

Teachers Opinion Regarding the Use of Digital Games in Primary Education

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Abstract

Digital games are a daily present in children's and adults' lives. Researchers and practitioners have been and are oriented towards game-based learning (GBL). Recently, their interest also included gamification, defined as integration of the game elements and strategies in learning activities. This study investigates the opinions of primary school teachers on fun and educational digital games. The survey was conducted using a questionnaire adapted by researchers from the literature and applied online. Participation was voluntary. The results show that most respondents use the digital games in the classroom for the development of new knowledge and mainly as a learning method/strategy and not as a learning framework. Respondents: The lack of interest in didactic digital games has its source in the absence of good practices and training in this field and poor curricular stipulations that can encourage GBL and gamification of learning.

Keywords: digital games, gamification, game based learning, didactic games, primary school

1. Introduction and Theoretical Background

Game and play are present in human life from childhood to adulthood. The game itself is a very attractive activity that evolves between pure fiction and the reality of work. "The game allows us to pursue at the same time the multilateralism of the child in his motor, emotional, social and moral life" (Chateau, 1972). In childhood the game occupies the place of work in the adult life. The adult feels strong through his/her work, and the child feels great through his/her playful success (Chateau, 1972).

Based on literature (Juul, 2003; Salen and Zimmerman, 2004), Seaborn and Fels (2015) identifies characteristics of a game: rules; structure, quantifiable and uncertain outcomes; conflict; values; voluntariness, player effort and investment; and negotiable consequences.

There are two types of games, fun games and didactic games, both used in education. A didactic game has rules, purpose, objectives and also game elements, and it's used in lessons. Fun games also have rules and objectives and have many forms: singing, dancing, hiding and seeking, catch me if you can and games that are played outside. These types of games have a playfulness experience for kids.

Nowadays there are games that can be conducted in a physical place and in a virtual place, online games, which are very attractive to kids. "The last fifteen years have seen the rise of the digital game medium in entertainment, popular culture, and as an academic field of study" (Seaborn and Fels, 2015). There are many types of online games as well: strategy games, war, puzzle, attention, logic and lots of fun games. Online games can help children build perseverance to attain goals, build resilience and improve their communication skills so they know how to respect other people's points of view or cop with lost (Magdaş, 2014; Baranyai, 2019).

Dumitru (2020) conducted interviews with parents that are also teachers who use online games in their lessons to see their points of view about the fun games and the didactic games. They

observed some qualities that emerge from playing these online games such as: children increase their tolerance for frustration, learn to accept failure and move on, develop strategic behaviour and, in addition, enrich their knowledge in various fields and sometimes learn a new language.

In addition, if these qualities can be extracted and nurtured in classroom lessons, it will be able to observe an increase in the interest in learning, the involvement of students in all activities where all the contents become attractive and not tiring and boring, stimulating the whole teaching-learning activity. So it can be said that the education is experiencing a gamification of the educational process that means: "the use of game design elements in non-game contexts" (Dixon, Khaled and Nacke cited by Erenli, 2013). Game-based learning (GBL) is practiced as a form of training in preschool and primary education (Magdaş et al., 2019). In secondary school gamification is preferred. In both situations, games are used to acquire knowledge, skills and values. Gamified learning interventions may increase student engagement and enhance learning" (Buckley and Doyle, 2016).

Game playing is associated with lots of terms such as creativity, motivation (intrinsic, extrinsic), failure, and success through practice, learning etc. (Magdaş and Răduţ-Taciu, 2016). We can observe that "educational gamification is defined as the design strategy of using game design elements in educational contexts to support teaching and learning goals" (Saggah et al. 2015). Research on the use of gamification in education highlights the positive influence that game-based learning has on motivation, interest in study, involvement in learning and the development of student's skills.

Playing games is a sure way to engage and motivate students; these can be used as tools in teaching and may evolve in order to make games that can be just as absorbing. Game design develops a multidisciplinary field such as: art, math, geography, music, language skills, etc., but they can also offer students and teachers an opportunity to show what they know and what needs to be learned. With these tools, students will embark on creative, energizing experiences that will get them thinking in new ways, to collaborate, to trust, to have better self-esteem or to improve teamwork. At the same time, using didactic games the children have already selected relevant material by the teacher, thus aiming at achieving the learning objectives easily and more fun.

2. Material and Method

2.1. Purpose of the study

The present study aims to investigate the opinion of teachers regarding the use of games in primary education: fun digital games played by primary school students outside the school; digital educational games; frequency of digital educational games; the advantages of fun or didactic digital games, difficulties encountered by teachers with reference to the classroom implementation of didactic digital games. The research involved 127 teachers. The participation was voluntary.

2.2. Data Collecting and Procedure

The instrument used was a questionnaire adapted by researchers after Eppmann et al. (2018). The instrument was structured in two parts: 7 demographic items and 37 items related to the issue of games. The answers to the questions were given using the five-step Likert scale (1-strongly disagree, 5-strongly agree). Participation was voluntary. The questionnaire was applied online using Google forms. For the interpretation of the results, the answers of type 1 and 2, respectively, 4 and 5 were summed, the results are interpreted as disagreement and agreement.

2.3. Participants.

The number of subjects involved in the research was 127. 97.64% of the respondents were females. The subjects are aged between 18 and 64 years, most subjects belonging to the age groups: 40-44 years (22.83%), 35-39 (23.62%) and 30-34 (21.26%). 42.52% of the respondents are teachers in primary education, 23.62% in preschool education and 33.86% teach at other levels of education. Most of the respondents have teaching experience between 11-15 years (27.56%),

19.69% under 5-years and 12.60% between 21-25 years. 67.72% of the respondents work in urban areas.

3. Results and Discussions

3.1. Respondents opinion about fun and didactic digital games

Respondents consider fun games a big waste of time (72.44% agreement). At the same time, they agree that their students play daily on the computer or telephone (61.42%), for their own pleasure (70.08%).

In class, respondents use "those didactic games that are also fun" (66.93% agreement) as a learning tool / method (67.72% agreement) and less as a learning framework (55.91% agreement). The hierarchy of purposes of using didactic game places in the first position their use for the systematization of knowledge (51.18% agreement), followed by the updating of knowledge (43.31% agreement), the construction of new knowledge (39.37% agreement) and the evaluation of knowledge (37.80% agreement).

Concerning the quality of the didactic game, respondents agree that it "serves to achieve the learning objectives" (69.22% agreement); "must highlight the content of learning" (76.38% agreement) and "include the use of teaching methods" (75.59% agreement).

3.2. Respondents opinion about the frequency of use of digital educational games

The frequency of use of digital educational games is as follows: several times a week (36.59%); once a week (25.61%); bi-monthly (13.41%); once a month (12.20%); never (8.54%) and daily (3.66%)

3.3. Respondents opinion about advantages and disadvantages of fun and didactic digital games

The results obtained with reference to the advantages of games are presented in Table 1. The analysis of the difference in the percentages of agreement for the answers to the items related to didactic digital games and those related to fun digital games put in evidence next findings:

- over 25% of the respondents claim that digital games stimulate their imagination and logic;
- between 10% and 25% of the respondents claim that the quality of digital games stimulates creativity, quick decision-making and awareness that they have learned;
- less than 10% of respondents agree that didactic games require students to explore and this makes them feel active;
- between -10% and 0% of the respondents claim that didactic games involve the use of a game strategy;
- between -20% and 10% of the respondents claim that digital games make students feel autonomous and influential and require learning of quick reactions.

The biggest differences against the didactic games are registered with reference to the items "Digital games stimulate the children's adventurous spirit" (-40.94%) and "Digital games make students feel happy" (-29.13%).

Table 1. Respondents opinion on the advantages of the digital games

Items	N	Fun game	Didactic game	None fun or didactic game
Digital games stimulate students' imagination.	1 27	49. 61%	77.17 %	8.66%
Digital games stimulate creativity.	1 27	54. 33%	70.87 %	11.02%
Digital games stimulate students logic.	1	55.	81.89	3.15%

	27	91%	%		
Digital games stimulate the adventurous spirit of children.	1 27	79. 53%	%	38.56	8.66%
Digital games require making decisions.	1 27	64. 57%	%	74.80	3.15%
Digital games require quick decisions.	1 27	75. 59%	%	63.78	3.94%
Digital games involve the use of a game strategy	1 27	73. 23%	%	66.93	2.36%
Digital games make students feel happy.	1 27	85. 83%	%	56.69	3.94%
Digital games make students feel active	1 27	70. 08%	%	73.23	7.09%
Digital games make students explore various situations.	1 27	70. 08%	%	77.95	3.94%
Digital games make students feel autonomous.	1 27	73. 23%	%	58.27	14.96%
Digital games make students feel influential.	1 27	61. 42%	%	45.67	25.20%
Digital games that students like combine singular and team play.	1 27	75. 59%	%	58.27	11.81%
Digital games make students feel that they have learned something.	1 27	57. 48%	%	76.38	7.09%

Table 2 shows the disadvantages of digital games. Over 50% of the respondents do not agree that "digital didactic games are often perceived as boring by students", but agree that primary school textbooks offer didactic games that integrate the new lesson.

Table 2. Respondents opinion regarding the disadvantages of digital games

Items	N	Disagree	Undecided	Agree
Didactic digital games are often perceived as boring by students.	12 7	59.84 %	18.11%	22.05 %
Quality digital games require superior computer performance and certain devices.	12 7	25.20 %	27.56%	47.24 %
Digital games available for free on the net are deficient in performance.	12 7	29.92 %	35.43%	34.65 %
The didactic digital games proposed in the textbooks and other resources are intended only as a learning tool.	12 7	24.41 %	27.56%	48.03 %
The didactic digital games proposed in the textbook or other sources are designed to integrate the new lesson.	12 7	16.54 %	28.35%	55.12 %
Digital games sometimes make students feel frustrated, angry or hostile.	12 7	41.73 %	15.75%	42.52 %

Digital games are making students restless.	12	25.98	28.35%	45.67
	7	%		%

Equal percentages of respondents agree / disagree with the statement "Digital games sometimes make students feel frustrated, angry or hostile", but still believe that the games are making students anxious and upset.

4. Conclusion

The obtained results show that the respondents appreciate the didactic digital games, which they consider useful in the learning process. However, less than half of the respondents use didactic games, mainly as a learning tool / method, although they agree that textbooks suggest games designed to be a learning framework. Respondents are also reluctant to agree with the majority of items. Possible explanations can be found in: the lack of information regarding the value for learning of the digital didactic games, lack of initial or continuous training in digital games, pressure due to the need to adhere to the school curriculum and (most likely!) poor digital skills. We consider it necessary to develop teachers' digital skills through professional training activities, providing models of good practice on the design and implementation of learning activities that integrate the game as a training framework. Thus, teachers can become competent users of didactic games, which become increasingly complex and varied with the development of technologies.

References

- Buckleyand, P. and Doyle, E. (2016) Gamification and Student Motivation, *Interactive Learning Environments*. 24, 6, 1162-1175, DOI: 10.1080/10494820.2014.964263.
- Chateau, J. (1972): *Copilul și jocul*. E.D.P., București.
- Dumitru, I.R. (2016): Rolul jocului didactic în dezvoltarea creativității copiilor din clasele primare. *Master's degree thesis, Babeș-Bolyai University, Cluj-Napoca*.
- Erenli, K. (2013) The Impact of Gamification. Recommending Education Scenarios. *International Journal of Emerging Technologies in Learning (IJET)* 8, S1, 15-21. DOI: 10.3991/ijet.v8iS1.2320.
- Magdaș, I. (2014): *Didactica matematicii pentru învățământul primar și preșcolar-actualitate și perspective*, ediția a II-a revizuită. P.U.C., Cluj-Napoca.
- Magdaș, I., Răduț-Taciu, R. and Iușca, V. (2019): The Using of Logical-Mathematical Game in The Pre-School Educational Activities in Romania. In *Education, Reflection, Development*, Seventh Edition, Babes-Bolyai University, Cluj-Napoca, 630-637. 10.15405/epsbs.2020.06.65.
- Magdaș, I. and Răduț-Taciu, R. (2016): A Didactical Analysis of Math Online Games for Primary Education. In *Proceeding of the 11th International Conference on Virtual Learning*, Editura Universității din București, București, 175-181. WOS:000444941400023.
- Eppmann, R., Bekk, M. and Klein, K. (2018) Gameful Experience in Gamification: Construction and Validation of a Gameful Experience Scale. *Journal of Interactive Marketing*, 43, 98-115.
- Saggah, A., Campion, R. and Stanier, C. (2018): An Investigation of the Role of the Teacher in Gamified Learning in Primary Schools. In *Edulearn 18 Proceedings*, 7700-7708.
- Seaborn, K. and Fels, D.I. (2015) Gamification in Theory and Action: A Survey. *International Journal of Human-Computer Studies*. 74, 14-31. <https://doi.org/10.1016/j.ijhcs.2014.09.006>.