Games and Learning Management Systems: A Discussion about Motivational Design and Emotional Engagement

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Abstract—The increasing development of educational games as Learning Objects is an important resource for educators to motivate and engage students in several online courses using Learning Management Systems. Students learn more, and enjoy themselves more when they are actively involved, rather than just passive listeners. This article has the aim to discuss about how games may motivate learners, enhancing the teaching-learning process as well as assist instructor designers to develop educational games in order to engage students, based on theories of motivational design and emotional engagement.

Keywords—learning objects; games; Learning Management Systems, motivational design, emotional engagement.

I. INTRODUCTION

The constant evolution of technologies continues to offer new and appealing opportunities for educators. Developments in recent years have seen web-based Virtual Learning Environments (VLE)/Content Management Systems (CMS)/Learning Management Systems (LMS) rapidly become an integral part of teaching and learning process. This emergence progresses incessantly as educators attempt to adopt and adapt web 2.0 technologies in the provision of more interactive teaching materials and learning environments [1].

LMSs are software applications used to establish the teacher – student communication and work as an interface to assist the E-learning process. LMS support multiple media and resources, in order provide the educator a possibility to create and deliver content, monitor student participation, and assess student performance and provide students the ability to use interactive features such as threaded discussions, forums and chats.

LMSs such as Moodle, Blackboard and WebCT are commonly and successfully used in e-learning [2]. They aim at supporting teachers in creating and managing online courses and provide them with a great variety of features, which can be included in the course such as learning material, quizzes, discussion forums, assignments, and so on.

One of the main complaints from students and teachers is also the interaction process and the low quality of the proposed material, which often behaves as a reflection of the materials used in the traditional classroom.

In order to bring together the informal experiences of learners and the formal education, and to deal with complex concepts in a more ludic way, emerges at the end of the twentieth century, the concept of Learning Objects (LO), digital resource designed for educational purposes to assist the learning [3].

The LOs are part of an area known as Instructional Design. Filatro [4] defines it as "the process (set of activities) to identify a learning problem (a need), design, implement and evaluate a solution to this problem." Advances in computer science are significant for instructional design, because they can offer learning tools based on more varied and complex models, allowing the creation of repositories with dynamic educational products (learning objects) that educational institutions, educators and students access for consultation and study.

The Learning Object paradigm opened a broad range of opportunities to facilitate the distribution, sharing and reuse of learning materials, at least from the technical point of view. Because of this new paradigm, several specifications and standards were proposed in order to avoid a vendor lock-in to a specific platform or tool, and to facilitate the interchange of the learning contents between tools. Examples of LOs can quote pictures, videos, animations, simulations, games, etc. [5].

The use of games in education is growing, where game play mechanics are used for non-game applications. This process is accelerating as educators learn to make effective use of the most appealing features of computer games e.g., active participation, intrinsic and prompt feedback and challenging but achievable goals [1]. According to Graven [6], students learn more, and enjoy themselves more when they are actively involved, rather than just passive listeners, once they get out of the passive state that is the unfortunate state of some education systems.

Koster [7] points out that games might seem abstracted from reality because they are iconic depictions of patterns in the world. They have more in common with how our brain visualizes things than they do with how reality is actually formed. In this sense, games are puzzles to solve, just like everything else we encounter in life.

According to Blanco [8], in real-life learning situations, the goal of enhancing emotional engagement should be to invoke a
playful attitude towards learning. Students are not ‘empty vessels’ that can memorize all of the learning contents. Students learn more effectively when they are engaged and interested.

In this sense, this article has the aim to, based on motivational design and emotional engagement, discuss how games may motivate learners, enhancing the teaching-learning process as well as assist instructor designers to develop educational games in order to engage students. The idea is to provide an overview about the effectiveness of using games in the Learning Management Systems as an attempt to improve learning skills in a more positive way and an study about some approaches to incorporate motivational aspects in the design.

II. RELATED CONCEPTS

According to Ulicsak [9], there are many definitions and ways of classifying educational games, serious games and their relationship to virtual worlds and simulations. In addition, Susi, Johannesson and Bakclund [10] state that there are some related and sometimes overlapping areas such as E-learning, Edutainment, Serious Games, Game-Based Learning and Digital Game-Based Learning.

E-learning is a rather general concept that refers to computer enhanced learning, computer-based learning, interactive technology, and commonly, distance learning [11].

Collins and Berge [12] describe E-learning in terms of numerous interrelated topic areas of clear interest to both instructional and communication designers:

- Mentoring, such as advising and guiding students;
- Project-based instruction, either within the classroom or in projects involving community, national, or international problem-solving;
- Guest lecturing, which promotes interaction between students and persons in the larger community;
- Didactic teaching, that is, supplying course content, posting assignments, or other information germane to course work;
- Retrieval of information from online information archives;
- Course management, for example, advising, delivery of course content, evaluation, collecting and returning assignments;
- Public conferencing, such as discussion lists;
- Interactive chat, used to brainstorm with teachers or peers and to maintain social relationships;
- Personal networking and professional growth and such activities as finding persons with similar interests on scholarly discussion lists;
- Facilitating collaboration;
- Individual and group presentations;
- Peer review of writing, or projects involving peer counseling;
- Practice and experience using emerging technologies that may be intrinsically useful in today’s society; and
- Computer-based instruction, such as tutorials, simulations, and drills.

Edutainment – education through entertainment – was popular during the 1990s with its growing multi-media PC market. In general, edutainment refers to any kind of education that also entertains even though it is usually associated with video games with educational aims [10].

Serious games are (digital) games used for purposes other than mere entertainment [10] and, according to Ulicsak [9], are the accepted term for games with an educational intent. They need to be engaging, although not necessarily fun, while the learning can be implicit or explicit.

“Serious game: a mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives” [13].

Game-based learning (GBL) is described as “a branch of serious games that deals with applications that have defined learning outcomes”. GBL has the potential of improving training activities and initiatives by virtue of, e.g., its engagement, motivation, role playing, and repeatability (failed strategies etc. can be modified and tried again) [10].

Digital game-based learning (DGBL) is closely related to GBL, with the additional restriction that it concerns digital games. Prensky [14] argues that DGBL is based on two key premises; firstly, the thinking patterns of learners today have changed, that is, today’s students are ‘native speakers’ in the language of digital media. Secondly, this generation has experienced a radically new form of computer and video game play.

For Deterding et al. [15], games and game technologies increasingly transcend the traditional boundaries of their medium, as evidenced by the growth of serious and pervasive games as an industry and research field. The most recent phenomenon in this trajectory is gamification.

Gamification is defined as the use of game design elements in non-gaming contexts [16]. It can be used as a tool to improve the participation and motivation of people in carrying out diverse tasks and activities that generally could not be too attractive. Its application is not restricted to any specific area and can be used in contexts as diverse as education.

Similar to serious games, gamification uses elements of games for purposes other than their normal expected use as part of an entertainment game [17]. Now ‘normal use’ is a socially, historically and culturally contingent category. However, it is reasonable to assume that entertainment currently constitutes the prevalent expected use of games. Likewise, joy of use, engagement, or more generally speaking, improvement of the user experience represent the currently predominant use cases of gamification.
The nebulous discourse on serious games can be directly linked to the fact that some authors initially tied the term to the specific context and goal of education and learning, whereas serious games proliferated into all kinds of contexts.

Deterding [18] affirms that gamification has ignited the imagination of marketers, human resources professionals, and others interested in driving engagement. Implementations are blooming across a variety of sectors, including education (Khan Academy), tutorials (RibbonHero), health (HealthMonth), task management (EpicWin), sustainability (Recyclebank), crowdsourced content for programmers (StackOverflow), to name but a few.

III. GAMES IN EDUCATION

In the past, computer games was only used for entertainment. Their use in the classroom was not even considered. Nowadays, there is an increasing number of educators interested in the effective and motivational aspects provided by digital games in order to engage students in the learning process.

According to BinSubaib, Maddock and Romano [19], the use of educational games is divided into three generations:

- **First Generation** – Started with edutainment, which relied heavily on behaviorism theory. Behaviorism is based on a stimulus-response pattern for conditioning behavior to become automatic. This theory suffers from disconnection between the game and the learning. Learning occurs through conditioning with the game element typically being a reward for the correct response to the stimuli [9].

- **Second Generation** – Employed cognitivism in order to make the learner the center of attention and it shows interest in the learning context, settings, and differences between learners. Started with digital games and knowledge is acquired through a variety of different modalities (eg text, pictures, sounds). The second theory used in the second generation is constructivism (or learning by making), concentrating on learning how to think and understand [6]. It aims for the learner to construct knowledge rather than it being acquired as in cognitivism. The player is immersed in a world that enables them to include feelings, emotions with the social, the player can interact with fellow participants in the virtual environment as well as acquiring, and using knowledge gained [9]. Graven [6] states that constructivist learning is transferable. In constructivist based learning, students learn and understand principles that they can take with them to other learning settings.

- **Third generation** – In this generation, constructivism was then succeeded by constructionism by adding that learning happens when learners are engaged in constructing a “public entity” which is external to themselves such as a computer program or a book. Others used the experiential learning theory, where one learns by doing (as well as seeing and hearing). According to Dewey [20], “experience is constituted by the relationship between self and object – by concerned, feeling people acting and the materials and tools they use. The concerned person is always ready engaged and comes to every situation with personal interests and ideologies.”

The use of games as a teaching and learning strategy in the classroom is a great resource. It creates situations that allow students to develop problem-solving methods, stimulates their creativity in a challenging environment while motivate them.

According to Smole, Diniz and Milani [21], working with games is a resource that benefits the development of learning, different reasoning processes and interaction among students, since during a game, the player can follow the work of others, defend their points of view and learn to be critical and confident in themselves.

An attractive element of the gaming experience as a learning tool is that it provides opportunities for continued practice because negative consequences are not typically associated with failure [22]. Rather, failure serves as an integral part of the learning experience. This encourages either players to improve through repeated practice by advancing within a game or replaying parts of a game.

Mazzarotto and Battaiola [23] describe a Framework that explores the use of computer games in the learning process through a vision of experience (Figure 1). In this model, there is a circle divided in the middle, where one-half is for the complex characteristic of experience in computer games while the other refers to its wider nature. An arrow connects both halves. Thus, the authors describes a cyclical process, where the amplitude of the experience, gifted with Physical, Social, Psychic pleasures and with Ideas, guarantees the Attraction and Engagement on experience, thereby providing the user with the motivation required to meet the challenges proposed by the game. These challenges are complexes and when resolved, they lead to the conclusion of the experiment, which then provide the user with the possibility of extension through the most complex challenges and generating more motivation, restarting then the cycle. Viewing the two halves together, the steps of Attraction, Engagement and Completion/Extension are connected, providing a complete experience.

Motivation is an internal state or condition that arouses us to action, directs and persists our behavior, and engages us in certain activities. In a classroom context, motivation refers to students’ subjective experiences, particularly students’ willingness to participate in class activities and their reasons for doing so [24].

According to Song and Keller [25], there have been many motivational theories and models in educational psychology. For example, behavioral theories explain motivation in terms of deprivation and reinforcement. The cognitive view emphasizes attributional theories and intrinsic motivation arising from disequilibrium. The humanistic perspective focuses on growth motivation or need gratification. However, although these perspectives may help instructional designers understand motivation in diverse ways, they do not provide systematic guidelines for instructional design.
IV. MOTIVATIONAL DESIGN

In 1976, researchers mentioned the lack of systematic attention to motivation in instructional theory and technology, to understanding motivation in individuals, and to developing a technology for influential motivation [24]. Only in 1979 concerns in this area began to rise when Keller [26] described the inadequate attention to motivation in Instructional Design and introduced an approach, the ARCS model, to incorporate motivation into the design of instruction.

Motivational design refers to the process of arranging resources and procedures to bring about changes in motivation. It can be applied to improving students' motivation to learn, employees' motivation to work, the development of specific motivational characteristics in individuals, and to improving peoples' skills in self-motivation [27].

The motivational design process can be separated into the steps of define, design, develop and pilot [28]. The define phase has three purposes: to identify the general level of learner motivation (audience analysis), to generate motivational objectives and to prepare methods for assessing the motivational objectives. Steps in the design phase include creating potential motivational strategies for each motivational objective, selecting appropriate strategies and integrating the strategies into the instructional content. The develop phase involves creating materials that effectively integrate the motivational strategies, enhancing existing instructional products and conducting developmental tests.

Song and Keller [25] state that, in educational technology, there are two well-published holistic models of motivational design: the ARCS model and the time-continuum model of Wlodkowski (1999).

According to Keller [26] the ARCS (Attention-Relevance-Confidence-Satisfaction) Model aims to provide useful assistance to designers and teachers about how to improve motivational appeal into instructional design in order to stimulate students' motivation to learn. The model defines four major dimensions of motivation:

- **Attention** - getting and sustaining attention during the instruction. As an element of learning, the concern is not only to direct attention to the appropriate stimuli but the challenge is to sustain it, producing a satisfactory level of attention throughout a period of instruction. According to Cheng and Yeh [24], to stimulate and sustain the learner's attention, the instructor can introduce unexpected events to arouse the learner's curiosity and interest.

- **Relevance** - connecting instruction to learner’s own needs and motives. Relevance comes into play after the learner's attention has been obtained. The learner is more likely to be motivated if the content of the instruction responds to his or her perceived needs. Nevertheless, relevance does not have to come from the instructional content. Rather, it can come from the way things are taught, such as the cooperation strategies used in the classroom [24].

- **Confidence** - generating positive expectancies for the probability of success. Besides being interested and perceiving the relevance of the instruction, it is necessary for the learner to believe that there is an acceptable probability to succeed for them to be motivated [24]. According to Keller [26], differences in confidence can influence a student’s persistence and accomplishment.

- **Satisfaction** – making people feel good about their accomplishments. People should be more motivated if the task and the reward are defined.

Wlodkowski’s Motivational Framework provides a list of motivational strategies and describes when to use them. This model includes four motivational conditions that the instructor and the learners collaboratively create or enhance [29]:

- **Establishing inclusion**: Creating a learning atmosphere in which learners and instructors feel respected by and connected to one another.

- **Developing attitude**: Creating a favorable disposition toward the learning experience through personal relevance and choice.

- **Enhancing meaning**: Creating challenging, thoughtful learning experiences that include learners’ perspectives and values.

- **Engendering competence**: Creating an understanding that learners are effective in learning something they value.

Song and Keller [25] compare the ARCS and Wlodkowski’s approaches and state that they are similar, but the first one differs from the second in two important ways. (a) Strategy selection in the ARCS model is done systematically from a set of categories and subcategories based on a comprehensive synthesis of concepts and theories in human motivation. (b) The ARCS model is a problem-solving approach. Selection of strategies is based on a systematic design process that includes an analysis of audience motivation. Strategies, both the number and type, are then chosen that are appropriate for the given audience.
Alves and Battaiola [30] describe guidelines to assist designers of educational games to not only convey the information, but examine it in all its respects. The authors compare the Flow Theory and the Malone and Lepper taxonomy and describe their implications in the design of educational games. The Flow Theory propose guidelines to create motivational situations where the actions are realized by personal reasons. The Malone and Lepper taxonomy includes heuristics related to the use of motivational factors in game design, providing students engagement.

The focus of their study is on student learning where the message serves as an interlocutor and mediator of learning and not just as content exhibitor. Therefore, they suggest the search of relevance, skills, challenges and control as the Flow Theory predicts, but without forgetting that all these skills undergo repertoires, stories of life, emotions, aesthetic and cognitive values and senses presented by Malone and Lepper, as shown in Table 1.

TABLE 1. COMPARISON BETWEEN MALONE AND LEPPER MODEL AND FLOW THEORY [30].

<table>
<thead>
<tr>
<th>Malone and Lepper Taxonomy</th>
<th>Flow Theory</th>
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<tr>
<td>Challenge</td>
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<tr>
<td>Goals</td>
<td>Generation of challenging activities that require skills, but these skills are not an obstacle to the accomplishment of the task;</td>
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<td>Unexpected Results</td>
<td>Clear goals and immediate feedback;</td>
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<td>Performance Feedback</td>
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<td>Self-esteem</td>
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<td>Fantasy</td>
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<td>Emotion</td>
<td>Concentration on the performed task;</td>
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<tr>
<td>Cognition</td>
<td>Loss of real consciousness,</td>
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<td>Empathy</td>
<td>Transformation of the perception of time;</td>
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<tr>
<td>Curiosity</td>
<td></td>
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<tr>
<td>Sensorial</td>
<td>Attention absorbed by the activity, incorporation of action, unity of person and activity;</td>
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<tr>
<td>Cognitive</td>
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<td>Control</td>
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<td>Contingency</td>
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<td>Choice</td>
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<td>Power</td>
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V. EMOTIONAL ENGAGEMENT

Blythe and Hassenzahl [31] say that “pleasure, enjoyment and fun are fundamental to life”. During the experience of fun, we are distracted from the self. Our self-definition, our concerns, our problems are no longer the focus. This not mean that fun is unimportant or “bad”. Its ability to distract with short-liveliness and superficiality satisfies an important underlying psychological need. In contrast, pleasure is a deeper form of enjoyment. The main difference between pleasure and fun is its focus on an activity and a deep feeling of absorption.

The authors also states that physical and social scientists have created a large body of work that relates to enjoyment. Neurologists have discovered “pleasure centers” in the septal region of the brain which when electrically stimulated produced enjoyable feelings; when animals were wired up so that they could press a lever and administer this stimulation themselves they did so for hours ignoring food, sex and every other need. Pleasure then can be regarded as a physical response of the nervous system.

Enjoyment is a subjective experience that may be understood in relation to theories of motivation. Extrinsic and Intrinsic are the two distinct types of motivation for engaging in an activity [32].

Extrinsic motivation depends on the enhancement value of the result of the activity, and parallels the idea of technology as tool; in a traditional usability perspective, whether or not the technology functions as a means to complete well-defined tasks, particularly work related tasks. According to Cheng and Yeh [24], it occurs when the cause of motivation exists outside of an individual and the task performed. It arises from environmental incentives and consequences.

Intrinsic motivation is perceived as rewarding in itself and is a parallel to the idea of ‘technology as a toy’. It occurs when the cause of motivation exists within an individual and task. It emerges spontaneously from psychological needs, personal curiosities, and attempts to grow [24].

According to Aparicio et al [16], Daniel H. Pink, in one of his books, identifies three key elements that allow achieving personal well-being and personal satisfaction: autonomy, mastery and purpose. Autonomy responds to the desire of all people to control their own lives and the way they do their jobs. Mastery concerns the desire to constantly improve and achieve personal satisfaction through challenges that fit the capabilities of each individual. The purpose acts as a connecting thread of the intrinsically needs of people and it enables personal fulfillment.

Engagement can be described as an exciting and enjoyable state of mind in which attention is willingly given and held [33]. It can be addressed as an optimal state of mind, in which people report losing the sense of self and time and experiencing effortlessness in the development of skill. For most researchers engagement entails some kind of mindfulness, cognitive effort and deep processing of new information. Common in these varied views on engagement is that engaging activities are intrinsically enjoyable, i.e., the activity is performed for intrinsic rewards and is not performed for extrinsic rewards [34].

Samur [35] says “Engagement refers to a high level of interest in a particular task behaviorally, cognitively and emotionally”.

For the author, emotional engagement suggests a wide range of directions that interaction design might take in order to enrich existing communication practices. It is defined as desire, interest, and positive and negative feelings that students sense while dealing with the task. Besides, a state of being immersed to the task is also considered as a part of emotional engagement.

When researchers examine students’ emotional engagement, also called affective engagement, the most common qualities are the positive and negative affective reactions that students show or feel in the classroom such as interest, happiness, willingness, desire, enjoyment, boredom, sadness, worry, and anxiety. In some studies, emotional engagement is considered as motivational engagement where
interest, value, and affect are combined for a particular task [35].

The distinction between emotional and behavioral engagement is clearer than the difference between behavioral and cognitive engagement. The qualities of emotional engagement are the externalized version of feelings that are observable from students’ physical appearance whereas, behavioral engagement is the externalized version of conduct that one can see from the students’ physical activities. Figure 1 shows the conceptual representation in terms of the qualities of three engagement domains.

![Fig. 2: Conceptual representation of the constructs symbolizing the qualities of three engagement domains [35].](image)

Samur [35] also states that it is difficult to differentiate the qualities of emotional engagement from the motivational research because there are various emotions such as interest, willingness, and value that can also be considered as qualities of motivational research. However, if researchers attempt to delineate emotional engagement, for example directing questions or items toward a specific task, the source of emotional engagement can be differentiated from motivational research.

VI. DISCUSSION

Learning is a very complicated process. Learning performance will be influenced by various factors, such as learners’ attitude, interest, and motivation [36].

In spite of the wide variety of Web-based technology developed to support learning activities, some important educational elements, such as teaching styles and motivation issues, have been largely missed in the teaching systems [37].

Differently than expected, many studies have pointed out that students of E-learning systems relatively lack the motivation of students in traditional classes [38]. This lack of motivation comes from insufficient emotional engagement. To provide motivation in learning situations, we must consider emotion. Emotion plays an essential role for achieving educational goals. The emotional states of students are related with motivation, learning strategy, cognitive resource, self-regulation, and academic achievement [Lee & Doh]. The physical model of emotion held that “our feeling of (bodily) changes as they occur is the emotion” [39].

Lee and Doh [38] says that enhancing emotional engagement should be the one of the main goals for E-learning systems. Through emotional engagement, we can help students achieve a playful attitude, sustainable learning motivation, and increased memory and educational achievement.

In real-life learning situations, the goal of enhancing emotional engagement should be to invoke a playful attitude towards learning. Students are not ‘empty vessels’ that can memorize all of the learning contents. Students learn more effectively when they are engaged and interested [38].

In LMS, in order to gain emotional participation from the students, it is imperative that the resources used to present the content should be successful in making people ‘suspend their disbelief’, ‘enter the emotional space’ and actively act and react within it. An interesting way to enhance LMSs in an attempt to emotionally engage and motivate students might be the use of games. There is a lot of discussion about the effectiveness of games on the teaching-learning process.

Games can be powerful experiences, leveraging both motivation and engagement and, according to Deterding [18], are very important ways of achieving a playful attitude by enhancing emotional engagement in E-learning.

Blanco et al [8] arguments that, as games are highly interactive, they can be used for student tracking and assessment if they are connected to a back-end (LMS) that allows educators to access the information. In addition, the games can use relevant data that is available in the LMS (e.g. student profile and achievements) to improve the game.

Koster [7] says that all kind of games are basically edutainment, and that the core of the people interests in them is for the fun involved in the interaction process. According to the author, with age, the interests in games and the notion of fun will be changing, however, the activities in which engagement is this notion is strongly associated.

Although using games for education does not always mean an improvement in learning, and no few scholars have pointed out barriers that limit the potential of Game-Based Learning, recent research proves that educational games can improve both students' motivation and learning outcomes [35].

According to Hoffman and Nadelson [28], the research on gaming and motivation describes gamers as individuals that display intense affect, passion, and focused attention. Engagement in gaming is the nexus of intrinsic knowledge and interest and external stimuli that promote initial interest in, and continued use of a computer-based learning environment. The intrinsic interest can be a powerful catalyst motivating the individual to complete a task.

The strength of motivational engagement was, in part, influenced by the gamers’ perceived ability to control the gaming process and the perception that there were few consequences to failure when gaming [28].

Blunt [40] describes a causal-comparative exploratory study that was conducted to examine the difference in academic achievement between students who use video games in learning and those who do not. The data analysis found
class using the game had significantly higher means than those classes that did not use the game.

About the learning experience, while a learner may generally be motivated towards learning, there is no assurance that a person is motivated to learn what the specific instructional activity is proposing. Further, instructional designers cannot assume they understand the learners’ motivation. To analyze needs, the designer should understand how to encourage students to come to the same conclusions as to the values, interests, motivation, and content as set by the learning objectives of a particular lesson. Over the years, many follow-on strategies have been developed to turn Keller’s model into practice [41].

Regarding all the considerations above, this article is an attempt to discuss few approaches that might assist teachers as well as educational game designers. It is important to encourage educators to use computer games as a resource to enrich LMS in order to engage students in the learning process.

At the same time, the authors’ intention is to provide instructional designers a study about design approaches concerning the incorporation of motivational factors in the educational game design, providing students emotional engagement.

Game applications in Education should not be developed concerning only the usability aspects. There are several theories and guidelines to help the development of more interesting and motivating educational games, enhancing the emotional engagement of students through LMS.

Most students consider some disciplines as Mathematics, boring and difficult, especially in the E-learning process. At distance, only the technology and the LMS resources, which students might hold up to, mediate the teaching and learning process. Learning and connecting them to the theme of study is more difficult.

For this purpose, it is important to motivate them in a more emotional and enjoyable way. Games are a powerful tool. Games promote the intrinsic motivation and emotional engagement necessary to make the learning process more interesting and appealing.

Games are fun and fun make the student lose the sense of self, promoting more engagement to the task and development of skills.

It is also important to highlight that the use of games to provide emotional experience to the student may provide more motivation to the learning activity. Consequently, enhancing LMS with those may reformulate it and reestablish the positive role of the LMS in the teaching-learning process.

Gamification has the possibility of enhancing the user’s emotional engagement; therefore, these methods could be helpful for learning and training. Games are a very efficient enhancing emotional engagement in LMSs, providing rich, stimulating, and pleasurable user experience. Thus, while game designers concern about motivational aspects in the instructional design, the educational game may be successful in the teaching and learning goals.

Human usually work better and learn more easily when he is excited about the matter and it may provide more positive results in the learning process. This statement might confirm that promoting emotional engagement of the students, LMS may be more effective.

VII. CONCLUSIONS

The use of game in Education is still discussed in the Academy and some educators are still reluctant to put them into practice but, concerning the educational experience, there have been satisfactory results and an increasing interest in the benefits promoted by games.

The major challenge in E-learning process is to gain the interest and attention of students. Games are considered highly interactive resource and may fulfill this learning goal. Interactivity is an efficient way to bring students and educational content together and to improve cognition and learning.

Games, used as Learning Objects, may be a powerful ally to LMS. However, regarding the teaching and learning aspects, games may not be designed aiming only to teach neither to entertain. They must educate and at the same time cause a sense of satisfaction, pleasure. Several approaches incorporate the motivational factors in the instructional design of educational games in order to achieve these outcomes.

This article presents some of these methodologies, highlighting the importance of promoting emotional engagement to motivate students and to make the teaching and learning process more interesting and effective. It is also shown that games may enrich LMS and provide all of these results if developed properly.

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