Smartphone Serious Games as a Motivating Resource in the LSP Classroom

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Abstract: The use of technologies in the educational field tends to be discussed every time a new gadget is launched regardless of the subject or content area in which it could be applied. In this sense, the goal of these continuous discussions on technology use is to balance the advantages and disadvantages of each new gadget and consider the possible effects in the learning process. This paper introduces a bibliographical review on the application of serious games as a pedagogical resource and on the responsible use of mobile phones in the classroom; and it aims at discussing how the use of these games played with *Smartphones* can raise students' motivation and their interest in the process of learning languages for specific purposes in tertiary education. In conclusion, it seems that the application of these educational gadgets could be advantageous for the students in their learning process if they are used correctly with a well established protocol.

Keywords: Serious Games, Smartphone, Gamification, Foreign Language Learning, LSP, DGBL.

Introduction

Changes in Education seem to be emerging faster than ever before due to the technological revolution derived from the launch of the *Smartphone* in the late 2000s. These devices have altered the meaning of communication, entertainment, life style and consequently education as well. The *Apps* that can be installed in a *Smartphone* are near infinite since this emerging industry has evolved into one of the most profitable business in the present decade. Despite there are some *Apps* aimed at studying and working, some of the most popular applications available in the *Stores* offer entertainment and fun to the users. This

easy, and sometimes free, access to these applications addressed to entertain has also involved a higher degree of addiction among users, who seem to be no longer motivated with other traditional forms of fun. This fact has also affected the education field, in which some traditional teaching methods seem to have become obsolete in the sense that learners in secondary and especially tertiary education do not show enough interest in them. The reality is that some secondary schools have banned the use of mobile phones in class, but it seems a difficult purpose in tertiary education with adult students. Sometimes students are more attentive to the news alerts, messages, or games than in the explanations from their teachers. In this sense, *Smartphones* have become a double-edged sword. On the one hand, they are a valuable resource with infinite information and useful resources; but, on the contrary, they are also responsible that students easily lose their concentration on the lessons while chatting or playing games.

Teaching professionals in secondary and tertiary education should definitely acknowledge that the traditional classroom with paper books, blackboard and chalk has evolved towards the use of electronic devices that aim at improving the quality and quantity of the learning process as well as making this task easier for both teachers and learners. Requesting students not to use their *Smartphones* or tablets in the classroom could sound violent and even counterproductive since society is surrounded by electronic devices and nobody can deny their existence and their necessary use. Instead, the application of these devices should be integrated in the classroom as a natural teaching resource in a way that enhances learners' interest and attention in the lesson. Thus, we should wonder if the teachers are the ones failing in this educational system for restricting the use of technology in the classroom or if it is responsibility of the students for losing their interest in lessons.

In this sense, it would be an error to take for granted that any *Smartphone App* is suitable and motivating for any subject or group. Thus, it should be necessary

to develop a research to determine the type of applications that are adequate to fulfill the purpose of each lesson as well as maintaining learners' interest and attention to the subject content. Our proposal focuses on the use of serious games in the area of foreign language teaching, more specifically in the language for specific purposes (LSP) classroom at tertiary level. The use of videogames seems to be a useful tool to help learners develop their foreign language skills with resources that are motivating for them. In words of Gee (2003), supporting language learning processes with videogames benefits students with higher time of input and output exposure in a real context, familiarizing students with a given particular profession. Furthermore, videogames involve playful factors that promote students' entertainment through their learning processes, and contribute to increase their motivation in the subject (Gros, 2005).

Considering these benefits in the use of serious games in education, the combination of traditional lessons with the use of serious games could be a suitable resource to improve the learners' motivation and learning in the classroom. *Smartphone* videogames should be tailored to the content and purpose of the subject and be used as a normal resource in the classroom, rather than being restrictive. This way, teachers could avoid that students used their *Smartphones* for other purposes that are not the ones of the lesson and take advantage of the infinite benefits provided by these electronic devices at the same time. Regarding these possibilities, the purpose of this research is to review previous literature and discuss how serious games played with *Smartphones* can become a motivating resource in the LSP classroom at tertiary level. In the next sections, there is a review of literature about the use of the *Smartphone* in the foreign language classroom and teaching LSP with serious games before we get to the discussion.

DGBL with a Responsible Use of the Smartphone in the FL Classroom

Since the beginning of the XXI Century, the introduction of technology in the classroom has been widely discussed. The pros and cons of any new electronic device have opened debate about if they would be useful or, in the contrary, harmful for the education of students. In the field of foreign language teaching, the use of electronic devices has evolved from the use of cassettes since the 1950s with the Audiolingual method to the use of computer with access to the Internet in the early 2000s. Since then, new gadgets have been incorporated to the FL classroom such as digital dictionaries and Encyclopedias, video and voice recorders, instant messaging services, or video conferences among others, and more recently Smartphones and Tablets. In previous research, the use of Smartphones in the classroom has been addressed as Mobile Assisted Language Learning, also abbreviated as MALL and m-learning. See for example Kukulska-Hulme and Shield (2008) or Stockwell (2012) among others. One of the key features of Smartphones is that they have continuous access to the Internet, which means that students can find, create, share and receive information at any time. Following Luque-Agullo and Martos-Vallejo (2015), *m-learning* is particularly based on behaviorism and constructivism. In this sense, behaviorism focuses on building connections between stimulus and response; thus, Smartphones can provide them as well as immediate feedback or the necessary reinforcement to the student. Constructivism focuses on constructing ideas based on the own knowledge and experience and sharing them with other individuals. These ideas based on constructivism result in collaborative meaningful tasks in which to be physically present is not necessary.

It shall be necessary to acknowledge that the use of *Smartphones* in secondary and tertiary levels is different; however, the focus of this research is on tertiary ones. In this case, the use of these devices can include the use of social networks, contacting other students and professors, managing their agenda as well as finding entertainment; and all these options can connect with their educational needs and in the foreign language classroom. In words of Luque-

Agullo and Martos-Vallejo (2015), some of the basic functionalities of mobile devices for developing language skills are the following:

- Audio to reproduce and record sounds
- Camera to take pictures or film videos
- SMS (Short Message Service) and IM (Instant Messaging)
- Office tools
- Mobile Internet
- Social Networks
- Use of other Apps

Despite the possibilities of these functionalities in the foreign language classroom, it is well known that resistance to use mobile phones in schools and universities is still a barrier despite some institutions all over the world are beginning to integrate this technology in their daily sessions. According to Brazuelo and Gallego (2011), some of the main fears in tertiary education concern the misuse and misinformation on the use of Smartphones for educational purposes, including both students and teachers. Firstly, it shall be necessary to establish a protocol on the use of mobile phones in the tertiary classroom. The main purpose of some guidelines explaining the appropriate use of the mobile phone in the classroom would be to avoid distraction in the classroom. For example, McCoy (2013) suggests in his research that the main distractions are texting, emailing and networking. The use of these tools is also the most usual, but they should be restricted in order to prevent distractions in the classroom. In addition, the use of applications that provide video (i.e.: Youtube), music (i.e.: Spotify), or games and entertainment should also be included in this group. However, it shall be acknowledge that controlling the use each individual makes of their device seems to be a difficult task, establishing a protocol that restricts the use of these applications in the classroom would sound more coherent to the student rather than banning the use of *Smartphones*. As result, the use of *Smartphones* could be distinguished as correct or incorrect and this would be a good start to lead the normalization of mobile devices in the classroom. In this sense, the idea of normalizing their use in the classroom would be advantageous since teachers would avoid the need to ban the use of a necessary tool in our society and students would not be violating a rule. Furthermore, students would be expected to maintain their *Smartphones* occupied with class work rather than with entertainment unrelated to the lesson. Consequently, the basic functionalities introduced by Luque-Agullo and Martos-Vallejo (2015) could be considered a useful learning tool rather than a distraction for the students.

Thus, it shall be acknowledged that the gadgets introduced in the list provided by Luque-Agullo and Martos-Vallejo (2015) should be considered an advantage, whereas the use of other *Apps* is unquestionably giving rise to a wide range of possibilities for *Smartphones*. The speed in which the market of *Apps* is growing is incalculable and this means that there are several categories of application. In this sense, videogames is one of the most popular categories. The traditional videogames that were played with video-consoles or computers are now accessible from *Smartphones*. Besides, if they are compared with the ones played in other more traditional platforms, they are more advantageous in the sense that they maintain the quality but their price is much lower or even free, their accessibility is immediate since they are downloaded and stored in the user's device, and they are portable like some traditional video-consoles (i.e.: Nintendo Gameboy, Sony Play Station Portable).

More recently, the use of serious games has been treated as a challenge in the classroom. Some researchers have recommended their use and even there is a method based on the use of videogames: Digital Game-Based Learning (DGBL). This approach is based on the use of electronic games for learning purposes (Evans, 2008); similarly, Prensky (2001) defined it as the marriage between videogames and learning. DGBL provides students with learning based on virtual experiences; and despite these may not be as authentic as the real ones, they could be considered the closest mirror of reality. In fact, some classic

authors such as Plato or Aristotle claimed that the best possible learning comes from experience: learning by doing (Power, 1991; Cohen, 2007). The main benefit of this method is that it can increase the motivation of students to continue playing and consequently also learning (Dondlinger, 2007). According to Gros (2009), fostering motivation among students should result in increasing their efforts to complete their tasks and promote their entertainment during the gaming time. Following Taşçı (2016), the application of this approach based on the use of videogames has been previously implemented in other fields such as psychology, sociology, history, or military as well as in foreign language learning. Besides, it seems that the DGBL approach is based on constructivist knowledge (Duch, Groh and Allen, 2001), in which learning is active since the learner is a player rather than passive audience, and it is processed with problem solving which are continuously encountered in the game scenario (McFarlane, Sparrowhawk, and Heald, 2002). Furthermore, concerning the cognitive development theory, it is also based on learning by experiencing since the player is required to take actions in different game environments (Squire, 2005).

Despite these advantages, and as it has previously been commented, the use of serious videogames in the classroom which can be individually played with the learner's own device still seems to be blocked by a barrier of fear and lack of knowledge and training on the possible applications of these electronic gadgets. The following section focuses on how serious games can be applied into the LSP classroom and played with *Smartphones*.

Teaching LSP with Serious Games

If there is an area of language teaching and learning which is clearly set in a particular context, this is the LSP classroom. This is an advantage for using serious games in the classroom since this type of teaching is based on certain limited purposes as its own name suggests. Previous authors have defined the language for specific purposes as the linguistic forms defined by its extra-

linguistic context and based on a particular profession, despite any specific language contain forms from general language it differs since LSP has its own self-rules (Dudley-Evans and St John, 1998; Munby, 1981). In this sense, LSP is used to communicate within a particular field rather than in daily situations. Regarding the use of videogames in the LSP classroom, some previous researchers have also recommended their use. See for example Agudo, Rico, and Sánchez (2015), Bing (2013), Chen and Yang (2013), Huang and Huang (2015), Linderoth (2012), Van Rosmalen, Wilson and Hummel (2013), among many others.

As it also happens when teaching general language, students need to do repetitive exercises and tasks to practice language forms (Greere and Räsänen, 2008). Traditional language teaching books have used paper workbooks to extend the learners' practice. More recently, these materials have become digitalized and have also included electronic games despite they cannot be considered videogames. These games do not tend to be connected to any story that is extended along the lesson and they seem to lack the necessary emotion to entertain and engage players to complete the activities and keep them motivated to continue playing. Serious games could be an alternative to these traditional materials which would raise students' motivation and their engagement to complete their tasks (Dondlinger, 2007). As it has been previously claimed, the use of videogames would increase the time of exposure to the target language and contents (input) and it would also provide further opportunities for practice (output).

Nowadays, there are companies which offer tailor made videogames addressed to specific training programs. Some of these companies are *Playgen*, *Innovation Games*, *Institute of Play*, *Caspian Learning*, *Virtual Heroes*, or *Morf Media*, among others. In their websites, they show some examples of their serious videogames which have been developed to train individuals with specific purposes. Their main customers are multinational private companies as well as governmental

entities such as military, education or health services. Some of them offer serious videogames to be played with *Smartphones* (see for example, *Morf Media*). Similarly, other academic institutions have also developed some projects which have been either funded through governmental projects or self-funded. Some examples of serious games applied to teaching a language for specific purposes are the ones introduced below.

- siLang (Tsalapatas et al., 2014). This serious game is a graphic adventure which focuses on the use of some language forms for working purposes, mainly business. This application trains individuals to communicate effectively in professional contexts such as a job interview, negotiating salary, preparing a business travel, participating in an international professional meeting, or participating in a social professional dinner, among others. The videogame aims at training learners' comprehension skills through mini-games in which the player interacts with non-playing characters by selecting a suitable option in multiple dialogues. This method helps learners build communication competence through situated learning approaches based on experiences from the multilingual and multicultural real world. Besides, the players receive feedback through some posts introducing tutorial information or by the nonplaying characters who for example may claim that the selected option sounds impolite. This type of game is slow and allows repeating tasks without penalties.
- Tactical Levantine Arabic and Tactical Iraqi (Johnson, Vilhjalmsson and Samtani, 2005). These two games are addressed to teach rapidly Levantine Arabic and Iraqi to militaries. These courses are task-based focus which provides knowledge on the language and culture. The main language functions in these videogames are to teach how to introduce oneself, obtain directions, and arrange meetings with local officials. It also includes a system of speech recognition to receive instructions from the voice of the player and it uses oral commands rather than written

ones. This game additionally provides the player with a glossary in each unit or level that shows vocabulary, grammar structures and common expressions in each situation.

- The Conference Interpreter (Calvo-Ferrer, 2013). This videogame is a simulation played in a first-person context in which the player performs the role of a conference interpreter who has to complete different simultaneous interpretations. The goal of the player is to gain reputation and become a well know interpreter. To this purpose, the player gains points according to result of his or her performance which is based on the time the interpretations is completed and the amount of mistakes committed. This videogame has been designed for interpreters, so they can develop their own strategies and practice their daily work.
- Adventure German: The Mystery of the Sky (Goethe Institut, 2012). This game is a graphic adventure which focuses on improving learners' German reading and listening skills and gain new vocabulary. The player practices German in dialogues and fill-in-the-gap texts. The game is addressed to tourists in daily situations in a German speaking country such as asking directions, filling out forms, or ordering and paying in a restaurant. As it can be observed, this videogame is basically designed for beginners learning the German language; so it deals with basic language forms.

Similarly some of the companies that have been previously introduced have developed games for professionals which are not initially addressed to language teaching; however, it seems that they could be used for this goal if they were modified either on design or purpose. As it has been mentioned, some of these companies have designed videogames for military, education or health services; and consequently they could be used to teach both content and

language in their respective fields. Some examples of non-language teaching videogames that could be used for this purpose are shown below.

- Combat Medic (Virtual Heroes, 2014). This videogame is a medical simulation with the aim of training doctors in the modern battlefield. The virtual doctors have to heal patients with three possible injuries: hemorrhage, airway management and tension pneumothorax. In addition to practicing these tasks, medicine students could also learn language forms and vocabulary related to this professional field.
- Hilton Ultimate Team Play (Virtual Heroes, 2007). The well known hotel brand offered a training program to their employees that could be played with the Sony PlayStation Portable. These employees were trained to improve their customer services skills and consequently increase their customers' satisfaction and loyalty with the brand. In this case, this training program was addressed to front desk, food and beverage, maintenance, and housekeeping team members and it included working tasks that involved dialogues with customers. Thus, tourism degree students could use this model of videogame to gain specific vocabulary and language forms within this field as well as simulating some routine tasks in these professions.
- Hazmat: Hotzone (Carnegie Mellon University, 2007). This videogame was developed in collaboration with the Fire Department of New York to instruct firemen about how to act in hazardous emergencies. Training professionals to respond to these less frequent but complicated situations may result in a difficult task due to the risks and the impossibility to train them in similar real life events or simulations. The game is played in a first-person context and their movements are free within the platforms. The game contains an inventory with objects and a series of actions are associated to them; the results may vary according to the purpose and context in which they are used. This videogame could be a

useful tool in the field of foreign languages since it would be helpful to prepare professionals linguistically to act in international operations or when collaborating with international teams.

Anti Money Laundering (Playgen, 2010). This videogame immerses players in a criminal world to show how money laundering supports financial crime and teach preventive steps to avoid money laundering. This game is a response to the current anti-terrorism measures and it is addressed to banks, building societies and other financial businesses. Users perform different role-plays to understand this crime being a secret agent. This videogame is based on the user's actions and dialogue with other non-playing characters in a first person context. In addition to teach these professional skills, language learners could also use it to learn specific language and vocabulary from this professional field.

To extend the range of possibilities within the use of videogames in the foreign language classroom, both general and specific purposes, Massively Multiplayer Online Role-Playing Games (MMORPG) has been applied in the field of foreign language learning. In addition to the main objectives of the game, these videogames have been used to carry out negotiations and socialize with other players from the same or different communities. Initially, these videogames were not designed for educational purposes; however, due to the possibility of moving and traveling freely within the virtual scenario of the game and the combinations of dialogue and actions with both real and non-playing characters has made that some MMORPG could be used in the foreign language classroom (Woodford, 2012). Some examples of MMORPG are World of Warcraft, The SIMS, Habbo, Second Life, or Babel ARG among many others. These games have been used as a collaborative tool for L2 learning. For example, Thorne (2008) claimed that this type of games requires that players socialize and exchange information while taking turns and negotiating. Similarly, Sundqvist and Sylvén (2012) proposed the use of the game World of Warcraft as a means of learning foreign languages, especially vocabulary acquisition (see these authors' proposal: *World of VocCraft*). They concluded that MMORPG can provide the players with a suitable scenario in which they need to be autonomous learners and this may result into the transference of useful knowledge and proficiency in the language classroom leading to improved learning outcomes. The creation of a community of students with a particular purpose would make this game a useful resource in the LSP classroom.

Considering these ideas on the responsible use of the *Smartphone* in the classroom and the possibilities and benefits of using serious games to develop language skills, this research leads to discussing how serious games played with *Smartphones* can be applied in the LSP classroom and increase students' motivation in learning.

Discussion

Considering the ideas previously stated by different authors and the work carried out by some videogame designers, the use of serious games played with *Smartphones* is a pedagogical possibility that should be considered and tested by teachers, schools, universities and governments as well. Basically, the aim of using Smartphone serious games in the classroom is to help learners motivate themselves to take efforts in their studies by introducing entertainment. As result, if learners play because they have the desire to do it, they will learn implicitly and without considering this process as something unpleasant. It is unquestionable that the way of understanding lifestyle has changed after the invention and the quick spread of the *Smartphone* among the population. This fact has also implied changes in how students perceive both education and entertainment, which they go in hand in this research. Therefore, banning the use of the telephone in the classroom should be counter-productive and against the evolution of man in the XXI Century. Instead, this paper suggests integrating and normalizing the use of the Smartphone in the classroom and consequently obtaining the benefits it provides by establishing certain norms of

responsible use and promoting serious games as a valuable resource in learning languages for specific purposes in tertiary education.

As it has been commented in our theoretical framework, there are some approaches which focus on the use of serious games and mobile phones: Digital Game-Based learning and Mobile Assisted Language Learning. These methods are based on some of the most usual theories of language acquisition: behaviorism and constructivism. Therefore, they should be at least considered and tested in the classroom. Nonetheless, most institutions have not tumbled down the non-physical wall of fear around the use of mobile phone in class yet due to the lack of a suitable and reliable protocol that establishes how the telephones can be used and how they cannot instead of banning its complete use. With no doubt, the main purpose of these guidelines on the good use of the mobile phone should focus on avoiding distractions; and, as stated by McCoy (2013), these are texting messages, email, networking and we also suggested videos, music and games that are not authorized by the instructor. Besides, it is also necessary to appoint that the use of the camera and video recorder for bullying purposes or the spread or publication of photos or videos in social networks is already punished by most governments in the world. Thus, we can only recommend that the teacher should be aware of possible crimes against students related to the misuse of mobile phones and immediately report them to the school and this should take the necessary measures against the offenders.

Despite the application of the previous recommendations seems to be uneasy to achieve in the practice, we suggest that there is a fundamental principle to fulfill this purpose: keep the students' *Smartphones* busy with tasks. In other words, if students are working with their devices during the session, it is less likely that they can use it for another purpose. This fact is what highlights the importance of using serious games in the classroom. Playing videogames is a way of experimenting reality in a playful context. In this sense, the player-learner is an active participant of the learning process and this leads to increase

their motivation as it has been previously commented. Furthermore, this learning is individualized since each student is using their own device, so they are making the most of their time and they can even continue playing at home; this results in an increase of the time of exposure to the language and practice.

Our choice to focus this research on the application of serious games in the LSP classroom is due to the fact that its framework and context are more clearly defined than in general language settings. LSP tends to be associated to a profession with particular and sometimes repetitive tasks; therefore, choosing and designing materials is easier for both the teacher and the videogame designer. Undoubtedly, if the evolution of these industries are analyzed either individually or in group, it seems that the combination of learning and videogames being played with the student's own device in the classroom will be a widely spread practice in the forthcoming years. Furthermore, it could be considered an irresponsibility to turn our backs to the learning technology that is present almost everywhere in our daily lives. Thus, in this research a series of videogames for different purposes have been introduced in the previous section and the following lines discusses the features of these games played with *Smartphones* in the LSP classroom.

To start with, it shall be acknowledged that *Smartphones* are a suitable platform in which serious games can be played. The variety of commercial games in the *stores* is broad and some of the games which are commercialized for traditional home-based video-consoles usually have their mobile version. Besides, the genre of videogames in the stores is also the same; there are action, adventure, MMORPG, simulation, strategy, vehicle simulation, or miscellaneous genres as well. Despite it shall be acknowledged that there can be some differences and technical limitations regarding the playability of home-based video-consoles and *Smartphones*, they should not be considered a barrier to design *Smartphone* serious games for the LSP classroom.

Secondly, the professional field in which the LSP is set can also be varied and even hybrid. The examples introduced in the previous section included videogames addressed to language interpreters, business and working purposes, tourism, military, medicine, or training hotel employees among others. It shall be noticed that each profession requires some specific forms. Thus, it seems that the language required to perform specific tasks in any given profession could be gamified in a serious game. As it has been previously explained, particular professions require the completion of specific tasks; and the success of these tasks usually depends on the correct and appropriate use of certain communication utterances. Therefore, the completion of tasks (or missions) should be the main purpose of this type of videogames while players are learning the specific language through these particular tasks.

Thirdly, the suitability of each videogame genre will definitely depend on the profession and the task to be performed. As it has been commented first, the type of genre should not mean a restriction; however, the use of a genre or another could be more convenient as it also happens with commercial games. In this sense, the examples provided above are mainly simulations in a first person-context and graphic adventures (Hilton Ultimate Team, siLang, Tactical Levantine Arabic, Hazmat: Hotzone). Other ones like the Conference Interpreter or Adventure German: The Mystery of Sky are simpler in terms of design, motion and action and their aim is to test language skills with puzzle-like activities or filling the gaps; in these two cases the games mainly focus on listening skills, grammar and vocabulary. In addition to puzzles and tests, other types of tasks that have been found in the examples provided in this paper are follow-up dialogues, gathering and using objects, as well as gaming skills or ability. Follow-up dialogues represent a way of practicing the language forms and providing feedback to the student whereas gathering and using objects is a way of acquiring new vocabulary and experimenting with it. Gaming skills or ability tasks seem to provide the player with further entertainment and engagement in the learning process. For example Combat Medic requires the completion of surgery operations in a limited period of time. As result of these tasks, the player's excitement and willingness to continue playing could be increased.

At last, the genre MMORPG should be commented apart since it seems to provide the players with a virtual world in which a wide range of actions are permitted and all of them cause reactions that influence in the development of the videogame (Fergusson, 2012). For example, the use of videogames such as World of Warcraft, Habbo or Second Life allows that the player can create a community with their own rules in which there is real communication among the players and socialization and team work is required. Therefore, teachers could use these videogames to perform a series of tasks in which the use of specific language is required. For example, they can create their own business and try to make it grow with the contributions and support of a team.

Conclusion

As it has been observed, the field of serious games in the field of LSP and played with Smartphones seems to be an open window to an emerging market with several pedagogical options to be exploited and developed. The normalization in the use of mobile phones in the classroom for learning purposes could raise learners' motivation and provide the teachers with a useful device with a wide range of applications to be exploded. We suggest that the education and videogame industries should collaborate and focus on developing teaching materials in videogame format. Then, the use of the Smartphone in the classroom would become necessary and advantageous for the learners educational purposes; on the other hand, the present and counterproductive banning would be avoided. Thus, students could use their mobile phones with responsibility without the need to violate the rules. In sum, this paper has discussed how serious games played with *Smartphones* could become a useful and motivating resource in the LSP classroom in tertiary education. We have suggested the inclusion of serious videogames in the classroom and being played with the learners' Smartphones so they keep it occupied with class work.

The prohibition list in the proposed protocol concerns the use of email, texting messages, networking, videos, music and games that are not authorized by the instructor. In this case, teachers and institutions could establish their own tailor made protocol on the use of mobile phones in the classroom with rights and responsibilities for their students.

The main limitation of this paper is the fact that it is theoretical and its success may depend on many other variables that have not been considered in this research, so a research to determine the applicability of this proposal and an experiment with students could give rise to further research. As it has been commented, the use of technology in the classroom cannot be avoided; consequently, *Smartphones* and serious games should be a common learning tool in universities and schools, sooner or later.

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