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Dimensions of online digital games used in Romanian educational therapeutical programs for disabilities pupils

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Abstract

Today, the COVID pandemic has brought teachers, pupils, and pupils' parents huge challenges, but it also provided different educational experiences from the Online Teaching Act, especially for those who educate pupils with disabilities. Moreover, online games continue to be used in current teaching acts by experts involved in the educational process of pupils with disabilities. Our research has the goal of revealing some of the dimensions chosen by teachers in teaching-learning-assessment- specific to educational activities with pupils with disabilities in special education. Our study was performed on 34 teachers involved in educational recovery programs for pupils with disabilities coming from different special schools in Bucharest.

We used two instruments developed by us: The questionnaire for evaluating the game in online education (fidelity index =. 715, test-retest index= .702). 2) The questionnaire for evaluating the online digital game as a didactic strategy. Results. The results offer us the opportunity to see the specificity of using digital games in online educational activities with Romanian pupils with disabilities after traditional face-to-face education has begun and the level of exclusive use of technologies has decreased.

Keywords: digital games, online educational act, pupils with disabilities, special education.

Introduction

Game is one of the human activities that different scholars and researchers have studied. The main interest comes especially from educational sciences because the games provide the perfect opportunity for children to explore the world, learn, and develop sets of cognitive and social abilities, and competencies required for academic and social integration. By playing, day by day each child: 1. carries out an activity in the sense of personal identity, follows the basic requirements and determinations of beings; 2. solves life problems in the physical and social environment; 3 experiences the possibilities of adaptation, and flexibility in thinking and solving problems (the emphasis is on the process and not on the product); 4. creates different solutions, and expresses his/her experiences in symbols, which will help him/her think a little more abstractly; 5. communicates with others and /or with himself, speaks, uses many words, expresses himself plastically, and learns non-verbal signs, etc.;6. learns the usefulness of things, but also becomes creative(apud Catalano et Albulescu, 2018, p.68).

The didactic game is an effective means of achieving the transition between playing and learning. The didactic game is a directed activity, within which various transmitted information is consolidated and verified. In this way, it is instantly differentiated from games that can occur spontaneously, but also other forms of common activities that can occur between pupils. Each

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didactic game is set by: a specific title, didactic purposes, operational objectives, didactic tasks, rules, play actions, logical sequences, didactic materials used, and game valences and facilitates the transformation of reality and its assimilation to the needs of the pupils' Ego (apud Piaget, 1965).

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Different forms of didactic games were and are traditionally used today and are completed.

By technology in the online form. In this new form, the role of the teacher as the "sole source and transmitter of knowledge has changed" (Holt-Reynolds, 2000, Tahirsylaj et al., 2021cited by Mithans et al, 2023, p.226).

In the online form, the use of didactic digital games has to be based on: "pedagogy and effective active and collaborative approaches to learning", (Whitton and Moseley, 2012, p.3-4), integration within a formal academic structure, motivation of use, affordability, adaptability to each learner features, the technology accessibility (apud. Whitton and Moseley, 2012).

McFarlane's review pointed out that using digital games in an educational setting, facilitates: strategic thinking, planning, communication, application of numbers, negotiating skills, group decision-making, and data handling (McFarlane, 2002, cited by Groff et all, 2016, p.24). Later, other researchers revealed: a) the following advantages of using digital games in teaching-learning activities: increase students' interests, help students obtain information, support learning and memorization, "increase cognitive abilities, enable the realization of individual learning strategies and stimulate students' capacity for research and talent". (Gurevich et al., 2020, p.126); "optimized independent learning capacity" (Gautam, 2020 cited by Jarabata et Lumapenet, p.4633); and b) the following disadvantages: potential users' unethical behavior. "difficulty in staying motivated" (Thompson,2021, cited by Jarabata et Lumapenet 2024, p.4633).

The experience gained by teachers in using digital games in teaching-learning activities have encouraged the teachers/ experts and specialists involved in the educational recovery process of pupils with S.E.N/ disabilities to use them. The playful or fun digital game's features, simple interfaces, and accessibility facilitate the student's learning experiences, and increase their acceptance rates by classmates (apud. Montero and Gomez,2018); facilitate students with intellectual disabilities in "social skills training and enhance knowledge of number concepts" (Wajiuhullah et al, 2018).

The educational process of pupils with S.E.N/ disabilities that use digital games "operates between student's abilities and needs and society" "(Stancin et al, p.1) and "enhance their independence, their autonomy, and subsequent their self-esteem" (Papanastasiou et Skianis,2022, p.41). associated speech problems. These difficulties include issues related to grammar (syntax), sound production (phonology), vocabulary (semantics), word meaning units (morphology), and the use of language in social contexts (pragmatics).

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Methods and participants

The Covid pandemic period has put, the world, teachers, and specialists involved in the educational recovery process of pupils with disabilities – mainstream and special education – in a challenging position: online system education for these pupils. In this context, teachers and specialists had to use more frequent digital games in current educational activities to form and develop the abilities of pupils with disabilities which are meant to improve their quality of life (educational goals).

In Romania, teachers and experts in special education have been confronted with difficulties that arise from the lack of access to technologies to the lack of experience in adapted curricula for online learning and teaching processes with pupils with S.E.N/ disabilities. Despite these difficulties, they manage to use digital games efficiently.

Our research had the goal of revealing some of the dimensions chosen by teachers in teaching-learning-assessment-specific to educational activities with pupils with disabilities in special education. So, the research had 2 dimensions of investigation: investigation of the utility of digital games in online educational form (digital games' roles and functions); investigation of teachers' perceived effects of digital games used in online educational activities with pupils with disabilities.

Participants

The study was performed, between June and October 2023, on 34 subjects-teachers who work in various special education institutions in Bucharest, 6% male, 94% female, aged between 30-50 (66 % aged under 30 years, 14% aged between 31-40 years, 17% aged between41-50 years and 3% over 50 years), with a professional experience in the field between 1-40 years (61% had field experience between 1-5 years; 12% had field experience between 6-10 years; 15% had field experience between 11-20 years; 9% had field experience between 21-30 ; 3% had field experience between 30-40 years).

Methods

In our investigation, we developed, between 2021-2022 and perfected since then, two tools:1) The questionnaire for evaluating the game in online education (fidelity index =. 715, test-retest index= .702). 2) The questionnaire for evaluating the online digital game as a didactic strategy, (fidelity index =. 708, test-retest index= .699). Each questionnaire has an item assess on a Licker Scale between 1-5, 1 being the lowest rate of assessment.

Procedure

This study was done in compliance with the General Data Protection Regulation of the EU – GDPR. Each participant was informed about the aim of the study, the tasks that s/he had to fulfil during the study, the intention to publish an article related to the aspects we investigated (respecting the code of ethics), and the intention to share the collected data with third parties. The researcher asked for and obtained the participants' consent for collecting, processing, and analyzing the data, and for publishing the article. However, the participants did not consent to share the collected data with third parties.

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Results

Univariate atypical cases were identified through the calculation of Z scores (Z > ±1.45 scores were considered atypical). Different statistics were used: Pearson correlation index, Cohen index, impact Chi-squared, and Tucker-Lewis Index. The values between .90 and .95 or higher for TLI are considered acceptable to excellent.

The utility of digital games in online educational form (digital games' roles and functions);

The utility of digital games in online educational form was focused on its roles- see Table No.1 and on its functions- see Table No. 2. The data are revealed by two statistical indicators: means and standard deviations.

Table no.1 *Roles of online digital games in the educational recovery process of pupils with disabilities- teachers' perspectives*

Roles	Mean	Std
As an interactive activity	4.38	.739
As a pleasure activity	4.12	1.008
As an educational drive to continuing	4.26 .931	
Positive support towards learning	4.44	.860
Element of Romanian educational culture	3.97	1.000
Personality driven	4.06	1.099
Physical driven	4.29	.871
Intellectual driven	4.56	.561
Conflict mediator	4.12	1.008
Support of the creation	4.25	.788

Table no.2 *Functions of online digital games in the educational recovery process of pupils with disabilities- teachers' perspectives*

Functions	Mean	Std
Learning	4.35	.812
Continuity between learning and relaxation	4.24	.955
Increase competency operationality	4.29	.970
Mediator of class management	3.82	1.267
Socialization	4.18	.999
Mediator of the relationship between pupils and teachers	4.32	.806
Perception of reality	4.35	.849

Teachers 'perceived effects of digital games used in online educational activities with pupils with disabilities.

The teachers' perceived effects of digital games in online educational activities with pupils with disabilities are present in Table No. 3. The data are revealed also by two statistical indicators: means and standard deviations.

Table no.3 *Teachers' perceived effects of digital games in online educational activities with pupils with disabilities*

Effects	Mean	Std
Knowledge assimilation	4.26	.931

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Social accommodation	4.44	.860
Cognitive development	3.97	1.000
Social development	4.06	1.099
Development of social conducts	4.56	.561
Valorization of pupil potential	3.82	1.029
Recovery of motor abilities	3.68	1.296
Social perception development	3.76	1.075
Interpersonal relationship development	3.74	1.109
Development of conflict-solved strategies development	3.82	.999
Development of problem-solving actions	3.88	1.094

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Discussions

The utility of digital games in online educational form (digital games' roles and functions)

From the data collected in Table no 1, we noticed that:

- The main role of digital games in the online system is intellectual stimulation. In addition to the important contribution these games have, the indicated values (standard deviation) also highlight the difficulties associated with using them in the online environment. The implications that arise from this are related to a longer working time in working with children with C.E.S., additional indications in carrying out work tasks, moments of reinforcement during execution, such as: "Bravo!", "Very good!", "Come on, you can!", is the final appreciation, with a stimulating role at the end of the execution);

- The supporting role for the opening of the subject to the activity is extremely necessary, especially in conditions where the motivation of children with disabilities and/or C.E.S. It is predominantly extrinsic and consequently generates specific activation strategies. This activity is thus directed, centred on meaningful elements and carried out from simple to complex, with relation to the student's potential;

- Support of the creative activity, which must be seen as a way of progress and not as an independent act of creation, by the fact that a redistribution of resources is carried out, even if sequentially depending on the learning context;

- Role of relaxation and recalibration during the learning activity in the sense that the very good phasing of the game limits the occurrence of children's fatigue, but also the behavioural inertia specific to each type of disability;

- It is a support element in the learning activity of children with C.E.S. in the online environment by the fact that the task to be performed eliminates the possible barriers generated by the use of a language by the teaching staff that would exceed the children's ability to understand.

The data summarized in table no. 2 reveal the fact that the game in the online environment is approached both as a specific form of learning, but especially as a way of perceiving the surrounding world. The two dimensions come to give the learning process through online games a realistic value intended to broaden the limited knowledge experiences of children with disabilities and/or C.E.S., but at the same time, to operationalize sets of social response patterns that will facilitate the insertion of these subjects into different social groups.

Last but not least, we note the fact that the game in the online environment is also approached as a continuation of learning activities in a traditional form, but also a way to achieve another kind of human socialization: socialization in the virtual environment.

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Teachers 'perceived effects of digital games used in online educational activities with pupils with disabilities.

From the data of Table No. 3, right from the start, it is evident that digital games in online teaching form facilitate progress in the area of social norms and rules. It is about facilitating the easier internalization of the rules since the game in the online environment encourages the formation of automatisms, and their structuring through the emotional involvement that the game values are no longer perceived as involving an additional effort by the special education students.

We also note that the progress of children with disabilities through playing in the online environment associates practice with learning implicitly so that based on pleasure and practice the progress of the student with disabilities it is objectified faster than the traditional form.

In the same context of analysis, progress generates, even in limited formulas, the formation of positive behaviour through the conflict resolution solutions that digital games offer, but also through accommodation to social situations, even generated in the virtual space. This makes it possible to note that beyond the progress along the line of knowledge, and skills, the digital game in online format allows the formation of behaviours at the initiative level of social value relations; behaviours that will have to be initiated through direct interaction, however.

Limitations and future directions

One limitation of the current study stems from the type of subjects who participated. The group was dominated by female participants and did not consider their resources. Future studies will be able to highlight the dimensions of capitalizing on the potential of teachers involved in the educational recovery of pupils with disabilities.

The second limitation comes from also from the type of subjects who participated. The group was dominated by participants that have limited professional experiences and did not benefit from special training sessions. Future studies will be able to point out the value of long professional experiences in managing the disadvantages of using digital games in the online teaching of pupils with disabilities.

Conclusions

Our study has the goal of revealing some of the dimensions chosen by teachers in teaching-learning-assessment-specific to educational activities with pupils with disabilities in special education.

The main findings are:

1. Teaching staff involved in the educational recovery activity of students with disabilities, in the online environment, use digital games through a systemic approach to achieving specific objectives
2. In online teaching, the digital game offers the teaching staff an additional way of operationalizing skills for children with disabilities on the background of the reconsideration of the time resource.
3. Using digital games in the online educational recovery process of pupils with disabilities has to be flexible and adapted constantly to pupils' features, a conclusion endorsed by Chaidi et Drigas research since 2022 (apud. Chaidi, Dirgas, 2022, p.215)

The implications of this study are aimed at the continuous training of teaching staff, by

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participating in courses focus at bringing additional information about different teaching methods for children with disabilities, but also through periodic exchanges of best practices regarding the use of digital games in the remedial educational act with students with disabilities, both online and in traditional format

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