

# DRIVERS AND MOTIVATIONS TO GAME-BASED LEARNING APPROACHES – A PERSPECTIVE FROM PARENTS AND TEACHERS

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## **Abstract**

The main goal of this study is to better understand and explore what are the most significant factors, drivers, motivations and barriers to game based-learning activities and, more particularly, the use of digital games for educational purposes. In the context of a research project based on the value of digital games creation for learning and promotion of media literacy skills, a mixed method study on the perspectives and standpoints of parents and teachers on games for learning has been conducted.

This study worked as a first approach to explore motivations, perceptions and adoption intentions of the main stakeholders involved in the teaching-learning process, both in formal and informal contexts. Focus group were conducted in two different elementary schools with parents and teachers of children from the 5<sup>th</sup> grade. This focus group intended to analyze 1) the relevance and application of media literacy skills in everyday life 2) the use of games in education and 3) the use of videogames to promote knowledge and skills in a formal education context with children aged between 9 and 12 years old. An online based survey was also conducted aiming to explore the attitudes of all the stakeholders, explicitly regarding videogames usage and videogames creation in the formal schooling context.

The main results of these study reveal the thoughts and expectations of children, parents and teachers from different fields, on the use of games for learning, their individual experiences and their intentions to introduce games, more particular videogames, in teaching-learning contexts both at school and at home. An interesting discussion on the relevance of media literacy in different contexts of everyday life and on the concerns of parents and teachers about the online world and associated skills, such as digital identity management, online security, critical thinking, information curation and management, is carried out.

The multiple stakeholder sample approached considered technologies, namely videogames, as a possible and feasible pedagogical tool, enabling the promotion of a wide range of skills and multiple literacies. Nevertheless, some risks are outlined, and also some skepticism regarding the association between games and entertainment, opposed to the students' concept of formal schooling.

In a broad-spectrum, this paper will highlight an interesting debate on the perceptions and attitudes of parents, students and teachers on the use of videogames for learning, as well as the main arguments, incentives and recommendations. Results from this paper can work as guide for future research studies in this context allowing to better understanding acceptance, adoption, perceptions and motivations, contributing for the success of future interventions in game-based learning approaches.

Keywords: Games; Videogames; ICT; School; Education; Stakeholders.

## **1 INTRODUCTION AND OBJECTIVES**

Games have always been part of childhood and infancy. Being it traditional games, board games, sport games, hide and seek, imitation games or digital games, they are part of our culture and our world.

Digital interactive technologies and more particular, videogames, are an integral part of today's children and adolescents' lives. Dozens of research studies are now addressing the relevance of videogames for children and the effects thereof, some focusing on the more negative or potential negative side of this usage, and other exploring the potentialities of games for learning and for better cognitive, social or emotional growth.

This paper approaches the perspectives of parents, teachers and children about the use of videogames for learning and intends to cross these perspectives both by qualitative and quantitative methods of analysis. Few studies have addressed these perspectives as a whole, allowing to explore the relationship between each and to understand whether these actors agree or conflict and in which viewpoints. What do children believe, what are the main concerns of parents and teachers and how their standpoints, perceptions and attitudes match or differ?

The sociocultural and ecological contexts of children and adolescents media usage nowadays are relevant environments that call for more research. More information is needed so that researchers, policy makers, educational players, internet governance actors, among other stakeholders, are able to orient, guide or regulate children, parents and teachers on the best practices and safe and prudent media use.

In the context of an ongoing research project that aims to understand the value and effectiveness of game-based learning activities in educational and institutional contexts and explore the potential of games to promote learning, knowledge and skills, more particular media literacy skills, this paper presents some of the findings of an initial stage that is concerned with how parents, teachers and students perceive the use of videogames in their daily life, namely in the context of teaching and learning, how they attempt to regulate the usage of videogames at home and in school and what are their beliefs and perceptions about the power of this tool to promote learning. Listening to the actors and stakeholders involved in the process of teaching and learning and offering them a voice to speak their concerns is the main goal of this paper.

The research problem explores three main questions:

- The first concerning attitudes regarding videogames usage and creation in education - what are the perspectives, attitudes and perceptions of parents, teachers and student about using videogames in learning contexts? What are the main concerns of parents about their son's use of video games, what are the main concerns of teachers about videogames as an educational resource and tool, what are the main thoughts of children about playing videogames as part of their educational context?
- The second regarding the use of new digital technologies – what are the rules, importance and which digital technologies are most used in school and at home?
- The third regarding media and information literacy skills (MIL) – what is the importance of MIL for children and for their future, how does teachers and parents promote MIL, what resources and tools do these educational actors use to work MIL and in what contexts?

## 2 LITERATURE REVIEW

Communication and sharing significance, in a mediatized world, requires a broad range of literacies, frequently referred as media literacy, information literacy, multimodal literacy, ICT literacy and/or digital literacy [1][2].

In the last three decades, the constant research in the media and education field has found some points of controversy. Nevertheless, it shows a common area of shared interest regarding people, practices and processes in the use of digital media, in different contexts and with different purposes [1]. One of the main controversies can be identified in the discourse about digital media, more specifically, concerning risks and potentialities versus more deterministic views, framing technology as a catalyst for a complete social change [1][3][4][5].

Games and specifically video games, have been associated with these controversies and seem to share a common field with some media education studies perspectives, mainly focused on the its social usage by the audiences/users/students. As a consequence, a common assumption is that learning experiences occur in several contexts, whether they are specifically conceived for formal education or informal spaces, online or offline [1].

Video games, mainly multiplayer, require collaboration, competition, sharing and information searching [6], practices that lead to development in learning communities. Moreover, studies on the cognitive development potential of games increasingly show its power in the promotion of several literacy skills [7] and creativity [8].

Nowadays, the body of evidence supports the integration of the analysis and production of games in the educational curricula [9], particularly as way to improve media literacy knowledge and skills.

Hence, video games can be integrated in education in several ways. The pedagogical models are diverse, consisting in the use of commercial titles, in the development of games with specific educational goals and in the creation of video games by the students, as a form of expression [11]. This last model has been used as a way to teach programming aligned with the development of problem-solving skills, and also considering video games a specific form of culture, compared to cinema, television and literature [7].

Beyond these approaches, video games creation and gameplay can be used as reflexive tools in the promotion of children's critical media understanding. Firstly, critical media literacy requires the development of reflexive knowledge, namely, children need to have previous knowledge about a subject in order to produce a game with a specific theme. Secondly, in the game creation process, children engage in collaboration and peer-learning processes, shown as efficient in learning, not only media literacy skills, but all the curricula contents [11][12]. Thirdly, the game design conception and the creation of contents allow children to integrate and reflect about their everyday media experience. Although, a majority of studies support the idea of video games as learning promoter, researchers in general also agree with need for more empirical evidence and research, framing the integration of "good game" in learning environments [13].

Nowadays, there is increasingly evidence of the support for using video games in the formal educational context from different stakeholders, namely students, teachers and parents [15][16]. Students have shown motivational aspects related to use of videogames in classroom, believing it could improve their engagement, problem solving skills, subject knowledge and ability to learn with peers [17][18]. In this sense, video game experience can be referred as a playful promoter of cognitive, motivational driven and emotional engaged skill development [14], framing further research and efforts to successfully introduce it in formal and informal educational contexts.

### **3 PERSPECTIVES FROM PARENTS, TEACHERS AND STUDENTS ABOUT GAME-BASED LEARNING AND VIDEOGAMES IN EDUCATION**

Two complementary studies were developed aiming to explore the perspectives of parents, teachers and children about the use of games for learning purposes, more particularly the usage of videogames for teaching and learning in formal and informal contexts. These studies correspond to the first phase of a larger research project that has as main objective the development of the critical and participatory dimensions of media literacy in young people from 9 to 12 years, through collaborative learning experiences with digital games creation.

This first phase was conducted by two complementary approaches, parents, teachers and schools' pedagogical directors were interviewed by focus group techniques and a survey was also applied at the same time by online questionnaire to students, teachers and parents. These techniques were used to explore the research questions already introduced in this paper.

Within the research project, the research is conducted with three schools, their students aged between 9 and 12 years old and their teachers and parents. The focus groups were developed within these schools with teachers, school director and parents. The quantitative survey was shared via the online platform for education called *SAPO Campus* and was distributed between the *SAPO Campus* social network environment to teachers, parents and students.

#### **3.1 The schools**

The schools are located in a Southern European city and based on different socio-economic background and characterized by different pedagogical and institutional projects.

School 1 is a private school located in a business area of the city. It bases its pedagogy on innovation, mainly framed on artistic education, but also on other aspects like physical activity and digital literacy. Its educational project promotes learning by doing, stimulating the collaboration and participation of all stakeholders in its definition. The students are between 0 (nursery) and 15 years old (ninth grade), establishing, in most cases, a course of continuity in this school.

School 2 is a private school located in a historic building in the city. It bases its teaching method on the promotion of excellence, through a humanized pedagogy, which promotes citizenship and the transformation of reality. Their students are between 1 and 16 years old (between nursery and high school) and are stimulated to participate in several projects, in partnership with various types of entities.

School 3 is a public school, located in Lisbon surroundings and classified as an educational territory of priority intervention, meaning that it was pointed out by the government as a region where is urgent to avoid drop out situations, indiscipline and violence. Its educational project is based on the integrating function of public school, valuing social and cultural diversity. Students are between 9 (fifth grade) and 15 (ninth grade) years old and almost half of them (46,6%) are covered by the school social aid system.

### 3.2 Qualitative study

Five focus groups were developed within the three schools with teachers, parents and the school director. All focus group were transcribed and analysed with the help of NVIVO11. The following hierarchical nodes were constructed to code the interviews and focus group discussion:

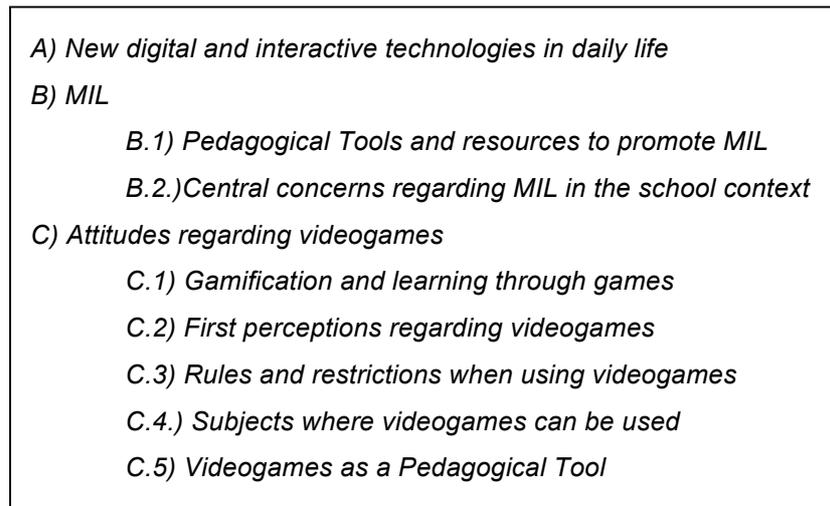


Figure 1. Focus group thematic organization

#### 3.2.1 Results

##### A. New digital and interactive technologies in daily life

Parents, Teachers and Directors considered that children use mainly the internet, highlighting the use of social networks, namely Facebook and Twitter. The most used technological equipment is the mobile phone, followed by tablet and computer.

##### B. Media and Information Literacy (MIL)

###### B.1) Pedagogical Tools and resources to promote MIL

Teachers and directors referred that schools are nowadays working with media production, explicitly radio, TV or newspapers, and promoting the usage of media to produce syllabus' projects, through online searching and programs, like PowerPoint or Prezi. This happens in a transversal way, across different subjects, but it's also possible to highlight the subjects where it's more frequent, namely ICT and Citizenship.

###### B.2) Central concerns regarding MIL in the school context

Teachers and directors denoted that the required school program doesn't allow them to promote a big amount of extra activities or projects, where MIL can be inserted. Also in their experiences, students are not always open to the introduction of technologies in the school context.

##### C. Attitudes regarding videogames

There's a common belief among directors that games can be used as a tool or an added value strategy in the educational process, making it more appealing. Videogames are perceived by teachers as a source of opportunities, but also of some risks. Games are seen as positive when used in a balanced way, considered very helpful in improving some skills, namely English (foreign language).

Regarding risks, some teachers consider that games can be an obsession and somehow promoters of isolation.

C.1) Gamification and learning through games

Parents, in general, considered that games can assume an educational role in their children development.

C.2) First perceptions regarding videogames

When elicited the first impression/mental image when thinking about videogames, parents referred some key concepts, namely action, football, training, learning, distraction and hobbies.

C.3) Rules and restrictions when using videogames

There is a particular agreement regarding the need of restricting some videogame's uses and the amount of time playing. Parents also perceive as very important that schools promote projects that promote the responsible use of videogames.

C.4) Subjects where videogames can be used

Teachers and directors considered that videogames can be used to teach a broad range of subjects, mainly Maths, ICT, Geometry and Literature, considering their opinions and previous experiences. It was referred that in the current curricula there's no specific training in videogame's creation, but only some basic animation principles.

C.5) Videogames as a Pedagogical Tool

The perceived relevance of building something and not only consuming was referred by the directors, who recognized relevance to the videogame creation process. Regarding the current videogame usage in the sample schools, games are only being used in very specific cases, like calculus or foreign language teaching.

### 3.3 Quantitative study

A survey was developed with the purpose of analyzing teachers, students and parents' perceptions about the usage and creation of videogames for teaching and learning purposes. The survey is divided into three main parts – first part is dedicated to demographic characterization, second part analyses behavior of playing videogames, using social networking site and online chats and the third part assesses perception and attitudes regarding the usage and creation of videogames for learning.

The data analysis was completed with the help of IBM SPSS Statistics 22 software and focused on a more descriptive approach.

#### 3.3.1 Results

Until the beginning of January 2017, a sample of 44 subjects - 11 parents, 13 students and 20 teachers - answered the survey. The following table presents demographic information about the sample – genre, age and city of residence.

*Table 1. Sample's demographic data*

	Age	Genre (%)	City of residence (%)	
Parents	Mean = 41,64	Male = 54,5 Female = 45,5	Lisboa	63,6
	Std deviation = 8,824		Setúbal	9,1
	Minimum = 31		Coimbra	18,2
	Maximum = 56		Viseu	9,1
Students	Mean = 26,67	Male = 69,2 Female = 30,8	Lisboa	76,9
	Std deviation = 3,099		Santarém	7,7
	Minimum = 23		Setúbal	7,7
	Maximum = 32		Porto	7,7
Teachers	Mean = 45,75	Male = 45,0 Female = 55,0	Lisboa	85,0
	Std deviation = 10,920		Coimbra	10,0
	Minimum = 27		Porto	5,0
	Maximum = 65			

Regarding practices and usage of videogames, data indicate that students are the ones that play longer (data represents minutes playing) both online games, videogames and social network games, when compared with teachers and parents, except for playing games in a smartphone in which, surprisingly, teachers show higher scores (teachers: mean=22,75; students mean=16,23; parents mean=3,10).

Regarding social networking sites and chats, students also indicate they use those tools longer than parents and teachers, as it is possible to observe in the following table.

**Table 2. Practices and usage of media/videogames**

		Mean (minutes)	Std. Deviation (minutes)
Parent	Social networking sites	35,30	36,881
	Chats and other messenger	9,18	13,437
	Play online games	,00	,000
	Play social networking site games	3,00	9,487
	Play console videogames	,09	,302
	Play game in smatphone	3,10	9,457
Student	Social networking sites	96,83	115,634
	Chats and other messenger	73,00	163,773
	Play online games	9,23	33,282
	Play social networking site games	,00	,000
	Play console videogames	14,00	35,889
	Play game in smatphone	16,23	26,262
Teacher	Social networking sites	37,78	52,698
	Chats and other messenger	19,10	36,350
	Play online games	,00	,000
	Play social networking site games	,50	2,236
	Play console videogames	,00	,000
	Play game in smatphone	22,75	46,749

The third part of the survey questioned about attitudes and perception regarding the usage of videogames and creation of videogames and its' potential to promote social, emotional and cognitive skills and, more particularly, media literacy and communication skills. The answers were given based on a Likert scale from 1 to 5.

In a general approach and in an unexpectedly way again, results indicate that students are the least to believe that playing videogames can promote their learning and knowledge about the world, presenting lower scores in general, when compared with teachers and parents. Regarding parents, they present higher scores in the following sentences - '*I can acquire new knowledge through videogames*'; '*I feel like I could tell a story through a videogame*'; '*I believe that the creation of video games can be used to communicate ideas*'; '*creating videogames can stimulate my ability to solve problems*'; '*When creating videogames I can acquire useful knowledge in other areas*' – indicating they have a positive attitude regarding the usage of videogames to promote learning in school context and they believe videogames have the potential to captivate students and their attention and to develop cognitive and social skills. On the other hand, students believe that learning to create their own videogames can be a way of learning and that it can stimulate their way of learning; however their scores are lower in general, possibly indicating some mistrust based on their own experience of playing games that is more often associated to entertainment contexts and sometimes even banned in learning contexts. In turn, teachers indicate they use less videogames in their daily life and professional life, but they also believe that videogames can promote communication skills and knowledge in diverse and more informal areas.

**Table 3. Results from the online survey**

	Parents		Students		Teachers	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
I am used to play videogames	2,36	1,362	2,92	1,441	1,85	1,387
Playing video games is a very relevant part of my day-to-day life.	2,00	1,183	2,23	1,301	1,55	1,234
I think video games are a "waste of time" (reverse)	1,82	,982	2,38	1,121	2,95	1,432
I think creating video games is an excessively complex activity (reverse)	3,36	,924	2,92	1,115	3,00	1,298
I can acquire new knowledge through videogames.	4,18	,751	3,85	1,068	2,95	1,234
I think school should use more videogames to teach students.	3,82	,874	3,31	1,182	3,10	1,373
I believe that children should be encouraged to play videogames.	3,09	,944	2,69	1,182	2,90	,968
I feel like I could tell a story through a videogame.	4,18	,874	3,54	1,266	3,25	1,618
I see what video games can do for someone's education.	1,82	1,079	2,08	1,320	2,05	,999
I would like to know how to create my own videogames.	2,82	1,079	3,62	1,044	3,20	1,542
Creating video games can promote my ability to communicate.	3,00	,894	3,54	1,266	2,70	1,418
I believe that the creation of video games can be used to communicate ideas.	4,09	,831	3,77	1,092	3,60	1,314
By creating my own video games I can learn more than technical skills.	3,91	,944	3,38	1,387	3,35	1,531
I don't believe that creating a videogame can be a way of learning (reverse)	1,45	,688	1,54	,967	2,15	1,424
Creating videogames can stimulate my ability to solve problems.	4,18	1,079	3,77	1,235	3,30	1,455
When creating videogames I can acquire useful knowledge in other areas.	4,18	,751	3,92	1,256	3,50	1,235

#### 4 CONCLUSIONS AND DISCUSSION

Aiming to better understand attitudes and perceptions regarding the implementation of videogames as an educational tool, a mixed method study (qualitative and quantitative) was conducted, including a multi-stakeholder sample.

Regarding technologies usage, it was possible to observe that internet is mainly used to access social networks, by all the stakeholders, mainly in portable devices, and some other non-presumable data, like teacher playing more on their mobile phones than students, in this specific sample.

MIL is outlined as a transversal theme in the school's curricula, mainly framed in subjects like ICT or citizenship. Nevertheless, it's possible to denote an open attitude regarding the promotion of MIL in other thematic areas, being its relevance in the development of children recognized. There are also some concerns enclosing the development of this type of literacy in formal educational contexts, mainly related to the mandatory curricula requirements, how can these be conjugated with MIL promotion and some lack of openness by these students.

Videogames are, in general, perceived as a possible and feasible pedagogical tool, carrying a broad range of risks and opportunities, with a promising educational value. Notwithstanding their actual usage more restricted to very specific contents, all the stakeholders agree that videogames can support skills development and learning in general.

An interesting conclusion is related with the designated students' scepticism related with the introduction of technologies in formal schooling, and their weakest beliefs in videogames educational potential. It's possible to hypothesize about the association between this premise and the components

of youth culture, where games represent simple and cheerful entertainment and school represents a presumable “solemn” and formal learning environment.

#### 4.1 Grounds for future research

This study frames the possible background conditions to be faced in the implementation of MIL projects in formal schooling contexts, namely related with videogames and videogames creation. Thus, it is also circumscribed to a specific ethnographic environment, and highlights the relevance of evaluating all the contextual specificities in this kind of process. Thereby, further research for each specific social and cultural context is required, such as attitudinal studies with larger samples.

Also, the referred relationship between videogames and entertainment, as perceived by youth, should be explored, outlining the deconstruction of school as a traditional and formal environment, where playful pedagogical strategies are not framed.

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