

ANALYSIS OF ACTIVE METHODOLOGIES IN THE TEACHING- LEARNING PROCESS IN ENTREPRENEURSHIP: CASE STUDY WITH THE APPLICATION OF BUSINESS GAMES IN FZEA/USP

Celso da Costa Carrer

Professor graduated by FZEA/USP

Marcelo Machado de Luca de Oliveira Ribeiro

Professor graduated by FZEA/USP

Camila Cerezer Silva

Masters graduated by PPG-GIIA/FZEA/USP

Nídia Mari Alves de Araujo

Masters graduated by PPG-GIIA/FZEA/USP

Eduardo Tadeu Rantin

Masters graduated by PPG-GIIA/FZEA/USP

Joel Dimas da Silva

Master's students of PPG-GIIA/FZEA/USP

Gisele Barreto Mourão

Master's students of PPG-GIIA/FZEA/USP

Fernanda Olívia Borges Oliveira

Master's students of PPG-GIIA/FZEA/USP

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: From the 1990s onwards, disciplines involving the theme of entrepreneurship became an important reflection for the innovation of the curricular matrix of several undergraduate courses in Brazil. In view of the importance of learning in management and entrepreneurship for higher education careers, this work sought to analyze the effectiveness of active methodologies based on “business games” in the teaching-learning process for students of undergraduate courses at FZEA/USP. This activity was carried out in mandatory entrepreneurship courses, from 2003 to 2018, and a qualitative database was analyzed in dynamics applied in 38 different classes during this period. The system used in the dynamics of “business games” was developed by SEBRAE-SP, the official body to support micro and small entrepreneurs in the country. Through the analysis of speeches and testimonies, the potential for results in the teaching-learning process and the students’ perception regarding the effectiveness of the method for the retention of theoretical and practical knowledge in the area in question were identified. The results showed that the use of the active methodology used was effective to stimulate learning in 90% of the students, with 98% suggesting the reapplication of the method for future classes. The method also induced the exercise of leadership and pro-activity in the teams that participated, contributing to a change in posture, at the same time that it stimulated the process of entrepreneurial formation for the students.

Keywords: Entrepreneurship, business games, active methodologies, business simulation.

INTRODUCTION

The teaching of entrepreneurship and business management has been growing recently in Brazil, as a requirement in the training of graduates. Salim and Silva (2010) indicate that Brazilian universities, before

1990, practically did not offer entrepreneurship courses in their undergraduate curricula.

The education of the future must prepare people for changes in the world of work (SANTOS, 2000). Despite this, the vast majority of educational institutions still use a formal education system based on traditional and not always effective techniques and procedures, still training employees as a priority for a world that increasingly needs entrepreneurs or at least intra- entrepreneurs (ROSS et al., 2016).

Considering the possibility of creating a university practice that is more prepared for the current training demands, there is a growing need to adopt methodological procedures aimed at entrepreneurial education, in which active methodologies with the simulation of business games play a prominent role in the formation of future students. professionals.

“The ideal profile required by this market is professionals who know techniques and technologies, capable of increasing the production and productivity of companies, as well as enabling the commercialization of products and services, while meeting the main trends of the target audience, with an increasingly demanded market view. Due to major economic, scientific and technological changes, Higher Education Institutions (HEIs) are being forced to undergo internal reformulations in their Political Pedagogical Projects (PPP), so that trained professionals increasingly meet the demand for quality. demanded by the current job market” (OLIVEIRA, 2018, p.20).

The proposed theme has a relevant importance for higher education students of various careers, since in Brazil many companies close their doors for lack of basic knowledge in business management.

In view of the importance of learning in management and entrepreneurship for higher education careers, this work sought to analyze

the effectiveness of active methodologies based on “business games” in the teaching-learning process for students of undergraduate courses at FZEA/USP.

This activity was carried out in mandatory entrepreneurship courses, from 2003 to 2018, and a qualitative database was analyzed in dynamics applied in 38 different classes during this period.

The system used in the dynamics of “business games” was developed by SEBRAE-SP, the official body to support micro and small entrepreneurs in the country. Through the analysis of speeches and testimonies, the potential for results in the teaching-learning process and the students’ perception regarding the effectiveness of the method for the retention of theoretical and practical knowledge in the area of knowledge in question were identified.

LITERATURE REVIEW

Economic growth, as described by Dolabela (2008a), is directly and proportionally related to the degree of entrepreneurship of a community. Environmental conditions favorable to development need entrepreneurs who take advantage of them and who, through their leadership, capacity and profile, trigger and coordinate the development process, in which the roots are in cultural values and in the way of seeing the world.

“In Brazil, from 1970 onwards, in addition to the university being responsible for teaching and research, it began to serve the community. This way, HEIs must adopt a model in which research and teaching are more focused on the application of knowledge in solving social, economic, industrial problems, etc. This way, a new mission of economic and social development begins, in addition to teaching and research, which is explained by the act of extending knowledge (university extension). There is a need to work on the ability to transform knowledge into economic activity, that is,

it is necessary to reinforce the premise of teaching entrepreneurship” (ROSS et al., 2016, p.17).

This way, the entrepreneur must act as an agent of social transformation, since he creates and distributes values for individuals and society, that is, he is the protagonist of the resulting economic growth.

The Global Entrepreneurship Monitor (GEM, 2014) has indicated that the more formal education an entrepreneur has, the more chance he or she will have to create a business based on a real opportunity.

According to Ross et al. (2016), both formal education and entrepreneurial education are important to strengthen beliefs, attitudes, skills and knowledge, which will be fundamental to the individual’s performance. The earlier this entrepreneurial education process begins, the more chances there are of favoring the development of a series of skills that will make graduates better prepared for the challenges of postmodern society.

“Entrepreneurial education plays an important role in the educational training of post-modern professionals, especially in courses in areas more related to new technologies. It is believed that, because of the rapid changes that have taken place in the job market – which affect all segments – and the increase in the perception of the importance of small businesses in the global scenario, more and more courses perceive the urgency of including the topic of entrepreneurship in training. of their students (LOPES et al., 2010, p.81)”.

Therefore, the importance of entrepreneurship in education is clear. According to Oliveira (2012), the entrepreneur is one who knows how to identify business opportunities, organize actions to conquer the market and contribute to the evolution of the environment in which he is inserted. However, it must be recognized that the student spends years, from elementary school to university,

without contact with a more business-oriented approach and of extreme importance in the future of his career. Nowadays, more and more undergraduate students have considered new criteria for self-realization, in which the priorities are no longer just the search for a job, but also the opportunity to open their own business.

For Dolabela (2008a), it is not enough for the entrepreneur to be very prepared in a given specific technical knowledge, without knowing areas such as finance, marketing, organization and other contents of the business area. As a result, some authors, such as Saes and Pita (2007), argue that higher education institutions (HEIs) must think of a way to implement the teaching of entrepreneurship and management in higher education courses, so that this knowledge can contribute to generation of a new business profile in the future.

“It is the beginning of a revolution... the teaching of entrepreneurship as an instrument for economic growth and social development, by stimulating people’s creativity and autonomy. the most important to make sure that in all courses [...] there is always content on entrepreneurship (DOLABELA, 2008a, p.187, this stretch was highlighted by the author)”.

In turn, teaching entrepreneurship requires a certain innovation in working methods. In this sense, the traditional school, which teaches and evaluates using methods with predictable results, seems to ignore that the knowledge society is based on cognitive, personal and social skills, which are not acquired in the conventional way and which increasingly require, of proactivity, collaboration, personalization and entrepreneurial vision on the part of students (MORÁN, 2015).

Traditional methods, which are centered on the role of teachers as radiators of knowledge, made sense when access to information was more difficult. With the advent of the World

Wide Web and the socialization of many courses and teaching materials, one can learn in a much more practical and accessible way (ALMEIDA, 2010; VALENTE, 2014).

“The biggest challenge of the professor in Higher Education is to make the academic to have an effective participation in the classroom discussions. Pedagogical practice in Higher Education must be taken very seriously. It requires postures and commitments to a process that educates for the autonomy of the academic, mediated by the teacher. Only an education that has freedom as its principle can help to build a more humanized society” (DEBALD, 2003, p.1)

Thus, and also according to Debald (2003), it is clear that the difficulty for a teaching-learning process to become successful is not, normally, in the content to be offered, but in the methodological aspect that is used. Contributing to the evolution of this new learning method, the so-called “Active Methodologies” focus on developing the learning process, using real or simulated experiences in different contexts (BERBEL, 2011).

Since the second half of the 20th century, when higher education institutions are called upon to propose their teaching methods, techniques and conceptions in different areas of knowledge, the standard training that adopts an organized teaching centered on the teacher and with practical activities in an eminently predictable scenario and marked by unidirectionality in the teacher-student relationship. This “model” is responsible for training professionals who master the most varied types of technologies, but who are incapable of dealing with the subjective, social and cultural dimensions of people in our country (BRANT, 2005).

Meanwhile, other institutions have proposed more innovative, disruptive models, even without disciplines, that redesign the

teaching-learning project, the physical spaces, the methodologies, to focus on activities, challenges, problems, games in which each student learns in the your own pace and need. In addition, they also start to learn from others (teaching by peers) in groups and projects, under the supervision of mentor teachers. In this sense, methodologies that seek more proactive students need to adopt techniques in which students are involved in increasingly complex activities, which have to make decisions and evaluate the results. All this with the support of relevant materials, that is, they need to try out countless and new possibilities to try out their initiatives (MORÁN, 2015). According to the same author (p.18):

“Some components are fundamental for the success of learning: the creation of challenges, activities, games that really bring the necessary competences for each stage, that request pertinent information, that offer stimulating rewards, that combine personal paths with meaningful participation in groups, that insert into adaptive platforms, which recognize each student and at the same time learn from interaction, all using the appropriate technologies. Games and classes scripted with the language of games are increasingly present in everyday school life. For generations used to playing games, the language of challenges, rewards, competition and cooperation is attractive and easy to understand. Collaborative and individual, competition and collaboration, strategy games, with well-defined stages and skills, are increasingly present in different areas of knowledge and levels of education. The articulator of the individual and group stages is the teaching team (teacher/tutor) with its ability to monitor, mediate, to analyze the processes, results, gaps and needs, based on the paths taken by students individually and in groups”.

According to Miter et al. (2008) problematization, used by active methodologies as a teaching-learning didactic resource, always aims to interact in a different

and stimulating way with the student, because only then will he re-signify his discoveries. The author concludes that active methodologies, this way, can significantly and effectively favor the teaching-learning process.

Morán (2015) proposes the following segmentation in formal education: 1) The blended, blended, blended model, in which tactics – physical and virtual – come together in different groups and times, according to need, with a lot of flexibility, without rigid schedules and rigid planning; 2) Active methodologies: in which techniques based on practices, activities, games, relevant projects are applied than in the conventional way, combining collaboration (learning together) and personalization (encouraging and managing individual paths) and, finally, 3) The model online with a mix of collaboration and personalization. In this last model, each student develops a more individual path and participates in certain moments of group activities.

Regardless of the alternative model to be followed, students must always be communicated, from the beginning, that they need to take the lead in the teaching-learning process, developing in order to satisfy their individual needs and professional perspectives. Ribeiro et. al. (2003) and Barrows (2001) believe that delegating responsibility for learning teaches students to learn throughout their working lives.

Taking responsibility for one's own learning implies, according to Woods (2000), quoted by Borges and Alencar (2014):

“that students perform the following eight tasks: (1) explore the problem, raise hypotheses, identify and elaborate research questions; (2) try to solve the problem with what is known, observing the relevance of your current knowledge; (3) identify what you don't know and what you need to know to solve the problem; (4) prioritizing learning needs, setting learning goals and

objectives, and allocating resources so as to know what, how much, and when is expected and, for the team, determine what tasks each will do; (5) plan, delegate responsibilities for the team's autonomous study; (6) share new knowledge effectively so that all members learn the knowledge researched by the team; (7) apply knowledge to solve the problem; and (8) evaluate new knowledge, problem solving and the effectiveness of the process used and reflect on the process”.

According to Oliveira and Sauaia (2011), among the different active methodologies mentioned, with the technique of “business games” it is possible to visualize the result of decisions and modify them in different simulated periods of time. This difference illustrates the main advantages of using business games in the teaching-learning process in management and entrepreneurship: the ability to observe the consequences of decisions made by students and the possibility that they will learn from the successes and, perhaps, mainly with errors (KEYS; WOLFE, 1990; SAUAIA, 1995; OLIVEIRA, 2009). Li and Baillie (1993) reinforce the great stimulus to student participation as another advantage of the application of business games, as it is a competition, normally stimulating for the initiative process to search for solutions. There are some studies, such as those by Wolfe and Guth (1975), Tompson and Dass, (2000), Nakano and Terano (2004), Sauaia (2006) and Motta and Armond-de-Melo (2008), which try to integrate cases and business games, as well as others that deal with the combination of the technique of “problem-based learning” (PBL) with business games (MAXWELL; MERGENDOLLER; BELLISIMO, 2004; ANDERSON; LAWTON, 2009).

As for the exact origin of business games, Sauaia (1997) points out that, even today, there is some controversy on the subject. According to the author, the first use of business games was attributed to Top Management Decision

Simulation, developed for the American Management Association, which would have applied, for the first time, at the University of Washington, in 1957, a game for a student audience. As the author reinforces, in a business game, participants exercise analysis of business problems and practice decision making in simulated organizations, described in operational and financial reports.

With this, the technique of the business game allows the exercise of strategies, without taking the risks of a real company. Business games are based on a simulation model in which the characteristics of a particular company and the environment that surrounds it are portrayed in an approximate way to real situations so that decisions are made (KEYS; WOLFE, 1990). Also according to Sauaia (1997), since this first attempt, debates have taken place about the definitions of simulation and games and how they must be defined and differentiated.

MATERIAL AND METHODS

In order to better understand the material and methods used, the techniques that generated the collection and analysis of the information that make up the present investigation are presented below.

A case study is a history of a past or current phenomenon, drawn from multiple sources of evidence, which may include data from direct observation, testimonials and systematic interviews, as well as research in public and private archives (VOSS; TSIKRIKTSIS; FROHLICH), 2002). It is supported by a theoretical framework, which guides the questions and propositions of the study, brings together a range of information obtained through various data and evidence collection techniques (MARTINS, 2008).

For the application of the dynamics of the business game, the system developed by the Brazilian Service of Support to Micro and

Small Enterprises (SEBRAE) was used, which assumes the role of an autonomous Brazilian social service and which aims to assist the development of micro and small companies., stimulating entrepreneurship in the country. SEBRAE is a non-profit private entity created in 1972. It also works with a focus on the process of formalizing the economy through partnerships with the public and private sectors, qualification programs and specific training in the areas of management and entrepreneurship, fairs and rounds of business. Part of this effort gained visibility with the approval of the General Law for Micro and Small Enterprises, in December 2006. In addition to consulting business with regard to various issues such as Starting a Business, Setting Sales Prices, Financial Administration, Resources Humans, among others, SEBRAE also has several special projects. Among them is the Credit Orientation Project where, through courses given by instructors who undergo rigorous selection, entrepreneurs learn how to best use credit or microcredit. EMPRETEC, a course aimed at developing entrepreneurial principles in entrepreneurs, is also very successful. More details on the performance of this body can be seen on the SEBRAE website: <http://www.sebrae.com.br/sites/PortalSebrae>.

The business game applied to FZEA/USP undergraduate students is called “Simulated Management” (GS) and was specifically developed for use in staff training with the application of the “Young Entrepreneurs” module, offered by SEBRAE and in which the person responsible for the disciplines was trained to act as an agent for disseminating the technique.

Initially, this active methodology is presented in an introductory way, showing its importance in planning the teaching-learning process. As a fundamental reading for the understanding of the entrepreneurial process

and its concepts, the book “The secret of Luísa” by Fernando Dolabela (2008a) is used. By reading the first chapter of the book, the motivation and profile of the entrepreneur is shown, in chapters 2 to 3, the validation of the idea and in chapters 4 to 6, the elaboration of a business plan.

The application of the dynamics of the business game is preceded, then, by reading and clarifying the rules and theory that prepare the dynamics contained in the “Manual of Business Simulation (GS)” that is made available to students at least 60 days before the start of the activity. practice. When starting the rounds (maximum 10) of the business game, students are divided into teams (maximum 9) according to the number of students in each class and get in touch with a newsletter for each round with market conditions and a spreadsheet for data entry with the decisions to be taken (hiring personnel, pricing and marketing policy, acquisition of inputs and machinery, loans, among others). Each round takes place with an established deadline, so that teams are trained to work under time pressure and in the practice of leadership and group work with delegation of tasks in the main departments of a company.

After the decisions made by each team, the data are input by the teacher-advisor of the dynamics and the system presents four groups of managerial reports at each round of the game, called: a) Confidential Report - which each company receives separately (instructs the company’s situation regarding the management of inventories of inputs, finished products, operating results and cash flow); b) Balance Sheet; c) Evaluation Report (with performance calculation in four variables – see figure 1) and d) Economic and Financial Indicators (Figure 2).

Gestão Simulada - C:\Users\Celso Carrer\Documents\Celso\Máquina Celso\USP\ENSINO\Disci

Arquivo Jogo Exibir Ajuda

Relatório de Avaliação Período 9

Nome do Jogo : GEMA 2018 - Treinamento

Patrimônio Líquido

	Empresa 4	Empresa 2	Empresa 1	Empresa 3	Empresa 5
Capital	300000	300000	300000	300000	300000
Res.Acum.	419023.70	244972.85	231157.89	77901.44	46621.89
Total	719023.70	544972.85	531157.89	377901.44	346621.89

Diretor de Produção e Pessoal

	Empresa 4	Empresa 2	Empresa 1	Empresa 5	Empresa 3
Produt.MO	1.17	1.14	1.14	1.14	1.12

Diretor de Marketing

	Empresa 4	Empresa 2	Empresa 5	Empresa 1	Empresa 3
Ind. Ven/Dem	0.83	0.72	0.60	0.59	0.57
Ind. Período	0.90	0.71	0.62	0.81	0.50

Diretor Financeiro

	Empresa 5	Empresa 3	Empresa 1	Empresa 2	Empresa 4
Cto de Prod.	21.94	21.08	20.22	19.69	19.40
Cto Período	25.94	24.28	19.62	21.03	20.00

Figure 1 - SEBRAE Simulated Management System Evaluation Report

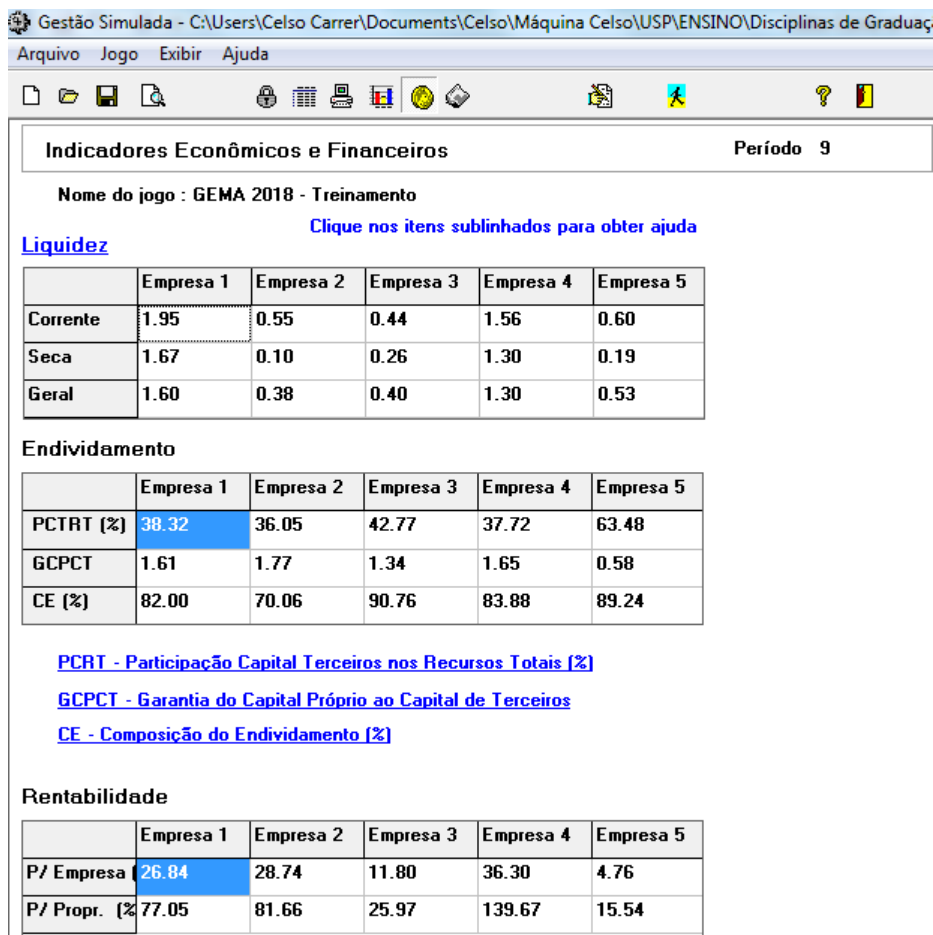


Figure 2 - Report of Economic and Financial Indicators of the Simulated Management system of SEBRAE

Course	Offered subject	Offered period	Work load
1 - Animal husbandry	ZEB 0426 – Entrepreneurship and Projects in Agribusiness	8º semester	60h
2 - Veterinary Medicine	ZEB 1348 – Fundamentals of Entrepreneurship and Project Planning	9º semester	60h
3 - Biosystems Engineering	ZEB 1052 - Management, Innovation and Entrepreneurship	7º semester	30h

Table 1 - Hours and semester of offering entrepreneurship courses at FZEA/USP

Regarding the determination of research sampling, Trivinões (2009) states that in qualitative research random resources can be used to set the sample. In the case of the research in question, all subjects who experienced this practice between 2003 and 2018 were considered, totaling 38 classes during the period, with 1,272 participating students.

At each round of the game (10 in total), operational aspects and difficulties encountered in decision-making are discussed separately with each team. In the tenth round, a general assembly is held in which each team summarizes its strategies, presenting and justifying its results to all participants. At the end, all students answered a questionnaire to record the main perceptions regarding the applied method (difficulties, main learnings, explanation of the strategy used by each team, effectiveness of content assimilation, among others). Part of the statements that summarize this general perception are presented in the results and discussions section of this work.

The technique of business games in the entrepreneurial education of students was applied within the syllabus of the curriculum of disciplines at FZEA/USP, involving the teaching of entrepreneurship in the undergraduate courses in Animal Science, Veterinary Medicine and Biosystems Engineering, respectively: Entrepreneurship and Projects in Agribusiness (ZEB0426), Fundamentals of Entrepreneurship and Project Planning (ZEB1348) and Management, Innovation and Entrepreneurship (ZEB1052).

Regarding the workload and the semesters of offering the subjects involving the theme of entrepreneurship at FZEA/USP, the following details can be observed in Table 1.

In all the undergraduate courses analyzed, the words entrepreneur and entrepreneurship are accompanied by terms such as innovation, managerial practices, creativity, capturing

opportunities, managerial strategy and project design. This way, the association of other concepts to the theme, such as innovation, management, financial analysis, marketing, among others, is done in order to meet specific demands for each course, aiming at the most adequate qualification of its students.

RESULTS AND DISCUSSIONS

The disciplines listed are or were under the responsibility of Professor Dr. Celso da Costa Carrer, responsible for the Coordination of the Center for Innovation, Entrepreneurship and University Extension (UNICETEX), teaching laboratory of the Department of Biosystems Engineering (ZEB) at FZEA/USP, in the thematic area of Business Management and Entrepreneurship, during the period analyzed.

The active methodology used by the teacher in charge is based on the pedagogical theory focused on entrepreneurship suggested in the books "O Segredo de Luísa" (Dolabela, 2008a), "Oficina do Empreendedor" (Dolabela, 2008b) and "Pedagogia Empreendedora" (Dolabela, 2003), which show, according to Carrer (2011), that entrepreneurship must be expressed as a fundamental element in the construction of the collective well-being, contributing as a path to the construction of freedom. Entrepreneurship cannot be considered as the only objective of income concentration, but as a priority tactic to fight poverty and social inequality, assuming, therefore, a strong bias towards the development of ethical and social aspects with its students.

According to the same author, the main objectives of the methodology of teaching entrepreneurship are:

1. Stimulate the student's ability to choose without influencing their decisions;
2. Prepare the student to follow his own path as a citizen;

3. Treat entrepreneurship as a way of being and not just doing;
4. Develop students' potential to be entrepreneurs in any professional activity;
5. Prepare the individual to actively participate in the construction of social development.

For the teaching of entrepreneurship to be developed in an efficient way, both the teacher and the students must jointly build knowledge from real situations, solving problems that may arise in the elaboration of the business plan.

This methodology, which aims to develop an entrepreneurial vision in students, must be focused on the long term, making students, during the undergraduate course, acquire a proactive attitude in their future professional careers.

“The methodology developed equips students, in fact, with essential knowledge for professional practice through the simulation of business games and the determination of the previously simulated economic viability (CARRER, 2011, p.13)”

A general analysis of the data allows us to say that the subjects fulfilled their objectives (without significant difference in relation to the class/year and undergraduate course) satisfactorily. The results showed that the use of the active methodology used was effective to stimulate learning in 90% of the students, with 98% suggesting the reapplication of the method for future classes. Below are some of the answered statements, considered syntheses of the result of the teaching-learning process. The identification of the class and the respondent (when named) will be preserved, as many testimonies assume the same general line of responses summarized for now.

“...We understand that the method must continue to be used for future classes because, even with all the difficulties faced, in the end, everything comes true in the

absolute certainty that we managed to evolve a lot during the methodology, since the beginning of our studies...”

The general line contained in the students' answers indicated that the method also induced the exercise of leadership and pro-activity in the teams that participated, contributing to a postural change, at the same time that it stimulated the process of entrepreneurial formation focused on autonomy and initiative.. This finding is consistent with Santos (2000) and Ross et al. (2016) who advocated that the education of the future must prepare people for changes in the world of work

“...The business game (GS-SEBRAE) is a competition that simulates and practices concepts of corporate life through a model that considers the main variables of the business environment in which it works. The foundation of the game is to make us put ourselves ahead of the routine decisions of a company, taking into account the need to live with uncertainty, management tools and an elaborate planning of activities...”

“...The discipline and the game helped to develop skills such as market observation and analysis, planning, understanding, capacity for synthesis, leadership and teamwork, initiative, pro-activity, ability to respond to challenges and work under pressure, group coexistence, tolerance, knowing how to listen, that is, it was an excellent moment of maturation at the end of our academic trajectory...”

The evaluation of the method used indicates that the discipline was considered satisfactory by 83.3% of the students, with emphasis on the following aspects:

“...The business game was very useful for learning a subject that we were almost completely unaware of until then. In our technician priority training, the discipline was able to provide, in a short time, a vision and learning in the management area that we did not believe we would be able to.

The game's methodology also stimulates the search for theoretical knowledge in the matter and stimulated critical and questioning development by demanding our involvement with reality from studies of simulated situations with problems very close to what we will find in our future professional life..."

The interaction of theoretical and practical aspects was satisfactory for 80% of students:

"... Excellent method to learn and put into practice management tools, such as: production and inventory controls, cash flow, production cost calculation, etc..."

The recognition, on the part of the students, that the discipline has worked on skills that are important to training – already discussed and explained by numerous authors, such as Brant (2005), Perrenoud (2002) and Alarcão (2005) – indicates that the way in which the discipline was organized in line with the proposals for curricular reformulation and changes in the graduation of the professions that received this methodology. The testimonies were in line with the findings that indicate the ability to observe the consequences of decisions made by students and the possibility that they will learn from successes and mistakes (KEYS; WOLFE, 1990; SAUAIA, 1995; OLIVEIRA, 2009).

"...Group work also helps to develop characteristics such as cooperation, responsibility and interaction among the members. In addition, people who had more difficulty understanding something about the game had an easier time understanding when colleagues tried to explain and with that, doubts were clarified and everyone's performance was improved. The main advantages of group decisions were: increased commitment and interest in learning the subject. We felt that we were really waiting for the results, wanting to understand our successes and our mistakes. In the end, we realized that we can effectively learn from the mistakes and solutions that we tried to give to the problems..."

Regarding their own performance in the course, 85% of the students assume that they have actively participated in the learning environments and that this has contributed to the acquisition of new content on the subject of entrepreneurship and management. In another aspect, 92% of students say they feel more prepared to enter the job market after finishing the course.

"...First of all, the business game served to review our paradigms and worldview, in the end with a strong impact to encourage us to leave our comfort zone and our beliefs, serving to rebuild our behavior towards colleagues and the teacher.. We will surely be more prepared to face our professional problems that will come soon..."

What can be concluded, based on these data, is that, unlike the eminently theoretical disciplines, the experience of these students in the practice scenarios made all the difference in the development of the necessary skills to work with a more mature view of the market, which is, according to our understanding, a merit of the discipline.

"...At the end of our journey in the business game, it is possible to notice a greater understanding of the subject studied and a maturation experienced in the organization of tasks and the routine of making decisions based on real market problems. The knowledge acquired through the dynamics enabled greater critical thinking and experience, helping to make us more prepared people to face the job market. In addition, the group learned to divide and delegate tasks so that we can take this experience into our lives..."

"...The main lessons learned were: in the development of communication, the ability to deal with difficulties, the possibility of having had an experience in the area of business management and very similar to what happens in practice. It was very important to know how to listen and discuss other opinions, sometimes totally different

from what we were used to...”

CONCLUSIONS

This preliminary study seems to confirm the need to transform the hegemonic teaching practices, which today legitimize traditional conceptions, centered on the protagonism of the teacher and the passivity of the student.

With the implementation increasingly resulting from disciplines involving entrepreneurship and innovation in undergraduate courses at our universities, it is necessary that new learning measurement methodologies be implemented, stimulating the development of innovative ideas in undergraduates and enabling better conditions for achieving a best innovative potential in the new reality of the business world.

The results obtained in the entrepreneurship disciplines of the Zootechnics, Veterinary Medicine and Biosystems Engineering courses at FZEA/USP proved that active methodologies, even when encountering some resistance from students at the beginning, are efficient in the teaching-learning process for the business world, being able to help in the training of future professionals.

According to the results obtained in this study, which is still preliminary, it is encouraged to explore the large amount of qualitative information to be tabulated to better understand the impact of the methodology on the teaching-learning process and to serve as a basis for the continuous improvement of learning results in the area of entrepreneurship and management for the new undergraduate and graduate classes at FZEA/USP.

REFERENCES

- Alarcão, I. (2005) Professores reflexivos em uma escola reflexiva. São Paulo: Cortez.
- Almeida, M. E. B. (2010) Integração de currículo e tecnologias: a emergência de web currículo. Anais do XV Endipe – Encontro Nacional de Didática e Prática de Ensino. Belo Horizonte: UFMG.
- Anderson, P. H; Lawton, L. (2009) Business Simulations and Cognitive Learning: Developments, Desires, and Future Directions. *Simulation & Gaming*, v. 40, n. 2, p 193-216.
- Barrows, H. (2001) Problem-based learning (PBL). Disponível em: University PBL Web Site.. Acesso em: 27 abril de 2014. 141 Cairu em Revista. Jul/Ago 2014, Ano 03, n° 04, p. 1 19-143, ISSN 22377719
- Berbel, N. A. N. (2011) As metodologias ativas e a promoção da autonomia de estudantes. *Ciências Sociais e Humanas, Londrina*, v. 32, n. 1, p. 25-40, jan./jun.
- Borges, T. S.; Alencar, G. (2014). Metodologias ativas na promoção da formação crítica do estudante: o uso das metodologias ativas como recurso didático na formação crítica do estudante do ensino superior. *Cairu em Revista*, 3(4), 119-43.
- Brant R., V. M. (2005) Discutindo o conceito de inovação curricular na formação dos profissionais de saúde: o longo caminho para as transformações no ensino médico. *Trabalho, Educação e Saúde*, Rio de Janeiro, v. 3, n. 1, p. 91-121.
- Carrer, C. (2011) *A educação empreendedora na Universidade de São Paulo: um estudo de caso na Faculdade de Zootecnia e Engenharia de Alimentos*. Faculdade de Zootecnia e Engenharia de Alimentos da USP, FZEA/USP.
- Debald, Blausius Silvano. (2003) A docência no ensino superior numa perspectiva construtivista. In: SEMINÁRIO NACIONAL ESTADO E POLÍTICAS SOCIAIS NO BRASIL. Cascavel-Pr.
- Dolabela, F. (2008a) *O segredo de Luisa: uma ideia, uma paixão e um plano de negócios: como nasce o empreendedor e se cria uma empresa*. Rio de Janeiro – RJ. Editora Sextante.

Dolabela, F. (2008b) *Oficina do Empreendedor: metodologia de ensino que ajuda a transformar conhecimento em riqueza*. Rio de Janeiro – RJ. Editora Sextante.

Dolabela, F. (2003) *Pedagogia Empreendedora: o ensino de empreendedorismo na educação básica, voltado para o desenvolvimento social sustentável*. São Paulo – SP. Editora de Cultura, 2003.

Global Entrepreneurship Monitor. *Empreendedorismo no Brasil, Relatório Executivo* (2014). Curitiba: IBQP-PR,. Disponível em: <http://www.ibqp.org.br/upload/tiny_mce/Download/GEM_2014_Relatorio_Executivo_Brasil.pdf> Acessado em 20/05/2015.

Keys, B.; Wolfe, J. (1990) The role of management games and simulations in education and research. *Journal of Management*, v. 16, n. 2, p. 307-336.

Li, E.; Baillie, A. (1993) Mixing case method with business game: student evaluations. *Simulation & Gaming*, v. 24, n. 3, p. 336-355.

Lopes, R. *et al.* (2010) *Educação empreendedora: conceitos, modelos e práticas*. São Paulo – SP. Editora Elsevier, 2ª tiragem, 2010.

Martins, G. A. (2008) Estudo de caso: uma reflexão sobre a aplicabilidade em pesquisas no Brasil. **Revista de Contabilidade e Organizações**, São Paulo, v. 2, n. 2, p. 9-18, jan./abr.

Maxwell, N. L; Mergendoller, J. R; Bellisimo, Y. (2004) Developing a problem-based learning simulation: An economics unit on trade. *Simulation & Gaming*, v. 35, n. 4, p. 488-498.

Mitre, S. M.I; Siqueira-Batista, R.; Girardide Mendonça, J. M.; Moraispinto, N. M.; Meirelles, C.A.B.; Pinto-Porto, C.; Moreira, T.; Hoffmann, L. M. Al. (2008) Metodologias ativas de ensino-aprendizagem na formação profissional em saúde: debates atuais. *Ciências e Saúde Coletiva*, Rio de Janeiro, v. 13. Disponível em: <http://www.redalyc.org/redalyc/pdf/630/63009618.pdf>. Acesso em: 11/12/2013.

Morán, J. (2015). Mudando a educação com metodologias ativas. *Coleção Mídias Contemporâneas. Convergências Midiáticas, Educação e Cidadania: aproximações jovens*, 2, 15-33.

Motta, G.; Armond-De-Melo, D. R. (2008) A prática da aprendizagem baseada em problemas nos cursos de gestão. In: COLÓQUIO INTERNACIONAL SOBRE ENSINO SUPERIOR, 1., Feira de Santana/BA. Universidade Estadual de Feira de Santana, 2008.

Nakano, K; Terano, T. (2004) From Gaming Simulation to Case Method: Empirical Study on Business Game Development and Evaluation. In: Knowledge-Based Intelligent Information and Engineering Systems. *Lecture Notes in Computer Science*, v. 3213, p. 472-479.

Oliveira, F. (2012) *Empreendedorismo: teoria e prática*. Especialize – Revista Online. Disponível em: <<http://especializando voce.com/uploads/arquivos/191322dcff82e06081272bf77fb3beae.pdf>> Acessado em 30/05/2015.

Oliveira, M. A. (2009) *Implantando o Laboratório de Gestão: um programa integrado de educação gerencial e pesquisa em administração*. São Paulo. Tese (Doutorado em Administração) - Faculdade de Economia, Administração e Contabilidade, da Universidade de São Paulo.

Oliveira, M. A., & Sauaia, A. C. A. (2011). Impressão docente para aprendizagem vivencial: um estudo dos benefícios dos jogos de empresas. *Administração: Ensino e Pesquisa*, 12(3), 355-391.

Oliveira, R. L. Z. (2018). *Análise de trajetórias profissionais de egressos do curso de zootecnia da Universidade de São Paulo: um estudo de caso para caracterização da inserção profissional no mercado de trabalho*. Master's Dissertation, Faculdade de Zootecnia e Engenharia de Alimentos, University of São Paulo, Pirassununga. Retrieved 2018-07-09, from <http://www.teses.usp.br/teses/disponiveis/74/74134/tde-20062018-140532/>

Perrenoud, P. (2002) *A prática reflexiva no ofício do professor: profissionalização e razão pedagógica*. Porto Alegre: Artmed.

- Ribeiro, Luis Roberto C. et al. (2003) Uma experiência com a PBL no ensino de engenharia sob a ótica dos alunos. São Paulo: COBENGE.
- Ross, I.R.; Carrer, C.C.; Ribeiro, M.M.L.O.; Lima, C.G. (2016) *Análise da presença de inovação com técnicas multivariadas em planos de negócios: um estudo de caso na FZEA/USP*. In: II Jornada de Ensino de Empreendedorismo (II JEE), Coimbra/Portugal, Anais. Atas das II Jornadas de Ensino do Empreendedorismo. Coimbra: Instituto Pedro Nunes. v. 1. p. 16-38.
- Saes, D.; Pita, F. (2007) *Empreendedorismo no Ensino Superior: uma abordagem teórica*. Disponível em: < [http:// www.maringamanagement.com.br/novo/ index.php/ojs /article/ viewFile/84/47](http://www.maringamanagement.com.br/novo/index.php/ojs/article/viewFile/84/47)> Acessado em: 17/02/2015
- Salim, C.; Silva, N. (2010) *Introdução ao Empreendedorismo. Despertando a Atitude Empreendedora*. Rio de Janeiro - RJ. Editora Elsevier, 2ª reimpressão.
- Santos, L. 2000. *Empreendedorismo no ensino fundamental: uma aplicação*. Dissertação de mestrado da UFSC - Universidade Federal de Santa Catarina. Florianópolis/SC.
- Sauaia, A. C. A. (1997) Jogos de empresas: aprendizagem com satisfação. *Revista de Administração*. São Paulo: v.32, n.3, p.13-27.
- Sauaia, A. C. A. (1995) Satisfação e Aprendizagem em Jogos de Empresas: Contribuições para a Educação Gerencial. São Paulo, Tese (Doutorado em Administração) - Faculdade de Economia, Administração e Contabilidade, Universidade de São Paulo.
- Tompson, G. H; Dass, P. (2000) Improving students' self-efficacy in strategic management: The relative impact of cases and simulations. *Simulation & Gaming*, v. 31, n. 1, p 22-41.
- Triviños, A. N. S. (2009) **Introdução à pesquisa em ciências sociais**: a pesquisa qualitativa em educação – o positivismo, a fenomenologia, o marxismo. 5. ed. São Paulo: Atlas.
- Valente, J. A. (2014) Comunicação e a Educação baseada no uso das tecnologias digitais de informação e comunicação. *Revista UNIFESO – Humanas e Sociais*, Vol. 1, n. 1, pp. 141- 166.
- Voss, C.; Tsikriktsis, N.; Frohlich, M. (2002) Case research in operations management. **International Journal of Operations and Production Management**, Bingley, v. 22, n. 2, p. 195-219.
- Wolfe, J; Guth, G. R. (1975) The Case Approach versus Gaming in the Teaching of Business Policy: An Experimental Evaluation. *Journal of Business*, v. 48, n. 3, p. 349-364.
- Woods, D. (2014) Problem-Based Learning: how to get the most out of PBL. Disponível em:. Acesso em: 29 abril. 2014.