

# Distance learning for training business game tutors

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## Abstract

This work is the result of research that proposes the incorporation of Distance Learning into a Business Game as a strategy to enhance tutor training, considering entrepreneurship difficulties faced by public school teachers. Part of the problem could be attributed to subject type, because, in general, it is not common to find entrepreneurship on school curricula. The Distance Learning (DL) activities were developed using the Moodle platform and structured by topic to increase educational flexibility and achieve a better balance between individual reflection and online discussion. It was developed in four steps: course content development; course evaluation by computer technicians; restructuring the course based on course evaluation done by computer technicians and course evaluation by teachers from the public school system. A preliminary test was performed with informatics technicians to technically evaluate the learning environment. Based on this, the course was restructured, applying corrections and adjustments to improve environment usability. After corrections, a final test was conducted with public school system teachers to analyze user perception, which gave a positive result. Virtual learning environment evaluation is complex and multidisciplinary, requiring the technical knowledge of internet programming and a conceptual knowledge of education, especially in the field of learning. When the evaluation done by teachers was examined, it was found that deficiencies pointed out by computer technicians had been resolved, giving a positive rating. This current research concludes that DL can improve the use of games, because it is possible to structure the content related to the learning gaps of specific groups of students. In this respect the use of games results can guide the development of content.

## Keywords

Entrepreneurship. Business game. Distance learning course.

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## 1. Introduction

This paper is the result of previous research (Rodrigues et al., 2012) using the game Bom Burguer with public school teachers. It had been noticed that teachers had difficulties in using the game because of their unfamiliarity with the subject of entrepreneurship.

Considering that Brazilian legislation does not require the teaching of entrepreneurship in state primary and secondary schools, just recommend to do it (see Brasil, 2015 and Conselho Nacional de Educação, 2002), the teaching of entrepreneurship depends on the individual actions of teachers and schools or on institutions and individuals in society. Research which facilitates the teaching of entrepreneurship or improves existent conditions is, therefore, very important. Here, the main objective was to facilitate the process of capacitating tutors to use the game Bom Burguer through Distance Learning, as a strategy to enable the teaching of entrepreneurship in state schools in Bauru and the surrounding region.

In this specific case, the researchers considered that Distance Learning could be an effective way to overcome the barriers and difficulties found in the previous research (Rodrigues et al., 2012). One such barrier is state school teachers' limited domain of content associated with entrepreneurship. So, an environment was developed to deliver content related to entrepreneurship and the game Bom Burguer (its functionalities and objectives as

extra material, because the game has a manual) was used. The general premise of the research was that, after the training, tutors would be able to use the same environment to teach entrepreneurship to their students. For this reason, the participation of technicians in the research was considered very important, because they share similarities with typical state school students, for example, they are under 18, and are in high school, too. As a result, the research helped to improve the environment previously developed, and simplified the process of training and preparing teachers to use the Bom Burguer game (chosen because of its associated content within the environment of entrepreneurship and it required little support to use) in Brazilian state schools. The game was developed to facilitate the teaching-learning process, involving various entrepreneurship subjects, such as decision-making, inventory management, pricing, competition, accounting and financial reports, among others.

The research can be classified as qualitative because its objectives are related to improving the qualification process of tutors using DL. For this reason, an opinion research questionnaire with technicians and teachers were used to evaluate the changes made to the Distance Learning environment and detect some shortcomings in the environment when it was first developed. Although the sample size was small, the results indicated that DL can improve the process of enabling tutors to use the game. This paper comprises an introduction, research background, methods, data analysis and conclusion.

## 2. Research background

Entrepreneurship is not part of the undergraduate curriculum for teachers in Brazil. The word entrepreneurship does not appear in the resolution 2, July 1<sup>st</sup>, 2015, which establishes the Brazilian National Curriculum Guidelines for undergraduate courses, teacher training courses for graduates and second-degree courses and continuing education (Brasil, 2015). The same is true for the previous document of February 18<sup>th</sup>, 2002, which establishes the National Guidelines for the formation of Teachers of Basic Education, at higher level graduate degree courses (Conselho Nacional de Educação, 2002).

Europe started a reform of education in 2012 with a program named “Rethinking Education”, with specific actions related to entrepreneurship: “[...] only six Member States have a specific strategy for entrepreneurship education” (European Commission, 2012, p. 4). In 2014, the European Union published the document “Entrepreneurship Education: A Guide for Educators” in which the main points of its education reform, focusing on training of teachers of basic education, is presented (European Union, 2014). For the European Commission (2012, p. 3),

Transversal skills such as the ability to think critically, take initiatives, problem solve and work collaboratively will prepare individuals for today’s varied and unpredictable career paths [...] particularly entrepreneurial skills.

According to Kuratko (2005), the USA government establishes the general guidelines for education, and the assessment of education uses accreditation which is made by entities “[...] comprised of institutions and academic specialists in specific subjects, who establish and enforce standards of membership and procedures for conducting the accreditation process” (U.S. Department of Education, 2017). This characteristic of the USA education system helps schools and communities make improvements locally, but the national system of school assessment can conflict with radical innovations because a considerable part of this assessment is focused on tests of math and reading, conflicting with the demands of a genuine entrepreneurship education (McShane, 2016). This author believes that in the next two decades:

[...] educational entrepreneurship will encounter a funding community, a policy environment, and a changing educational landscape that will profoundly affect the types of ventures they are able to create and the ability of those ventures to scale, grow, and meet children’s needs (McShane, 2016, p. 3).

Considering the necessity of making changes that align the education process with the new demands on education, the use of Distance Learning (DL) to complement the learning supported by business games was considered. DL has been a method of delivery for instructional courses for many years, dating back to the 19th century. Students who could not attend regular classes received content by mail. This was the beginning of DL (Benjacob, 1998), that had occurred by the 1950s (Conde et al., 2008). The development of technology brought new possibilities, and the systems that support DL have been used in a variety of ways, from a pure system of learning to a mechanism of support for classroom lessons. It can be used to deliver content, assess students, and facilitate the interactions between students, teachers or both. There are a lot of studies related to DL (Keegan, 1996; Wolfe et al., 2002; Batista & Cornachione Junior, 2005; Smith, 2010; Bagdonas et al., 2010; Moran et al., 2008; Hafeez et al., 2014; Sezer, 2016; Griffiths, 2016; Goodrich, 2016).

Smith (2010) described DL as any instructional arrangement in which the teacher and student are geographically separated to an extent requiring communication through the media. To Sezer (2016) DL is a concept in which teacher, students and course content is not in the same location or, in his words, at least one of the three are located in a different place. According Smith (2010, p. 195) “One important factor that makes DL so unique is that it allows learning to be an individual matter”. Today, DL Courses are strongly supported by technology, have intensive use of Information and Communication Technologies (ICT), interaction facilitation between physically distant teachers and students, audiovisual resource employment to develop content and activities, and greater adaptability to the user in distribution and content use, among other advantages. Griffiths (2016, p. 2) presents a definition of DL “[...] as a planned teaching-learning process that uses one or more technologies as a conduit for learning when students are separated from the instructor [...]” and she continues “Interactions may be in real-time (synchronous) or delayed (asynchronous) [...]”.

Goodrich (2016) analyzed the improvement of distance education for disabled students, Sezer (2016) analyzed the attitudes and opinions of students about DL, Bagdonas et al. (2010) analyzed the use of simulating and gaming to enhance entrepreneurship, Wolfe et al. (2002) compared learning outcomes and supposed internet-associated benefits of using a game in Distance Education, Batista & Cornachione Junior (2005) analyzed the effect of learning styles on satisfaction and perceived learning on online games, and Hafeez et al. (2014) studied the demand for technology by users of DL in Turkey. Although technology is part of the definition of Distance Education given by Griffiths (2016), it has brought more than the possibilities of creating learning environments; it furnishes devices and infrastructure which can dramatically change the teaching learning process. The smart board, for example, connects the classroom environment to cyber space and offers a lot of resources that work as DL systems, such as recording and sharing the content developed during a class. So, a unique device offers a variety of class and pedagogical configuration method possibilities.

Keegan (1996) identified six key elements of DL: 1) Separation of the teacher and the learner; 2) Influence of an educational organization; 3) Use of media to link both teacher and learner; 4) Two-way communication; 5) Consider learners as individuals instead of grouped and; 6) Education as an industrialized form. For Moran et al. (2008), DL is strategic to make profound changes in education as a whole, becoming an increasingly important option for learning throughout life, continuing education, vocational acceleration and enabling a reconciliation of study and work.

There are a great number of platforms to DL. In this research the Moodle Platform, provided by UNESP (Sao Paulo State University), was used. The Moodle Platform permits the creation of online courses, subject pages, working groups and learning communities (Alves et al., 2009). Aiming to facilitate the use of DL institutionally, the university where this research was carried out, UNESP, created a *DL Center*, which is responsible for providing the Moodle environment and giving support to its academic staff. Content developed in Moodle addresses topics such as entrepreneurship, Business Game and Bom Burguer (the game used in this research) to achieve the goal of training tutors.

Initially, Business Games and entrepreneurship association occurred in executive training (Burch Junior, 1969). Many competencies and abilities associated with entrepreneurship are demanded of professionals nowadays, requiring that they develop them throughout the education process. To Pinto et al. (2016) the eight main competencies of a social entrepreneur are: know how to act, know how to mobilize, know how to transfer, know how to learn, know how to engage yourself, to have strategic vision and to take responsibility. Robles & Zárraga-Rodríguez (2015) found twenty competencies, including some of the social ones. Experts were invited to list these competencies according to their relevance and importance. The eight best assessed were Risk assumption; Initiative; Leadership; Teamwork, Responsibility, Autonomy/self-determination, Self-confidence and Integrity.

For Goldschmidt (1977, p. 43), one the first researchers of the use of games for educational purposes in Brazil, “[...] the business games allow to continuously simulate various types of decisions and alternatives, so that participants are able to evaluate the results of different decisions”.

For these characteristics, learning mediated by business games has great potential synthesis and interconnection content for being a multidisciplinary didactic and pedagogical resource. In addition, business games have the advantage of allowing students to experience the decision-making process without the risk of prejudicing real organizations (Santos & Lovato, 2007). It is a tool that facilitates the theoretical knowledge improvement of subjects related to business management, and encourages entrepreneurship and the systemic view of organizations, requiring students to adopt a proactive attitude to the education process. Santos & Lovato (2007) build a framework where they present the strengths and weaknesses of games as a support to teaching during the learning process. According to them the main advantages are to: make the learning easier, contribute to the understanding of abstract subjects, permit multiple representations of reality, instill an interdisciplinary approach, offer great satisfaction for participants, and stimulate the active participation of students. As weaknesses, they suggest high cost, a lack of institutional infrastructure to support the use of games, and the adequacy of game interface software.

As the game Bom Burguer is available on a web platform, the proposition of using DL to increase its educational capacity began in a natural way. The game involves selling a sandwich and a soda combination (a kit). Students are organized into rooms, in which they compete against each other. The teacher determines the parameters of the rooms. Each enterprise can participate in several rooms, but its result is specific to each room. In other words, the result is not global, but local. So, students can test distinct strategies by playing in different rooms. In the student environment, company management involves the purchase of materials, pricing, marketing investment, inventory control and company resources. These decisions are made based on sales of kits, which generate material requirements.

On the decision page, after students forecast quantities of kits, fields with quantities of materials necessary to make them such as soda, bread, lettuce, cheese, tomato, hamburger must be filled and decisions made regarding how much to invest at advertising and which media channel to invest in. The data is processed and the results generated are presented in reports and charts that can be used to build scenarios to support decision making in the next round. Each round generates new reports and charts, and a ranking representing company competitiveness in the “market” (room) proposed in the game. For this reason, to work as tutors, public school teachers need to know math, information technology basics and concepts of entrepreneurship. In previous research with a group of public school teachers, lack of mastery of some of these skills was found. As tutors, the teachers perform all the activities related to the use of a game, such as creating classes (group of students who play the game), running the game, changing the game parameters, checking who is playing or not, assessing the students and analyzing and debating the results with them.

In this research, the main objective was to analyze if a recognized DL course could be used to overcome barriers diagnosed in Public School teacher training courses. These courses were developed to enable teachers of public schools to use the Bom Burguer game, as a way of supporting the entrepreneurship education in public schools from the region of Bauru.

To meet the general objective, the following specific objectives were defined:

- a) Create teaching materials, using quiz, crossword, chat, forum, briefing, video, and reporting with COLLES (Constructivist On-Line Learning Environment Survey) and ATTLS (Attitudes to Thinking and Learning Survey), which were structured as a questionnaire in the Moodle environment, according to Cole & Foster (2008);
- b) Improve the environment with resources taken from the users’ feedback, using the assessment framework proposed by Juwah et al. (2004);
- c) Ensure that the activities include how to use game, entrepreneurship and identity learning content, as proposed by Kolb & Kolb (2009).

### 3. Methods

This research is applied, because it intends to solve a problem (Gil, 2010): to overcome the barriers of using a business game when developing a DL course. Considering the methodological approach of assessment of the environment developed, it is qualitative.

Two questionnaires were used to collect data, one multiple choice type and one using the Likert scale. Both were developed by the authors to determine student profile and analyze course structure. Considering the opinions of technicians regarding the previous version of the course (interviews were carried out with them about the environment of the DL course), improvements were made. After correcting the weaknesses pointed out by technicians, the new environment was used to train a group of teachers, a questionnaire being used to collect data about their opinion of the environment. For Gil (2010), survey questionnaires requests information from a large group of people, about problems studied through quantitative analysis, to obtain conclusions corresponding to the data collected. Furthermore, course environment activities also allow data to be collected in two possible ways. Firstly, using the database of the game. Secondly, using data collected by Moodle, such as activities made by teachers, their answers, and how many times they access activities or pages, etc. This research presents only the data collected by the two questionnaires because they were focused on the problem proposed here, DL is an alternative to facilitate the use of the game by tutors.

The data were analyzed, aiming to answer questions such as: a) the course for tutors promoted the subsidies needed to use this tool to support the learning process? b) the available resources helped in preparing of lessons? c) the teachers used resources learned? and d) learning was facilitated by the course in the distance learning education environment?

During the test phase, part of the experiment was conducted using the observation technique, as defined by Marconi & Lakatos (2008), and was analyzed whether there were difficulties in environment use.

A survey was conducted with two groups of volunteers: computer technicians and public school teachers. The technicians were students of the Technical College of Bauru, where everyone knew Bom Burguer and most had already done at least one distance education course. They were an important element because they helped to test the system, and evaluated the course from the perspective of students. The teachers were from a public school, most of whom had not done a DL course, and none knew of the Business Game. These teachers belong to a special group of the education system of São Paulo State, called Family School. They are responsible for developing activities during the weekends with students and members of the community that surround the school where they are allocated. The group was composed of five teachers from different disciplines such as Portuguese, Math, Physics and Physical Education, from a total of 45 teachers allocated in some of the 50 State schools supervised by the School Board of Bauru (São Paulo, 2015). The questionnaire data collected was analyzed using basic descriptive statistics, transformed into percentages. This data, collected by observation and the opinion of technicians and teachers, was analyzed qualitatively.

## 4. Results

The Moodle platform was used to develop the course. It is an open source software to create solutions such as online courses, subject pages, working groups and learning communities. Academic Moodle was provided by the NEaD (Distance Teaching Center) from UNESP. The course was designed using topics to increase educational flexibility and achieve better balance between individual reflection and online discussion (Alves et al., 2009). In order to evaluate it technically and conceptually, it was developed in four stages:

1. Content development;
2. Technical evaluation;
3. Course restructuring;
4. Content evaluation by teachers.

This section presents the results obtained in these four stages of course development.

### 4.1. Content development

The course content was developed and split into three main themes: identity of learning, entrepreneurship and Bom Burguer.

The content related to the identity of learning was extracted from Kolb & Kolb (2009) and aimed to make the student and/or tutor reflect on how they deal with the challenges they face in their lives, that is, dealing with learning itself. For Kolb & Kolb (2009), the way people make choices when faced with challenges determines their learning identity, classified as “fixed learning identity” or “learning identity”. This text was chosen because entrepreneurship is related to behavioral aspects and change. In this sense, the content helps students to think about their behavior and how they deal with their limitations and difficulties.

Students need to do this kind of self-assessment, especially because business games are considered a method of “experiential learning” (Santos & Lovato, 2007), which implies changes in the thinking and behavior of students, teachers and institutions. This reflection was included in the environment as a way for the student and/or tutor to think about how his/her posture affects the results achieved. In the course entrepreneurship was taught considering two aspects: the world of work and business management. And, finally, how using Bom Burguer is taught, aiming to eliminate, as much as possible, the lack of entrepreneurship content, which can affect the use of the game and difficulties using the game, such as how to access its functionalities and environment interface difficulties.

### 4.2. Technical evaluation

Regarding the technical evaluation, computer technician students analyzed the technical aspects of course, such as usability and course environment errors. These aspects were analyzed using the Likert scale questionnaire and interview.

Data showed that they considered the course appropriate. However, they suggested some adjustments in course usability and changes to some activities. As can be seen in Table 1, course questions have two negative evaluations, where 60% of technicians were indifferent about usability and 80% did not agree totally with the affirmation that there were no errors in the system. During the interview they also “sometimes felt lost in course” and reported some consistency errors in activities.

Table 1. Evaluation of the course in Moodle, according to computer technicians.

Affirmative/Scale	SD	DIS	NAND	AG	SA
Moodle is a good tool to support teaching learning.	0	0	20%	40%	40%
I liked the course module division.	0	0	0	20%	80%
The usability of course is good.	0	0	60%	0	40%
I didn't have problems with respect to system errors.	0	20%	20%	40%	20%

SD = strongly disagree; DIS = Disagree; NAND = Neither agree nor disagree; AG = Agree; SA = Strongly agree.

Regarding the learning resource evaluation (seen in Table 2), PDF texts, Prezi presentations, Hot Potatoes activities and essay tasks were not well accepted. In the interviews, technicians argued that PDF texts were “long and tedious”, Prezi presentations were “vague”, Hot Potatoes activities were “vague, confusing and presented consistency errors” and essay tasks were “very extensive”.

Table 2 demonstrates that it is necessary to carefully consider the resources used in DL. Hot Potatoes, for example, is an easy way to build a question bank, but the first version was not well assessed by technicians. So, to use DL, it is necessary to assess the content and other variables, such as the visual characteristics and the organization of information on the screen.

Table 2. Evaluation of learning resources, according to computer technicians.

Affirmative/Scale	SD	DIS	NAND	AG	SA
YouTube videos	0	0	0	20%	80%
PDF texts	20%	0	20%	40%	20%
Prezi presentation	0	20%	0	20%	60%
Hot Potatoes	40%	0	20%	20%	20%
BG Bom Burguer	0	0	0	60%	40%
Links directed to other sites	0	0	40%	20%	40%
Activities with Moodle questionnaires	0	0	40%	40%	20%
Essay tasks in Moodle	0	20%	20%	60%	0

SD = strongly disagree; DIS = Disagree; NAND = Neither agree nor disagree; AG = Agree; SA = Strongly agree.

### 4.3. Course restructuring

To solve problems identified through technical evaluation, the course was restructured. Regarding the usability question, Moodle topics were linked using HTML files. According to Silva (2008), HTML allows links between files to be created, enabling virtual navigation.

Other problems cited were also corrected. Hot Potatoes activities and extensive essay tasks were changed to eliminate consistency errors. Prezi presentations were enriched and became the main text of the page. PDF texts, considered extensive, were replaced by a summary on the homepage with a link to download. The full version were transformed into complementary material. In this section it is possible to identify other aspects associated with the environment used. DL permits the use of a lot of resources, but the use of long texts and videos should be avoided.

### 4.4. Content evaluation

Finally, to evaluate the content of course a new experimental test with teachers was conducted. As can be seen in Table 3, questions about usability and system errors received positive evaluations. The same applies in learning resource questions, as can be seen in Table 4: Prezi presentation, Hot Potatoes activities and PDF texts received better ratings.

Table 3 and 4 analyzed distinct aspects of the learning environment. In Table 3, researchers focused on the structure of the course and the DL environment, while in Table 4, interest was on the resources used to build

Table 3. Evaluation of Moodle course, according to teachers.

Affirmative/Scale	SD	DIS	NAND	AG	SA
Moodle is a good tool to support teaching learning.	0	0	0	20%	80%
I liked the module division of the course.	0	0	0	60%	40%
The course usability is good.	0	0	0	40%	60%
I didn't have problems with respect to system errors.	0	0	20%	40%	40%

SD = Strongly disagree; DIS = Disagree; NAND = Neither agree nor disagree; AG = Agree; SA = Strongly agree.

Table 4. Evaluation of learning resources, according to teachers.

Affirmative/Scale	SD	DIS	NAND	AG	SA
YouTube videos	0	0	0	60%	40%
PDF supporting texts	0	0	0	40%	60%
Prezi presentations	0	0	20%	40%	40%
Hot Potatoes	0	0	40%	20%	40%
BG Bom Burguer	0	0	20%	20%	60%
Links directed to other sites	0	0	20%	20%	60%
Activities with Moodle questionnaires	0	20%	0	20%	40%
Essay tasks in Moodle	0	20%	0	20%	60%

SD = Strongly disagree; DIS = Disagree; NAND = Neither agree nor disagree; AG = Agree; SA = Strongly agree.

the DL environment. Both received a better assessment when compared with the previous version of the DL course. It is possible to conclude that the new environment is better than the first. In Table 3, there is a specific question related to the main objective of this research, "Moodle is a good tool to support teaching learning". Although it is about Moodle, it is referring to DL. The teachers (future tutors) would answer negatively if the environment in all aspects related to learning was not effective in providing learning. As a suggestion for future research, an experiment with a control group could be made, one group using the game without the support of the DL course, and the other, with. The two groups could then be compared in respect of content retention and the number of hits.

## 5. Conclusion

The research results show that the changes made in the distance learning environment have improved the experiences of teachers and students. Consequently, it is expected that the motivation of the students to learn and the teachers to use the game Bom Buruguer will be increased. It can be concluded that the association of distance learning and business game was positive, although the research did not aim to compare the use of the game with and without the support of distance learning. As initially presented, the research consisted of the inclusion of one more element, the use of distance learning concept to overcome difficulties encountered when carrying out the training of teachers to use the game. The evaluation carried out by the teachers shows that the deficiencies of the first version of DL course pointed out by the computer technicians were solved and received positive ratings. There was an environmental enrichment in terms of learning support both for tutor and learner. The activities based on a quiz, for example, carry with them evaluation, generating immediate feedback for the DL environment user. With thre research results it is possible affirm that custom-built environments could absorb the elements of formative assessment proposed by Juwah et al. (2004).

Another element that seems relevant to the formulation of future research concerns the vision one has of the entrepreneurship theme in education. It is still seen as an important issue, but remains a barrier and is not included in the educational curriculum, as shown by Lima (2010). Future research can compare the students' performance when teachers use the Bom Burguer game in two situations: a) supported by DL environment and; b) not supported by DL environment. As a result of this research proposal, it can be compared groups that use the DL environment with others that do not use it, or groups of students that learned entrepreneurship with Bom Burguer or with other experiential learning methods during High School with students that did not. And finally, to validate the results of this research it is necessary to repeat the experiment with a larger group. The inclusion of DL in the game establishes compliance with an important function of the Brazilian educational system, because it allows its use in a non-curricular way, as a complementary activity disengaged from the classroom. Enriched with the DL environment, the game has become even more accessible, as it can be used to educate both tutors (the game features and content, skills and competencies related to entrepreneurship), and students (abilities and skills related to entrepreneurship).

The use of DL has helped to solve some barriers detected previously, and suggests that it can be used as a complement to using business games. With this resource, business games can be improved and become more useful, facilitating the learning process and teacher tasks, such as learning about the game and its functionality, assessment of students, data collection and research. Students are benefited because the environment can be developed to provide multifarious ways of learning and explore the diversity of styles of learning, such as the use of text, video, quiz, activities on line, chats, and forums.

The development of systems to support DL can improve the use of business games, integrating the database of both systems (DL and business game). As shown in Rodrigues et al. (2011), the business game database could be used to provide evidence of learning, including comparing groups. The new tools incorporated into DL systems permit monitoring and managing of all student activity in the environment. With appropriate models, it is possible to analyze if students are learning or having difficulties, including what kind of difficulties there are having. So, by associating business games and DL it is possible manage student learning and provide extra resources to support each student's specific lack of learning. These resources include recent approaches to education, such as the importance of meta-cognition as opposed to the traditional focus on cognition. In this new approach, how to measure and improve meta-cognition has become the main field of research, and DL and games can offer excellent conditions for both collecting and analyzing data.

## References

- Alves, L., Barros, D., & Okada, A. (2009). *Moodle: estratégias pedagógicas e estudos de caso* (1. ed.). Bahia: EDUNEB.
- Bagdonas, E., Patašienė, I., Patašius, M., & Skvernys, V. (2010). Use of simulation and gaming to enhance entrepreneurship. *Electronics and Electrical Engineering*, 102(6), 155-158.
- Batista, I. V. C., & Cornachione Junior, E. B. (2005). Learning styles influences on satisfaction and perceived learning: analysis of an online business game. *Developments in Business Simulation and Experiential Learning*, 32, 22-30.
- Benjacob, M. G. (1998). Distance learning: an international perspective. *Journal of Educational Technology Systems*, 26(3), 209-213. <http://dx.doi.org/10.2190/UHK3-TW7U-PYHK-4A5W>.
- Brasil. Ministério da Educação – MEC. (2015, July 2). *Define as diretrizes curriculares nacionais para a formação inicial em nível superior (cursos de licenciatura, cursos de formação pedagógica para graduados e cursos de segunda licenciatura) e para a formação continuada (Resolução nº 2, de 1º de julho de 2015)*. Diário Oficial da União.
- Burch Junior, J. G. (1969). Business games and simulation techniques. *Management Accounting*, 51(6), 49-52.
- Cole, J., & Foster, H. (2008). *Using Moodle* (2nd ed.). Sebastopol: O'Reilly Media.
- Conde, M. Á., Muñoz, C., & García, F. J. (2008). Learning, the first step in the learning process revolution. *International Journal of Interactive Mobile Technologies*, 2(4), 61-63.
- Conselho Nacional de Educação – CNE. Conselho Pleno – CP. (2002, February 19). *Institui “As diretrizes Curriculares Nacionais” para a formação de Professores da Educação Básica, em nível superior, curso de licenciatura, de graduação plena (Resolução CNE/CP nº 1, 18 de fevereiro de 2002)*. Diário Oficial da União.
- European Commission. (2012). *Communication from the commission to the European parliament, the council, the European Economic and Social Committee and the Committee of the Regions*. Strasbourg: European Commission. Document 669.
- European Union. (2014). *Entrepreneurship education: a guide for educators*. Brussels: European Union.
- Gil, A. C. (2010). *Como elaborar projeto de pesquisa* (5. ed.). São Paulo: Atlas.
- Goldschmidt, P. C. (1977). *Simulação e jogo de empresas*. Rio de Janeiro: FGV.
- Goodrich, M. A. (2016). Improving distance education for disabled students: making the GRADE. *Distance Learning*, 13(1), 15-20. Retrieved in 12 September 2016, from <http://search.proquest.com/docview/1800737838?accountid=8112>
- Griffiths, B. (2016). A faculty's approach to distance learning standardization. *Teaching and Learning in Nursing*, 11(4), 157-162. <http://dx.doi.org/10.1016/j.teln.2016.04.004>.
- Hafeez, A., Gujjar, A. A., & Noreen, Z. (2014). Demanding need of growing technologies in distance learning system. *Turkish Online Journal of Distance Education*, 15(4), 170-180. <http://dx.doi.org/10.17718/tojde.04872>.
- Juwah, C., Macfarlane-Dick, D., Matthew, B., Nicol, D., Ross, D., & Smith, B. (2004). *Enhancing student learning through effective formative feedback*. York: The Higher Education Academy.
- Keegan, D. (1996). *Definition of distance education* (3. ed.). London: Routledge Taylor & Francis.
- Kolb, A., & Kolb, D. A. (2009). The learning way meta-cognitive aspects of experiential learning. *Simulation & Gaming*, 40(3), 297-327. <http://dx.doi.org/10.1177/1046878108325713>.
- Kuratko, D. F. (2005). The emergence of entrepreneurship education: development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), 577-598. <http://dx.doi.org/10.1111/j.1540-6520.2005.00099.x>.
- Lima, J. F. (2010). *Parecer CNE/CEB nº 13/2010 emitido sobre a consulta acerca da inclusão do empreendedorismo como disciplina no curriculocurriculo do Ensino Fundamental, do Ensino Médio, da Educação Profissional e da Educação Superior*. Despacho do Ministro. Brasília: MEC.
- Marconi, M. A., & Lakatos, E. M. (2008). *Técnicas de pesquisa: planejamento e execução de pesquisas, amostragens e técnicas de pesquisa, elaboração, análise e interpretação de dados*. São Paulo: Atlas.
- McShane, M. Q. (2016). *Entrepreneurship and American Education*. Cambridge: American Enterprise Institute. Retrieved in 12 September 2016, from <https://www.aei.org/wp-content/uploads/2016/05/Entrepreneurship-and-American-education.pdf>

- Moran, J. M., Masetto, M. T., Behrens, M. A. (2008). *Novas tecnologias e mediação pedagógica*. Campinas: Papyrus.
- Pinto, I. M. B. S., Brunstein, J., Martins, A. A. C., Desidério, P. H., & Cardoso Sobrinho, C. A. (2016). Systematic review of the literature social entrepreneurship and skills development: an analysis of the past 10 years. *International Journal of Innovation*, 4(1), 33-45. Retrieved in 12 September 2016, from <http://www.journaliji.org/index.php/iji/article/view/67>
- Robles, L., & Zárraga-Rodríguez, M. (2015). Key competencies for entrepreneurship. *Procedia Economics and Finance*, 23, 828-832. [http://dx.doi.org/10.1016/S2212-5671\(15\)00389-5](http://dx.doi.org/10.1016/S2212-5671(15)00389-5).
- Rodrigues, J. S., Dinis-Carvalho, J., Lima, R. M., & Salgado, M. H. (2011). Brazilian students and working capital: an analysis of their decisions when using virtual market business games. *International Journal of Engineering Education*, 27(3), 644-655.
- Rodrigues, J. S., Zambon, K. L., Scarelli, A., Nagano, I. L., Salgado, M. H., Rodrigues, R. G. V., Rocha, A. V., & Amaro, G. S. (2012). Empreendedores na escola: educação empreendedora em escolas públicas de Bauru com o jogo Bom Burguer. In S. Z. Pinho, J. B. B. Oliveira (Eds.), *Tecnologias da informação e comunicação e material pedagógico*. São Paulo: Núcleos de Ensino da Unesp, Editora UNESP.
- Santos, M. R. G. F., & Lovato, S. (2007). *Os jogos de empresas como recurso didático na formação de administradores*. Porto Alegre: CINTED.
- São Paulo. Secretaria da Educação do Estado – SESP. (2015). *Cadastro de Escolas*. Retrieved in 12 September 2016, from <http://www.educacao.sp.gov.br/central-de-atendimento/downloads.asp>
- Sezer, B. (2016). Faculty of medicine students' attitudes towards electronic learning and their opinion for an example of distance learning application. *Computers in Human Behavior*, 55, 932-939. <http://dx.doi.org/10.1016/j.chb.2015.10.018>.
- Silva, M. S. (2008). *Construindo sites com CSS e (X)HTML*. São Paulo: Novatec.
- Smith, D. (2010). Distance learning: a game application. *Developments in Business Simulations and Experiential Learning*, 37, 195-201.
- U.S. Department of Education. (2017). *Accreditation and quality assurance*. Retrieved in 12 September 2016, from <https://www2.ed.gov/about/offices/list/ous/international/usnei/us/edlite-accreditation.html>
- Wolfe, J., Flores, L., & Ritchie, W. (2002). A business game distance education application: learning outcomes and experiences. *Developments in Business Simulation and Experiential Learning*, 29, 288-300.

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