

# Training Strategy and Teaching-learning Methodology Through the I-Tournament Tool for Public Accounting Students and its Contribution to Organizational Processes

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## Abstract

Challenge-based learning is one of the scenarios that allows a significant appropriation of knowledge, this article focuses on designing a training strategy and teaching-learning methodology through the I-Tournament tool for students of the Public Accounting program and its contribution to organizational processes. It is approached through applied research in terms of its purpose and mixed in terms of its data source, with a triangular approach, descriptive scope, and deductive method. The result is the design of the I - Tournament tool as a training and management strategy, in academic spaces, and initially in SMEs in the city of Bogota, responding to needs in organizational processes. The implementation of continuous training strategies and knowledge exchange through technological tools such as I - Tournament, allows a permanent training of future professionals, by strengthening their analytical and problem-solving skills, and updating in accounting, financial and tax issues.

## Keywords

Comprehensive training, Innovation, Management, Skills, Productivity.

## 1. Introduction

The I - Tournament methodology is a tool that can be used to reinforce the concepts taught in Public Accounting (Kalyani y Rajasekaran, 2018). In today's era of global competition, contemporary accountants need a more effective and engaging approach to content delivery (Joshi y Chugh, 2009). Jain et al. (2022), mentions that gamification, specifically, can be used to enhance the teaching-learning process. Recent re-search has focused on the use of a Monopoly board game (MBG) to aid in the teaching-learning process of financial statement analysis (FSA) (Kulkarni, 2020). Such methods based on rewards, competition, teamwork, and collaboration can motivate students and lead to enhanced learning (Gamarra y Dominguez, 2021).

For Escobar (2020), in the field of information technology, there is increasing competition among universities for global human resources. The I-Tournament Tool is a suitable tool to use in the teaching-learning process, as it is a conceptual designation applied to a wide variety of objectives and promotes competition, effective teamwork, and collaboration (López y Alguacil, 2022).

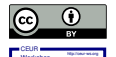
Gamification can also be used to reinforce core subject matter concepts, and the effect of this on student learning has been studied (Martínez y Pedroza, 2021). This tool can be used at both undergraduate and postgraduate levels and can be used to promote longer-term competencies throughout the course (Kokina y Juras, 2017). Finally, there are examples where challenge learning can improve accounting education compared to traditional teaching methods (Holtzblatt y Tschakert, 2011). Therefore, the I-Tournament Tool can be a valuable tool in public accounting to promote student engagement and reinforce the concepts taught.

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## 2. Methodology

This article is approached through applied research in terms of its objectives and mixed research in terms of its data source. According to Elizondo (2002), applied research is that which focuses on working for the benefit of society, which in this project is aimed at small and medium-sized entrepreneurs and merchants with low economic development. Mixed research is that which is supported by documentary data and field work.

The approach is triangular, which allows the consolidation of literature review, data collection and the application of techniques. Triangulation is a powerful technique and tool that facilitates the use of multiple methods for the articulation and validation of data through the crossing of two or more sources (Charres et al. 2018). Resorting to the deductive method to determine the continuing education needs required by the students of the public accounting program, which contribute to manage business solutions.

Techniques such as direct participant observation, content analysis, surveys and interviews will be used. Students of the public accounting program Bogotá Virtual and Distance - PYMES localities of Engativá, Fontibón, Mártires, Ciudad Bolívar, Suba, Santa Fe, Usaquén, Chapinero, Puente Aranda and Barrios Unidos.

The students and SMEs represent the target population that will make it possible to establish the variables that affect the management and implementation of the strategy. Students in their sixth, seventh, eighth and ninth semesters, equivalent to 95% confidence margin and 5% margin of error. Five SMEs per locality, using simple random probability sampling.

## 3. Theoretical framework

I-TOURNAMENT is a gamification strategy created by Mr. Guillermo Solano and Nelson Mora at the Innovation Center, which transfers in a practical way the methodology and tools necessary to carry out INNOVATION processes; it allows the human talent of the organization to apply strategies with game components (in a non-playful and non-recreational environment) the steps of the innovation process and thus ensure results with high level of novelty, relevance and low risk.

A FRAMEWORK of innovation process is described applying levels of achievement, effort and learning and types of competition such as: competing against the other, competing in a team, competing with myself and competing against the system, developing a list of actions to reduce the situations of defeat and thus balance its effects: participation is voluntary, not before by the management creating the necessary environment to ensure the participation of the organization's collaborators, it is played in teams, a long-term game is implemented trying not to generate definitive victories or defeats, perverse prizes are eliminated to avoid demotivation, mechanisms are generated to have dynamic teams between different seasons and strategies are applied to vary the types of challenge, so as to open possibilities for all styles of problem solving.

PRA seeks to obtain reliable and useful results to improve collective situations, basing the research on the participation of the collectives to be investigated; it is about population groups going from being the "object" of study to the "subject" of participation (Alberich et al., 2019). State in an organized and precise manner the method used to indicate how the general objective and each of the specific objectives will be achieved and how they will be developed. Indicate the process to be followed in the collection of information. SMEs are a factor in the economic growth and in the generation of employment in Colombia. they are the business sector that faces the most difficulties for their development and for their financing, especially long-term financing, since it is with this that investment and growth in business is supported (Maldonado, 2020). According to Law 905 of 2004, in Colombia a small company is one with assets between 501 and 5000 current legal minimum wages (\$391,402,242 to \$ 3,906,210,000 for 2018) or between 10 and 50 workers. Medium-sized company: company with assets between 5001 and 30,000 legal minimum wages in force (\$2,040,000,001 to \$12,240,000,000 for 2006) or between 51 and 200 workers.

The competitive development of SMEs is due to factors such as human and intellectual resources and to the relationships established by economic agents (Heredia and Dini, 2021). In Bogota, different higher education entities are implementing innovation systems with the capacity to generate and transfer knowledge and technology that serves as support or industrial atmosphere to local companies; therefore, contributing to the development of the region. An innovation system is the set of institutions that together and individually contribute to the development and diffusion of new technologies (Alfonso et al., 2016).

Without innovation programs and projects, it is very difficult to propose productivity and quality improvements that respond to the demands of market globalization; thus, training represents a great challenge for research (Becerra, 2011).

Therefore, the innovative cultural thinking is located in an initial state, it is evidenced in the centralized decision making and low specialization in the collaborating personnel in charge of product development, so a high percentage of these organizations are family businesses, these characteristics together with the use of information sources, mainly the internet and magazines, are evidenced in the predominant type of innovation in the offer, centralized by the adoption of international referents (López et al., 2014). Personal aspects on the part of entrepreneurs can be determinant for the functioning of the organization and that it is essential to determine the relationship between technological and innovation capabilities and organizational development for the SME, especially given the recurrent figure of the entrepreneur-manager, who are sources of ideas for innovation and at the same time are at the head of their organization (Alfonso et al., 2016). Finally, many SME entrepreneurs recognize that their firms have problems in the management of production, quality, and development of new products (Placer, 2016), the above goes hand in hand with the lack of budget for innovation activities, which generates that entrepreneurs have difficulties in measuring the contribution of innovation to gross revenues, in production costs and in profit margin. Consequently, innovation becomes just another activity, but one that is not formally managed (Namaayande and Khamseh, 2019).

According to Dini and Stumpo (2021), SMEs in Colombia contribute about 38% of total GDP, a considerably low figure considering that in some developed economies they can participate in up to 50% or 60% of national production. As for the results of the companies evaluated, the trend is similar for the entire national territory, i.e. there are no regional differences that condition the conclusions. Companies are willing to innovate, however, there are paradigms that prevent this from materializing, as mentioned by Nates and Ríos (2016), the belief that a large amount of resources is required, that it is not possible for SMEs to develop innovation because there is too much risk, that innovation is not possible in soft technologies and that alliances cannot be made for fear of losing intellectual property rights, that ideas may be taken by others and patented by third parties, and finally that there is no trained or committed personnel to carry out such processes, are the greatest impediments to growth.

According to the "Frascati Manual" published for economic cooperation and development (OECD) "Innovation can be defined as any activity whose result is the creation or commercialization of new products and processes, including changes in management (organizational, financial, commercial, human resources, among others)". Vargas et al, (2020) describe that the basis of knowledge are people, being these an important factor to analyze in the business environment, these generate innovation of any kind: Radical Innovation, when the development totally changes the way of seeing and interpreting a product or service, Incremental Innovation, when already existing products or services are improved, Product Innovation, when changes in the product are developed, Process Innovation, when there are changes in the processes of elaboration of products and services and Service Innovation, when attributes of services are improved, all these applicable to business structures (Izard, 2015), (National Agency for Research and Innovation Uruguay, 2014).

It is important to identify that one of the most relevant sectors in the economic development of Colombia, currently in the country are the micro, small and medium enterprises (SMEs), they represent 99.5% of the national economy, are responsible for 35% of GDP and generate 80% of employment according to DANE, in POST-COVID 90% of this sector presents decrease in its competitiveness being its human capital the most affected, According to the Chamber of

Commerce of Bogota, the large SME survey (GEP) of the ANIF revealed several shortcomings of the SMEs, among which the short term vision stands out, 60% only request financing to cover cash flow, but not for any innovative activity.

However, according to Pérez (2021), innovation is not generated from one day to the next and not all companies are aware of its importance, therefore there are two cases, the first are the conscious companies that invest and potentiate the abilities, skills and knowledge of the people in their business environment, which allows them to have structured knowledge and be able to generate creative ideas that develop and innovate their structures and strengthen their organizational culture (Hernández y Gustavo, 2009). The second are those companies that only dedicate themselves to live day by day, leaving aside the capabilities of human capital, they do not project or prepare for the future; for this reason it is essential to say that every organization is human, because there are values, attitudes and behaviors that identify its members, characterizing them against other human groups (Manpower, 2012), for this reason business investment must take into account the variables R + D + i (Research + development + innovation) that involve people in the development of competitive economies; being these variables a strategic tool in the competitive positioning of companies in the market; impacting the capacity to generate employment and being a substantial element to develop relationships with the stakeholders of a company. (Spanish Government, 2013). Vásquez de Parra and Vásquez (2006), in their paper entitled "Human Management and transformational leadership in the new times" consider organizational learning as a process with people oriented to strategic leadership while directing companies to give value to man as the most important asset or belonging that the organization has, since they refer to the fact that technological advances have not been possible without the mind and help of the human being, leading these organizational parameters to reach the top of success in any of the areas that the company performs. The authors focus their idea of success in the good understanding and application of the values of productivity, entrepreneurship, flexibility, and innovation capacity of people and that the company must be ready to respond to any demand of society as a change arises that affects either the person, business technology or the company directly among its principles at the time of founding the organization. Therefore, when innovation is mentioned, it is essential to talk about Human Talent Management, people generate innovation both for companies and for the social environment, they are the basis of growth and competitiveness of these, due to the distinctive capabilities and competencies that each one has, which are crucial to achieve the desired competitiveness (Becerra Álvarez, 2011). From this perspective, it is imperative to generate strategies to endure and grow in a highly competitive environment, it is necessary to apply innovation, training of qualified human capital, in general, all aspects related to the management of human talent, aspects that will allow SMEs to be an important agent for economic development.

No model or theoretical trend is superior to another, simply what must be analyzed is the adaptability to the company or organization in question, because in one way or another are intertwined with each other. However, there is one element that is common to all of them, and that is that each of them in one way or another allude to Human Talent as the decisive factor in the innovative process that guarantees the survival and prosperity of Organizations, some give it greater weight, others less, but the truth is that it is present in all of them. However, it is the trend that has fewer practical followers, since its fruit is not generated by the Talent itself, but by the effect of its Management, which is why business managers understand that it is a source of progress, but they have not made it aware enough to apply it successfully.

## **4. Results**

According to studies carried out in the project "types of innovation in SMEs in Santiago de Cali", micro companies are those with fewer than 10 workers. Small and medium-sized enterprises (SMEs), although they are currently referred to as SMEs, are a decisive link in the formation of production chains and in the generation of employment. Based on the study of types of innovation in SMEs, these organizations have greater obstacles to face market changes and undertake

innovative projects. Several of these problems faced by SMEs derive from three major aspects: the first limitation is access to financing, either due to the low use of instruments, lack of access to them or simple ignorance; the second is a precarious technology, due to a fragile research culture; the low relationship of the organization with research entities such as universities and research centers and, finally, the identification of deficiencies in organizational management (Laitón and López, 2018). The financial system is an important actor for the growth of SMEs, every time it allows the leverage of their investments. According to the Gran Encuesta PYME conducted by the Asociación Nacional de Instituciones Financieras, ANIF (2006 - 2019), the financing resources of entrepreneurs in the different economic sectors are obtained mainly from banks.

SMEs in the city of Bogotá D.C. account for 99% of the total number of companies (Confecámaras, 2022). According to the Survey of Infrastructure SMEs, conducted by the Colombian Chamber of Infrastructure (2020), 57% of small and medium-sized companies that develop activities in the country's infrastructure sector carried out innovation activities in 2016. The percentage is higher for builders (61%) than for consulting firms (55%). Among the results of the survey, it is also pointed out that the biggest obstacles to carry out innovations are lack of budget and funding sources, low level of qualification of their collaborators, among others. In consulting and construction firms, similar results were given lack of financial resources (43% of responses in 2016 vs. 31% in 2013), lack of qualified human resources (14% vs. 10%) and lack of adequate infrastructure (10% vs. 7%).

Based on a population of 1250 students, sample of 295 students, confidence level of 95% and margin of error of 5%), we determine that:

Using the sample size formula for a finite population, we can determine the size needed to obtain a 5% margin of error with a 95% confidence level. The formula is:

$$\frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left( \frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

N = population size

e = margin of error (percentage expressed with decimals)

z = z score

n = sample size

Replacing the values provided:

N = 1250

e = 5%

z = 1.96

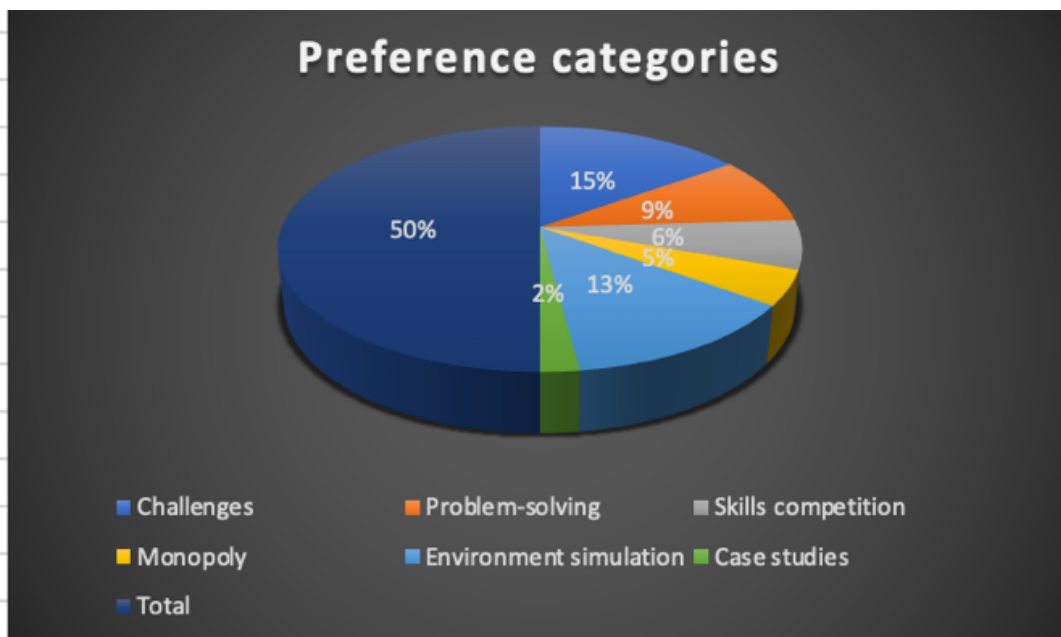
n ≈ 295

According to the information collected, it is identified in Table 1 that the preferences of accounting students to implement the I - Tournament methodology are as follows.

**Table 1**

**Preference categories. Own source**

Categories	Number of students	Percentage
Challenges	89	30%
Problem-solving	53	18%
Skills competition	38	13%
Monopoly	27	9%
Environment simulation	76	26%
Case studies	12	4%
<b>Total</b>	<b>295</b>	



**Figure. 1.** Preference categories- Own source.

**Challenges:** 30% of the students show a preference for challenging activities, showing that there is a significant interest in facing challenges in the accounting context. This indicates that students value the opportunity to apply their theoretical knowledge in practical and complex situations.

**Problem solving:** About 18% of the students show a preference for activities focused on solving accounting problems, highlighting the interest in developing analytical and critical skills. Students value the opportunity to face specific challenges and find solutions in the accounting field.

**Competence by skills:** Approximately 13% of the students showed interest in activities that promote competition for accounting skills. This indicates that there is a motivation to stand out and demonstrate their abilities in a competitive environment, which reinforces the importance of fostering the development of solid accounting skills.

**Monopoly:** With about 9% of students expressing a preference for activities based on the Monopoly game, the value of incorporating playful elements into the accounting learning process is evident. Students show interest in a more interactive and entertaining approach to understanding key concepts.

**Simulation of environments:** About 26% of the students showed interest in activities involving the simulation of accounting environments. This suggests that they value the opportunity to experience practical and realistic situations related to Public Accounting, allowing them to apply their knowledge in contexts closer to reality.

Case studies: With approximately 4% of the students prefer activities based on case studies, the importance of analyzing and solving real or hypothetical problems is evident. Students value the application of their knowledge in practical situations, which fosters the development of critical thinking skills.

The application of the I-Tournament methodology with the seventh, eighth and ninth semester students of the Public Accounting program of the Corporación Universitaria Minuto de Dios, it was possible to establish that:

### **Impact on the Learning of Public Accounting Students**

#### **Improvement of Knowledge Comprehension and Retention:**

Students participate in tournaments that challenge them to apply accounting concepts in practical situations, such as preparing financial statements for different types of businesses. This practical application leads to better understanding and retention of concepts, as students not only learn them theoretically but actively implement them.

#### **Development of Critical Thinking and Analysis Skills:**

By facing complex accounting problems in a competitive format, students develop critical thinking and analytical skills. This better prepares them for real challenges in the professional world, where they must evaluate and make decisions based on financial data.

#### **Increased Motivation and Engagement:**

The gamified nature of I-Tournament increases students' motivation and engagement with the study material, making learning more engaging and less monotonous.

### **Impact on Problem Solving in SMEs**

#### **Improved Financial Decision Making:**

SME owners and employees can use I-Tournament to simulate financial scenarios, which helps improve their financial decision-making skills. This practice enables them to better anticipate and handle real financial challenges, such as cash flow management and investment planning.

#### **Continuous Training and Knowledge Upgrading:**

I-Tournament can be used to keep staff up to date on the latest regulations and practices in accounting and finance. Continuous training is crucial for SMEs, enabling them to adapt to market changes and remain competitive.

#### **Fostering Teamwork and Collaboration:**

By using I-Tournament in a business environment, teamwork and collaboration among employees is promoted. This is especially valuable in SMEs, where team synergy and efficiency can have a significant impact on the company's success.

To develop a comparative study between I-Tournament and other gamification tools, as well as with traditional teaching methods, several key aspects can be considered. These include learning effectiveness, student engagement, practical skill development, and ease of implementation. This hypothetical analysis is based on the general characteristics of gamification and traditional teaching methods.

### **I-Tournament vs. Other Gamification Tools.**

#### **Learning Effectiveness:**

I-Tournament: Promotes strong practical application of accounting concepts through competitions and challenges.

Other Tools: May focus more on gamification aspects, such as points and medals, which do not always guarantee a deeper dive into the study material.

Student Participation:

I-Tournament: Their focus on tournaments and competitions can significantly increase student participation and engagement.

Other Tools: They vary in their ability to engage students, depending on how they integrate game elements into learning.

**Practical Skills Development:**

I-Tournament: Strong emphasis on practical skills and decision making, crucial in accounting and business management.

Other Tools: May focus more on theoretical knowledge than practical application.

**Ease of Implementation:**

I-Tournament: Requires careful integration into the curriculum to be effective, which could be challenging.

Other Tools: Some may be easier to implement, but others may require similar adjustments to the curriculum.

**I-Tournament vs. Traditional Teaching Methods**

**Learning Effectiveness:**

I-Tournament: Promotes active learning and long-term retention through practice and challenge.

Traditional Methods: Often focus on passive teaching, which may not be as effective for long-term retention.

**Student Engagement:**

I-Tournament: Increases engagement through competition and play.

Traditional Methods: May struggle to maintain student engagement, especially on complex topics.

**Practical Skills Development:**

I-Tournament: Focused on practical application of knowledge, crucial for accounting and finance.

Traditional Methods: Often focus on theory, with less emphasis on practical application.

I-Tournament: May require more resources and planning to implement effectively.

Traditional Methods: Generally easier to implement, as they are well established and require fewer resources.

In summary, I-Tournament stands out for its hands-on, participatory approach, which could outperform both other gamification tools (which may focus more on superficial gamification) and traditional teaching methods (which are often more passive and theoretical). However, its success depends largely on careful integration into the curriculum and the resources available for its implementation.

## 5. Conclusions

Based on the findings and the benefits of the I-Tournament methodology, it can be evidenced that there is an opportunity for organizations and students, since using this tool in the training of Public Accounting, will strengthen the apprehension of knowledge and solution to the needs within the organizational processes. To achieve the success of the methodology, clear instructions and guidelines must be provided on how to effectively use the I-Tournament tool to maximize its benefits. An inclusive and supportive learning environment that encourages active participation and collaboration among learners must also be created. In addition, the effectiveness of the I-Tournament tool in achieving learning objectives should be periodically analyzed and evaluated



and adjustments should be made to improve its implementation. Organizations should also invest in the necessary resources and technology to ensure the smooth integration of the I-Tournament tool into their organizational processes. By following these recommendations, organizations and academia can maximize the potential of the I-Tournament methodology and optimize the learning outcomes of public accounting students.

Based on estimates by ANIF (National Association of Financial Institutions), it states that SMEs generate almost 73% of employment and account for 53% of the gross production of industry, commerce, and services. The academy has sought to provide solutions to the organization's processes to make it more competitive. Considering the changing dynamics of the market and the economy, it has been identified that SMEs underestimate the importance of innovation and knowledge, which should be the center and the heart that allows them to be more competitive both in processes and productivity.

Chinese, Chilean, and Brazilian companies now form a strong competitive barrier for national SMEs. Globalization is a constant challenge, and these companies have a high probability of being pushed out of the market because they are not innovative. Companies are centers of social responsibility whether they want to be or not. It is necessary to be a strategist and have a vision, to have a strategic direction, to ask oneself where the company will be in 30 years. Although there is a great entrepreneurial environment and attitude in the country (fourth place worldwide in positive attitude towards entrepreneurship according to the University of Munich), only 50% of Colombian SMEs survive the first year and only 20% in the third year.

In the large survey 2006 - 2019 of the ANIF National Association of Financial Institutions to SMEs, the main structural findings of the measurement found a strong correlation of the behavior of SMEs with the macroeconomic performance of the country, low levels of access to formal financing, low export vocation (only about 20% export), and low capacity for innovation (35% do not perform any action to improve their business).

The goal is to involve a significant number of companies interested in participating in the innovation project to generate the necessary capabilities that will enable them to implement tools to improve innovation in processes and human talent in their organizations. Likewise, it is required the continuity in the generation of competencies in innovation directed to the students that support the companies, so that they are not only a vehicle for the transformation of the organizations, but also a vehicle for the formative processes within UNIMINUTO and the Public Accounting program.

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