking, making them able to analyse, decide, plan and communicate their ideas. In this sense, it is fundamental the development of teaching-learning and assessment strategies that promote the achievement of the desired learning results.

For this desideratum was conceived and already implemented in the curricular units of Project of Business Simulation of the Course of Accounting and Administration at the Superior Institute of Administration and Accounting of Porto, a Model of Simulator of the Business Environment, which intends to be the “terminal environment pivot”, which gives the students the application of the knowledge gained separately in other curricular units, in a perspective of a systemic integration and with a critical and reflexive approach.

The present study, besides characterizing the Model of Simulator of Business Environment (SBE) that supports learning, is oriented to the study of a specific set of technical, transversal and digital skills that the students of the Superior Course of Accounting and Administration should have when they reach the end of their training process.

SBE is an interactive opportunity to convey and explore theoretical concepts applied to the reality of the business world. It is an experience that allows students to get involved and interact with specific simulated situations that happen in businesses. SBE encompasses two courses: Business Simulation Project I and II at the Oporto Accounting and Business School that were created in 2003 with the aim of providing future graduates with the opportunity to complete their studies through a subject that would replace the internship.

SBE was conceived with the purpose of helping students to develop a set of technical, transversal and digital competences. Students attend this curricular unit for two semesters in order to be prepared for the business market, thus facilitating their integration into the job market.

Simulated companies are created with the aim of providing comprehensive skills training, allowing the student to participate in a multifaceted way, as an active player in the process of designing, developing and maintaining the business reality.

This model is aimed at a particular aspect of the skills training process that shapes the teaching methodology and the assessment system itself, built on a dynamic basis that favours progress and expected changes in students, but also verifies that the skills acquired correspond to the final academic certification. The fundamental purpose of this education and training practice is to bring theory and practice together. This requires transforming the learning experience into a professional one, in which the students have time to become an active part of the process. Students must acquire autonomy in their work, improve their decision-making and teamwork skills and practise “learning by doing”.

The student and his motivation are placed in the centre of the process, leading to a change in his critical thinking skills and problem-solving attitude. Still within this set of skills, communication, time management to execute certain tasks, leadership and ethics, are also explored. As well as, the necessary skills to work with the Enterprise Resource Planning (ERP) system where the accounting module is integrated.

In modelling this learning is considered essential:

- the integration of TIC (technologies of information and communication) in its dual roller of mentor and facilitator,
- the priority to dematerialization and interaction (of the students) networked in the global market, with a strong reaction dynamic,
- the presential execution of the activities in groups of 3 students,
- activities subject to a real calendar,
- the critical thinking by fostering a set of questions/problems that student’s companies have to solve in every lesson,
- the learning supported by an organizational environment of high systemic complexity, based on a global network by processes,
- the availability of professional tools and the forms commonly used in the reality of the business world, the subjects as a comprehensive system,
- the multidimensional treatment of the information oriented to the support of decision making, to the resolution and answer of the “contents/themes/problems/...” placed to the student.

Management Simulation enables students to acquire skills progressively, through practice and from a knowledge base.

However, assessing skills and, most important soft skills, implies that students are observed in the performance of tasks/activities as close as possible to real situations, authentic, using a set of instruments that allow the collection of evidence on the development of competencies in the students and about its demonstration in the situation.

The development of a unique model of assessment for this subject has generated an awareness on students of their own process of learning. The model of assessment in use promotes a continuous feedback and communication between teachers and students. Also, students are encouraged to do their self-evaluation and the evaluation of their peers in some activities, such as, the presentation of a report to all the colleagues of the classroom.

The organization and implementation of each session of work is quite important and defined in the beginning of each semester.

Students organized in groups of three, thus forming a company, which has the following means: two computers, a printer, a scanner, a phone and a place to store the accounting physical files (mandatory in Portugal).

Each company therefore has at its disposal the appropriate tools as well as professional software, which includes modules that allow the accountant to transform the entries in information to support management decisions.

Work sessions are conditioned/oriented by a specific script (guide), through which the necessary inputs to the functioning of the market are introduced (orders, supplies, acquisition of tangible fixed assets, collection (billing), payment of taxes, etc.) and determine the actions to be taken during the session.

As it happens in companies in the labour market, the students (here managers, partners, collaborators) have to meet a schedule, mark the point at the entrance and exit of the classroom; once at his/her workstation (secretary with a computer and all the means above mentioned, in addition to the necessary office supplies such as stamps, stapler, puncher, paper, physical file) and having the script (guide) of the respective session with the tasks to be performed, they make in group, their work defined for that day (session). They check if they have mail in the lockers placed in the classroom for that effect, send the mail, if it is necessary, placing it in the respective locker (bank, social security, finances, and others) and proceed to the physical archive of the documents generated in the session.

It is a work dynamic that is very similar to day-to-day work in a company, with the difference that here they have the teacher to lead them in their teaching-learning process.

The students' motivation as an essential psychological note of the new system of education and training based on the Management Simulation Model: it is worth mentioning the spontaneous stimulation of the perception of self-efficacy of and by the students themselves. In fact, the personal evaluation of their performance will always lead to their consequent (in) satisfaction. Thus, this process can prove to be an important factor of motivation, determining the degree of perseverance in the successive tasks that they face, following the proposed problems (Oliveira, M. L., 2003).

This curricular unit is not mandatory; the students have to register to attend them, in the third (last) year of the course. The fact that in all the semesters there are about six to eight classes in operation, with a number of students that may vary from 180 to 240, being this number variable according to the number of registrations, is synonymous of great motivation.

On the other hand, the eminently practical and applicable real-life content functions as an external factor to motivation. Students are involved in the process, they are the motor that develops the system, if they do not create the inputs necessary for the functioning of the market, and this does not develop.

The fact that students can see and realize practical aspects of how to constitute their own company, complete the forms, constitute "the company on time", issue checks to employees, pay bills of electricity and water, make orders to other companies, sell their products, in short, a whole series of activities of the real companies, gives them confidence, instils in them responsibility, and the notion that their role and function are vital. It is learning by doing and doing well.

The Evaluation System has a set of characteristics that makes it unique: evaluation is continuous (session to session); has a complement of behavioural performance evaluation; is based on a strong component of the ethics

and attitudes of all participants; including that of the agents involved, responsibility of the students.

The Evaluation System is structured in the perspective of the acquisition of competences and directed to the degree of satisfaction and success of the student. Assessment is an integral part of the teaching and learning process and contributes to the development of students' autonomy, enhancing their professional skills, through the valuation of the knowledge previously accumulated by the appropriation of "knowing how to do", of "knowing how to be" and "knowing how to act", that shape the shown competence.

The reflection that this system encourages leads, on one hand, the student to take conscience of what he/she does and why he/she does it, promoting, on the one hand, changes in the pursuit of the defined objectives and, on the other hand, may work as internal feedback, which allows him/her to self-assess his/her learning.

The role of the teachers is to promote the well-being of the students during the hours they spend in the classroom and outside it. Teachers are the coaches for the students' path of learning.

"(...) teach includes the professional knowledge and the performance of the act of teaching, conceiving, planning, developing and reorienting strategies. Be competent is to know how to mobilize professional knowledge to organize, develop and evaluate the act of teaching in order to respond to challenges created by the students' and the curriculum's needs and build new knowledge that allows finding answers to new professional challenges (Costa, N., et al. 2010)."

By being a complex, recursive and innovative Model that presents positive results compared to existing traditional models, we think it has limitations, since it is oriented only in a simulated plan.

We believe the existence of this model in the Course of Accounting and Administration is important, but so that it can pour more closely to the business reality the necessary knowledge to the future professional, it would be important the coexistence between this model and the observation internship in several companies along the course. This combination results from the fact that the development of competencies in a virtual environment is different from its real professional development.

As explained above each three-hour lesson is compulsory to the students to attend. The students have two lessons in a 5 days week, in alternated days, they work in a team, manage a simulated company, with a specific business plan. The company must achieve a certain performance implied on the business plan given to the students at the beginning of the semester.

The activities/tasks created depending on the skills that are understood as needed for the future professional at the end of the Course. Technical skills in accounting, management, financial issues, law, auditing, taxes treatment, are always present in each lesson. Also, at the same time some skills like communication, leadership, teamwork, resilience, achieving goals, research information and take decisions, make plans, treated in specific activities/tasks. The set of the skills required is in discussion at the accounting professional organizations, OECD and other organizations, as presented earlier in this study.

From the guide per company/session that the students, within the scope of the respective business plan, become aware of the tasks, which they expected to perform in each session.

The instructions indicated in the guide of each session prevail over all the other information of general and specific character, presented in other documents, namely in the curricular unit support notebook and in the Business Plan.

The tasks to perform are of various types:

- Expressly indicated in the guide to be effectively performed in a given session;
- Performed in a given session by the imposition of the compliance of legal deadlines (for instance the delivery of the periodic VAT Declaration, among others);
- Performed in a given session by the imposition of the good rules (for instance, payment of a debt on the appropriate term, attend in a determined moment for the collection of a debt, among others);
- Resulting of a decision made by the group in reaction to some kind of event, or considered by the group as suitable for the pursuit of the proposed objectives.

Examples of activities carried out by students

The conception of more than 400 tasks/activities on the Management Simulation takes into account the study towards the development of specific competencies/skills.

Each task as a main goal in a dual perspective: First, the one with the implicit application of the knowledge

learned to real situations and the second the development of soft skills in students.

The principle is the teamwork group all the year. By putting together three students to work every session, during three hours in the environment of the class and the preparation of tasks and activities outside the school, the development of the skill Teamwork is essential. In addition, the cooperation, communication, leadership, organization, self-control and other soft skills are required to potentiate or develop in each student in order to achieve the main goal of the company owned by the students: profit.

The table below identifies the set of skills intended to be acquired by students throughout the curricular units BSP I and II.

Table 1. Technical, Transversal and Digital Skills at SBE

Technical skills	
Skill	Description
Legal Interpretation	The already formed groups prepare all the documentation in order to form a commercial company among themselves.
Accounting and tax planning	Scheduling payments related to the retention of IRS/IRC, payment of VAT, payment of other taxes. Planning and organization of documentary, physical and digital archive.
Management Support	Accounting for expenses by cost centres.
Financial analyses and Disclosure	Execution of management report and attached to financial statements.
Ethics	Ethical rules in accounting
Transversal skills	
Team work	Students enrolled in the Business Simulation Project course are grouped in sets of 3 to work together for 2 semesters - one curricular year.
Communication	Each of the elements of the company already formed, acts as managing partner/administrator, with the responsibility of communicating among themselves the tasks to be developed during the semesters.
Time Management	This area of competence is assessed in the sense that if a certain task is not performed on that date, the group/company will be penalized in terms of assessment.
Problem Solving	In each of the sessions, in the tasks to be developed, the groups must solve problems that may exist, whether procedural and operational, or technological.
Critical Thinking	Evaluation of the tasks imposed for execution and comprehension, skills, ability to structure logical and critical thinking.
Leadership	Leadership spirit in work team.
Digital skills	
Digital	Use of an ERP (Enterprise resource planning). Email communications. File Management. Electronic Office Solutions. Personal Computer security. Presentation Creation. Spreadsheets. Word Processing software.

And, in the following pages there are presented and explained some tasks/activities asked the students to do which allow them to develop some of the skills mentioned above.

Activity 1: To do a report about the VAT Tax and its appliance to the company

Table 2. Skills to develop in activity 1

Skills to develop:	
Technical	Legal Interpretation; Accounting and tax planning;
Transversal	Team work; Communication (written, oral and interpersonal); Time Management; Critical Thinking; Leadership.
Digital	Work with accounting software (ERP) to retrieve information concerning VAT; Work with the software of the Portuguese Tax Authority; Fill in the VAT Declaration; Use the Internet of Things to exploit information and take the most important.

Students have the instructions to perform the activity as follows:

Instruction for the theme IVA (Value Added Tax) to present to the colleagues in two weeks.

The development of the theme will be presented in a written document composed, at most, by eight pages (type of letter Arial or Times new roman, size 12, space one and a half between lines), distributed as follows:

1st page: Cover; 2nd page: Index; 3rd page/8th page: Introduction, Development of the Theme, and Conclusions; Attachments

Attention:

- The non-compliance of the number of pages here indicated will lead to a penalization in the work assessment of 40%;

The theme must approach the following aspects:

1. Financial settlement; 2. Intra Community transmissions; 3. Exports; 4. Exempt transactions; 5. Intra Community acquisitions; 6. Deductions; 7. Investments; 8. Inventories; 9. Other goods and services; 10. Regularizations; 11. Reports; 12. Liquidations and deductions with the islands; 13. Reimbursements; 14. Payments to the state; 15. Recapitulative Maps.

This Activity, intends to potentiate/develop in students the gathering of information; the summary must be presented by written and with an oral presentation of the information; differentiate the essential from the accessory; reach a consensus among the group to add the most import information on the thematic in question; division of tasks and roles of the team members; organization of work; Monitoring the tasks and time; Write the report within the rules; Presentation: written report and Oral presentation.

The activities above mentioned requires from the group of work a diversion of soft skills in order to accomplish the ultimate result: the oral presentation.

The soft skills intended to develop with this Activity are: Communication, Critical and structure thinking; Adaptability and flexibility; Motivation; Time Management; Team working; Decision making; Creativity and innovation; Managing Responsibility.

The question remains on how to assess those skills? Or, how to assess the level of proficiency in each of those skills? The assessment of the skill communication, written and oral presentation is framed on the following criteria.


Activity 2: To Determine and Pay VAT

Table 3. Skills to develop in activity 2

Skills to develop:	
Technical	Financial analyses; Ethics; Accounting and tax planning.
Transversal	Team work; Communication (written, oral and interpersonal); Time Management; Critical Thinking; Problem solving; Leadership.
Digital	Work with accounting software (ERP) to retrieve information concerning VAT; Work with the software of the Portuguese Tax Authority; Fill in the VAT Declaration.

Students have the instructions to perform the activity as follows:

Figure 1. Extract from the Session Guide no. 3 of February 26/27

P.PORTO ISCAP		Session Guide no. 3 26/27 february				
No.	Task/Activity	Subtasks	Entities	Value	Observations	Ass.*
36	VAT determination				January	
		print the financial reports				
		VAT determination accounting record entries				
		create posting entries				
		periodic VAT declaration				
37	VAT payment				January	
		check the amount owed				
		payment by bank transfer				
		accounting entry				
		classify the bank transfer receipt				

* Assessment

With activity 36 – VAT determination, students are told to determinate the VAT of a specific month. This VAT determination is made based on the financial accounting records entries during that month. Afterwards, they have to do the accounting entry of the VAT and fill in the periodic VAT declaration.

They only do the activity 37 – VAT payment, if in the previous activity the determination VAT resulted in an amount to pay to the government. To do this activity, they pay to the Portuguese Tax Authority, the VAT amount by bank transfer and made the accounting entry in the company software.

Given the development of digital and artificial intelligence in the world of accounting, it is essential that this methodology evolves to include these themes in the activities proposed to the students.

CONCLUSIONS & REFLECTIONS: INTEGRATION OF DIGITALIZATION AND AI IN ACCOUNTING EDUCATION

Bearing in mind that the SBE Model under analysis provides a broad set of competences for the accountancy profession in today's labour market.

Based on the analysis of the results of the SBE Model evaluation questionnaires answered by students who, in the last 2 academic years, have attended and successfully completed the curricular units that have the SBE as their umbrella, it can be concluded:

1. The proposed tasks are appropriate;
2. The number of tasks and the type of tasks assigned in each working session are in line with the students' perception;
3. Group work is considered fundamental for students;
4. The production of intermediate written work is accepted as an added value for students;
5. The support provided by the teachers during the work sessions is considered essential;
6. The majority of students agree with advising their colleagues to take the course rather than the internship.

The weaknesses they point out centre on the excessive workload during the academic semester, as these are just another of the many curricular units they have to attend.

Taking into account the literature review presented in this study on digital competences and artificial intelligence, we leave you with some thoughts on the future (already tomorrow) of changes in the teaching of accounting in the context of Model of Simulator of Business Environment:

1. Change/improve some tasks to get a closer proximity of the reality;
2. Implementation at the accounting professional software in use of AI through the provision of links between the various modules that make it up, which would allow students to realise the importance of AI in accounting in terms of facilitating processes and speeding them up, freeing up more time to carry out other very noble activities in this profession;
3. Use process-based document management tools, with the integration of virtual assistants;

4. Integrating digital communication into the software in use and digitalisation. The integration of email and other forms of communication is fundamental for the digitalisation of accounting that is so much talked about and which is so necessary for the profession;
5. Extending these innovations to other accounting curricular units, in order to encourage students to use digital tools with AI from the first year of the course and their importance for their professional future.

LIMITATIONS

The limitations relate to the fact that only this active methodology in the teaching of accounting was the subject of this study. In the future, we suggest studying this active methodology in comparison with others and furthermore, to advance its study in the context of the evolution towards 5.0 technology.

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