



<http://dx.doi.org/10.16926/eat.2022.11.09>

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Computer games in the hierarchy of importance of children' and adolescents' activities in the ICT world – research report: learners' and teachers' opinions

How to cite [jak cytować]: Baron-Polańczyk, E. (2022). Computer Games in the Hierarchy of Importance of Children' and Adolescents' Activities in the ICT World – Research Report: Learners' and Teachers' Opinions. *Edukacyjna Analiza Transakcyjna*, 11, 155–170.

Abstract

The article presents a fragment of diagnostic-correlative research of a mixed character, identifying learners' information literacy in the use of ICT methods and tools. The author aims to answer the question defining the frequency of using ICT by children and adolescents (hierarchy of importance of activities) in the area of computer games. For this purpose, the method of a diagnostic survey (questionnaire and interview) and statistical methods (chi-square test of independence and Pearson's correlation coefficient) were used. Together, 2510 learners and 1110 teachers (in Poland) were involved. It was established that: 1) according to the aggregate hierarchy of importance of activities undertaken in cyberspace, the learners attached little weight (fourth place) when the teachers the greatest (first place) to computer games; 2) there is a relationship (correlation: average, positive – $r \cong 0,49$) between the learners' and teachers' opinions as to the frequency of using ICT instruments by children and adolescents in order to play; 3) the calculations showed significant statistical differences between the frequency of using ICT by children and adolescents in the area of computer games and their gender and the stage of education; 4) there is a noticeable similarity between the opinions of the learners and the teachers and an insignificant "separation" of the world of children and youth ("Us") from the world of teachers ("Them").

Keywords: diagnostic and correlative research, opinion correlation, information competencies, using ICT, computer games.

Introduction

All the actions undertaken nowadays in any form possible support the use of Information and Communication Technologies treated as key technologies of contemporary civilization, which was clearly shown by the time of the pandemic COVID-19 (Doucet et al., 2020; Bailenson, 2020; Murphy, 2020; D'Souza, 2020). The reality of the digital era poses more and more challenging requirements oriented towards developing certain areas of information competencies (Van Deursn, Van Dijk, 2014, pp. 43–62), defining new directions of development, school and extracurricular tasks undertaken. That is why the main aim of the research was to determine learners' information competencies in the area of using ICT in the context of new technological trends and civilisation changes accompanying them. There was an attempt to identify the range of knowledge, comprehension, actions and attitudes of children and adolescents shown in the approach to new ICT trends. Apart from the views expressed by the learners, also those of the teachers deserve our attention, especially when it comes to the areas where ICT are used by the young generation. The issue of using computer games by children and adolescents, i.e. interactive programmes activating one's brain and emotions, was interesting from the perspective of deliberations on the hierarchy of importance of undertaken activities. Contemporary technology culture provides us with a broad spectrum of patterns demonstrating the use of one's time in the word of games and plays, which in many ways, both positively and negatively (Siemieniecki, 2021, pp. 170–177) may influence human development, generating a certain level of activity and a type of undertaken actions. Modern technologies, by their quantitatively and qualitatively rich offer, constitute an attractive and absorbing way of spending free time, in accordance with one's choices and interests. The constant growth of the ICT offer caters for diverse needs, satisfying even the most fussy group of consumers (*Gaming Market Size...*, 2021). The following questions arise: How important are computer games for children and adolescents? Which place do they occupy in the hierarchy of actions undertaken by them as far as the use of ICT is concerned?

The comparison of the data received from the learners with the remarks made by the teachers (expressed by the degree of dependence, opinion correlation) made it possible to focus on the differences and similarities in the area of needs and expectations of education charges. These findings are crucial for the understanding of the teaching-learning process, especially in the aspect of the eternal conflict ("incompatibility") of generations (Baron-Polańczyk, 2018).

Research assumptions

The research is theoretically outlined by: 1) the concepts of critical pedagogy assuming “constant objection to the obvious”, visions and aims open to social dialogue; 2) the postmodernist approach, taking into account multi-meaning emancipation – “multi-meaning modernity” and “fluent modernity”; 3) focus on self-education, self-realisation, self-determination and open education (Bauman, 2015); 4) a proposal to shape and develop information competencies, placing the foundations of teaching and learning in the constructivist theory (with special attention given to a socio-cultural perspective), showing one of the ways in which we can think about knowledge formation – learning about ICT methods and tools with the help of ICT (Henson, 2015); 5) positive visions of the future, where media and technologies may be efficiently used to support learning and healthy development (Berdik, 2020); 6) educative usefulness of games (Okoń, 2006, pp. 116; Bereźnicki, 2007, pp. 265, 280; Kruszewski, 2012, pp. 221–239; Juszczak, 2021, pp. 329). Making an attempt to explore the practical side, the author tried to show educational reality confronted with contemporary dominating scientific theories drawing an image of a ‘new learner’, who exists and realizes themselves in the Internet cyberspace, in the world of “new media” (Levinson, 2013), making it possible to convey information in a multi-sensual way and to learn with the use of multiple senses – an online learner having countless possibilities of using new areas of e-education. It is assumed that one’s development is directed by a global and cultural imperative to participate in the process of constructing and negotiating symbols, values, meanings, in which technology, machines and tools become a learner’s main partners (Gabriel, Röhrs, 2017). It was assumed that we can talk about success in teaching when a learner feels accepted and is aware that their problems are noticed and understood. It is then that their “mind opens” and there is an opportunity to use its full potential they came to school with (Rasfeld, Breidenbach, 2014, pp. 109–115).

At the conceptual level of the project, it was assumed that an activity undertaken shall have a form of a quantitative-qualitative diagnostic-correlative study (Ferguson, Takane, 2016, pp. 33, 233–254), mainly rooted in media pedagogy. Two techniques were used, i.e. a questionnaire (Babbie, 2016, pp. 247, 255–264) and an open interview (Frankfort-Nachmias, Nachmias, 2015, pp. 240–265). The study also implemented activities and techniques introducing the elements of analysis and both qualitative and quantitative explanation. Triangulation made it possible to learn more about and explore more thoroughly the problem in question (engaging the areas of education, technology and information technology) from two different points of view (Furmanek, 2016, pp. 21, 28). Statistical methods, namely the chi-square test of independence and Pear-

son's correlation coefficient (King, Minium, 2020, pp. 165–181, 458–478) made it possible to determine the correlation of the learners' and teachers' views, and factors differentiating the class of the phenomena under research.

The main research, covering teachers realizing curricula from different school subjects¹ and learners at particular stages of their education,² was conducted in selected educational institutions of Lubuskie province and neighbouring provinces. 40 learners who were interviewed were attending schools in Zielona Góra and places nearby (10 learners from each type of school were chosen). The sample group consisted of 2510 learners and 1110 teachers.

One of the detailed questions concerned the areas of using ICT, which made it possible to learn: for what purposes and tasks children and adolescents mainly use modern technology, their tool preferences, the hierarchy of importance pertaining to digital instruments used by the learners and areas in which they undertook any activities. Diagnosing the frequency of everyday use of ICT instruments, five main areas were taken into account: 1) computer games; 2) network communication; 3) searching information in accordance to one's interests; 4) preparing for lessons at school (doing homework); 5) way of spending free time. The results presented in the article concerning the first stage of the activity are to give an answer to the question: What is the frequency with which (in the learners' and teachers' opinion) children and adolescents use ICT tools in the area of computer games? Regarding the relation problem, it was found out that there is a relation between the learners' opinion and the teachers' remarks. It was also possible to determine factors differentiating their views on that subject.

Research results – interpretation and discussion

The question about the main purposes of using ICT by children and adolescents was answered by 2490 (99.2%) learners and 1110 (100.0%) teachers. For this group, the frequency of using particular ICT tools was calculated and illustrated, depending on the hierarchy of importance of undertaken activities. Within this framework it was revealed which importance the students attach to using computer technologies as tools for games and plays. Table 1 presents the data covering the learners' and the teachers' opinions.

¹ The teachers declared that altogether they teach 23 different school subjects – apart from basic, general-education ones, there are also those concerning the educational and professional areas.

² Educational stages in Poland at the time of the research: 1) Integrated teaching (age: 7–10); 2) primary school (age: 11–13); 3) junior high-school (age: 14–16); 4) secondary school (age: 17–20).

Table 1

The frequency of using computer games by children and adolescents (in the learners' and the teachers' opinion). The distribution of quantities according to numerical and percentage values

Using ICT for computer games		The level of significance (hierarchy of importance)						Total
		0 (lack)	1 (the most important)	2	3	4	5 (the least important)	
Learners' opinions								
nominal quantities	N	141	637	320	302	640	450	2490
	%	5.7%	25.6%	12.9%	12.1%	25.7%	18.1%	100.0%
weighted quantities (*)	N	0	637	256	181	256	90	1420
	%	0.0%	44.9%	18.0%	12.8%	18.0%	6.3%	100.0%
Teachers' opinions								
nominal quantities	N	49	754	202	50	40	15	1110
	%	4.4%	67.9%	18.2%	4.5%	3.6%	1.4%	100.0%
weighted quantities	N	0	754	162	30	16	3	965
	%	0.0%	78.2%	16.8%	3.1%	1.7%	0.3%	100.0%

(*) In the calculations and interpretations performed, due to the fact that the scale is linear and 5-point (0 – 5), the quantities obtained at a particular level of importance were attributed appropriate weight: level 0 = weight 0 etc.; 5 = 0.2; 4 = 0.4; 3 = 0.6; 2 = 0.8; 1 = 1.0.

Source: own research.

Learners' opinion

The children and adolescents say that, in general, they do not use ITC tools frequently in order to play and play games. They attach little importance to computer games, and for some of them they are not important at all. In the research sample, 141 (5.7%) learners did not check this category at all, which proves that they do not use computer games on a daily basis and the digital world of games is of little or no importance to them. Every fourth person (25.6%) put computer games in the first place and considered them the most important ICT tool. And the very same group of students, i.e. a quarter of the sample (25.7%) pointed to the fourth place, including computer games in activities of little importance. We obtain similar quantities at intermediate levels of importance, i.e. the second – 12.9% and the third one – 12.1%. Therefore, 622 (25.0%) learners put games altogether on the second and third place. Interestingly, almost one fifth (18.1%) of the charges placed computer games in the hierarchy of importance, giving it the very last, fifth place. That means that every fifth student appreciates the value of games, uses their computer for entertain-

ment purposes, but they treat this area of using ICT as the least important one in their life and the least frequently practiced one.

Quantitatively dominating extreme levels of importance (the first one and the fourth and fifth ones) are characteristic in this irregular distribution obtained. It makes it possible to notice a certain general tendency: learners either use ICT tools most frequently for computer games (games are the most important thing for them), or they use digital tools to play but it is an activity of little or no importance to them (games are a bit or the least important thing for them). It is worth mentioning here that whilst in the analyses of the learners' reflections on the reasons for using ICT, learners pointed to computer games among other reasons and motives, but this category, in accordance to the frequency of occurrence occupied the fourth place (Baron-Polańczyk, 2020, p. 102), which indirectly allows for regarding this area of activities (category "I play/ I like playing") as not that important according to their declarations.

In order to take a broader look at the areas of using ICT by children and adolescents, there was a focus on factors differentiating the researched phenomenon. There were the following variables taken into account: sex, type of educational institution (educational stage) and place (environment) of children's and adolescents' education. Thanks to the statistical analysis, it was possible to answer the question whether the aforementioned variables substantially differentiate the phenomenon class under research. The results are presented in Table 2.

Table 2

Using ICT tools by children and adolescents in the area of computer games in the function of differentiating factors (in the learners' opinion)

TEST.CHI results. The area of using ICT tools: computer games by children and adolescents		
Differentiating factors (the learners' sociometric data)		
Sex	Type of educational institution (educational stage)	Education place (environment)
$\chi^2 = 426.27 > \chi^2_{(\alpha=0.01; df=5)} = 15.09$ p = 6.45703E-90 H₀ rejected	$\chi^2 = 190,77 > \chi^2_{(\alpha=0.01; df=15)} = 30.58$ p = 1.58645E-32 H₀ rejected	$\chi^2 = 23.76 < \chi^2_{(\alpha=0,01; df=20)} = 37.57$ p = 0.252901693 no basis for rejecting H ₀

Source: own research.

The calculations showed significant statistical differences in two cases – between the frequency of using computer games by children and adolescents and their sex and educational stage. The detailed distribution of quantities³ shows that:

³ Due to a limited capacity of this text, it is not presented in this article.

- 1) Computer games (shooting, action, sports, RPG, i.e. Role Playing Games and others), in the opinion of the researched learners, are a definitely male activity. In this area of activities undertaken in the digital world, boys are clearly in the lead. The obtained distribution of activity frequency (area: games – according to one's sex) demonstrates a noticeable and symmetrical tendency: the lower the importance level, the more girls, of course, at the "cost" of a proportionally decreasing number of boys. For example, at the first level of importance of activities (having the biggest and very big weight), a group of 253 (20.1%) girls coincide with 704 (57.2%) boys. Thus, in comparison with girls, boys undoubtedly attach more importance to computer games and much more often use ICT instruments to play.
- 2) The distribution of activity frequency (area: games – according to one's educational level) makes it possible to notice that younger children show more interest in computer games. A steady decreasing tendency is noticed here: the higher one's educational stage, the smaller weight attributed to computer games and plays. As one's educational level increases (and, what follows, learners get older), there is a drop in frequency and less importance attributed to one's activity undertaken in the digital world of games. It is well illustrated by the distribution of quantities of the first (highest) level of importance, where the following results were recorded: integrated teaching – 156 (42.1%) learners; primary school – 206 (28.4%) learners; junior high-school – 176 (23.6%) learners; secondary school – 99 (15.3%) learners.

Teachers' opinion

In the teachers' opinion, computer games are the most important activity undertaken by contemporary children and adolescents in the digital environment. The majority of the teachers, i.e. 754 (67.9%) of them, believe that learners give the biggest weight to using ICT for computer games and playing. Only 49 (4.4%) teachers did not check that category at all (zero level), acknowledging that a small group of children and adolescents does not use computer games on a daily basis, and cyberspace entertainment does not have any importance for it. The distribution of frequency creating the hierarchy of importance of activities undertaken by the learners in the area of using computer games has a regular downward trend, which is clearly shown both by nominal and weighted quantities (rank calculations). Thus, further on: almost every fifth teacher (18.2%) thinks that games are very important for children and adolescents (the second level of importance); only 50 (4.5%) teachers believe that playing computer games is important (the third level); and only 40 (3.6%) of the respondents reckon that learners perceive games as of little importance (the fourth level); finally 15 (1.4%) of them say that computer games are of the least importance for children and adolescents (the last, fifth level of importance).

Therefore, the teachers are convinced that children and adolescent existing in the digital world use ICT tools most frequently for entertaining purposes, to enjoy themselves and to play. That is the opinion of the majority of the teachers (86.1%) who attributed the most important and a very important rank (the first and the second level of importance) to that activity performed by learners. Generally speaking, we can conclude that the teachers surveyed almost unanimously believe that for their charges computer games occupy the first place in the hierarchy of importance of undertaken everyday activities.

While analysing the teachers' opinions, attention was drawn to the factors differentiating the researched phenomenon. Among the variables there were sex, type of educational institution, place of work and level of professional development. The adopted differentiating variables were subject to the statistical analysis whose results are presented in Table 3. The calculations did not show any significant statistical differences.

Table 3

Using ICT tools in the area of computer games by children and adolescents in the function of differentiating factors (in the teachers' opinion)

TEST.CHI results. The area of using ICT tools by children and adolescents: computer games			
Differentiating factors (the teachers' sociometric data)			
Sex	Type of educational institution (educational stage)	Place of work (environment)	Level of professional development
$\chi^2 = 2.85 < \chi^2_{(\alpha=0.01; df=5)} = 15.09$ $p = 0.723083853$	$\chi^2 = 29.91 < \chi^2_{(\alpha=0.01; df=15)} = 30.58$ $p = 0.012240943$	$\chi^2 = 28.45 < \chi^2_{(\alpha=0.01; df=20)} = 37.57$ $p = 0.099159868$	$\chi^2 = 20.04 < \chi^2_{(\alpha=0.01; df=15)} = 30.58$ $p = 0.170260539$
No grounds to reject H_0	No grounds to reject H_0	No grounds to reject H_0	No grounds to reject H_0

Source: own research.

Correlation between the learners' opinions and the teachers' remarks

In order to better illustrate the learners' hierarchy of importance of undertaken activities, the results obtained from the five analysed areas were put together. The data regarding the areas of using ICT tools in practice by children and adolescents were presented globally. In this global presentation of the hierarchy of importance, the area of functioning in the world of computer games was chosen by the learners only at the fourth place (with weighted value of 1420 and zero weighting of 141). On the other hand, the teachers put that area of the learners' digital activity at the first place (with weighted value of 965 and zero weighting of 49), perceiving ICT primarily as instruments catering for learners' need of entertainment, offering an opportunity to spend time in a nice way (happily and satisfyingly), including "wasting" it.

The analysis of the collected empirical material and its results show that there might be a certain correlation between the variables researched, i.e. between the learners' opinions and the teachers' views as far as activities aimed at using one's time in the environment of computer games are concerned. In order to determine that correlation, constituting a methodological assumption of a general nature in the context of formulated relational research problems, statistical methods were used as well. In the calculations of the strength of that relation between two co-existing variables in question, the coefficient of determination (r^2) and Pearson's correlation coefficient (r) were used (Ferguson, Takane, 2016, pp. 142–143). According to the results obtained (calculated values of both coefficients), the strength of that relation between the learners' opinions and the teachers' views concerning the use of ICT by children and adolescents in the area of computer games is expressed by:

- 1) the coefficient of determination $r^2 = 0.236388594$;
- 2) Pearson's correlation coefficient $r = 0.486198101$.

Calculated Pearson's correlation coefficient takes a positive value, which shows a growing regression line, thus the correlation is positive and expresses one-directional changes in both variables under analysis (Pilch, Bauman, 2010, pp. 133). It means that the bigger the values of the learners' self-evaluation (higher levels of importance given by children and adolescents), the higher values of the teachers' assessment (higher levels in the hierarchy of importance picked by the teachers). It should be underlined that the data obtained to calculate the correlation in the research undertaken (of a review character) let us only detect the co-occurrence of the variables' values. These values can co-occur even though one is not the cause of the other (King, Minium, 2020, pp. 186–188).

Interpreting (determining the degree of correlation) the obtained value of Pearson's correlation coefficient (approximately $r = 0.49$), it can be stated that the correlation between the learners' opinions and the teachers' views is "moderate" (Guilford, 1964, pp. 157), "average" (Góralski, 1987, pp. 38). Thus, we can call the researched correlation average, positive, calculated for the accepted levels of importance (the hierarchy of importance) of activities undertaken by children and adolescents aiming at the use of ICT in the area of "computer games" (illustrated by similar opinions of the learners and the teachers). In this figure (Fig. 1), the distribution of data shows a clear correlation for the levels of activities' importance from 0 (not important) to 2 (very important), and slightly different results for the levels from 3 (important) to 5 (the least important), with a noticeable "peak" at level 4 (of little importance) according to the learners' opinions. This course confirms a generally average (moderate) positive correlation for this category of activities.

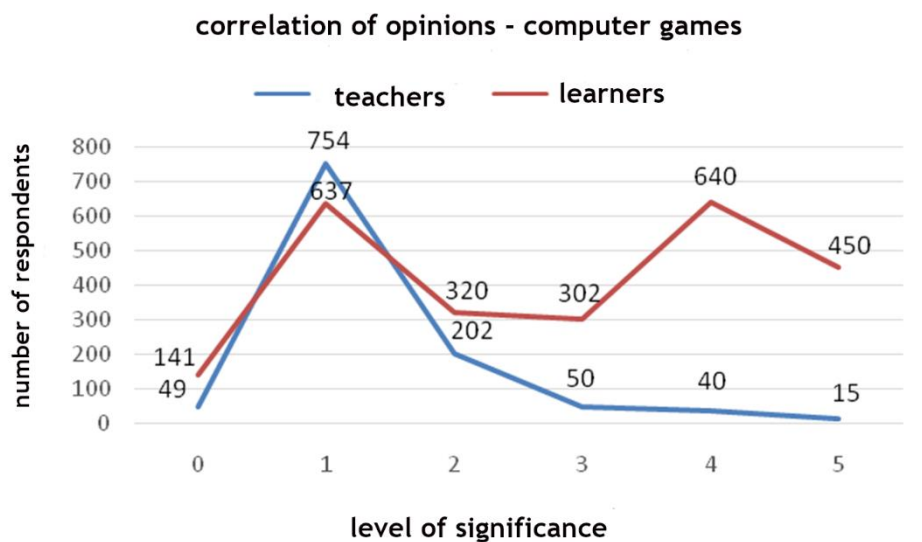


Fig. 1

The correlation between the learners' opinions and the teachers' views as for the frequency of using computer games by children and adolescents (the level of importance $p = 0.1$)

Source: own research.

In the light of the opinion stated a question arises: if the teachers are deeply convinced that computer games are so important for learners, do they, and to what extent, use game mechanisms in their didactic and educational work? Practical implementation of such methods is important as educational computer games – designed and constructed in accordance with engineering-technical and pedagogic guidelines (especially taking into account the methodology of a given subject) (Baron-Polańczyk, 2016, pp. 27–28) can fulfil fundamental developmental goals (knowledge development), pointing, among all, to active and critical learning, experimenting, solving problems and dealing with practical tasks. It turned out that it is worth combining the development of information competencies with a natural need “to play with what one finds in their closest environment, with learning by playing or pursuing attractive goals (among all “good fun”) (Kamińska-Czubała, 2013, pp. 239). Openness of new generations to technological innovations and entertainment has put an equation mark between modern education (both curricular and extracurricular) and edutainment or gamification – concepts more and more frequently used in business, marketing, sale, human resources management and education in order to strengthen human motivation to initiate various activities and to change behaviours (Hamari, Koivisto, 2015, pp. 419–431; Robson et al., 2016, pp. 29–36; Smiderle et al., 2020; Nieto-Escamez, Roldan-Tapia, 2021). Game mechanisms applied in

various areas of human life strengthen engagement among the participants of a given task and competitive or cooperation tendencies in a group. They are a potential way to build relations in a community and may promote individual or group activity, i.e. one based on cooperation. Using games in educational practice ensures a new way of conveying and assessing information, which may increase interactivity and enhance self-control of the learning process. In comparison to traditional teaching methods, they also let learners study and practise in a risk-free environment (Moro et al., 2020, s. 505; Vigoroso et al., 2021, art. no 1868).

There are publications that help to select appropriate games that can be regarded as digital learning tools supporting the realization of desired didactic and educational goals, including their assessment criteria. For example, there is a taxonomy of educational games based on eight broad categories and 26 unique elements. The authors linked each game element to positive and negative educational results (Helms et al., 2015, pp. 59). The aforesaid methods and tools make the didactic usefulness of designed computer games grow and they can be more and more successfully used at each educational stage to broaden learners' knowledge, shape and develop their skills and desired behaviours.

Summary

The analysis of professional literature and collected empirical material (ref. 2490 learners and 1110 teachers) and the research methods and techniques implemented lead to the following conclusions:

1. On the basis of the frequency distribution for the use of ICT by children and adolescents, in five areas of undertaken activities, it was possible to create their aggregate hierarchy of importance (according to the order indicated by the learners' and the teachers' choices), where the category of "computer games":
 - was attributed little weight by the learners (the fourth place with the weighed value of 1420). The learners state that they usually do not use ICT instruments frequently to enjoy themselves and play. They say that computer games are of little importance to them. Yet, interestingly enough, there is a group of staunch hobbyists (25.6%), who emphasise that it is the most important thing to them and on a daily basis they choose these activity forms most often (giving them the first level of importance).
 - was attributed the biggest weight by the teachers (the first place with the highest weighted value, 965).

- The frequency distribution obtained shows clear domination of the ‘computer games’ category. In the teachers’ opinion, this area of activity is perceived by children and adolescents as the most important and practically the most frequently realized one. The majority of the teachers (67.9%) believe so, which is well illustrated by the established values, i.e. clearly distinguished the biggest number of answers obtained (the highest score) pointing to the first level of importance. The smallest number of the respondents (only 49 teachers) did not answer this question (weight zero).
- 2. The correlation between the learners’ opinion and the teachers’ remarks as for the frequency of using computer games by children and adolescents is average ($r \cong 0.49$); the correlation is positive and expresses one-directional changes in both variables taken into account.
- 3. The calculations showed significant statistical differences only in two cases – between the frequency of using computer games by children and adolescents and: the learners’ sex and educational stage. It was established that:
 - The boys (in comparison to the girls), in the hierarchy of importance of activities undertaken in the world of the media, attach the biggest importance to games and appreciate their digital offer more. Without any doubt (in accordance with the differentiating result of a high level), computer games and plays are a male domain.
 - The distribution of quantities in the function pertaining to the type of educational institution (learners’ educational stage) makes it possible to distinguish a decreasing tendency (together with the educational level growing, the frequency of activities declines) – the higher the educational stage, the lower weights are attributed by the learners to the use of ICT for games and plays.

The research establishing the correlation draws our attention to a significant similarity between the learners’ opinions and the teachers’ views as for the frequency of using computer games by the young generation. It showed similar opinions on this topic (which is illustrated by the positive correlation of an average/ intermediate degree) and revealed a slight “separation” of the children and adolescents’ world (“Us”) from the teachers’ world (“Them”), which is significant in the context of identifying charges’ needs and understanding the reasons why they undertake activities aiming at the use of new media in their everyday life (Baron-Polańczyk, 2019). Taking into account the empirical findings as for the similarities in the learners’ and teachers’ opinions and educational guidelines of the constructivism idea together with conclusions for practice deriving from it, there is hope that the teachers researched are “constructivist” enough for the ICT era. The similarities of opinions expressed by the subjects of school education became especially important in the period of the coronavirus epidemic

(Donoso et al., 2020; Ptaszek et al., 2020), when the realisation of the educational process depends on the efficiency with which online tools were implemented – reflecting information competencies, among all, in a rational use of didactic games that have had their well-defined place in the taxonomy of ICT use in education for many years (Taylor, 1980; Prensky, 2013). Game mechanisms (not necessarily using computer applications or board games as props!) of a significant educational potential (Frانيا, 2017, pp. 55, 68–70; 2021, pp. 452–459) are successfully used on a large scale in the process of education, constituting an efficient method supporting the development of competencies, teamwork skills and cooperation, resourcefulness, creativity, ability to work under time pressure of both children and adults (Christ, Szmigiel, 2016, pp. 81–87; Wang et al., 2022, art. no 100463).

References

- Babbie, E. (2016). *Practice of social research*. Boston: 14th. ed. Cengage Learning.
- Bailenson, J. (2020). Why Zoom Meetings Can Exhaust Us. *The Wall Street Journal*. 2020-04-03. <https://www.wsj.com/articles/why-zoom-meetings-can-exhaust-us-11585953336> [downloaded on 13.01.2022].
- Baron-Polańczyk, E. (2016). ICT in educational design – processes, materials, resources. Theoretical bases. In: E. Baron-Polańczyk (ed.), *ICT in educational design: processes, materials, resources – Visegrad edition*. Vol. 9 (pp. 9–36). Zielona Góra: University of Zielona Góra.
- Baron-Polańczyk, E. (2018). *My i Oni. Uczniowie wobec nowych trendów ICT*. Zielona Góra: Oficyna Wyd. UZ.
- Baron-Polańczyk, E. (2019). *Reasons for using ICT by children and adolescents in their daily practice (research report)*. Zielona Góra: University of Zielona Góra.
- Baron-Polańczyk, E. (2021). Reasons for the Use of ICT by Children and Teenagers in Daily Practice – Differentiating Factors. *New Educational Review*, 65(3), 99–109; <http://dx.doi.org/10.15804/tner.2021.65.3.08>.
- Bauman, Z. (2015). *Intimations of postmodernity*. London: Routledge.
- Berdik, Ch. (2020). Future of Childhood: Revisiting the Potential Uses of Media in Children's Education. The Joan Ganz Cooney Center at Sesame Workshop – The Report that Started It All. https://joanganzcooneycenter.org/wp-content/uploads/2020/03/jgcc_revisitingpotential.pdf [downloaded on 13.01.2022].
- Bereźnicki, F. (2007). *Dydaktyka kształcenia ogólnego*. Kraków: Impuls.
- Christ, M., Szmigiel M. (2016). Od gier terenowych po larpy, czyli pedagogika przygody w procesie edukacji i socjalizacji odbiorców w różnych grupach wiekowych. *Edukacja Elementarna w Teorii i Praktyce*, 11, 4(42), 81–87.

- Donoso, V., Pyżalski, J., Walter, N., Retzmann, N., Iwanicka, A., d'Haenens, L., Bartkowiak, K. (2020). *Report on Interviews with Experts on Digital Skills in Schools and on the Labour Market*. KU Leuven, Leuven: ySKILLS.
- Doucet, A., Netolicky, D., Timmers, K., Tuscano, F.J. (2020). *Thinking about Pedagogy in an Unfolding Pandemic: An Independent Report on Approaches to Distance Learning During COVID19 School Closures*. https://issuu.com/educationinternational/docs/2020_research_covid-19_eng [downloaded on 13.01.2022].
- D'Souza, K. (2020). *Distance learning stokes fears of excessive screen time*. EdSource, 2020.11.23. Adolescent Brain Cognitive Development (ABCD) – A long-term study of children's brain development and health in the United States. National Institutes of Health. <https://edsources.org/2020/distance-learning-stokes-fears-of-excessive-screen-time/644165> [downloaded on 13.01.2022].
- Ferguson, G.A., Takane Y. (2016). *Analiza statystyczna w psychologii i pedagogice* (transl. M. Zagrodzki). Warszawa: PWN.
- Frania, M. (2017). *Nowe media, technologie i trendy w edukacji. W kierunku mobilności i kształcenia hybrydowego*. Kraków: Impuls.
- Frania, M. (2021). Educational E-escape Room as an Educational Method of Media Literacy Training for Future Teachers During the COVID-19 Pandemic. *Media Education*, 17(3), 452–459, <http://dx.doi.org/10.13187/me.2021.3.452>.
- Frankfort-Nachmias, Ch., Nachmias, D., DeWaard J. (2015). *Research Methods in the Social Sciences*. New York: 8th ed. Worth Publishers, a Macmillan Education Company.
- Furmanek, W. (2016). Metodologiczne trudności badań z pogranicza edukacji, techniki i informatyki. *Edukacja – Technika – Informatyka*, 4(18), 21–28, <http://dx.doi.org/10.15584/eti.2016.4.1>.
- Gabriel, R., Röhrs, H.-P. (2017). *Social Media. Potenziale, Trends, Chancen und Risiken*. Berlin: Springer.
- Gaming Market Size, Share & COVID-19 Impact Analysis, By Game Type (Shooter, Action, Sports, Role-Playing, and Others), By Device Type (PC/MMO, Tablet, Mobile Phone, and TV/Console), By End-User (Male and Female), and Regional Forecast, 2021–2028*. Market Research Report Summary published on August 2021 by Fortune Business Insights. <https://www.fortunebusinessinsights.com/gaming-market-105730> [downloaded on 13.01.2022].
- Góralski, A. (1987). *Metody opisu i wnioskowania statystycznego w psychologii i pedagogice*. Warszawa: PWN.
- Guilford, J.G. (1964). *Podstawowe metody statystyczne w psychologii i pedagogice* (transl. J. Wojtyński). Warszawa: PWE.
- Hamari, J., Koivisto, J. (2015). Why do People Use Gamification Services? *International Journal of Information Management*, 35(4), 419–431.

- Helms, R.W., Barneveld, R., Dalpiaz, F. (2015). A Method for the Design of Gamified Trainings. *Proceedings of the Pacific Asia Conference on Information Systems (PACIS)*.
- Henson, K.T. (2015). *Curriculum planning. Integrating multiculturalism, constructivism, and education reform*. USA: Waveland Press, Inc.
- Juszczyk, S. (2021). Metodyka kształcenia w edukacji medialnej. In: B. Siemieniecki (ed.), *Pedagogika medialna* (pp. 306–333). Warszawa: PWN.
- Kamińska-Czubała, B. (2013). *Zachowania informacyjne w życiu codziennym. Informacyjny świat pokolenia Y*. Warszawa: Wyd. Stowarzyszenia Bibliotekarzy Polskich.
- King, B.M., Minium, E.W. (2020). *Statystyka dla psychologów i pedagogów* (transl. M. Zakrzewska). Warszawa: PWN.
- Kruszewski, K. (2012). Gry dydaktyczne. In: K. Kruszewski (ed.), *Sztuka nauczania. Czynności nauczyciela* (pp. 221–239). Warszawa: PWN.
- Levinson, P. (2013). *New New Media*. 2nd ed. Boston: Pearson.
- Moro, C., Phelps, C., Stromberga, Z. (2020). Utilizing serious games for physiology and anatomy learning and revision. *Advances in Physiology Education*, 2020-08-14, 44(3), 505–507, <http://dx.doi.org/10.1152/advan.00074.2020>.
- Murphy, K. (2020). Why Zoom is Terrible. *The New York Times*. 2020-05-04. <https://nyti.ms/35hnfN7> [downloaded on 13.01.2022].
- Nieto-Escamez, F., Roldan-Tapia, M.D. (2021). Gamification as Online Teaching Strategy During COVID-19: A Mini-Review. *Frontiers in Psychology*, <http://dx.doi.org/10.3389/fpsyg.2021.648552>.
- Okoń, W. (2007). *Nowy słownik pedagogiczny*. Warszawa: Żak.
- Pilch, T., Bauman, T. (2010). *Zasady badań pedagogicznych. Strategie ilościowe i jakościowe*. Warszawa: Żak.
- Prensky, M. (2013). *Digital Game-Based Learning*. Minnesota: Paragon House, St. Paul (e-book edition).
- Ptaszek, G., Stunża, G.D., Pyżalski, J., Dębski, M., Bigaj, M. (2020). *Edukacja zdalna: co stało się z uczniami, ich rodzicami i nauczycielami?* Gdańsk: GWP.
- Rasfeld, M., Breidenbach, S. (2014). *Schulen im Aufbruch. Eine Anstiftung*. München: Kösel-Verlag.
- Robson, K., Plangger, K., Kietzmann, J.H., McCarthy, I., Pitt, L. (2016). Game on: Engaging Customers and Employees through Gamification. *Business Horizons*, 59, 29–36.
- Siemieniecki, B. (2021). Media a patologie. In: B. Siemieniecki (ed.), *Pedagogika medialna* (pp. 163–197). Warszawa: PWN.
- Smiderle, R., Rigo, S.J., Marques, L.B., Peçanha de Miranda Coelho, J.A, Jaques, P.A. (2020). The impact of gamification on students' learning, engagement and behavior based on their personality traits. *Smart Learning Environments*, 7(3); <http://dx.doi.org/10.1186/s40561-019-0098-x>.

- Taylor, R.P. (1980). *The Computer in the School. Tutor, Tool, Tutee*. New York: Teachers College Press.
- Van Deursen, A., Van Dijk, J. (2014). *Digital skills: unlocking the information society*. New York: Palgrave Macmillan.
- Vigoroso, L., Caffaro, F., Micheletti Cremasco, M., Cavallo, E. (2021). Innovating Occupational Safety Training: A Scoping Review on Digital Games and Possible Applications in Agriculture. *Int. J. Environ. Res. Public Health*, 18; <http://dx.doi.org/10.3390/ijerph18041868>.
- Wang, Y.-F., Hsu, Y.-F., Fang, K. (2022). The key elements of gamification in corporate training – The Delphi method. *Entertainment Computing*, 40, January 2022; <http://dx.doi.org/10.1016/j.entcom.2021.100463>.

Gry komputerowe w hierarchii ważności działań dzieci i młodzieży – raport z badań opinii uczniów i nauczycieli

Streszczenie

Artykuł przedstawia fragment badań diagnostyczno-korelacyjnych o charakterze ilościowo-jakościowym, ustalających kompetencje informacyjne uczniów w zakresie wykorzystywania metod i narzędzi ICT. Poszukuje odpowiedzi na pytanie określające częstość korzystania przez dzieci i młodzież z ICT (hierarchię ważności działań) w obszarze gier komputerowych. Zastosowano metodę sondażu diagnostycznego (ankietę i wywiad) oraz metody statystyczne (test niezależności chi-kwadrat i współczynnik korelacji Pearsona). Zbadano 2510 uczniów i 1110 nauczycieli. Ustalono, że: 1) wg zagregowanej hierarchii ważności działań podejmowanych w cyberprzestrzeni, grom komputerowym uczniowie nadali małą wagę (miejsce czwarte), a nauczyciele największą wagę (miejsce pierwsze); 2) istnieje związek (korelacja: przeciętna, dodatnia, pozytywna – $r \cong 0,49$) pomiędzy opinią uczniów a spostrzeżeniami nauczycieli co do częstości korzystania przez dzieci i młodzież z instrumentów ICT w celu grania; 3) obliczenia wykazały istotne różnice statystyczne pomiędzy częstością korzystania przez dzieci i młodzież z gier komputerowych a płcią i etapem kształcenia uczniów; 4) zauważalne jest podobieństwo między opinią uczniów a nauczycieli, nieznaczne „odseparowanie” świata dzieci i młodzieży („My”) od świata nauczycieli („Oni”).

Słowa kluczowe: badania diagnostyczno-korelacyjne, korelacja opinii, kompetencje informacyjne, wykorzystywanie ICT, gry komputerowe.