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ARTICLES



On the rational use of the Internet in education

ABSTRACT: Janusz Morbitzer, *On the rational use of the Internet in education*, Interdisciplinary Contexts of Special Pedagogy, No. 23, Poznań 2018. Pp. 7-21. Adam Mickiewicz University Press. ISSN 2300-391X. DOI: <https://doi.org/10.14746/ikps.2018.23.01>

The Internet has become one of the most important educational tools today. However, research shows that it is often used without the necessary reflection, as an easily accessible source of information instead of being a tool for intellectual development. This article presents new opportunities offered by the Internet and new competences that are necessary to fully use the Internet's potential in education. These competences are mostly intellectual and axiological, not technical.

KEY WORDS: education, Internet, competences, wisdom, development

The essence of technology is by no means anything technological.

Martin Heidegger (1889-1976) – a German philosopher,
one of the greatest philosophers of the 20th century

Introduction

The motto taken from the writings of Martin Heidegger should be the standard for working not only with the media, but also with all products of technology. Usually, the users of various technologi-

cal goods focus on the technical aspects and neglect the cultural aspects, which seems obvious and natural on the surface. However, it is culture that is more important in the relation between technology and culture, as it forms the basis for technology. The balance between these two sides of the same coin or of the same reality is the condition for rational and safe use of any technology. For example, the cause of the majority of car accidents is not the occasionally unreliable technology, but the triumph of technology over culture which Neil Postman (1931–2003), the American philosopher, media expert and culture critic, defined as technopol, i.e. they way of thinking about technology¹ and making it a priority, while neglecting (or ignoring) the cultural aspects.

The Internet, similarly to many other educational innovations, has failed to bring the expected results and has not revolutionised the learning environments despite large investments in equipping schools with new technologies. The reason for this negative outcome is the focus on technology itself, not on changing the learning possibilities², as well as the lack of the learning environment adequate to each medium where the advantages of the given medium could be fully developed and used. Many of such technologies (first and foremost, the Internet) can be seen as great tools of unused opportunities and possibilities.

The answer to the question about the reason for the Internet's great popularity in education is usually politically correct: the Internet is a brilliant as well as quickly and easily accessible source of knowledge, you can find there everything you need in the educational process. Leaving aside the essential and frequent error (the Internet contains information, i.e. elements for building knowledge, but not knowledge as such), there emerges another question: considering such easy access to the Internet, why are we, humans, not

¹ N. Postman, *Technopol. Triumf techniki nad kulturą*, trans. A. Tanalska-Dulęba, Warszawskie Wydawnictwo Literackie MUZA, Warszawa 2004.

² *Istota uczenia się. Wykorzystanie wyników badań w praktyce*, trans. Z. Janowska, ed. H. Dumont, D. Istance, F. Benavides, Wolters Kluwer Polska, Warszawa 2013, p. 53.

wiser or better, but on the contrary, there has been a systematic decrease in people's intelligence, as confirmed by the most recent research?³

The trap of the Internet

I described the problem of the systematic decrease in the level of human intelligence, i.e. the progressing process of "idiocracy", in more detail in several publications⁴, but here I wish to focus on the phenomenon which I refer to as "the trap of the Internet". It means that the quick, easy, low-cost and widespread access to information offered by the Internet makes the intellectual alertness of the Internet users go into the sleep mode, so many of them feel released from the need and the readiness to constantly develop themselves. However, the assumption that the easiness of using the medium and its resources is enough to give up intellectual development is a great mistake. The easiness is only about the access to information and not its processing which is beyond what the given medium can do.

Each medium that is to be rationally and responsibly used requires the prior preparation of the user. The information on any randomly chosen topic can be also found on the radio or in a book, but

³ The specialists from the Ragnar Frisch Centre for Economic Research used extremely reliable studies to confirm that since the 1970s the average level of human intelligence has been systematically dropping at the pace which is faster than its previously assumed growth in the hypothesis of J. Flynn. J. Morbitzer, *Internet w edukacji – między mądrością a głupotą*, <https://www.edunews.pl/badania-i-debaty/opinie/4328-internet-w-edukacji-miedzy-madrosacia-a-glupota#jacommentid:4924> [access: 10 August 2018].

⁴ See: J. Morbitzer, *Into Idiocracy – Pedagogical Reflection on the Epidemic of Stupidity in the Generation of the Internet era*, "Humanitas University Research Papers PEDAGOGY" 2018, No. 17; J. Morbitzer, *Sokrates odwrócony, czyli o internetowej głupocie*, [in:] *Człowiek – Media – Edukacja*, ed. J. Morbitzer, D. Morańska, E. Musiał, Wydawnictwo Naukowe Wyższej Szkoły Biznesu w Dąbrowie Górniczej, Dąbrowa Górnicza 2017.

the search process is much more difficult (unless the digitised resources are available online, but then we use the given medium as it is present on the Internet). Thus, other media demand more competences, effort and time from the user. It is then obvious that for pragmatic reasons people prefer the Internet. The task of pedagogues is to abolish the myth which says: easy access to information (often identified with knowledge by the Internet users and teachers!) results in the learners' knowledge automatically. If we want to become intellectually enriched, each medium requires preparation and effort by the user. The mission of the contemporary teacher is to prepare the students for the role of the knowledge architect, i.e. to provide the student with the skills of independent, self-sufficient construction of the edifice of knowledge based on the information gained from e.g. the Web.

To effectively use the new technology media and tools, students and teachers need to know several key principles of the media world on the basis of their own reflection. Such principles include: the principle of St. Matthew, the metaphor of the marten in the hen house, the hard and soft media determinism, J. Ellul's paradoxes of technological development and many others. The limited scope of this article allows only to touch upon selected elements from this list.

For the rational use of the Internet, it is the key principle in social sciences, i.e. the principle of St. Matthew, that is specifically relevant. It refers to the well-known parable of the talents which concludes as follows: *For everyone who has will be given more, and he will have an abundance. Whoever does not have, even what he has will be taken from him*⁵. Therefore, the intellectually rich, i.e. the wise user of the Internet, will be a better architect of knowledge and will choose better "information bricks" in order to build all the more solid edifice of one's own knowledge. For such a user, the Internet will be the tool for intellectual development. An intellectually poor user who will surely be a less skilful architect cannot choose valuable infor-

⁵ *The parable about talents*, The Gospel of Matthew 25: 29-30.

mation and often limits himself or herself to copy-and-paste operations. Aside from some legal problems, it is easy to see that the Internet will be the tool of intellectual degradation for such users.

The principle of St. Matthew applied to the Internet means that there is a specific reverse connection: the more the user is intellectually stronger, the more benefits the user will have for his/her own development. There is a very important conclusion for the educational practice: it is advisable to prepare the learner intellectually by providing the general knowledge. This process can and should be started in early childhood and in any circumstances, including, in particular, the circumstances outside the Internet.

The impact of the information and communication technologies, including the world wide web, on the intellectual functioning of people depends mainly on their rational use. The full and good use of rich and varied online resources is possible only when the user has the right knowledge and, better still, wisdom. The principle of St. Matthew shows that the efficient use of the Internet, including in the area of education,⁶ is the choice of people. Therefore, one can refer here to the shortest version of the soft determinism principle formulated by Paul Levinson, an American media expert. It assumes that the media (and all technologies in the broader meaning) offer some possibilities, while people decide how to use them and to what extent.⁷ Soft determinism in the media refers silently to the idea of responsibility, since people have the possibilities offered by technologies at their disposal and can decide to use them or give them up. An example of such a decision-making situation could be a driver of a car with huge power and high maximum speed. A responsible driver is ready to limit the freedom offered by technologies in the name of the values he or she believes in, e.g. safety of

⁶ In fact, each type of the Internet use is educational, because we always learn something and become intellectually enriched or we are intellectually (or even morally) degraded.

⁷ P. Levinson, *Miękkie ostrze, czyli historia i przyszłość rewolucji informacyjnej*, trans. H. Jankowska, Warszawskie Wydawnictwo Literackie MUZA, Warszawa 2006, p. 24.

himself/herself and others, and to adjust the speed to the given conditions on the road.

The soft determinism principle is perfectly compatible with the thesis formulated by N. Postman that is crucial for the reflection on the world of the media: *Each technology is always a burden and a blessing; it is not either-or, but both the one and the other*⁸. The use of any technology carries positive effects as well as potential threats which should always be taken into account.

Such a potential threat is e.g. the improper use of the Internet described by the metaphor of the marten in the hen house.⁹ It consists in focusing on the ongoing search of new information, while neglecting the processing of the gathered material. This metaphor shows that it is necessary to shape responsible user behaviours in the world of the media, since most of the time we cannot act rationally when faced with too much information. Contrary to the marten that is driven by instinct, people have culture which should steer and guide their behaviours, since they can be shaped and formed.

Two models of using the Internet in education

In comparison with the era of books, the digital age offers completely new possibilities and sets new requirements. The linear structure of the book imposed the sequence of reading the content and did not make demands for the user to decide. However, the Internet creates a much larger space of freedom and requires that the user make frequent and independent decisions. The ability to make the right decisions, including those relevant to one's own development, is one of the several possible definitions of wisdom. It

⁸ N. Postman, *Technopol. Triumf techniki nad kulturą*, trans. A. Tanalska-Dulęba, Warszawskie Wydawnictwo Literackie MUZA, Warszawa 2004, p. 16.

⁹ See e.g. J. Morbitzer, *Sokrates odwrócony, czyli o internetowej głupocie*, [in:] *Człowiek – Media – Edukacja*, ed. J. Morbitzer, D. Morańska, E. Musiał, Wydawnictwo Naukowe Wyższej Szkoły Biznesu w Dąbrowie Górniczej, Dąbrowa Górnicza 2017.

follows that the user's wisdom is necessary for the effective use of the Web.

A similar conclusion can be derived from the words of the co-founder and the former CEO of Apple Inc., Steven Paul Jobs (1955–2011): *Technology itself does not matter. What is important is the belief that people are good and wise, and if we give them modern tools, they will be able to work wonders with them.* S. Jobs emphasises the special significance of axiological categories, i.e. wisdom and goodness, since only people who possess such values can fully tap into the potential in the advanced media and technologies. This, in turn, results in the conclusion that if contemporary education is to perform its social mission well, it should adopt a new direction oriented towards wisdom and spirituality.

In the context of the statement by S. Jobs, one should reflect on what it means to be wise from the educational perspective. It is now relevant to the distinction between intellect and reason, present in philosophy since the antiquity and specifically popularized by the German thinker of the Age of Enlightenment, Immanuel Kant (1724–1804). Intellect (Latin: *intellectus*) is a tool in its nature, not engaged emotionally and axiologically neutral. It performs the function of discovery that leads to the cold knowledge of the truth. On the other hand, reason (Latin: *ratio*) is related to axiology and ensures reflection. It attaches values and indicates what is right and what is wrong. This notion is close to freedom. Intellect is necessary for people to be inventors and discoverers, but it is reason that decides how we will use our achievements. The German pedagogue and philosopher, Otto Friedrich Bollnow (1903–1991), makes a very poignant statement which says that *intellect will teach us how to build a house. But that is not enough. Only reason can teach us how cohabit the house peacefully*¹⁰. The problem is that contemporary education values intellect more than reason, so it is not interested in guiding towards wisdom.

¹⁰ T. Gadacz, *Uniwersytet w czasach bezmyślności*, wykład inauguracyjny, AGH, Kraków, <http://www.agh.edu.pl/info/article/universytet-w-czasach-bezmyslnosci-wyklad-inauguracyjny/> [access: 10 August 2018].

Can we use the Internet rationally and responsibly? As presented by Nicholas Carr, an American writer on technology, business and culture, in his work titled "Shallow mind", the Internet enforces superficiality: [...] *when we get connected to the Web, we enter the environment which encourages perfunctory reading, chaotic thinking and superficial science*¹¹. This aspect is also underlined by the world-famous Polish sociologist, Zygmunt Bauman (1925–2017): *In the ranking of useful and desired skills, the art of surfing has dethroned the art of diving*.¹² It is meaningful that the activity of the Internet users is described as "surfing", i.e. sliding across the surface, while there are no terms that would refer to going deeper, e.g. diving. Without referring to the deep Web which means the content not indexed by standard search engines or the majority of the dark Web,)¹³ and sticking to the classical definition of the Web, it should be concluded that such a superficial use of the global Internet resources with no deeper penetration is the waste of these resources, but mostly the waste of the great opportunity for intellectual development. Due to the lack of the skill or the willingness to dive on the Internet, we lose the possibility to know what is below the surface, what is perhaps beautiful and valuable. We lose the entire "underwater world of the Internet".

However, if we imagine the Internet as a nearly endless menu, it is obvious that in the face of such a huge abundance of information the reasonable strategy is the satisfy the hunger for information is to taste small portions from particular tables (pages), hoping that we will find more tasteful dishes on the next tables. Therefore, this abundance of information imposes the strategy of shallowness, but it only partially explains and justifies giving up the online resources which are "deeper" and require more competences from the user.

¹¹ N. Carr, *Płytki umysł. Jak Internet wpływa na nasz mózg*, trans. K. Rojek, Wydawnictwo HELION, Gliwice 2013, pp. 145–146.

¹² Z. Bauman, *O edukacji. Rozmowy z Riccardo Mazzeo*, trans. P. Poniatowska, Wydawnictwo Naukowe Dolnośląskiej Szkoły Wyższej, Wrocław 2012, p. 46.

¹³ See: <https://ciekawe.org/2016/07/15/glebszy-poziom-internetu/> [access: 10 August 2018].

The solution to this problem is undoubtedly the key task and challenge for contemporary education.

Assuming that the criterion is the degree of filtration of the information that reaches the learner, it is possible to define two models of using the Internet. The first model (without prioritizing it) is providing the learners with access to the entire Internet, while the educational institution makes no interference. The second model assumes that such institutions provide filters which make the learners use (thematically) limited resources which the teachers deem useful and generating no threats in the form of e.g. content that is harmful educationally and incorrect in terms of subject matter.

In the first model which reflects the real situation of the Internet user, the learner is thrown into deep water. The learner has skill related to searching for information, its selection and processing into useful knowledge, so he or she must possess the soft skills, especially the one that is crucial today, i.e. the skill of learning. Perfecting this key skill of the 21st century in connection with learning to be responsible for one's own education are the greatest advantages of this model. The critics will point out the possible threats, particularly in the form of content that is untrue or can impact the learner negatively.

The second model is "central steering" – the learner navigates an artificial, but safe environment of information, but his or her navigational skills (those which are needed and those which are shaped) are considerably limited. This situation resembles a driving course on a closed track that presents no threats that could happen in real life on the road, but for this very reason it is very different from everyday traffic and, therefore, of little use.

The basic pedagogical question relates to the purpose of using the medium: whether it is a far-reaching purpose, i.e. the learner's intellectual development, or a short-term purpose such as preparing an essay, a project or giving a simple answer with no deeper analysis or even with no real understanding. We need to ask if it is an internal purpose (motivation) formulated by the learner or an external purpose imposed by the teacher, the school or the curricu-

lum. Referring to the concept of Abraham Maslow, the first case is satisfaction of the needs for growth and treating the learner as a person steered from the inside, while the second case is satisfaction of the needs for lack and treating the learners as a person steered from the outside. It should also be added that the model with the information filter is commercial, since its creation, content provision and efficiency evaluation etc. are performed by dedicated companies.

From the educational perspective, the first model is more justified and beneficial to learners, while the second model is more convenient and safer for teachers. If we consider that in contemporary education the teacher, though still very important, is no longer the manager, the mentor and “the wise man on the stage”, but more a guide and a facilitator who stands back, while the main protagonist is the learner, then the choice of the model seems obvious.

The dysfunction of contemporary educational systems in terms of preparing students for the effective use of the Internet on a global scale, not only in Poland, was pointed out by professor Łukasz Turski, a physicist with broad knowledge and a perfect pedagogical intuition. In the article titled “Triumph of ignorance”¹⁴, the author accuses the educational systems of particular countries that they have failed to perform their crucial duty, i.e. to teach the rational use of online resources. As he rightly stated, *the ability to differentiate between truth and scam is more important than knowing about logarithms, wars or insurrections*¹⁵. Therefore, the school should support the learners in shaping their inner axiological and substantive filter that allows to see the difference between truth and false as well as between correct content and untruth and simple nonsense. The skill of using such a filter by a student is far more valuable than providing read-made filtered information.

The post-modernist ideology that gives up truth and makes it a matter of plebiscites (more and more often various groups decide

¹⁴ Ł. Turski, *Triumf nieuctwa*, “Przegląd” 2017, No. 6.

¹⁵ Ł. Turski, *Triumf nieuctwa*, “Przegląd” 2017, No. 6.

what is true via voting), the admission of many truths, euphemistically called “narratives”, and the present functioning of the “post-truth” and *fake news* have shaped people who simply trust the media communications and accept the information with no doubt, reflection or criticism¹⁶, for which the late journalist, essayist and critic of mass culture, Mariusz M. Czarniecki (1934–2015) suggested the term “mediot”, i.e. the media idiot. The word „idiot” is not offensive, as it derives from the Greek *idiotes* meaning a non-expert, an ignorant, a person with very low qualifications.¹⁷

Another key skill in the contemporary world of the Internet is indicated by professor Tomasz Szkudlarek. Alluding to the law of Theodore Sturgeon who says that *ninety percent of everything is crap*, professor calls for adopting a proper distance to the media communications and the attitude of “indestructible and all-time suspiciousness that it might be otherwise”¹⁸. It is the attitude of the rational criticism which should be adopted by people towards the media.

Conclusion

The use of the Internet in education is a very difficult topic. There are multiple concepts, approaches, individual ideas and opinions by researchers and teachers. This situation resembles John Godfrey Saxe’s (1816–1887) “Ballad on the elephant and six Hindu blind men”¹⁹. The limited scope of this article make it impossible to quote

¹⁶ J. Morbitzer, *Sokrates odwrócony, czyli o internetowej głupocie*, [in:] *Człowiek – Media – Edukacja*, ed. J. Morbitzer, D. Morańska, E. Musiał, Wydawnictwo Naukowe Wyższej Szkoły Biznesu w Dąbrowie Górniczej, Dąbrowa Górnicza 2017.

¹⁷ M. M. Czarniecki, *Medioci: czy nie jesteś jednym z nich? Przewodnik dla odbiorców telewizji, prasy, radia, kaset wideo, Internetu*, Wydawnictwo Europol, Warszawa 2003.

¹⁸ T. Szkudlarek, *Media. Szkic z filozofii i pedagogiki dystansu*, Oficyna Wydawnicza „Impuls”, Kraków 2009, p. 124.

¹⁹ *Księga nonsensu*, trans. A. Marianowicz, Wydawnictwa Artystyczne i Filmowe, Warszawa 1986; see also dok. elektron. <http://psychologbielsko.eu/wp-content/uploads/2015/01/Saxe-J.G.-Ballada-o-s%C5%82oniu.pdf> [access: 10 August 2018].

it in full, but I encourage everyone to read it due to its educational benefits. Each of the six blind men describes the elephant from his own limited cognitive perspective. Though every one of them is right in their own fragmentary description, none depicts the whole. The ballad presents one of the most frequent cognitive errors, i.e. *pars pro toto*, that is knowing the whole through its pieces. It indicates the necessity to exchange ideas, experiences and results between researchers who study the implementation of the Internet in education, since only then it will be possible to arrive at an adequate picture of the entire landscape.

It seems that one solution to be considered is the concept of the holistic view of the Internet. It assumes the unity of the four spheres: technical, intellectual, cultural and axiological. Only the first one refers to technology as such and it consists in learning how to operate the equipment and selected applications. The intellectual sphere covers the user skills in terms of choosing valuable information and building the edifice of knowledge, i.e. the skills of the architect of one's own knowledge and the responsibility for one's development and relations to other users. The cultural sphere is the widely understood context of educational changes, while the closely connected axiological sphere is necessary to make ethical decisions when selecting the information and to apply the general medical principle of "primum non nocere" in the use of the Internet. This sphere also includes the postulate by S. Jobs regarding the wise and good user of the media. It must be emphasised that it is not the guarantee, but only a necessary condition for the rational use of the Internet.

The preparation for this process requires shaping the entire learning environment. This concept is defined by Hanna Dumont and David Istance in their work titled "The essence of learning" as the set of material and immaterial conditions in which the process of learning is carried out. This learning environment covers four dimensions:

- the learner (who is learning?),
- teachers and other educators (who participates in the learning process),

- content (what is learned),
- infrastructure (where and by what means?)²⁰.

The authors underline that learning should be understood as “set in the context” and it is the direct context of each learning event is what makes up the “learning environment”²¹.

Let me conclude with Martin Heidegger’s thought that is the motto for this article: *The essence of technology is by no means anything technological*. The considerations presented in this article lead to the conclusion that it is a great error to perceive the Internet and its use for education mainly in technical categories. It is necessary to adopt a wider and holistic vision and a related concept of education towards wisdom and spirituality. Wisdom, in turn, should be seen as a particularly precious value for both the learners and the teacher. The point is not that all teachers and learners should be as wise as Greek philosophers, which is unrealistic, but it is essential to indicate a direction and raise the awareness of striving towards wisdom, as it constitutes a significant axiological category in today’s digital world. Wisdom requires objective evaluation (when information is selected and when the teachers makes the assessment of the student), control over emotions and efficient decision-making.

The way leading to wisdom is a long one. At present, wisdom is a value in decrease. The multiple causes of this negative effect include the popularity of the hot media, i.e. communicating messages that are easy to process and engage senses and emotions instead of imagination and reason, contrary to the cold media. Immersed in the world of the hot media, people in the digital age become more emotional and less rational.²² It is worthwhile referring to another

²⁰ *Istota uczenia się. Wykorzystanie wyników badań w praktyce*, trans. Z. Janowska, ed. H. Dumont, D. Istance, F. Benavides, Wolters Kluwer Polska, Warszawa 2013, p. 52.

²¹ *Istota uczenia się. Wykorzystanie wyników badań w praktyce*, trans. Z. Janowska, ed. H. Dumont, D. Istance, F. Benavides, Wolters Kluwer Polska, Warszawa 2013, p. 53.

²² J. Morbitzer, *O efekcie cieplarnianym w edukacji*, [in:] *Człowiek – Media – Edukacja*, ed. J. Morbitzer, D. Morańska, E. Musiał, Wydawnictwo Naukowe Wyższej Szkoły Biznesu, Dąbrowa Górnicza 2015.

definition of wisdom. In today's shaky world full of confusion and excessive stimuli and information, wisdom should be seen as the skill of making the right decisions as well as the art of achieving inner peace and quiet. This art is so difficult that only few can master it.

The fight for the rational use of the Internet in education, which can be provided at any place and time, without the former space and time limitations of the school, is the fight for the student's smartphone with the Internet access to be not only the extension of his or her mind or hand and a simple tool of entertainment, but also a rationally and responsibly used mobile tool for the young person's development, the tool for learning about the world and about oneself. It is a very important element of education towards self-development and effective preparation for functioning in the digital world and, in a wider context, for being an aware, fully valuable citizen of the contemporary web society. The progress of technology which is not coupled with the in-depth humanist reflection will always be a greater threat than opportunity.

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Online social support

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New media are the tools that support human's intellectual functioning. For many people with disabilities they may become the sole opportunity for accessing information, communicating, learning or working. On the other hand, new media also provide a space for social interactions that could affect the process of coping with critical events both, ordinary and traumatic ones. The key concept for the discussion consists in internet-based social support, defined as support available online to a person dealing with a critical event which needs to be overcome with external resources coming from virtual groups comprising people experiencing difficulties of a similar nature, in the past or currently. The author posed the question whether online social support is ubiquitous, and what it manifests itself. To answer this, she conducted quantitative and qualitative research. The data collected then became the basis for analysis and theoretical considerations.

KEY WORDS: social support, Internet, supporting role of the media, compensation

Introduction

In a lifetime, a human being experiences various events, which shape their way of thinking, influence acting and perceiving reality. Some of them, despite significantly interfering with the established scheme of functioning, are foreseeable, inscribed into natural deve-

lopment. Therefore, they are of a normative character. Those events include: birth of the first child in a family, marriage, starting a new job or death of a spouse at the final stage of life. Sometimes, there are also critical events, which cannot be foreseen and occurrence of which results in traumatic stress. Those usually include catastrophes, but also serious diseases, disability, death of someone close. People deal with stress induced by critical events both, developmental and situational, in various ways, among others, by using specific resources. According to R. S. Lazarus and S. Folkman¹, those include: physical resources (such, as health and energy), psychological (positive beliefs) as well as competences within solving problems and social resources (including social support).

New media constitute, on the one hand, tools of operation. In case of many persons with disabilities they can become the only opportunity to access information, communicate, learn or work. On the other hand, those comprise an area where social interactions take place, which can influence coping in case of a critical event both, in normative (developmental) and traumatic terms. A key concept for my considerations consists in the online social support. I define it as help available online to an individual in a critical situation overcoming of which requires using external resources from virtual groups gathering persons dealing, in the past or currently, with difficulties of a similar character. The aim of such support consists in returning to the person's psychological wellbeing. I have distinguished five basic types of social support, which are also noticeable on the Internet: emotional (extended with so-called: companionship, feeling the presence of others, community), informational, instrumental, material and spiritual².

¹ R. S. Lazarus, S. Folkman (1984), *Stress, Appraisal and Coping*, Springer, New York.

² H. Sęk, R. Cieślak (2004), *Social support – manners of defining, types and sources of support, selected theoretical conceptions (Wsparcie społeczne – sposoby definiowania, rodzaje i źródła wsparcia, wybrane koncepcje teoretyczne)*, in: *Social Support, Stress and Health (Wsparcie społeczne, stres i zdrowie)*, H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 11–28.

Informational (cognitive) support is one of the most frequently met forms of online social support. Information provided by the Internet users supports better understanding of the problematic situation. It is most often posted on individual websites, portals and vertical portals developed by support groups, associations, organisations and private persons, on fora and discussion groups. Informational support is in its nature practical and includes three basic subcategories: giving advice, direction and teaching³. Almost all requests for informational support are direct, universally addressed (usually there is no specific, individual addressee), as they are not related with breaking social barriers: they do not induce fear of stigmatisation, transgressing boundaries of intimacy. "As opposed to the face-to-face contact, people searching for help online have to openly express their request"⁴. The role of the online informational support consists of, first of all, reliable provision of verified, universal information (results of large sample outcome research, expert research) and secondly, sharing individual experiences, which are atypical (individual), strongly conditioned with the situation (context), psychological, physical and emotional conditions.

According to H. Sęk and R. Cieślak⁵, instrumental support is aimed at forwarding information on specific manners of proceeding, solving problems, provide necessary guidelines. Therefore, it constitutes a special, specific form of informational support. According to some authors, it comprises an integral part thereof, similarly as the educational support⁶. It answers the question, where should I

³ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

⁴ P. Wallace (2001), *The Psychology of the Internet (Psychologia Internetu)*, Dom Wydawniczy Rebis, Poznan.

⁵ H. Sęk, R. Cieślak (2004), *Social support – manners of defining, types and sources of support, selected theoretical conceptions (Wsparcie społeczne – sposoby definiowania, rodzaje i źródła wsparcia, wybrane koncepcje teoretyczne)*, in: *Social Support, Stress and Health (Wsparcie społeczne, stres i zdrowie)*, H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 11-28.

⁶ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

go to receive help in a situation I have suddenly found myself in? What can I expect? The charitable activity, that is, a manifestation of the most substantial material support is strongly visible online. It concerns both, group support, that is, foundations and associations dealing with organisation of financial and tangible help for the most needy, as well as individual support. The material support (tangible or financial), next to emotional, constitutes a crucial factor of overcoming stress. Readiness to provide help in the scope of co-financing treatment, help in transport, delivery of medicines, physical help in taking care of the person in need constitute an important component of coping by persons who found themselves in a difficult situation and significantly influences their psychological wellbeing. Online we come across several types of the material support: 1) group, system organisation of fund-raising and collecting tangibles to the benefit of specific persons (most frequently children) or groups and communities, 2) individual appeals for individual support and response thereto, 3) help given *ad hoc* in pro-socially established online support groups.

The most visible form of the online support constitutes emotional support. It is aimed at ensuring the feeling of safety, accompanying, supporting, assurance of love and appreciation, demonstrating sympathy and understanding⁷. In a stressful or difficult situation it plays a huge role in restoring psychological well-being. Many authors underline the meaning of this support, additionally distinguishing a category of companionship, that is, assuring of accompanying, stressing interest, encouraging sharing basic information to enter the online community more easily⁸. The emotional support is present in virtual groups (fora, social media), as well as on blogs and in comments written by the Internet users. In strongly stressful situations people often start writing blogs to release the

⁷ P. A. Thoits (1995), Stress, coping, and social support processes: Where are we? What next?, "Journal of Health and Social Behavior", 1995, Spec. No., pp. 53-79.

⁸ A. Bambina (2007), Online social support. The Interplay of Social Networks and Computer-Mediated Communication, Cambria Press, New York.

stress. It is a form of autotherapy for them, help given to oneself as well as a chance of obtaining emotional support. Comments on blogs give condolences, many persons wish to help, cheer others up. The emotional support on online fora is manifested with words of understanding/empathy, support, affirmation, showing sympathy and care⁹.

A review of research

The research on the phenomenon of online social support includes various areas thereof, most frequently concentrating on the particular diseases. Publications and results of the research on online social support of persons (or families) struggling with neoplastic disease described therein, were analysed by Y. Hong, C. N. Peña-Purcell and M. G. Ory¹⁰. They collected detailed results from 762 articles on the topic. The authors concluded that in the informational society, which we live in, it becomes obvious to search for emotional or informational social support. Furthermore, the number of persons struggling with neoplastic diseases, who reach for online support is also growing. Y. Hong, C. N. Peña-Purcell and M. G. Ory¹¹ distinguished several publications, classifying them in accordance with the type of tumour neoplasms, ways of conducting research, taking samples and many other factors. The most numerous group of studies constitute those focusing on virtual support

⁹ N. Walter (2011), *The Internet support culture (Internetowa kultura pomagania)*, in: *Media Culture, Body and Identity – Socialisation and Civilisation Contexts (Kultura mediów, ciało i tożsamość – konteksty socjalizacyjne i cywilizacyjne)*, Jakubowski W., Jaskulska S. (ed.), Impuls, Krakow, pp. 177–188.

¹⁰ Y. Hong, N. C. Peña-Purcell, M. G. Ory (2012), Outcomes of online support and re-sources for cancer survivors: A systematic literature review, "Patient Education and Counseling", 2012, Vol. 86(3), pp. 288–296.

¹¹ Y. Hong, N. C. Peña-Purcell, M. G. Ory (2012), Outcomes of online support and re-sources for cancer survivors: A systematic literature review, "Patient Education and Counseling", 2012, Vol. 86(3), pp. 288–296.

groups for women with breast neoplasms. Another concern neglected communities such, as minorities or persons with low economic status, mainly using English (research concerning groups from regions other than Great Britain or the United States of America is less frequent). The majority of researchers noted positive effects of online social support. The qualitative research in detailed described virtual experiences, whereas, the quantitative research presented various aspects of psychological and social wellbeing taking into consideration the quality of life, stress level, coping due to the support and the access to information regarding neoplasms. Results of online group research were indicated, participants of which indicated its meaning in diminishing negative emotions, increasing competences in the scope of functioning with a neoplastic disease. The social support, predominantly emotional and informational, in a virtual group of parents of children with neoplastic diseases was noted by N. S. Coulson and N. Greenwood¹². Similar results were obtained by D. M. Gustafson, M. Wise, F. McTavish et al.¹³ studying a group of women with breast neoplasm, and further: P. Klemm, M. Hurst, S. L. Dearholt, S. R. Trone¹⁴, M. A. Lieberman, S. Russo¹⁵, J. Fogel, S. M. Albert, F. Schnabel, B. A. Ditkoff, A. I. Neugut¹⁶, C. F. van Uden-Kraan, C. H. Drossaert, E. Taal et al.¹⁷, and many others.

¹² N. S. Coulson, N. Greenwood (2012), Families affected by childhood cancer: an analysis of the provision of social support within online support groups, "Child: Care, Health and Development", 2012, Vol. 38(6), pp. 870-877.

¹³ D. M. Gustafson, M. Wise, F. McTavish, J. O. Taylor, W. Wolberg, J. Steward (1994), Development and pilot evaluation of a computer-based support system for women with breast cancer, "Journal of Psychosocial Oncology", 11/1994, pp. 69-93.

¹⁴ P. Klemm, M. Hurst, S. L. Dearholt, S. R. Trone (1999), Gender differences on Internet cancer support groups, "Computers Informatics Nursing", 17/1999, pp. 65-72.

¹⁵ M. A. Lieberman, S. Russo (2002), "Self help groups and the Internet: breast cancer newsgroups", International Journal of Self-Help & Self-Care, 1/2002, pp. 323-344.

¹⁶ J. Fogel, S. M. Albert, F. Schnabel, B. A. Ditkoff, A. I. Neugut (2002), "Internet use and social support in women with breast cancer", Journal of Health Psychology, 21/2002, pp. 398-404

¹⁷ C. F. van Uden-Kraan, C. H. Drossaert, E. Taal, B. R. Shaw, E. R. Seydel, M. A. van de Laar (2008), Empowering processes and outcomes of participation in

Studies conducted by A. Bambina¹⁸, who analysed functioning of the online social group acting on the forum, which she named as SOL-Cancer (SOL = Support Online), have been presented to the largest extent. She examined in depth all conversations between participants of unmoderated group conducted within two selected weeks. She concluded that both, men and women in different age and coming from various places in the world post on the forum. Their mutual feature constitutes an experience related with neoplasm disease; posts are written by ill persons, family members and sometimes even doctors, therapists and carers. The base of posts and logs from the year 2000 was subjected to research aimed at separating the scheme of codes. All 1,149 posts were grouped and classified to particular subcategories. It turned out that the category occurring most often constituted companionship (56.7 percent of posts), then, emotional support (48.2 percent) and finally, informational support (38.6 percent). Studies conducted by A. Bambina¹⁹ indicated existence of the online social support, predominantly of emotional and companionship character on the forum, where indirect communication through the agency of a computer is binding and there are no face-to-face contacts.

Furthermore, there are several studies on online social support functioning in groups of persons suffering from illness, disclosure of which is sometimes difficult in real life. Research conducted by P. K. H. Mo and N. S. Coulson²⁰ on virtual groups of persons with HIV/AIDS indicated that they constitute an area of social functioning which allows exchanging informational and emotional support by

online support groups for patients with breast cancer, arthritis, or fibromyalgia, "Qualitative Health Research", 18/2008, pp. 405–417.

¹⁸ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

¹⁹ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

²⁰ P. K. H. Mo, N. S. Coulson (2014), Are online support groups always beneficial? A qualitative exploration of the empowering and disempowering processes of participation within HIV/AIDS-related online support groups, "International Journal of Nursing Studies", 2014, Vol. 51(7), pp. 983–993.

sharing experience, connecting with other persons (awareness of their presence), finding understanding, helping others. Moreover, it was stated that participating in virtual online groups can reinforce optimism, psychological (social and emotional) wellbeing, facilitate coping with disease, relations with doctors and increase knowledge on HIV.

There is quite a large number of research covering online social support groups for parents of children suffering from diseases, genetic syndromes and/or disabilities. Such studies were conducted by, for example, T. Clifford i P. Minnes²¹. They concerned a virtual support group for mothers of children with autism spectrum. The studies were to verify, if participating in such a group causes changes in mood, level of anger, resentment, parental stress and positive perception. The researchers did not note any significant differences in the enumerated areas, however, they indicated that surveyed parents definitely indicated positive meaning of the online group, which they considered helpful.

In Poland, studies on parents and, specifically on parents interested in foster childcare, were conducted by K. Tomsia²². She analysed posts on the discussion forum, divided them into categories: emotional, instrumental and informational. She stated a significant dominance of informational communications (28 percent of posts), instrumental (24%) and emotional (only 8%)²³. Research conducted by A. Jarzębińska²⁴ concerning forum for parents in a situation of

²¹ T. Clifford, P. Minnes (2013), Logging On: Evaluating an Online Support Group for Parents of Children with Autism Spectrum Disorders, "Journal of Autism and Developmental Disorders", 2013, Vol. 43(7), pp. 1662-1675.

²² K. Tomsia (2009), *The Internet as a source of support for persons interested in foster childcare (Internet jako źródło wsparcia dla osób zainteresowanych opieką zastępczą nad dzieckiem)*, in: *Psychological Contexts of the Internet (Psychologiczne konteksty Internetu)*, B. Szmigielska (ed.), Wydawnictwo WAM, Krakow, pp. 179-193.

²³ K. Tomsia (2009), *The Internet as a source of support for persons interested in foster childcare (Internet jako źródło wsparcia dla osób zainteresowanych opieką zastępczą nad dzieckiem)*, in: *Psychological Contexts of the Internet (Psychologiczne konteksty Internetu)*, B. Szmigielska (ed.), Wydawnictwo WAM, Krakow, pp. 179-193.

²⁴ A. Jarzębińska (2015), *Internet discussion forum as a source of social support for parents (in case of a lethal birth defect) (Internetowe forum dyskusyjne jako źródło społecz-*

a lethal birth defect led to the identification of social support factors, mainly of emotional and spiritual character. Furthermore, posts of informational and valuation support character were noted. Virtual communities of women preparing to a developmental event, that is, motherhood were studied by K. Barani²⁵. She indicated a relation between engagement in a forum and obtaining informational support. Women actively participating in discussions, feeling affiliation to the virtual group more often and more intensively searched for online support than support from other sources. The Internet proved to be the most important, apart from a doctor, source of informational support for pregnant women. The research is supplemented with qualitative analyses of virtual behaviours of pregnant teenage girls, who search for support in the virtual world and do not find it even there²⁶ as well as a virtual image of parenthood²⁷ and support in the scope of upbringing²⁸.

nego wsparcia rodziców (w sytuacji wady letalnej płodu)), in: Dimensions of Counselling and Social Support in the Interdisciplinary Perspective (Dymensje poradnictwa i wsparcia społecznego w perspektywie interdyscyplinarnej), M. Piorunek (ed.), Wydawnictwo Naukowe UAM, Poznan, pp. 177–200.

²⁵ K. Barani (2008), *Virtual communities of women on the Internet fora as a source of support in preparing to motherhood (Wirtualne wspólnoty kobiet na forach Internetowych jako źródło wsparcia w przygotowaniu do macierzyństwa)*, in: *Whole Life on the Web (Całe życie w sieci)*, B. Szmiągłska (ed.), Wydawnictwo Uniwersytetu Jagiellońskiego, Krakow.

²⁶ A. Skowrońska-Pućka (2013), *(Non)virtual problems of teenage mothers. The need of support ((Nie)wirtualne problemy nastoletnich matek. Potrzeba wsparcia)*, in: *Family – Youth – Child. Essays on Theory and Practice of Psychological-Pedagogical and Social Assistance (Rodzina – młodzież- dziecko. Szkice z teorii i praktyki pomocy psychopedagogicznej i socjalnej)*, M. Piorunek, J. Kozielska, A. Skowrońska-Pućka (ed.), Wydawnictwo Naukowe UAM, Poznan, pp. 231–242.

²⁷ N. Walter (2012), *The image of parenthood on the Polish Internet, that is, what contemporary mothers read and discuss (Obraz rodzicielstwa w polskim Internecie, czyli co czytają i o czym dyskutują współczesne matki)*, "Biuletyn Edukacji Medialnej", Norbertinum, 1/2012, pp. 16–26.

²⁸ N. Walter (2013), *Pedagogical support online (Wsparcie wychowawcze online)*, in: *Human – Media – Education (Człowiek – Media – Edukacja)*, J. Morbitzer, E. Musiał (ed.), KTiME, Krakow, pp. 419–427.

Research methods

Having observed various behaviours of Internet users for many years, apart from those strongly visible – unwanted, I noticed productive activities based on the responsibility for other people and altruism. I started wondering and became interested in pro-social attitudes, which are so desirable and needed in the contemporary world. Thus, I asked myself, if the Internet can be used in social support understood as help available online to the individual in a critical situation overcoming of which requires using external resources from virtual groups gathering persons dealing, in the past or currently, with difficulties of a similar character. I made the commonness and availability as well as characteristics of social support present on the Polish Internet in pedagogical understanding, including: reasons, aim, quality of interaction, effectiveness and educational character, the subject of my empirical analyses.

While designing research I used the *ex post facto* model (exploration type), since selected issues have a significative character. The area of research, that is, the Internet indicates methods with which I answer the following research problems bothering me: What is the commonness of online social support? And: How is the online social support manifested? (Each of the questions was attributed to detailed problems). Social support, including the online social support is inscribed in specific personal biographies. Therefore, apart from the initial quantitative research (diagnostic survey method and method of netnographic analysis of existing documents, here: conversations published online and comments posted on online fora, entries made on online journals, that is, so-called blogs and texts posted on web-sites) I conducted qualitative research.

The initial survey research was conducted among pedagogy students (full-time and part-time studies, postgraduate studies, as well as third age studies), that is, among persons for whom the issue of social support, providing help and pro-social activities, is close. The diagnostic survey was participated by 656 persons. The participants were aged from 18 to 60 years old and they came from

all Polish voivodeships. All studied persons had access to the Internet and used it regularly (in majority, on daily basis).

For quantitative netnographic research I selected 5 online fora (virtual support groups). All of them are devoted to critical events that occurred in lives of the Internet users posting thereon. In total, 5,524 posts included in 344 collective threads were analysed in details. For research purposes, a forum of parents of prematurely born children with 132,804 posts was selected and analysed threads came from the first half of the year 2015. Main participants of the forum constitute women-mothers who share problems regarding children, discuss forms of hospital care, rehabilitation, prognoses, diseases, doctors and emotional problems. Another form is strictly help-oriented, provides material and informational support (163,247 posts). In principle, it is moderated by women-mothers, although, sometimes there are also comments posted by men offering for example legal help. The aim of the forum is to provide specific tangible help (financial, alimentary etc.) to persons who cannot support their families. Third selected forum is devoted to broadly understood health. Since the beginning 357,426 posts were published (analysed posts come from January – February 2015). The idea of the forum consists in discussing health issues experienced by participants or persons close to them. Another from fora selected for research purposes belongs to the group of highly popular parenting “peer” fora, which gather parents of children that are going to be born on a particular month of a given year. For example “July 2007”, “April Mums 2011” or “September Mums 2006”. Forum selected for research concerns children born in 2008 (113,558 posts), and the analysis covered threads from August and September 2008. The last quantitatively analysed forum is devoted to divorcing persons, who struggle emotionally, search for legal advice or want to share own experience. Posts (389,689) are published by persons who visit the forum one time only, random persons and permanent users, who share their experience and legal, fiscal or psychological knowledge. The idea is to mutually support persons who found themselves in a situation of divorce.

The qualitative research constitutes a significant part of my analyses. They provide answer to some research questions, for which quantitative analyses were not sufficient or gave an incomplete image. The research method used by me consisted in the case study with which I could analyse individual fates of persons in specific, difficult situations. My aim was to accurately describe people's activities online in a situation of a critical event with a consideration of as many aspects thereof as possible, also in the scope of educational influences. While deciding to apply the case study, I have used research techniques such, as a narrative interview and analysis of existing documents. The case study, within which I used expert interview and narrative-biographical interview techniques, covered 8 persons. For the purposes of qualitative netnographic research 5 online fora were selected and subjected to quantitative analyses.

Results of quantitative research

The analysis of online portals, which I have been conducting for many years, and especially with regard to fora, social media and blogs allows formulating a thesis that the online social support is a common phenomenon. Also, the conducted diagnostic survey provides similar conclusions. The question: "have you used online social support during last 12 months", was answered by as many as 41.3 percent of surveyed persons affirmatively. Since I assumed that the question would not affect some of the surveyed persons directly (they have not experienced a difficult situation during last year) I asked, if they would use such a form of support. Almost 50 percent of surveyed persons answered this question affirmatively. The survey did not cover studying subjective features of surveyed persons, which would favour or hinder searching for social support. The need for support is different: "some persons feel better, when they can overcome difficulties by themselves, without help of others

and turn for such help only in an extreme situation. Others feel more dependent and express a stronger need for support”²⁹. Some respondents cannot imagine their own reaction in case of a critical situation, this is manifested with 28 percent of persons answering “I do not know”.

There are plenty of Polish websites (including fora, social media and blogs) containing manifestations of social support. For example, fora and blogs concerning motherhood - 1.4 million, neoplastic diseases - 0.5 million, psychological diseases - over 0.5 million, disability - 0.6 million, diseases and/or loss of a child - 0.3 million. Analysis of contents of such websites also proves the commonness of online social support manifestations. It shall be discussed in details in another subchapters.

The surveyed persons were asked what they do in case of a critical event or occurrence of a difficult situation (more than one answer was possible). The majority answered that they talk about it to people closest to them (family) - 75% or friends - 58%. 36% of respondents browse the Internet, and only 15% consult specialists in such situations.

Table 1. Age and declared willingness to use the online social support (single factor ANOVA - test F) ($n=653$; df intergroup=2; df intragroup=653).

	YES n = 322	NO n = 146	I DO NOT KNOW n = 188	Analysis of intergroup effects	Statistics of test F		η^2
	M (SD)	M (SD)	M (SD)		F	p	
Age	23.38 (3,725)	25.27 (7,685)	23.39 (3,965)	1 > 2	8,242	,000	,0025

Source: own elaboration.

²⁹ N. Knoll, R. Schwarzer (2004), *True friends... Social support, stress, illness and death (Prawdziwych przyjaciół... Wsparcie społeczne, stres, choroba i śmierć)*, in: *Social Support, Stress and Health (Wsparcie społeczne, stres i zdrowie)*, H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 29–48.

The analysis of results of the research in the scope of dependencies between responses of surveyed persons and demographic variables indicated a relation between the age of the respondents and their declared inclination to use online support. Younger persons (aged below 23.4) more frequently declared the willingness to use online support than persons aged over 25.

A similar dependency did not occur in the case of declared use of the online support within last 12 months.

Among factors favouring searching for online social support, the respondents indicated social distance and anonymity (69%), possibility of finding the Internet users struggling with a similar problem (62%), availability of support online (31%) and, to the smallest extent, objectivity of advice given by the Internet users in contrast to the advice given from close persons (13%). Therefore, anxiety and, not seldom, shame accompanying not copying with a given critical event constitutes the most frequent motivator of reaching for anonymous support characteristic for the Internet. Searching for real help can be embarrassing especially for persons seen as invincible, coping in any, even the most difficult situation. Anonymous Internet users do not ask questions, do not interfere too much in privacy, they only concentrate on what has been created, on a fragment of presented identity. They are not emotionally engaged in the problem, therefore, they can support with a distance, without slobbering and sentimentalising. There are probably going to be persons who have experienced a similar problem, even if it is exceptionally rare. Sharing experience with persons who have lived through the same helps in coping with the situation and restoring psychological wellbeing.

Strongly developed online social support network is also available due to various broadly available Internet services. Respondents, who declared that within the last 12 months they had searched for online social support, were asked to indicate and order services such, as blogs of persons describing similar experiences, discussion fora, virtual information portals devoted to a given issue, social media and discussion groups depending on the frequency of use.

The surveyed persons most often search for online social support on virtual thematic portals (14.6% of the total number of all respondents do it frequently, and 12.8% - very frequently) and on discussion fora (frequently - 9.9% and very frequently - 12.3%). They most rarely reach out to blogs (13.3% never do it, and 11.8% very rarely), social media (never - 11.3%, very rarely - 11.6%) and discussion groups (never - 11.4%, very rarely - 10.7%).

The analysis of the selected fora, blogs and social media profiles with regard to used phrases and key words expressing the request for support also indicated the largest popularity of online fora in this respect. Requests for help and support (both, informational, emotional, spiritual as well as material) were the following: 90,961 on selected five fora, 134 on four blogs and 14 on four social media profiles. All analysed websites were of an assistance character or concerned critical events (disease, health, disability, motherhood, divorce). Online fora constitute the largest space for exchanging experiences, thus, the number of requests included there is not surprising. In case of blogs and social media portals with face single, individual fate, therefore, posts published by authors and comments added by the Internet users are respectively rarer and strictly targeted. Another issue constitutes anonymity or a lack thereof. In the case of online fora authors and commenters of threads hide themselves under nicks (pseudonyms). Therefore, asking for help becomes easier, is devoid of the layer of shame and embarrassment. Also providing support is easier in such a situation. It was written about, among others, by P. Wallace³⁰: "We know that in environments, which ensure more anonymity, people are more open and this helps especially in therapy conducted online and facilitates the activity of support groups." In case of blogs and especially social media, authors usually provide their real data, since they want to obtain a specific support in this way e.g. financial. It obliges them to certain restraint, thinking over the created image which can in the

³⁰ P. Wallace (2001), *The Psychology of the Internet (Psychologia Internetu)*, Dom Wydawniczy Rebis, Poznan p. 311.

future induce positive reactions of persons wishing to provide support.

Persons who have been subjected to the survey usually search for social support on thematic portals, that is, virtual portals. Depending on the topic, websites maintained by the following entities can be distinguished: 1) foundations and associations, 2) private persons, 3) institutions and private companies.

During research I wondered, if the online social support results from a limited real life support. I assumed that the online support would be used by persons, who have a limited access to experts or their close interpersonal relations are insufficient in the case of difficult situations. For the majority of respondents family, friends and/or co-workers constitute a source of support. For 52 percent of respondents always and for 42.1 percent - often. 4.1 percent of respondents believe that they can rarely rely on persons close to them in this scope, and 0.2 percent - not at all. 11 persons (1.7 percent) do not expect and do not search for support from persons close to them.

An easy access to experts such, as a doctor or a psychologist was declared by the majority of respondents (68.1 percent), whereas, hindered access was declared by 22.7 percent. 60 persons gave other answer (9.1 percent). Among additional answers, respondents the most frequently indicated difficulty with answering the question; some respondents did not face a critical event in their life, which they could not cope with on their own or with a small support of persons close to them. There were also answers concerning too long waiting time for an expert or a high price of private services, difficult access, a lack of trust, a lack of professionalism and not treating the problem seriously. The results of my research did not give an answer to the question regarding the correspondence (or a lack thereof) between using the online social support and using expert services. One cannot explicitly indicate a relation in this scope or a lack thereof.

A crucial issue in case of searching for and using online social support consists in the awareness of threats related with this form

of help. The following threats should be considered: 1) the Internet users more willingly share their negative experiences than positive ones, therefore, their advice can be subjective, 2) advice/information on the Internet comes from unreliable sources – it might be unreliable, 3) shared experience is sometimes not full, a lack of described details can result in improper interpretation and 4) Internet users' comments are sometimes expressed in a manner increasing the stress. In the survey questionnaire respondents selected more than one answer from the list of threats enumerated above. The most frequently indicated was answer 2), unreliability of sources (78%), then, 3) incomplete description of an experience (53.7%), 1) negative character of the Internet users' comments (40.5%) and 4), increasing stress (36.7%). 25 persons (3.8%) indicated other answer. It has been noted that "searching online support can cause closing oneself to the real contact with people, which leads to deepening problems", confabulations (comments given by persons who have not experienced a given problem), purposeful misleading, mean and mocking character of some comments, superficiality, hate, improper interpretation, over emotional character of comments, hidden activity of companies. Some persons noticed that limiting oneself to searching support online can lead to negative consequences such, as a feeling of loneliness, social disorders.

I asked the participants of the diagnostic survey who declared using online social support during the last 12 months of the type of support they had been searching for. Usually the respondents declared searching for informational support (233 persons), then, instrumental (188 persons), emotional (29 persons), spiritual (22 persons) and tangible (17 persons). As far as the contents of specific websites and online groups, the research conducted by other authors shows that the support distribution can vary depending on the characteristics of a given source. And thus, according to A. Bambina³¹, studying the forum of persons suffering from neoplasms, the emotional support constituted 34.6 percent of analysed

³¹ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

answers, informational support – 24.8 percent, whereas, companionship (feeling of community, presence) – 40.6 percent. On the other hand, the research conducted by K. Barani³² on social support groups in the context of motherhood indicates the dominance of informational support over emotional one. Thus, apart from the diagnostic survey, I have also analysed online social support groups.

After two years of observation, I selected five online fora for the research which I subjected to a detailed quantitative analysis. Selected posts were carefully read by me and then, subjected to labelling. I attributed the posts with categories of support in functional understanding. I assumed, similarly as A. Bambina³³ and many other researchers that a supporting post can have an informational, emotional, companionship, instrumental, material or spiritual character. In total, 5,524 posts included in 344 collective threads were analysed. Depending on the type of a forum, its recipients, theme and characteristics of mutual dependencies, the distribution of found social support was changing. Analysed fora differ with the scope and type of given social support. Informational support is offered the most frequently, emotional one is given less frequently; although, there are fora, where the situation is quite the opposite. The diagram below includes a comparison of various forms of support on the aforementioned fora.

Research results. Discussion

It is difficult to explicitly state, if the online social support is common. As results from the quantitative research, almost 50 per-

³² K. Barani (2008), *Virtual communities of women on the Internet fora as a source of support in preparing to motherhood (Wirtualne wspólnoty kobiet na forach Internetowych jako źródło wsparcia w przygotowaniu do macierzyństwa)*, in: *Whole Life on the Web (Całe życie w sieci)*, B. Szmigielska (ed.), Wydawnictwo Uniwersytetu Jagiellońskiego, Krakow.

³³ A. Bambina (2007), *Online social support. The Interplay of Social Networks and Computer-Mediated Communication*, Cambria Press, New York.

cent of respondents declared that they would use online support in a critical situation, that is, a situation they would consider to be exceeding their ability to cope with it on their own. If we take into account the age of respondents, who were predominantly students aged up to 26 years old, it might turn out that they have difficulty in thinking of life in categories of critical events that could happen to them. The age of early adulthood is characterised with full of optimism dreams about the future and the thought of possible difficulties rarely occurs therein. Parenthood as well, which is the closest normative critical event in life of young adults appears to be wonderful and full of happiness. Therefore, they are not able to foresee, if in a situation of parenthood stress they would reach for support available online and if they would be willing to participate in virtual support groups. A lack of interest in online support can also result from other issues described in the academic literature such, as: individual manners of coping with the stress, personality features that exclude using external sources, strongly supportive closest circle constituting a type of cocoon, which guarantees safety³⁴. Qualitative research, including narrative-biographical interviews, which have not been presented in the article, show that the interest in online support increases. It is especially visible in the blogosphere, but also on fora and social media portals. Thus, although I cannot explicitly state that the social support available online is common, I believe that it is available and broadly present, and attracts huge interest.

Clinical psychologists state existence of individual differences in the scope of the need of traditional support, its perception and acceptance³⁵. In the case of online support the situation is similar.

³⁴ H. Sęk, R. Cieślak (2004), *Social support – manners of defining, types and sources of support, selected theoretical conceptions (Wsparcie społeczne – sposoby definiowania, rodzaje i źródła wsparcia, wybrane koncepcje teoretyczne)*, in: *Social Support, Stress and Health (Wsparcie społeczne, stres i zdrowie)*, H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 11–28.

³⁵ N. Knoll, R. Schwarzer (2004), *True friends... Social support, stress, illness and death (Prawdziwych przyjaciół... Wsparcie społeczne, stres, choroba i śmierć)*, in: *Social*

Apart from the variable, that is, a critical event, one can indicate differences due to gender and age. Quantitative research conducted by me does not provide an explicit answer, if women, as indicated by experiences of clinical psychologies, offer and search for support more often than men.

The quantitative research indicates that online social support is slightly more often used by younger persons below 23 years of age, for whom the Internet is a natural space of social functioning. Persons below 23 years of age usually do not yet form permanent partner relations, yet, their original family relations become more relaxed due to social development typical for this period. Staying in permanent partner relationships constitutes in itself support and facilitates coping with stressful situations. In case of young adults, who do not yet have a strong support coming from a spouse, they more frequently feel the need to use external help, including help found online. However, due to their age and related lack of experiencing critical event they are not the main recipients and offerors of social support.

Persons giving and using online social support, as indicated by the qualitative research, are usually persons with pro-social attitude, open, active, thinking critically. The feature that distinguishes persons providing online social support consists in altruism characterising the Internet users with productive personality. They feel the need to care for others and naturally approach the necessity of selfless help. As proven by the research conducted by L. Price, E. Leong and M. Ryan³⁶, altruism constitutes a factor motivating to social use of the Internet. P. Wallace³⁷ notices that "network society

Support, Stress and Health (Wsparcie społeczne, stres i zdrowie), H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 29-48.

³⁶ L. Price, E. Leong, M. Ryan (2005), Motivations for social Internet use, ANZMAC Conference: Consumer Behaviour. Edith Cowan University, Retrieved June 2011, http://www.anzmac.org/conference_archive/2005/cd-site/pdfs/3-Consumer-Beh/3-Price.pdf [access: 7.03.2016]

³⁷ P. Wallace (2001), *The Psychology of the Internet (Psychologia Internetu)*, Dom Wydawniczy Rebis, Poznan p. 249.

is ready to help each other both, in small and quite large cases. Usually this help includes providing information, and the willingness to help constitutes one of the main reasons why people turn to discussion groups.”

What is worth underlining, support occurs when persons providing it find themselves in a stressful situation, which, however, has not been preceded or has not resulted in any psychological disorders.

The basic reason for searching online social support comprises finding oneself in a situation of a critical event that causes a strong stress. As has been proven by both, quantitative and qualitative research, persons, who search for online support, can predominantly rely on their closest circle. For the majority of respondents family, friends and co-workers constitute a source of support. The respondents also declared a usually easy access to experts such, as a doctor or a psychologist. Narrative-biographical interviews also imply that the presence of a partner was crucial in a situation of a critical event and it provided the biggest support. Whereas, in order to cope with the stress it was necessary to contact persons who have experienced similar difficulties. In fact, learning about other persons' history online helped to direct actions and often gave hope. Searching for support online occurred in both, normative and very atypical, extremely rare situations.

As results from the quantitative research, among factors favouring searching for online social support the following can be mentioned: social distance and anonymity (the most frequently indicated reason), possibility of finding the Internet users struggling with a similar problem, availability of support online and, to the smallest extent, objectivity of advice given by the Internet users in contrast with the advice given by close persons.

Another, crucial in many situations reason for using the online social support consists in the possibility of sharing own experience with persons, who found themselves in a similar situation. Moreover, communicating online and speaking through the agency of the Internet about difficult cases is easier and more broadly availa-

ble. Telling a difficult story online allows reaching many recipients, but also allows to put thoughts into order, keep memories. The reason why many persons share their difficult story online comprises the need to obtain material support: financial or tangible. Such requests appear both, on blogs and on fora, as well as social media.

Manifestations of online social support can be observed due to various Internet services. The quantitative research indicates that in a stressful situation the respondents usually use thematic virtual portals and fora, and less frequently blogs, social media and discussion groups. Such distribution demonstrates that in a situation of a critical event it is the most important, first of all, to obtain professional information and secondly, to have an opportunity to discuss the problem with persons dealing with similar difficulties.

In functional understanding, the online social support can have informational, emotional, instrumental, material and spiritual character. As results from the quantitative survey research, the informational support is the one that is most often searched for in a stressful situation with instrumental support in the second place. The need to find emotional, spiritual or tangible support online was indicated the least frequently by the respondents. Netnographic analyses of fora imply that the support provided online depends on the type and theme of a given virtual group. Coming out on online fora of a specific form of support depends on such features of a virtual group as: the aim of its establishment, theme, scope and structure, composition or dynamics. The aim of the forum's functioning can comprise accompanying in a situation of a critical event, exchanging information, sharing experiences, counselling or organising tangible help. Another feature conditioning occurrence of specific forms of support comprises the theme. Fora can concern critical events of normative and therapeutic character, experience of which entails specific needs of support. Aspects such, as: openness of the forum, availability, gender and age of commenters, establishing social networks or a lack thereof, making friends, conflicts, full anonymity or disclosing fragments of privacy are also of great importance. On many fora, along with the development and changes in

the scope of participation of particular users, openness to so-called visitors (not registered users), as well as gradual dealing with a stressful situation by particular persons, various forms of support dominate.

The qualitative research and, in particular, narrative-biographical interviews show that searching for various forms of social support online depends on factors such, as stressful situation, existence of a permanent and certain direct social network (e.g. family, friends), professional help or a lack thereof, as well as individual features of a person, who found themselves in a given situation.

Material, tangible support, which quite often constitutes a reason for sharing own story online, is also worth underlining. A phenomenon, which becomes common is crowdfunding, which, in contrast with traditional forms of fundraising, where a model of several significant sponsors dominates, constitutes a manner of raising small donations from a large number of small donors.

Searching for online social support can be related with a series of threats. As results from my research, the threat consists in: 1) incredibility of advice and information coming from the Internet users, 2) presenting only narrow fragments of experiences, usually only in a text form (a lack of described details can result in improper interpretation), 3) inclinations to share negative rather than positive experiences, 4) Internet users' comments increasing stress, 5) engaging the attention and time consumption (also continuously returning to difficult situations), 6) addiction to the Internet, 7) weakening natural support networks, 8) insulting, vulgar, deriding, falsifying reality and ones that constitute an attempt of various types of fraud.

Finding oneself in a situation of a critical event often becomes a reason for intense education. In compliance with Dewey conception *learning by doing*³⁸ or later models of D. Kolb³⁹ and P. Jarvis⁴⁰,

³⁸ J. Dewey (1933), *How We Think*, Heath, New York.

³⁹ D. A. Kolb, R. Fry (1975), *Toward an applied theory of experiential learning*, in: *Theories of Group Process*, C. Cooper (ed.), John Wiley, London.

a person learns on individual experiences. They constitute a significant element of life-long education, since they condition transformation of cognitive structures, knowledge and action. They constitute grounds of the so-called “biographical learning”, that is, learning that is inscribed both, in individual fates, as well as in social structures and cultural interpretation contexts. Biographical learning covers traditionally understood formal, informal and non-formal education, although in the context of an individual story they are not explicitly outlined and easy to separate⁴¹.

In a lifetime both, during formal and non-formal education, people are involuntarily learning due to the use of held knowledge resources, prior experiences and ability to act. While solving the problem we have to face, we engage all available internal resources, but we also reach for external sources resulting from functioning in a specific environment and culture. Therefore, critical events occurring in a biography both, normative and traumatic, motivate us to act and learn. A good example thereof was given by one of my female respondents by referring to the activity of mothers of children with the Down syndrome, who find support online from other moms being experts of their own children. No professional therapist shall put such intellectual and emotional effort in helping children, as their parents. The qualitative research explicitly imply that certain critical situation make a person who has to face them start learning quickly. They reach both, possessed, internal resources of knowledge, refer to previous experience and finally, call for help, search for support, also online. Dealing with a critical event comprises, among others, learning: finding information on the situation or problem, analysing available sources, structuring possessed knowledge, consulting with others, referring to own experiences and experiences of others. Therefore, an element of biographical processes of

⁴⁰ P. Jarvis (1987), *Adult Learning in the Social Context*, Croom Helm, London-New York-Sydney 1987.

⁴¹ P. Alheit (2011), *Biographical attitude to life-long learning (Podejście biograficzne do całościowego uczenia się)*, “Teraźniejszość – człowiek – edukacja”, no. 3(55), pp. 7-20.

learning also comprises establishing relations and social processes⁴². As demonstrated by my research, persons who coped with a critical event, as a result gained knowledge and skills which they later share with others. Thus, they become participants of the learning process of others. Such cooperation at a large scale is possible solely due to the Internet. A special educational role is taken by online social support in a situation of critical events, dealing with exceeds own resources and resources of the closest circle. Numerous examples were provided in narrative-biographical interviews, where both, the roles of the emotional support and above all, informational support of educational character are strongly demonstrated.

The online social support occurs in a situation of a critical event. Similarly, as demonstrated by other research, for example research conducted by H. Sęk and R. Cieślak⁴³, the need of the online social support depends on the type of stressful situation, individual features and strategy of coping in difficult situations as well as existing social network in the nearest environment. Quantitative research did not indicate existence of an explicit dependency between the access to direct support (among persons who are the closest and specialists) and the need to use the support online. Also persons with whom I conducted narrative-biographical interviews used online support despite supportive presence of the closest persons. Whereas, this is an aspect which cannot be explicitly excluded. A huge meaning is played by the character of a stressful situation, character of the critical event with which a given person copes as well as their personality features and needs, for example of using external resources, verifying hypothesis with other persons, who have similar experiences, sharing own story.

⁴² P. Alheit (2011), *Biographical attitude to life-long learning (Podejście biograficzne do całościowego uczenia się)*, "Teraźniejszość - człowiek - edukacja", no. 3(55), pp. 7-20.

⁴³ H. Sęk, R. Cieślak (2004), *Social support - manners of defining, types and sources of support, selected theoretical conceptions (Wsparcie społeczne - sposoby definiowania, rodzaje i źródła wsparcia, wybrane koncepcje teoretyczne)*, in: *Social Support, Stress and Health (Wsparcie społeczne, stres i zdrowie)*, H. Sęk, R. Cieślak (ed.), Wydawnictwo Naukowe PWN, Warsaw, pp. 11-28.

The online social support can fulfil various functions. Apart from the base one, which comprises help in coping and returning to the psychological wellbeing, we can distinguish educational, socialisation, auto-creation and culture creating functions. Providing social support online apart from the aforementioned educational aspect, constitutes a significant element of social exchange and creating cultural resources. Sharing own experience, thoughts, reflections, discoveries and knowledge constitutes a contribution to the development of online resources available to the broad number of recipients. Presenting own biography has an auto-creative, image-related character, which entails a change in self-perception resulting from social interactions both, positive and negative. Anonymity, which is inscribed in the essence of the Internet facilitates talking about oneself, especially on discussion fora. Whereas, blogging, although it is often related with disclosing a fragment of privacy, allows presenting a broader context and highlighting individual experiences and reflections.

Among basic features of online social support one can indicate its availability, indirectness, anonymity (although, it is not always present), text form, variety in the scope of forms. An unquestionable advantage of support provided through the agency of information and communication technologies consists in its availability or even, pervasiveness. Persons, for whom using the Internet is inscribed in everyday functioning, naturally turn to social resources online. It happens both, in a situation of critical events of normative and traumatic character. However, it is burdened with consequences of a lack of directness. Often, in a stressful situation a person needs physical, tangible support: proverbial "serving a glass of water", which is unavailable online for obvious reasons. However, due to the communicative function fulfilled by the Internet, finding a person, who would give such direct support, is becoming possible. Anonymity and showing a selected fragment of biography constitutes a feature, which, on the one hand, favours altruistic behaviours and on the other hand, bigger openness. The online social support is characterised with text form, which can both, facilitate and hinder

forwarding information and talking about emotions. Early research on indirect communication through the agency of a computer indicated its limited character, simplification, artificiality, a lack of intimacy and openness. Nevertheless, it has been later stated that the necessity to comment in a text form devoid of non-verbal aspects contributed to more carefully thought-out and friendly expression of thoughts and, which, in turn, describes the author and constitutes a form of auto-presentation. Writing (and not talking) about a stressful situation favours coping with the problem better, putting thoughts in order and planning constructive actions. Communication based on text can have an enormous meaning for persons, whose appearance differs from generally accepted standards and thus, hinders entering into direct relations. Online conversation partners are also devoid of physical features such, as: gender, age, race or disability, which favours establishing relations and engaging in help or searching for such help⁴⁴.

Online social support occurs, as proven by research conducted both, by other authors and by me, in various forms and types. Informational, emotional, instrumental (although only in a form of advice, not as a tangible help), material and spiritual support can be observed. Especially on some online fora and social media acting as virtual support groups companionship is visible, that is, comments that shape a community character of a discussion.

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Digitisation of Polish Schools Based on the “Polish School in the Digitisation Era. The 2017 Diagnosis” Survey in the Context of the Necessity of Implementing the STEAM Model of Teaching

ABSTRACT: Marlena Plebańska, *Digitisation of Polish Schools Based on the “Polish School in the Digitisation Era. The 2017 Diagnosis” Survey in the Context of the Necessity of Implementing the STEAM Model of Teaching*, Interdisciplinary Contexts of Special Pedagogy, No. 23, Poznań 2018. Pp. 53–70. Adam Mickiewicz University Press. ISSN 2300-391X. DOI: <https://doi.org/10.14746/ikps.2018.23.03>

The author of the paper presents the concept of teaching in the STEAM model in relation to the necessity of building competence of tomorrow among pupils of primary schools and even preschools. The author sets forth the status of digitisation of Polish schools in the light of the most extensive Polish digitisation survey: the 2017 Digital Diagnosis. The author primarily discusses the conclusions from studies pertaining to the status of digitisation of the Polish schools in the context of implementation of the STEAM model as a concept for developing competence of tomorrow. Results of studies conducted in June 2017 among pupils, parents and teachers are presented. The study was prepared and conducted by a team of researchers/academic employees of the Faculty of Education at the University of Warsaw in cooperation with PCG Edukacja under the supervision of the author of this paper. The study encompassed 100,129 respondents from primary schools, middle schools, high schools, technical schools and vocational schools from all provinces in Poland. The full report presenting the study results is available on website: <https://www.>

librus.pl/doradca-dyrektora/informacje-prawne/organizacja-pracy-szkoly/stan-cyfryzacji-polskich-szkol-ku-refleksji-raport-2017/

KEY WORDS: STEAM, competence of tomorrow, digital education technologies, digital school

Competence of Tomorrow

Wishing to determine the shape of the modern education, one often asks the following questions: in which direction should the modern education go? What kind of employees are needed at the labour market? Which competence should the future employees be provided with? At which stage of education should development of the competence of tomorrow be started? What is the impact of trends in the world economy on the teaching of children? These are just sample questions; their number could easily reach 100; nevertheless, they strongly pinpoint the vital interrelation between the economic development and education. Modern economy is characterised by constant changes, intense development of digitisation and progressing automation, the advent of artificial intelligence, as well as huge emphasis on the mastering of social competence, such as, for example, design work, work in virtual teams or work in a multi-cultural environment. There are a number of studies whose authors try to define the competence with which a modern pupil should be provided. One of such studies is the Future Work Skills 2020 report, prepared by the Institute for the Future (ITF), which lists professional skills of tomorrow (2020). The study that underlies the report was performed in 2011 by the ITF researchers and the University of Phoenix Research Institute. The report lists six major factors that influence the development of society in the next years, such as: extreme longevity, development of smart machines and systems, calculable world, new media eco-system, organisational super-structures, globally connected world. The report also presents ten types of future skills with which the pupils should be equipped: inter-cultural competence, work in noise, concluding, emotional

intelligence, cooperation in a virtual environment, data processing, adaptation skills, project-based thinking, interdisciplinarity, digital competence. On the other hand, the publication entitled “Miejsce pracy w 2020 r.: Jak innowacyjne firmy przyciągają dziś pracowników jutra, wspierają ich rozwój i zatrzymują” (“Work place in 2020: How Innovative Companies Attract Future Employees, Support Their Development and Retain Them”), devoted to creation and implementation of long- and mid-term strategies in the area of HR, presents a list of most important factors affecting changes. The authors describe ten of them:

1. *Demographic change*: at the end of this decade, i.e. around 2020, five generations of employees may work next to one another in a single work place for the first time in history. The authors describe these generations in the following manner: traditionalists (born before 1946), children of the post-war boom (the so-called *baby boomers* born between 1946 and 64), generation X (born between 1965 and 1976), generation of the last twenty years of the 20th century (born between 1977 and 1997) and generation 2020 (born after 1997).
2. Knowledge-based economy: the authors explain that in 2010, companies in the USA hired employees capable of creative thinking twice as frequently as employees who were only capable of copying typical activities. The term “knowledge-based economy” in the area of HR is understood by the authors primarily as flexibility of the employer and the employee in adjusting to the ongoing changes, the ability of acquiring new qualifications and simultaneous development of “hard” and interpersonal skills.
3. Globalisation: ease in outsourcing and remote employment result in changes in the local and global employment structure. The authors illustrate this factor by the examples of IBM and Procter & Gamble.
4. Digital work place: digital information about the professional and private life plays a growing role. New IT platforms and protocols appear, whereas issues of security of personal and corporate data are gaining significance.

5. Omnipresence of mobile technologies: emphasis on independent searching for useful information is growing, along with establishment and maintenance of contacts from any place in the world. Cases of Bank of America, Invitrogen and Wachovia are quoted as companies implementing platforms for remote training with the use of smartphones.
6. Communication culture: the authors use this term to determine the need of constant Internet access in order to fulfil the professional obligations, social needs, searching for information and expanding competence.
7. Participation society: this term in the book is used to determine the society where cooperation and knowledge sharing are flourishing.
8. Social learning: *this is* a process strongly integrated with the development of new technologies, such as *peer-to-peer chats*, social networking sites, video-blogs or dedicated e-learning platforms.
9. Corporate Social Responsibility (CSR): reflects a growing significance of non-financial impact of a company on the society.
10. New generations at work: these are employees who expect a completely different mode of integration at work than prior generations.¹

On the other hand, the World Economic Forum built a ranking of competence which features the following skills prepared in Poland by MonsterPolska.pl.

Complex problem solving: unwaveringly occupying the top position on the list. This is the ability to analyse multiple data and information, make decisions and implement solutions. In the future, its significance may drop in more automated sectors such as infrastructure and power energy, yet it will grow in services and IT.

Critical thinking: the ability of logical reasoning and cool analysis is gaining significance. In the era of advanced technologies and

¹ http://www.pi.gov.pl/PARP/chapter_86199.asp?soid=C8A49387D2884B7B80AA8E3099BE0199

complex solutions, a person who is capable of approaching a situation critically and evaluating it will be very precious.

Creativity: went up from the 10th position in the ranking. This ability will be absolutely essential not only in industries with which it is associated today, i.e. the media or entertainment, but everywhere. Work will await people who think in a non-standard manner, as they will be able to come up with new services and products in rapidly changing times.

People management: this feature and the next one show that team work will gain significance at the labour market. Employers will need leaders: empathic, in control of body language and able to communicate with people.

Coordinating with others: the report defines it as the “ability to adjust own decisions and behaviour to the behaviour of others.” Thus, it entails certain flexibility, not sticking to one’s opinion and openness towards co-workers.

Emotional intelligence: a novelty in the ranking. Research confirms that higher emotional intelligence translates to better productivity. A person with such competence is capable of recognising and naming own emotions and emotions of others. Thus, such person can easily solve conflicts and reduce tension.

Judgement and decision-making: the employee of 2020 has to be independent. Waiting until somebody else handles the problem is not a good strategy. Work in the future will require the ability of making difficult decisions quickly.

Service orientation: in other words, this is the pro-customer attitude. An employee focused on helping others will be sought on the market. This is both about team work and work with clients.

Negotiations: conflict-free problem solving and ability of reconcile various views and stances dropped in the breakdown of the World Economic Forum, yet it still counts.

Cognitive flexibility: assumes the possibility of finding and combining various ideas and data. The capacity for seeing connections among ostensibly alien items guarantees development for

companies. Work in the future will greatly rely on choosing best among thousands of ideas.²

The above-listed examples of defining the factors impacting changes in trends on the labour market and the attempt of pinpointing the competence of tomorrow independently from the adopted classification strongly emphasise the fact that the two main groups of competence which will be indispensable for the present-day pupils in the future are the social competence and the digital competence.

STEAM: how to mould the competence of tomorrow?

STEAM is the mode of teaching known around the world for several years, focused on satisfying the actual needs of the 21st century economy by developing the competence of tomorrow. STEAM is an approach to learning which puts emphasis on project-based learning consolidating five key thematic blocks: science, technology, engineering, art and mathematics. STEAM is focused on teaching students who, in effect of implementing STEAM projects, are capable of thinking in an innovative and non-standard mode, who take prudent risks, are engaged in experimental learning, creative problem solving, undertake cooperation and actively participate in creative processes.

The STEAM philosophy reflects the concept: STEAM = Science & Technology interpreted by Engineering & the Arts, relying on Mathematics

STEAM is an educational initiative created by the Rhode Island School of Design, which added arts to the original STEM structure. According to the Rhode Island School of Design, the purpose is “support of true innovation, which combines the scientist’s or technologist’s mind with the concept of an artist or a designer.” Adding arts to the original STEM concept is important due to the fact that it

² <https://sukcespisanyszminka.pl/kompetencje-przyszlosci/>

sets a natural direction for the processes of cognition and creation and engages all of the pupils’ potential and entire brain in the process of learning. As can be seen on the diagram presented below, the original STEM model used only the left hemisphere responsible for thinking and reasoning, logical thinking, analytical processes, mathematical calculations, recognition of items with the use of touch, writing, i.e. four areas from our model (STEM); only after supplementing it with the letter A – meaning the area of arts, introduced the use of the right hemisphere responsible for abstract thinking, being guided by intuition, being creative, coming up with atypical ideas, spatial imagination and being an artist.



Diagram 1. Brain: activation during work in the STEAM model

Source: <https://www.bricks4kidz.com.au/sydney-miranda/steam/>

Thus, it is only the full STEAM model that allows the pupils to use their full potential and for shaping the competence of tomorrow.³ STEAM is adequate for every level of teaching and may be successfully introduced both at the stage of preschool education, in primary schools, middle schools and at university level education. STEAM projects around the world are most often applied in primary schools and in middle schools. Many British schools use the STEAM model implementing interesting projects, such as, e.g., a system for designing bird feeding in school gardens or a system of plant watering. Polish schools are also implementing STEAM projects and the very first examples may already be noticed, e.g. in Primary School No. 6 in Września or in complex of schools No. 6 in Jastrzębie Zdrój. The possibility of implementing STEAM projects predominantly depends on the technological infrastructure of the Polish schools and the level of preparation of teachers for their implementation. The status of preparation of Polish schools to implement innovative education with the use of digital technology is presented in the analysis of results of the largest Polish study on the digitisation of Polish schools “Polish School in the Digitisation Era. The 2017 Diagnosis.”

Are the Polish schools ready to implement the innovative teaching of the competence of tomorrow? Results of study “Polish School in the Digitisation Era. The 2017 Diagnosis”

Selected issues from the “Polish School in the Digitisation Era. The 2017 Diagnosis” study are presented below. They show the condition of digitisation of Polish schools and their level of preparation to introduce innovative methods of teaching by building competence of tomorrow, such as STEAM.

³ M. Plebanska, “Meritum” 4/2018.

Digitisation Level of Polish Schools

50% of pupils participating in the study declare that their schools apply no digital technologies. 50% claim that multimedia aids are used in the didactic process in which they participate (Diagram No. 2). Teachers evaluate the efficiency of classes with the use of digital technologies on a good (approx. 48%) and very good (approx. 23%) level and they claim that digital technologies most often are an attraction for pupils, a diversifying element, enriching the classes. Teachers also say that pupils do not treat the use of digital technologies fully seriously, and consider them more as supporting material. Thus, as far as increasing the attraction of classes is concerned, this material performs well, but when attraction is taken into account, the correlation is no longer so obvious. (oryg.: Zatem jeśli chodzi o zwiększenia atrakcyjności zajęć dydaktycznych ten materiał sprawdza się, zaś jeśli mówimy już o atrakcyjności korelacja nie jest już taka oczywista.)

According to teachers, use of modern technologies during classes is definitely more common. 90% of teachers claim that they use modern technologies in the didactic process.

Does your school apply digital educational technologies, e.g. use of computers, tablets, robots, digital textbooks?

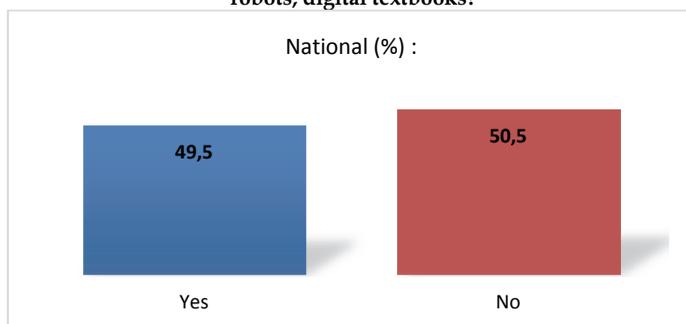


Diagram 2. Use of digital technologies in schools

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

A small group (10% of all respondents) which does not use digital resources at work with pupils most probably experience equipment difficulties or technical problems with Internet access. However, the discrepancy between the teachers' responses and the pupils' claims, reaching approx. 40%, is quite worrying. This result is probably influenced by teachers' knowledge: they are aware of how classes with the use of digital technologies should look and how they look in reality. The teachers are aware of which factors affect the efficiency of classes and if their potential at school is limited, they may conduct classes in a limited scope.

In your opinion, do digital educational technologies support the education of children and youth?

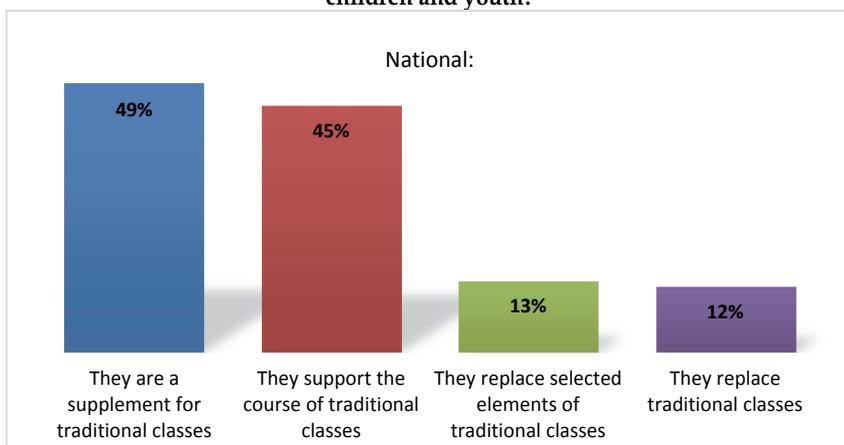


Diagram 3. Use of digital technologies at schools in parents' opinions

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

On the other hand, parents believe that digital technologies support the education of children and youth (48%), supplement traditional classes (45%) and support their course. Parents are in favour of using digital technologies in education and are not afraid of the fact that their children, apart from using traditional (well known to parents) didactic aids and tools, also use digital tools.

However, parents treat education with the use of digital technologies not as the main leading trend in education, but as a supplement for the traditional classes. A very small group of parents believe that digital technologies/ digital teaching are replacing or could replace the traditional forms and methods of education. Parents see the possibility of using digital educational technologies as a support in the education of their children, both at school and at home. Parents’ general approach to the use of digital technologies in education of their children does not feature differences as far as educational level is concerned (the situation is evaluated similarly by parents of primary school pupils, middle school pupils, students of vocational schools, general high schools and technical schools). Parents believe that digital technologies increase both the efficiency and attraction of classes, whereas they evaluate their impact on the attractiveness of classes much higher. Parents highly assess the impact of using

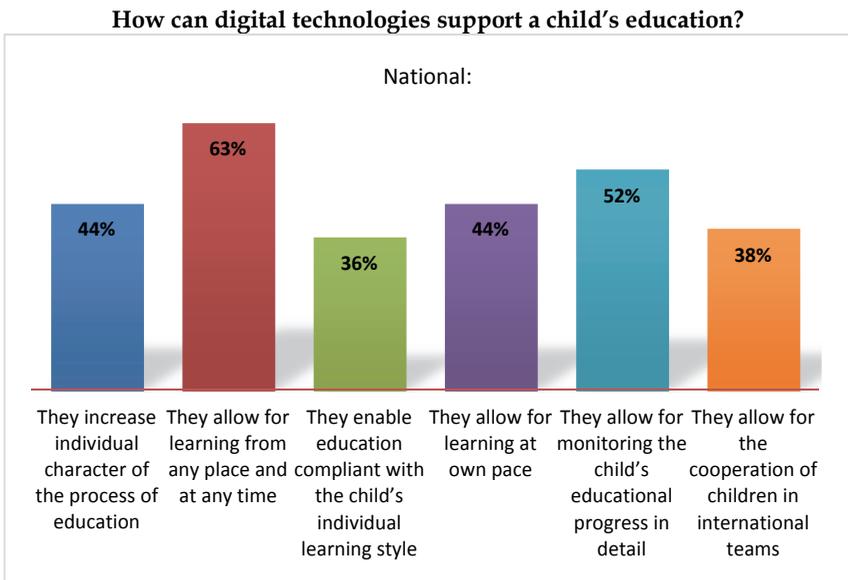


Diagram 4. Role of digital technologies in the process of teaching

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

digital technologies on the possibility of learning from any place and at any rate and individualisation of the process of education of children and youth.

Equipment of Computer Labs

Teachers declare that almost all computer labs are equipped with computers (96%). 75% of labs are equipped with projectors, 45% with interactive boards and only 5% with tablets. Labs are provided with specialist equipment extremely rarely, i.e. robots, blocks for programming, sensors, interactive maps, visualisers, glasses for augmented reality, etc. The equipment of labs, in the opinion of teachers, is on a good (41%) and very good level (14%). 30% of teachers describe it on the average level.

Evaluation of provision of technological tools

What technological tools is your lab equipped with?

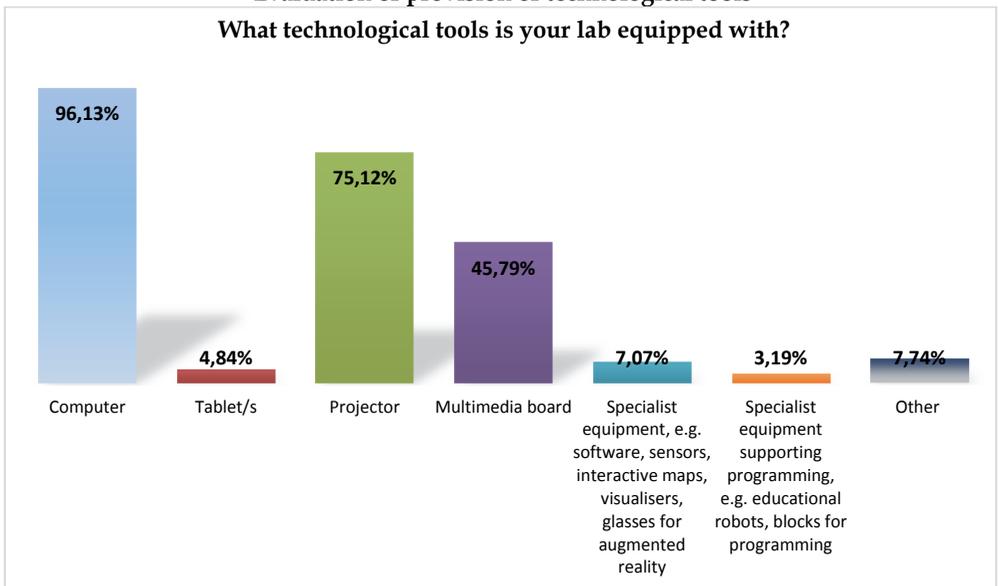


Diagram 5. Technological tools at school

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

On the other hand, parents – when listing technological tools adequate in their opinion to be used in education – indicate solutions/ tools that they are familiar with, and which they often use at work. Parents consider computers and multimedia boards most popular tools; the use of tablets, smartphones and programming tools is evaluated much worse. This result shows that parents do not understand the principles of using individual tools in education and benefits resulting from the use of individual tools. Very interesting indices are related to the use of electronic textbooks and digital educational resources. It seems very optimistic that the respondents of the study see greater potential in the use of digital resources rather than typical e-books. Parents also believe that the application of digital technologies in education increases the pupils' engagement in the educational process. Only few parents evaluated the potential of digital technology as low in improving pupils' engagement in the educational process and broadly understood development.

Access to Internet

A satisfactory aspect of changes in the Polish schools is access to the Internet: in the majority of cases, it is evaluated on a good (42%) and very good (27%) level. Majority of pupils use own Internet access in school premises (52% of respondents). 27% of respondents do not have Internet access at school. 23% use the school wireless network. Wireless Internet functions best in technical schools (33%) and worst in middle schools (20%). In middle schools, the percentage of respondents declaring complete lack of access to wireless Internet (oryg: W gimnazjum odsetek ankietowanych deklarujących całkowity brak dostępu do bezprzewodowego Internetu). The majority of students evaluate access to the Internet at schools as average (32%). 30% claim that is very good or good. 38% assess it as weak and very weak. Students in vocational schools (22%) evaluate Internet access as the worst; the best is in technical schools (35%).

Access to wireless Internet is evaluated by majority as average or weak (58%). 8% assess it as very good, 12% as very weak. Students of vocational schools and middle schools evaluate access to wireless Internet as weakest (15% of students from these facilities claim that it is very weak).

Teacher refer to the provision of schools with Internet access in a much more favourable manner than the students. The majority of teachers evaluate access to the Internet on a good (42%) and very good (27%) level. Every third respondent (33% of indications) may also use wireless Internet available for students and teachers.

How do you evaluate Internet access for the students in your school?

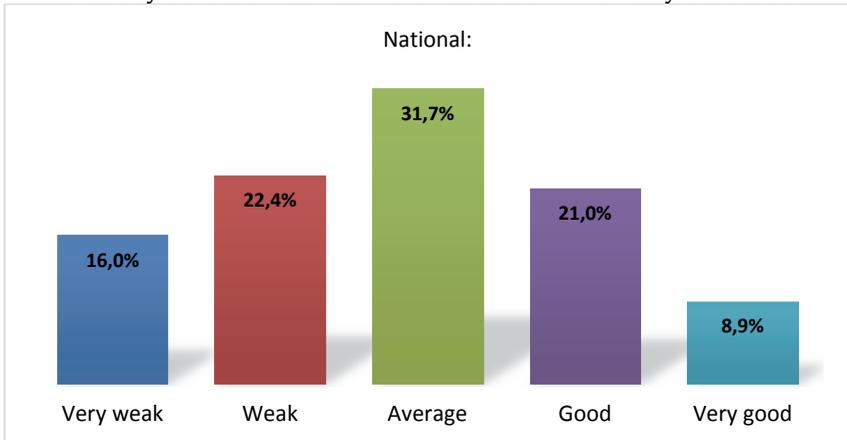


Diagram No. 6. Internet access in schools

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

The OSE project has had great significance for the full use of the potential of digital education. As shown the studies of the Ministry of Digitisation, nowadays only 10% of schools and educational facilities in Poland have Internet access with parameters that allow for its use for didactic purposes. Providing all schools with quick and safe Internet levels the educational opportunities and is an investment in the future.

Implementation of the governmental OSE project will constitute a civilisation change for the Polish schools. Safe Internet in every school is an opportunity for levelling access to knowledge, development of new forms of teaching and acquisition of competence, both by students and by teachers. The OSE project was created by the Ministry of Digitisation and its operator is NASK the State Research Institute.⁴ Definitely, subsequent diagnoses of digitisation after the OSE project will show significant changes in this area of digitisation.

Multimedia Tools in Didactics

The most frequently used multimedia tool is the computer (34% of respondents provided such answer). The second place is occupied by the multimedia board (26%) and the third one by smartphone (18%). Only 2% of pupils declare the use of tablets at school. Measuring interface, programming blocks and robots are used in educational facilities by approx. 1% of respondents.

Teachers declare that during the didactic process, they most often use the computers (99% of indications) and interactive boards (56%). They use smartphones (30%) and tablets (12%) less frequently. Least indications referred to measuring interface, robots, programming blocks (2-3%). A positive conclusion from the conducted study is the fact that the teachers use all the above-listed digital educational technologies. However, during school classes teachers most often use multimedia presentations (87.7%) and engage pupils (56.7%) in creating them or preparing digital materials at home. They also frequently use the interactive board (48%), multimedia materials and interactive exercises. Thus, it may be assumed that classes have a traditional structure, organisation and course where the teacher is the most active, sharing knowledge or assessing the knowledge of his/ her students (use of interactive quizzes on the level of 41%). Even educational games were indicated only on the level of 20%.

⁴ <https://ose.gov.pl>

According to students, primarily multimedia presentations are used during classes (17%), films and animations (15%), tables, illustrations (14%), articles and information from the Internet (13%), digital textbooks (10%) audio materials (7%), games and quizzes (7%). Only 3% of students use mobile apps and e-books.

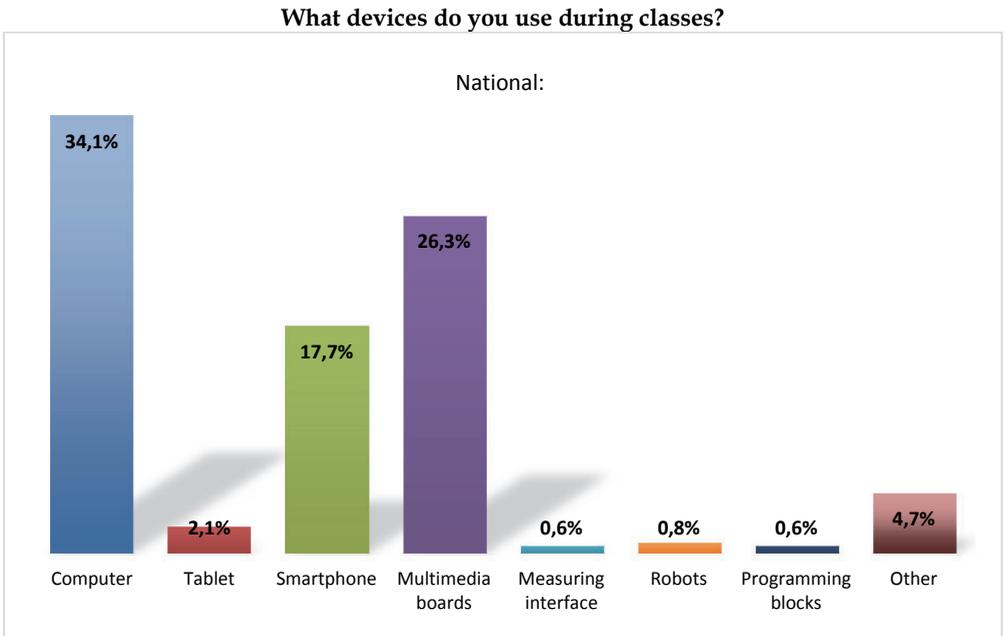


Diagram No. 7. Use of devices during classes

Source: Report Polish School in the Digitisation Era. The 2017 Diagnosis.

The level of use and purposefulness of use of multimedia materials by the teachers leaves a number of doubts. A class conducted with the use of a computer, a projector and a multi-media presentation is slightly efficient and copies the traditional instruction-based methods. The issue of efficient model of classes with the use of digital educational resources leaves a lot to wish for.

Recapitulation

According to the presented data, the level of preparation of Polish schools to implement innovative education is low. Both hard parameters, such as the level of use of the network infrastructure or hardware, as well as soft indices, namely the level of digital competence testify that the Polish schools are at the very beginning of the road towards implementation of education relying on digital tools. A very important element of the process of digitisation of Polish schools is the teachers' competence. Unfortunately, there is no necessity of developing digital competence, and the didactic offer for teachers with respect to improving their digital competence and purposeful introduction of innovative, well-considered classes is insufficiently prepared. A long path to digitisation lies ahead of the Polish school; this path leads not only to passive implementation of devices in schools, but is meant to build the capacity of creative construction of didactic classes in strong correlation with competence of tomorrow. The path is not hard in the technological context, but very difficult in the mental context; it is tough to break the existing schemes, search for new solutions and look at the development of pupils as the employees of tomorrow.

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M. Plebanska, "Meritum" 4/2018

<https://ose.gov.pl>



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Between post-truth and (pseudo)-wisdom of the crowds. The digital media epistemic trap and the analog means of escape

ABSTRACT: Adam Pietrzykowski, *Between post-truth and (pseudo)-wisdom of the crowds. The digital media epistemic trap and the analog means of escape*, Interdisciplinary Contexts of Special Pedagogy, No. 23, Poznań 2018. Pp. 71–85. Adam Mickiewicz University Press. ISSN 2300-391X. DOI: <https://doi.org/10.14746/ikps.2018.23.04>

Today, Western society is facing an epistemic crisis. The main reason behind it is the process of mediatization. In the post-truth era we live in, media has become an instrument of power, generating arbitrarily mediated discourses in order to influence individuals and social groups. The Internet, which at the beginning was perceived as a means to diminish the old power structures – the government and the mainstream media – in favor of interconnected individuals, is by now increasingly controlled by hightech companies. They access, monitor, process, and exploit data gathered from millions of their users and create personalized realities that entrap those users within information bubbles, making the wisdom of the crowds concept obsolete. The situation is disquieting because social phenomena, such as secondary illiteracy, impoverishment of spoken and written language, and declining trust in science, are impairing the emancipatory potential of humans and their reasoning. In effect, Western society is facing an epistemic trap, where the distinction between the real and the fictitious becomes blurred. I am arguing that to address the outlined problem, the curricula of secondary and tertiary stages of education should encompass, next to the media literacy, core competencies derived from the philosophical domain. I am proposing also a bespoke curriculum of philosophical education that may become optimal in attenuating the effects of the epistemic trap, and in the long term, restoring the truth and reason within the domain of a public discourse.

KEY WORDS: media, epistemic crisis, media literacy, philosophy, education, post-truth, wisdom of crowds

Nearly 120 years ago the radio signal sent by Guglielmo Marconi crossed the Atlantic Ocean for the first time. This achievement, which preceded the information and communications revolution, became much more important than it had been initially expected. It greatly facilitated humanity's transition from the age of handwritten and printed media to the age of digital media. The transition was also symbolically important because it represented a big step in the evolution of the intelligent species on Earth; in other words, a manifestation of intelligent life that has been propagating throughout our galaxy. At the same time, the transition has ushered in a fundamental process of mediatization which can be described as knowledge acquisition through the means of media. In this paper I will argue that mediatization in the post-truth era implies hazardous consequences for the society at large. I will also propose steps that could be taken in order to mitigate them.

According to the information and communication theorists, the process of mediatization has been fundamental in the XX and XXI centuries. In Friedrich Krotz's opinion, it is one of the four fundamental metaprocesses, next to individualisation, commercialization and globalization, which have shaped the modern world¹. He defines it as "[...] a historical, ongoing, long-term process in which more and more media emerge and are institutionalized"². Consequently, as he argues, the "[...] media, in the long run, become increasingly relevant to the social construction of the everyday life, of

¹ See F. Krotz, *Media connectivity: Concepts, conditions, and consequences*, [in:] *Network, Connectivity and Flow: Key concepts for Media and Cultural Studies*, ed. A. Hepp, F. Krotz, S. Moores, Hampton Press, New York 2008.

² F. Krotz, *Mediatization: a concept with which to grasp media and societal change*, [in:] *Mediatization: Concept, Changes, Consequences*, ed. K. Lundby, Peter Lang, New York 2009, p. 24.

the society and of the culture as a whole"³. I am going to use the foregoing interpretation of mediatization for the purpose of analysis of the paradigms proposed by Teresa Sasińska-Klas, dubbed by her as "The media and the social change"⁴.

First, let us look at what the idea of media is. What is apparent even at a first glance, is that the media seems contradictory in its essence. Media both creates in the audience an illusion of becoming an ever closer eye-witness and, simultaneously, it distances us from the said reality due to absolutizing a particular point of view. As Stuart Hall states, all forms of communication (including natural languages) require a particular medium. In his Encoding/Decoding Model of Communication it consists of two acts: coding, i.e. the transposition of subjective experience into an intersubjective form, and decoding with accordance to culturally defined rules⁵. These two levels of interpretation, together with the limitations of the channel itself, make media communication epistemically imperfect. As a result, questioning its epistemic credibility and impartiality becomes appropriate and justified.

What, then, will happen if apart from the epistemic imperfection of the media, we are also dealing with a bad-willed agent? Such is the situation in the post-truth era.

The media and reality in the post-truth era

The post-truth era is a period during which social perception of the lie has dramatically changed. The lie has shifted from being seen

³ F. Krotz, *Mediatization: a concept with which to grasp media and societal change*, [in:] *Mediatization: Concept, Changes, Consequences*, ed. K. Lundby, Peter Lang, New York 2009, p. 24.

⁴ T. Sasińska-Klas, *Mediatyzacja a medializacja sfery publicznej*, „Zeszyty prasoznawcze” 2014, No 2 (218), pp. 164-165.

⁵ S. Hall, *Encoding/decoding*, [in:] *Culture, Media, Language. Working Papers in Cultural Studies 1972-1979*, Centre for Contemporary Cultural Studies, Routledge, London 1980, pp. 128-138.

as a taboo to an instrument to achieve one's own goals. In the book *The Post-Truth Era: Dishonesty and Deception in Contemporary Life*, Ralph Keys claims that the reason for the upsurge of the post-truth phenomenon lies in its acceptance as well as in the lack of the actual consequences⁶. The post-truth society could be rendered as a society affected by “[...] the loss of the stigma which characterized lying in the past [...]. Lying has basically become an inconsequential offence for which no one can be blamed”⁷. With no responsibility to truth and truthfulness, political elites began to engage in systematic disinformation of the members and groups of the society using the global mass-media complex. According to Hall, the political elites have privileged access to the mass-media, henceforth they influence the journalists to accept their “first definition” of problem within which the journalists become, subsequently, entrapped⁸. The foregoing is in line with research showing a strong, mutual interdependence between the mainstream mass-media and the political power centres⁹. In effect, this relationship has made it impossible for the media outlets to remain objective. As a result, we are dealing with a hegemonic reproduction of discourse.

Denis McQuail proposed six metaphors to describe systemic manipulation inside the mass-media structures¹⁰. He identified them, as follows: *Media as a window* is a “window” through which the recipient of the messages interprets the world oriented towards

⁶ Ł. Pawłowski, *Gdzie podziata się prawda?*, „Kultura Liberalna”, 29.11.2016, <https://kulturaliberalna.pl/2016/11/29/pawlowski-post-prawda-ralph-keys> [access: 11.08.2018].

⁷ Ł. Pawłowski, *Gdzie podziata się prawda?*, „Kultura Liberalna”, 29.11.2016, <https://kulturaliberalna.pl/2016/11/29/pawlowski-post-prawda-ralph-keys> [access: 11.08.2018].

⁸ S. Hall, *Policing the Crisis. Mugging, the State and Law and Order*, MacMillan, London 1978; cited after: E. Maigret, *Socjologia komunikacji i mediów*, transl. by Piechnik, Oficyna Naukowa, Warsaw 2012, p. 265.

⁹ E. Maigret, *Socjologia komunikacji i mediów*, transl. by Piechnik, Oficyna Naukowa, Warsaw 2012, p. 264.

¹⁰ D. McQuail, *McQuail's Mass Communication Theory*, Sage Publications, London 2010, p. 84.

a certain direction. *Media as a reflection* reflects the preferred by the recipient message(s) back to the recipient. *Media as a filter* selectively filters out and in specific (set of) message(s). *Media as a barrier* creates a barrier between the recipient and the “real” world. *Media as a signpost* clues the recipient towards a predetermined conclusion. *Media as a stage* creates a space within which only selected arguments and opinions of the few can be argued for or against.

The media interpreted through McQuail’s metaphors leads to a highly worrying conclusion, whereby the mediated reality we become acquainted with is, in fact, a spectacle in service of diverse political agendas. Sheldon Wolin, a political theorist, claims that this spectacle has become an integral part of a guided democracy of the United States, a democracy which is a particular kind of inverted totalitarianism¹¹. The consequence of such a perversion of democracy is erosion of trust in political institutions responsible for “truth creation”, the academic institutions, experts and expert knowledge, and the mass-media itself¹².

The emergence of new media fashioned an opportunity to restore the truth as a value in a public life. The Internet’s anonymous, decentralised and pluralistic design was supposed to end the information monopoly of traditional media. The civic uprisings we have witnessed in recent years, and which were sparked and mediated by the Internet and social media technology, seemed to fulfil that promise. These included the presidential elections in 2002 in South Korea, the Arab Spring in 2011, or the protests against ACTA agreement in 2012. According to Manuel Castells, the Internet as the space for dialogue existing outside state control and characterised by interactivity, has become crucial for social resistance to all forms of injustice¹³.

¹¹ See S. Wolin, *Democracy Incorporated: Managed Democracy and the Specter of Inverted Totalitarianism*, Princeton University Press, 2008.

¹² See *Yes, I’d lie to you. The post-truth world*, „The Economist”, 10.09.2016, <https://www.economist.com/briefing/2016/09/10/yes-id-lie-to-you> [access: 11.08.2018].

¹³ M. Castells, *Mobile Communication and Society. A Global Perspective*, MIT Press, Cambridge 2006, p. 211.

Unfortunately, post-truth's presence in the new, digital media is becoming more apparent. Today, the Internet space is under control of behemoth tech companies which access, monitor, process, and exploit vast quantities of data gathered from millions of their users. For example, the high tech companies built platforms which began to project targeted messages to influence the recipients' decisions, mostly to induce and influence consumption related decisions but increasingly also, electoral decisions. It is believed such a strategy might have contributed to the election of Donald Trump to the White House and then, the ensuing electoral manipulation under auspices of Cambridge Analytica with the help of the Facebook as a delivery platform¹⁴.

Such personalized virtual realities created a phenomenon called a *filter bubble*, in which the user has only access to the information corroborating their preconceptions, expectations and preferences. Increasingly, the *filter bubble* is filled with untrue or, downright false information – *fake news*, which is not infrequently made up by artificial intelligence technologies. A rough estimation suggests that one in five messages appearing on social media, such as Twitter and Facebook during presidential elections in the United States, has been generated by artificial intelligence bots¹⁵. Ralph Keyes put forward a suggestion that the anonymity of the Internet has created a fertile ground for a culture of fraud and insincerity¹⁶. Not only is the *filter bubble* a result of an algorithmic content selection but also

¹⁴ M. Rosenberg, N. Confessore, C. Cadwalladr, *How Trump Consultants Exploited the Facebook Data of Millions*, „New York Times”, 17.03.2018, <https://www.nytimes.com/2018/03/17/us/politics/cambridge-analytica-trump-campaign.html> [access: 11.08.2018].

¹⁵ M. Czarnecki, *Co piątego tweeta o wyborach w USA stworzył bot. Fałszywe newsy zalały Facebooka. Jak media społecznościowe wpłynęły na kampanię*, „Gazeta Wyborcza”, 11.11.2016, <http://wyborcza.pl/7,75248,20963144,co-piatego-tweeta-o-wyborach-w-usa-stworzyl-bot-falszywe-wsy.html> [access: 11.08.2018].

¹⁶ See Ł. Pawłowski, *Gdzie podziata się prawda?*, „Kultura Liberalna”, 29.11.2016, <https://kulturaliberalna.pl/2016/11/29/pawlowski-post-prawda-ralph-keyes> [access: 11.08.2018].

of a sophisticated censorship called *stealth banning*. Stealth banning relies on a mechanism of filtering out content in such a way that a user becomes unaware of the existence of the filtering mechanism. Evidence suggests, such a mechanism has been used by Twitter and Instagram, however it is possible that *stealth banning* might have been applied at a much bigger scale¹⁷.

Moreover, anonymity of the Internet, paired up with the ease of creation of information, means the Internet is nowadays littered with pseudoscientific and antiscientific theories, unsubstantiated claims, all stemming from the fact the information producers are ignorant about the truthfulness of the content they create. This leads to a further blurring of boundaries between the truth and the falsehood, between the real and the fictitious.

In *The Perfect Crime* Jean Baudrillard, a French media theorist, wrote that the media has undoubtedly become the key culprit in the destruction of reality. As the title of his book indicates, the crime is perfect because we are not aware of the simulation of reality, the simulacrum – taking its place¹⁸.

Today, the new media and personalized filter bubbles have grown to such a degree that we are facing multiple simulacra of reality. This puts into question the so-called wisdom of the crowds, as the crowds themselves become increasingly fragmented and divided into increasingly smaller groups of like-minded users. As a result, we are dealing with an epistemic trap of digital media, which takes us to the next, deeper level of the Plato's Cave, a place of ever-dissolving reality. It is disturbing, especially since young newcomers to the Internet crowd are people who are a product of a new, post-literate era in which the *logos* began to give way to the *mythos*.

¹⁷ A. Ohlheiser, Tweets are disappearing on Twitter. Why?, „Washington Post”, 30.10.2015, <https://www.washingtonpost.com/news/the-intersect/wp/2015/10/30/a-guide-to-why-some-activists-believe-their-tweets-are-being-censored-in-the-u-s> [access:11.08.2018].

¹⁸ See J. Boudrillard, *Zbrodnia doskonała*, transl. by S. Królak, Wydawnictwo Sic!, Warsaw 2008.

The immanent risks of secondary orality

Information and communication technologies reintroduced oral culture. However, its XXI century incarnation is a global oral culture mediated through audio-visual technologies. As technological advancement continues, participating in the new, secondary orality is becoming simpler and easier. Voice control and virtual assistants are examples of a technology which may soon absolve us from competencies in anything but the capacity to speak. As Walter Ong opined, "This new orality has striking resemblances to the old in its participatory mystique, its fostering of a communal sense, its concentration on the present moment, and even its use of formulas"¹⁹. Amateur videos explosion, ubiquity of live broadcasting and internet-centred communities are all its current manifestations.

However, the new orality differs in some important aspects from the old one. Malwina Rolka wrote that the centuries-long domination of a printed and written culture has deeply impacted human mind, instilling the subject-object categorisation of scientific and philosophical discourse²⁰. Thus, written culture has left an imprint of *logos* in our psyche. Moreover, Jerzy Bobryk claims that "[...] if social and intellectual development depends on of self-reflection, if a fully developed personality is "an object for itself", then the written word is, without a doubt, an opportunity to learn about a different perspective than the one of one's own self"²¹.

However, the dominant position of *logos* is becoming weaker as audio-visual communication proliferates at a rapid pace. The most symptomatic sign is in the global decline in readership, the decline in read newspapers and the decline in read fiction books. The highly regarded periodicals try to keep apace by creation of attractive,

¹⁹ W. Ong, *Orality and Literacy: The Technologizing of the Word*, Routledge, London – New York 2002, p. 133.

²⁰ M. Rolka, *Mit i oralność w świetle diagnoz kryzysu kultury nowoczesnej*, „Hybris”, No. 34 (2016), p. 120.

²¹ J. Bobryk, *Spadkobiercy Teuta. Ludzie i media*, Wydawnictwo Uniwersytetu Warszawskiego, Warsaw 2001, p. 6.

though shallow, audio-visual content. When it comes to bestselling titles, at the top we can find mostly publications full of entertainment. It seems, there is a correlation between the aforementioned phenomena and functional illiteracy. According to the 2016 survey conducted by the National Library of Poland, 63% of Poles do not read books at all²². As Zbigniew Kwiecieński of Nicolaus Copernicus University pointed out, functional illiteracy affects some 70% of the population, including one in six Masters' degree holders²³.

Another worrying process is the impoverishment of both spoken and written language. To some extent, it is a result of decline in the readership mentioned above. However, this is also influenced by other reasons. On the one hand, communication technologies force us to abandon the principles of linguistic correctness for the purpose of efficiency. On the other hand, popular culture, by reducing the content to a common denominator has been significantly trivialised. This turn to banality seems to be a consequence of the principle of pleasure. The principle that, in Leszek Kołakowski's opinion, is the main component of present-day culture of analgesics²⁴. In his book, *The Presence of Myth*, he argues that people of modernity are willing to eschew all forms of suffering in order to remain inoculated from all kinds of existential dilemmas. Unfortunately, the efficacy of analgesics is temporary only, hence the search for better ones never ceases.

Thus, it seems that the world of a post-literate man is shaped more by emotions than by rationality. With a life driven by consumerism, people neither have time, nor will, nor competencies to

²² M. Widła, *Grozi nam wtórny analfabetyzm? Polacy czytają coraz mniej*, „Newsweek”, 11.03.2016, <http://www.newsweek.pl/polska/grozi-nam-wtorny-analfabetyzm-polacy-czytaja-coraz-mniej,artykuly,381658,1.html> [access: 11.08.2018].

²³ MJ, *Nie rozumiemy informacji, instrukcji, ulotek. Kwitnie analfabetyzm wtórny*, „Nowa trybuna polska”, 8.09.2011, <http://www.nto.pl/wiadomosci/opolskie/art/4452107,nie-rozumiemy-informacji-instrukcji-ulotek-kwitnie-analfabetyzm-wtorny,id,t.html> [access: 11.08.2018].

²⁴ See L. Kołakowski, *The Presence of Myth*, trans. by A. Czerniawski, University of Chicago Press, Chicago 1989.

critically engage with the world. If, as Ludwig Wittgenstein claimed in *Tractatus Logico-Philosophicus*, the limits of language mean the limits of our world, then the ongoing impoverishment of language contributes to the reduction of emancipatory potential of its users. If this is the case, escaping the digital media epistemic entrapment is, likely, an impossible feat. We could, together with Edwin Bedyk, ask: "Is it still possible to regain the reason in the public space or is the only thing left to us to await the demons?"²⁵.

Analog remedy against the digital media epistemic trap

With all that I have articulated so far and the potential ramifications, it seems necessary to undertake appropriate educational counter-measures. Media education, proposed in this regard, focuses on acquiring appropriate skills, competencies, and development of media literacy. Literacy which will allow individuals to become autonomous and aware in a new digital communications environment. Henceforth, the media literacy models usually encompass the following: 1) critical analysis of media and media texts, 2) competence in media use and creation, 3) knowledge of the dangers of the media as well as the methods and techniques to avoid them²⁶.

With regard to the aforementioned epistemic threat, critical media literacy seems to be of the utmost importance. In fact, this area of interest, regarding the "truth of the media text" and the mechanisms of infosphere, is a part of a broader domain that is more fundamental and universal – namely, a domain of philosophy. I am arguing that philosophy has the broadest and the most adequate

²⁵ E. Bedyk, *Dyktatura kłamstwa, polityka i post-prawda*, <https://antymatrix.blog.polityka.pl/2016/09/10/dyktatura-klamstwa-polityka-i-post-prawda/> [access: 11.08.2018].

²⁶ P. Tornero, J. Manuel, *Study of the Current Trends and Approaches on Media Literacy in Europe*, European Commission, 2007, p. 10, http://www.gabinetecomunicacionyeducacion.com/sites/default/files/field/adjuntos/study_media_literacy_in_europe_0.pdf [access: 11.08.2018].

toolkit of interpretation and understanding because it provisions people with incorruptible analog competencies of reasoning, which is the perfect complement to media education.

The experience of educators shows that philosophy classes develop important competencies that address the needs of the surrounding world. It has been shown that philosophy contributes to improvement in critical, logical and creative thinking skills²⁷.

It also develops independence of thinking, a better understanding of the world, people and oneself, as well as helps shaping moral sensitivity. It is therefore satisfying that on 30 January 2018 the Minister of National Education Anna Zalewska signed a regulation on the core curriculum of general education, according to which philosophy will be introduced to the educational offer of secondary education²⁸. It has rarely appeared in the school curriculum beforehand. In 2014 only 214 schools out of more than 14,000 institutions offered philosophy as a part of curriculum, with just 18 schools offering it in an extended scope (240 hours)²⁹.

Currently, philosophy taught in majority of schools consists of philosophical curriculum comprising history of ancient philosophy only. Such a narrow scope does not truly realise full potential of philosophy in the development of a critically thinking individual. Fortunately, the extended curriculum looks more promising, as it consists of three complementary modules:

1. Logical culture – elements of semiotics and argumentation theory,
2. History of philosophy with cultural orientation – including thinkers and philosophical movements,

²⁷ *Po co w szkole filozofia?*, Portal Instytutu Badań Edukacyjnych, 18.6.2015, <http://www.ibe.edu.pl/pl/biblioteka/11-media/aktualnosci-prasowe/498-po-co-w-szkole-filozofia> [access: 11.08.2018].

²⁸ *Podstawa programowa z filozofii i etyki dla szkół ponadpodstawowych*, Filozofuj Portal, podpisana <http://filozofuj.eu/podstawa-programowa-filozofii-etyki-dla-szkol-ponadpodstawowych-podpisana> [access: 11.08.2018].

²⁹ *Nauczanie filozofii na III i IV etapie edukacyjnym*, Educational Research Institute, Warsaw 2015, p. 3, <http://eduentuzjasci.pl/images/stories/publikacje/ibe-raport-nauczanie-filozofii.pdf> [access: 11.08.2018].

3. Selected philosophical issues – an introduction to the main philosophical debates, ideas and positions³⁰.

I am of the opinion that the extended curriculum of philosophical education may require an inclusion of some extra material and a specific set of goals in order to be considered the best possible model addressing the titular predicament.

Module 1. certainly is a constitutive element because the language the media employs is often a language that is logically and semantically abused and as such, it can easily manipulate the audience with little experience in rhetoric, fallacious argumentation and sophistic conjectures. Therefore, training in eristic in order to understand fallacious and invalid reasoning would be useful as well, as it has been noticed by the creators of *Philosophy in Action* and *Everyday Philosophy* curricula³¹.

Nevertheless, the module focused on philosophical debates, ideas and positions seems the most important. In the context of media literacy, it looks that the most relevant is to focus on the nature of knowledge and the theories of knowledge. Except studying the classics like Plato, Hume, Descartes or Kant, it should also encompass the fundamentals of philosophy of media and the philosophy of technology. These additional elements are synergistic, such that taken together, they allow to grasp the *modus operandi* of the technological and mediatized world.

Focusing on the theory of knowledge is also important due to the crisis of trust in science, scientists and the academic institutions³². It is thus important to introduce methodological and sociological foundations of science as well. For this reason, philosophy of

³⁰ Podstawa programowa kształcenia ogólnego dla czteroletniego liceum ogólnokształcącego i pięcioletniego technikum z przedmiotu filozofia, <http://filozofuj.eu/wp-content/uploads/2018/02/podstawa-programowa-z-filozofii.pdf> [access: 11.08.2018].

³¹ *Filozofia w szkołach*, Warsaw University Portal, <https://www.uw.edu.pl/filozofia-w-szkolach> [access: 11.08.2018].

³² G. Tsipursky, *(Dis)trust in Science. Can we cure the scourge of misinformation?*, „Scientific American”, 05.07.2018, <https://blogs.scientificamerican.com/observations/dis-trust-in-science> [access: 11.08.2018].

science, which explains the scientific method as well as social determinants of scientific practice, is indispensable.

Critical analysis of miscellaneous written, verbal, and audio-visual texts should also become a key element of philosophical education because they are carriers of meanings underlying social discourse. This analysis should cover especially those cultural texts that are mass-consumed by adolescents and young adults, such as amateur videos, TV series and computer games. It would allow pupils to see what values, ideologies or attitudes those texts introduce and disseminate, and, in effect, what kind of reality they try to shape around us. At the same time, it would gradually instil a critical attitude of healthy scepticism towards all the texts produced by the culture – especially, by the popular culture.

In order to bring about positive effects, all of the above listed areas would have to acknowledge the value of truth explicitly and bind it with the ethical imperative of social responsibility of the individual and of concern for the common good.

In summary, philosophical education in the proposed form, i.e., based on logic and critical thinking, emphasizing epistemic (digital) media problems, presenting the scientific method, critical analysis of media discourse and inculcation of the value of truth and truth-seeking, should altogether become a requisite component of modern education. Introduction of proposed curricula into secondary education, and continued at the tertiary, may be essential in contribution to the reversal of an impoverished public discourse. Consequently, those curricula would enable to liberate citizens from the digital media epistemic entrapment. Unfortunately, broad philosophical education such as the one I have outlined in the article, will take a long time in the making – if ever – before reaching adequate shape in the public school system.

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Media education in the context of cyber-psychology: new perspectives for media and user research in contemporary media civilisation

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The aim of the article is to show new perspectives of research and development of media, digital and information competences in the context of knowledge and research in (cyber) psychology. It draws attention to the functions of media education in relation to civil society, the society of knowledge, and the society of communication democracy. In the modern media civilization, these competences, acquired through formal and informal education, are the basis for conscious functioning in many social roles (eg. citizen, consumer) and dealing with disinformation. The last part of the article is dedicated to shaping media competences in young children (2.5–7 years old), who should develop these skills under the care of an adult. The task of educational environments is the systematic implementation of home media education that facilitates the child's functioning in the environment of traditional and new media.

KEY WORDS: media literacy, cyber-psychology, media, digital and information competences

The dynamic development of digital media and their presence in all key spheres of life, including medical, psychotherapeutic and educational, requires a new approach to media, digital and information competences education (Ogonowska, 2013; 2016). The European Framework for Digital Competences for Citizens (DigComp) includes 21 competences which represent five key areas: information and data analysis; communication and collaboration; digital content creation; security; and problem solving.

Table 1. Key areas of digital competences and associated skills

Area	TYPES of competences
Information and data analysis	Searching, filtering, evaluating and managing data and information and digital content
Communication and collaboration	Interaction through digital technologies; information sharing and use; civic action through their use; collaboration, netiquette; digital identity management;
Digital content creation	Development of digital content; combining and processing of digital data, copyrights and licenses; programming;
Security	Protection of equipment, private data, privacy, health and wellbeing; environment
Problem solving	Solving technical problems; identifying needs and technological requirements; creative use of digital technologies; identifying gaps in digital competences

Developed on the basis of: <https://ec.europa.eu/jrc/sites/jrcsh/files/DIGCOMP-FINAL-%20UPDATED%2002-06-2016.pdf> [23.06.18].

Cyberpsychology, a new hybrid sub-discipline of psychology, which deals with a multifaceted study of complex relationships between man and technology provides new contexts for this kind of research (Ogonowska, 2018; Suler, 2016). Their effects are visible both in the behavioural sphere, as well as at the cognitive or neurobiological level (Spitzer, 2011).

Table 2. Examples of media impact

Type of media impact	Example phenomena
Social impact visible in behaviour	Disinhibition
Cognitive-behavioural impact	Disinformation in the media influences attitudes and behaviours as well as cognitive representations of phenomena
Neuro-biological impact	Stimulation or lack of stimulation activates or deactivates specific structures in the brain; affects the state of functional circuits responsible for specific cognitive and linguistic-communicative processes

Own elaboration

The distinguished effects can also be analysed on three main levels: macro, i.e. through the prism of phenomena characteristic for contemporary media civilization; mezo- in the context of processes and phenomena that define a specific group of media users, and micro- in relation to internal and external factors that determine the functioning of a specific individual.

Table 3. Three levels of analysis of the impact of media on people and related phenomena

Level of analysis	Example phenomena
Macro level	Globalisation, post-truth, fake news; hybrid media genres and formats; media as post-traditional education institutions
Mezo level	Information bubbles characteristic of contemporary discursive communities, apparent diversification of information sources; participation of groups in traditional and informal types of online and offline education
Micro level	Preferred media. Cognitive styles, forms of communication; influence of the closest environment on media, digital and informational competences of an individual.

Own elaboration

In the latter (idiographical) context, it is worth noting that in cyber-psychology we study human and media relations in various paradigms: medical (biological), philosophical (anthropological), cognitive, developmental, and their intersection. It is also impossible to avoid references to media studies, pedagogical or communicative research, and even speech therapy. The cognitive and developmental or neurobiological and educational approach is very popular, especially in Western and national research, mainly in relation to children and school adolescents (Cieszyńska-Rożek, 2014; Juszczak-Rygałło, 2014; Rygałło, 2014).

The interfaces of various technologies not only mediate in social contacts, but virtual reality often becomes the only "social contact space", even in areas that were originally based on direct interaction: treatment, diagnosis, education or spiritual support (Pasikowska, 2013; Hare, 2013). E-services coexist with their traditional counterparts, but their effective use requires a dynamic development of the communication democracy society (Ogonowska, 2003) and minimizing the scale of digital exclusion (Batorski, 2009). Research conducted in 2014 shows that the number of people affected by this phenomenon in Poland reaches 12 million (Jasiewicz et al.; p. 2).

Technology is also becoming an integral part of the human body, and by supporting the biological functioning of the body it also monitors its functions, level of efficiency and psychophysiological parameters. On the basis of this information, external entities and institutions decide on the development, life, work and many institutional services related to the "cyborg-like" unit. The extremely negative effects of this influence have been portrayed in the British series "Black Mirror" (Wójcik, 2016), "Czarne lustro" in Polish.

The "organic", "bodily" context for digital media is also created by new media art "configured" with body art. These new medical and artistic applications change the social attitude towards new technologies and their presence in human life. The media, also in a very material sense, redefine our attitude to identity, autonomy or freedom (Suler, 2016, Commolly, 2016; Woźniak, 2016). An important dimension of new media competences in this context is also

the development of the habit of constant reflection on the place of media in our lives (an anthropocentric “positioning” of media).

At the same time, people’s attitude towards the products of various technologies is changing: from purely objective and instrumental to subjective and humanistically characterised (Reeves, Nass, 2000). Technologies evoke an attitude of empathy, compassion and commitment in man, often in spite of a conscious declaration that they represent an order of things and not nature (the living world). The human mind seeks an equivalent of the human species in the humanoid designs, with which it is possible to establish not only factual and purposeful contact, but also an intellectual, moral and emotional covenant. The affective dimension becomes a new space of relations between man and technology; man and computer; man and interface (Errity, 2016).

These changes have a significant impact on the strategies and forms of education in the digital society. Friendly interfaces, artificial intelligence and humanoid robots are being used more and more often (Errity, 2016; Kirwan, 2016). The language of new media is becoming the basic code of social communication in media (and virtual) spaces and beyond.

A serious problem for personal development and a threat to the development of civil society is the growing number of disinformation in the traditional and new media, which are becoming the basis for political and consumer decisions.¹ Rapid access to various media content and tools for the production of various media objects is not accompanied by an increase in information, media and digital competences. Users at different levels understand and actively use this new media language.

The proposed educational solutions (formal education, informal education, lifelong learning) do not yet meet the desired objectives, as they are not adapted to the needs and capabilities (cognitive, developmental) of individual target groups. Potential beneficiaries

¹ <https://eur-lex.europa.eu/legal-content/PL/TXT/PDF/?uri=CELEX:52018DC0236&from=EN> [25.06.2018].

of such services are not systematically motivated to improve their media, information and digital competences; they often fail to see the link between that and the quality of their everyday life.

In addition, the need to improve these skills, knowledge and competences should underline the benefits, not necessity or orders, and this sphere should be associated with various challenges of everyday life and social roles played by a particular individual (family, civic, professional, etc.).

The availability of new technologies, i.e. the existence of an ICT society, does not mean that people are motivated and ready to use them. It is worth looking at these barriers, especially as many of them are mental in nature.

Self-exclusion from the process of assimilation of media, digital and informational knowledge and competences, in turn, translates into the development of a public sphere in which social cognition and individual cognitive representations of reality are based on post-truth and distorted information. Disinformation and lack of proper competences determine the phenomenon of digital exclusion, build a society of non-knowledge, far from the standards of mature democracy and attitudes of tolerance and humanism.

Meanwhile, post-modern media competences in the 21st century should be profiled for new technologies, which function both as an educational space and as a commonly available repository of knowledge and educational tools. The language of new media and network architecture maps human thinking about reality and the forms of action within the media civilisation. This applies especially to generations born in the world of new interactive, virtual, hyper-textual and convergent media (Manovich, 2006; Jenkins, 2007).

Today's new media, which form the basis of e-services and mediated social communication, are based not only on sight, hearing and touch separately, but refer to all the senses at the same time to enhance the impression of immersion, tele-presence; create the illusion of "being" and "acting" in a virtual space at the level of individual experience. Virtual and augmented reality, like other media based on friendly interfaces, change man's attitude towards the

technologies themselves, which in many situational contexts become “transparent”. Without realizing their presence, we do not reflect on their real impact on the forms of information and strategies of interpersonal communication.

We learn to like the technologies we work with. We feel lost when a sudden breakdown deprives us of the ability to access resources or interact with others through social media. We appreciate the fact that technological solutions are perfectly tailored to our needs, therefore we are more and more willing to treat them as an extension of our body and our social or cognitive capabilities.

We also trust the various forms of cyborgization of our bodies, the essence of which, as mentioned earlier, is that technology not only supports and monitors its processes (such as cardioverter-defibrillator, ICD), but also enables our geo-location (such as “subcutaneous” chips). We are gradually, but on an increasing scale, becoming an organic mode, a biological, though not devoid of intelligence, link in a huge technological infrastructure, called media civilization.

Technology, equipped with self-improvement and self-learning mechanisms, is becoming more and more independent, liberating itself gradually, but systematically, from human control. Intelligent solutions, based on artificial intelligence and speech simulators, allow to achieve the effect (illusion) of full humanoidization of media. The latter cease to be mere intermediaries in social communication and become the main players. Their “rationality”, deprived of human affectivity or sense of morality, allows them to quickly make decisions based on constantly developing algorithms and data. The way of processing BIG Data, inaccessible to the human mind, does not cause many problems for information technologies. Thanks to their extraordinary computing power, we obtain sets of analyses in various configurations at the same time.

Memorizing and processing data is no longer the ultimate achievement of the human mind. Just like speech and the ability to use symbolic language. The role of direct communication is dimin-

ishing in favour of using new computer languages and understanding the logic and info aesthetics of the media. Technology and new IT languages are “colonizing” the space and strategies of human thinking about our own social and intrapsychic experience.

Learning, perceived as a key human activity, leads not only to observable changes in behaviour, but also to neurobiological and neurochemical changes, including the functioning of CUN, already on a scale of 1–2 generations. Thus, changes in the structure of the brain take place, which translate into preferred forms of social communication (Parsons, 2017).

Learning and acquisition of new key competences is increasingly less associated with formal education. The Internet and the new mobile media are becoming not only a post-traditional educational institution, but also – apart from speech, writing and printing – a completely new paradigm of social communication (Palmer, 2016). They increasingly influence formal education, such as e-learning, hybrid/mixed education or MOOCs (Massive Open Online Courses). The example of the latter clearly shows how WEB 2.0/Web 3.0 culture determines the form of education of new generations of its users and content producers. If we juxtapose the ideas of xMOOCs and cMOOCs, the paradigm shift in education (from traditional to post-modern) becomes even more visible. In the latter case, it is the learners who decide on the objectives of education and the forms of education, while the teacher organises the process and monitors its effectiveness.

The development of neuroscience, coupled with cybernetics, automation, robotics, genetics and research on artificial intelligence, has identified cognitive resources and processes necessary for the development of digital, media and information competences. The most readable and convincing proposal in this area is Bloom’s digital taxonomy. It distinguishes six key activities to which specific mental operations are subordinated. This is based on two extreme dimensions: “Higher Order Thinking Skills” (HOTS) and Lower Order Thinking Skills (LOTS).

Bloom's Digital Taxonomy		
Verbs		
Key Terms	Higher Order Thinking Skills	Communication Spectrum
Creating	Designing, constructing, planning, producing, inventing, devising, making, programming, filming, animating, blogging, video blogging, mixing, re-mixing, wiki-ing, publishing, videocasting, podcasting, directing, broadcasting	Collaborating Moderating Negotiating Debating Commenting Net meeting Skyping Video conferencing Reviewing Questioning Replying Posting & blogging Networking Contributing Chatting e-mailing twittering/microblogging instant messaging texting
Evaluating	Checking, hypothesising, critiquing, experimenting, judging, testing, detecting, monitoring, blog commenting, reviewing, posting, moderating, collaborating, networking, refactoring, testing	
Analyzing	Comparing, organising, deconstructing, attributing, outlining, finding, structuring, integrating, mashing, linking, validating, reverse engineering, cracking, media clipping	
Applying	Implementing, carrying out, using, executing, running, loading, playing, operating, hacking, uploading, sharing, editing	
Understanding	Interpreting, summarising, inferring, paraphrasing, classifying, comparing, explaining, exemplifying, advanced searches, Boolean searches, blog journaling, twittering, categorising, tagging, commenting, annotating, subscribing	
Remembering	Recognising, listing, describing, identifying, retrieving, naming, locating, finding, bullet pointing, highlighting, bookmarking, social networking, social bookmarking, favouriting/local bookmarking, searching, googling	
Lower Order Thinking Skills		

Towards the child

An important task of contemporary educational reformers, who deal with the practical side of media education, is to reduce the previous findings related to the diagnosis of civilization and the description of the state of the media to certain specifics. It is worth considering this issue in relation to the most vulnerable recipient of content and user of some technologies, i.e. a child. This is all the more justified as the market of media products addressed to the age group of 2.5–7 year-olds is growing dynamically, and many of them use the marketing slogan: “educational product”. In many cases, their design does not take into account the real cognitive potential of a child of this age, not to mention his or her media, digital and informational skills.

If we take into consideration semiotic thinking, each such product should include the recipient of a virtual media, implied by the author and implementer of a given media concept (both in the form of technology and the media message). In order to see if the cognitive abilities of the child are compatible with the product requirements, a specific analysis of both factors should be carried out. As far as the child is concerned, I suggest using one of the most popular tools used in psychological and speech therapy diagnosis.

The SON-R (2.5–7) test² consists of six subtests for the learning of spoken and written language. It enables the diagnosis of right-hemispheric and left-hemispheric preferences and the calculation of the child’s developmental age for each function and the intelligence quotient. It is a diagnostic tool that allows to calculate the mental age of the examined child concerning five mental functions and the intelligence quotient in a group of speaking children and in a group of children with language communication disorders. The examina-

² The test is aimed at children from 2.5 to 7 years of age. In practice, it is most often used to test children who do not develop speech correctly or who have reading difficulties. Authors: Snijders-Oomen, Peter Tellegen, Marjolijn Winkel, Barbara Wijnberg-Williams, Jaap Laros. Users of the test: psychologists, speech therapists. Standards for the test have an international character.

tion of each sphere starts with tasks for two-year-old children, which provides the possibility to check the functioning of the child from the 24th month of their life.

The SON-R test examines cognitive functions such as:

- 1) the ability to categorise;
- 2) visual analysis and synthesis on athematic (symbolic) material;
- 3) visual analysis and synthesis on thematic material;
- 4) concentration and direct memory;
- 5) graphoperception.

Table 4. Cognitive functions and related skills

Cognitive functions	Specific skills in relation to the tasks
Categorisation	Simultaneous and sequential processing; activation of both hemispheres of the brain; willingness to learn language concepts; ability to see similarities and differences between objects; analogy; knowledge transfer and task solving strategies for new material;
Visual analysis and synthesis (athematic material)	Sequential processing and activation of the left cerebral hemisphere; ability to organize information linearly and sequentially present it; ordering material from left to right, imitating behaviour, in action on specific elements;
Visual analysis and synthesis (thematic material)	Simultaneous processing of information and activation of the right hemisphere; determination of the level of imitation skills; visual-motor concentration; level of synthesis of various materials;
Concentration and direct memory	Self-control and task focus; understanding of non-verbal instructions; direct memory, independent search for ways to solve tasks;
Graphoperception	Imitation and cooperation, execution of sequential precision movements, activation of the left cerebral hemisphere. Obtained results allow to determine readiness to imitate speech, visual and motor coordination; visual perception, manual dexterity.

Developed on the basis of: <http://www.testresearch.nl/sonr/sonr257manual.pdf> [23.0618].

All these cognitive functions play an important role in the understanding and interpretation of media messages. Initially a (2.5–4 year old) identifies a favourite program, recognizes his favourite characters, can express different emotions and attitudes towards them (verbally and non-verbally). Up to the age of three, the young viewer is very susceptible to the formal features of the messages, e.g. dynamic editing or loud music. It is these (audio)visual stimuli that trigger an orientation reflex. While concentrating on the expressive elements of the message, the child has a problem with a more analytical understanding of its content, especially as the message is constantly changing on the screen. The role of the caretaker is to gradually build and develop this skill by analysing particular fragments of the message and, if possible, referring to the child's extra-media experience. In this way, the child learns that the media world is, in a certain part, a representation of the real world. The idea of representation is gradually created in the child's mind. Thanks to conversations about media with adults, the recipient at this age also learns to see the differences and similarities between different messages; he or she begins to see the differences between different media (e.g. a fairy tale in a book and a film fairy tale).

At the age of 4–6, he gradually learns to recognize genre patterns, understands cause-and-effect relationships, and identifies relations between the characters. He can also intuitively and with the use of media experience predict the development of action (5.5–7 years of age). A child of this age also recreates, in the form of thematic or symbolic games, those sequences from films or fairy tales that are most memorable to him/her, also because of their "emotional burden", both positive and negative. A child over 6 years of age gradually develops the skill of cognitive decentralization, which enables him/her to look at the media reality "through the eyes of another person".

Direct interactions (in the offline space) also make it possible to imitate the media behaviour of caregivers, who at this stage of development should actively mediate in these contacts (as models of desired behaviour, initiators of various media activities and "trans-

lators" of online reality). In this context, psychologists write about different types and functions of mediation (Kołodziejczyk, 2013). To sum up, the development of a child's media competence in relation to audio-visual transmissions takes place until the age of 7, according to the following stages:

- the level of indicative responses;
- the level of separation of particular significant elements (e.g. objects, characters) from the message;
- the level of combining elements into larger significant wholes (e.g. according to the principle of their formal similarity);
- the level of understanding of relations between elements and simple narratives (e.g. based on cause-effect relationships or belonging to a specific set of objects - categorisation);
- the level of recreation of some media situations or imitation of the media behaviour of the characters in play (first individually, then in cooperation with other children);
- the level of understanding of the concept of representation, i.e. the relationship between a fragment of the message and a fragment of external reality;
- the level of identification of differences and similarities (formal, content) between different messages;
- the level of conscious attention management and active concentration on different elements of the message, including the social context in which the protagonists operate;
- the level of ability to apply the guidelines/instructions from the message to act in the real environment;
- the level of anticipation of action development on the basis of previous media experience.

As can be seen from this synthetic description, media competence develops on the basis of various cognitive functions. However, it is not an automatic process. It requires a great deal of commitment on the part of caregivers, whose task is to shape, from the very beginning, the right attitudes and behaviours towards the media. Home media education becomes the basis for desired media activi-

ties, which favour, among other things, the development of critical thinking and the ability to cope with disinformation at subsequent stages of development.

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Media education from the perspective of educational transactional analysis

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Educational transactional analysis is one of the main branches of transactional analysis – a concept, which was developed with psychotherapy in mind. Its tools and clear terminology allow for both theoretical and empirical analysis of many aspects pertaining to the specificity of human functioning in the world of new media. The article shows the possibilities of its application and presents a review of previous theoretical and empirical initiatives that deal with this issue.

KEY WORDS: transactional analysis, new media, human-computer relationship, media education

The concept of transactional analysis (or TA for short) is gaining more and more popularity among people dealing with issues related to education. This theory provides the researcher with clear concepts and ready-made tools. Thanks to its application, we can take a closer look at the specificity of the relationships between particular subjects of the analysed reality and see their life attitudes, observe and identify interpersonal games and many other crucial

elements. It is therefore not surprising that educational transactional analysis is currently one of the main fields of TA, which sees some dynamic development. Jan Długosz University in Częstochowa has a dedicated Research Team for Educational Transactional Analysis,¹ the list of members of which includes the author of this publication.

This article was inspired by the need to organise and systematise the achievements in the field of the use of TA in the analysis of issues related to media education in the last few years. One of the first attempts to combine the proverbial fire with water, which in this case is the theory of transactional analysis created for the needs of psychotherapy, with the subject of human functioning in the world of new media, was the author's article published in 2011. The considerations contained therein indicated the possible areas of using terminology and tools provided by TA in the analysis of the issues of computerisation of the process of education.² At that time, it was mainly a collection of ideas, some of which were verified or used in the following years. Thus, it is now worth taking a closer look at them from the standpoint of the experience gained and evaluate which were successfully implemented, which turned out to be failures that require corrections and reflection, and which are still awaiting implementation.

However, in order to understand the considerations presented in the following part of the article, it is worth recalling the most crucial assumptions of transactional analysis in a brief and general manner, taking a number of issues into consideration. Firstly, it is difficult to summarise the details of a complex concept, which has been developing since the middle of the 20th century in a single article with a limited length. Secondly, there are a number of valuable publications regarding this concept, which should be consulted

¹ Find out more on the Team's website: <http://eat.ujd.edu.pl> [retrieved on: 15.08.2018].

² Z. Łęski, "Zarys problematyki komputeryzacji kształcenia w perspektywie analizy transakcyjnej" [in:] *Analiza transakcyjna w edukacji*, ed. J. Jagiela, Wydawnictwo im. S. Podobińskiego Akademii im. J. Długosza w Częstochowie, Częstochowa, 2011, pp. 140-153.

by readers who are more interested in the subject matter presented in the article and want to use TA in their work, including works by the creator of transactional analysis – E. Berne,³ I. Stewart's and V. Joines' handbook *Ta Today: A New Introduction to Transactional Analysis*,⁴ the collective work *Analiza transakcyjna w edukacji* edited by J. Jagieła,⁵ as well as the *Edukacyjna Analiza Transakcyjna* annual published by the above-mentioned Research Team.⁶

Structural analysis is considered to be the foundation for transactional analysis. Without knowing the former, it is impossible to understand most of the assumptions of this concept and to apply it in educational practice or in scientific and research activities. According to its assumptions, each person has three basic Ego states: Parent, Adult and Child. Simply put, the first one of them is responsible for thoughts, feelings and actions, the source of which can be found in parental messages. In this position, we are usually guided by ready-made and proven patterns, norms and rules, as well as feelings related to caring and compassion. The Child, on the other hand, is a state reflecting naturalness, spontaneity, joy, creativity, as well as fear and egoism. The Adult is responsible for actions, thoughts and feelings of an adult – reasonable, logical, analysing, taking constructive decisions, etc.⁷ At any moment we have one of these states, and switching between them is referred to as catexis. It is not possible to catexis two states simultaneously.⁸

³ Cf.: E. Berne, *W co grają ludzie*, Wydawnictwo Naukowe PWN, Warsaw, 1994.

⁴ Cf. I. Stewart, V. Joines. *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017.

⁵ Cf. J. Jagieła (ed.), *Analiza transakcyjna w edukacji*, Wydawnictwo im. S. Podobińskiego Akademii im. J. Długosza w Częstochowie, Częstochowa, 2011.

⁶ The journal is available at: <https://czasopisma.ujd.edu.pl/index.php/EAT> [retrieved on: 15.08.2018].

⁷ E. Berne, *Seks i kochanie*, Książka i Wiedza, Warsaw, 1994, pp. 81–82; I. Stewart, V. Joines, *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017, pp. 13–19.

⁸ A. Pierzchała, *Pasywność w szkole, Diagnoza zjawiska z perspektywy analizy transakcyjnej*, Wydawnictwo im. S. Podobińskiego Akademii im. J. Długosza w Częstochowie, Częstochowa, 2013, p. 36.

Of course, the above description is only an outline of structural analysis, and there might be some doubts as to whether it is too simplistic to be able to reliably reflect the functioning of a human being at any given moment in time. This is why transactional analysis is characterised by further subdivisions. We have at our disposal a functional analysis, in which we distinguish between Normative Parent and Nurturing Parent, as well as Free and Adapted Child.⁹ In the second-degree structural analysis we distinguish additional states of Parent, Adult and Child within the main Ego states - Parent and Child, leading us to Adult in a Parent or a Child in a Parent, etc.¹⁰ Recognising the profile of using one's Ego states by an individual provides us with a lot of important information about the sources of their thoughts, feelings and behaviours, and if a problematic situation occurs, it enables us to take effective diagnostic and preventive measures. In addition, we can also take advantage of the so-called egograms - questionnaires evaluating the functioning of a human being in the Ego states, including ones geared towards functional analysis, as well as ones that take into account second-degree structural analysis.

Another important notion is presented in the very name of the transactional analysis concept, namely transactions. This term was used by E. Berne to describe the unit of interpersonal relations. When establishing a relationship with another person (for example via a verbal or non-verbal message), we send a so-called transactional stimulus. The response to the stimulus is referred to as a transactional response.¹¹ Transactional stimuli and responses take place between our Ego states. Being in the Adult position, we send a message from this level, addressing it to the state of the Adult-Ego-state of the other person, expecting a factual and logical answer. If this

⁹ I. Stewart, V. Joines, *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017, pp. 27-40.

¹⁰ I. Stewart, V. Joines, *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017, pp. 41-55.

¹¹ E. Berne, *W co grają ludzie*. Wydawnictwo Naukowe PWN, Warsaw, 1994, p. 21.

happens, we are dealing with a complementary transaction, which promotes effective communication and to a significant extent minimises the risk of a conflict situation. Another example of such a transaction is playing (Child – Child), or someone obeying the commands of another person (Parent – Child). However, if the reaction comes out of a different Ego state than the one to which it was directed (or goes to another state), we are dealing with crossed transactions. The transactional response may then be inconsistent with the stimulus and not in line with expectations, which in turn may generate conflict situations.¹²

Transactional analysis also deals with the impact that the messages of people who are important to us and our life experience has on our daily functioning and the decisions we make. This is referred to as life script analysis, or in other words, the analysis of a hidden life scenario – a life programme, which begins to develop from the moment of birth, and in adult life is carried out in a social context by people playing the roles of protagonists, persecutors and victims, seeking partners for complementary and secondary roles. The script covers not only individuals, but also social groups, families or even whole nations.¹³ From the perspective of educational transactional analysis a very interesting issue is the script of the school as an institution. Its analysis may, for example, help in understanding the causes of resistance towards the changes of forms and methods of didactic work used by teachers.¹⁴ The process of analysing the script is an extremely difficult task, which is usually carried out during the psychotherapeutic process. However, in the case of the script, we are also dealing with so-called script drivers, which largely determine the actions taken by an individual (or a group/institution), including:

¹² E. Berne, *W co grają ludzie*. Wydawnictwo Naukowe PWN, Warsaw, 1994, pp. 21–25.

¹³ M. James, D. Jongeward, *Narodzić się by wygrać*, Dom wydawniczy REBIS, Poznań, 2003, pp. 103–105

¹⁴ A. Pierzchała, “Transakcyjne zakazy i nakazy skryptowe w ukrytym programie szkoły”, *Edukacyjna Analiza Transakcyjna*, 2017, no. 6, pp. 107–117

1. Be Perfect
2. Be Strong
3. Try hard
4. Please (others)
5. Hurry up.¹⁵

Each of the above-mentioned drivers manifests itself in the form of a sequence of actions, which can be observed and analysed, and which can also determine certain areas and ways of our functioning – including in cyberspace.

In transactional analysis, the concept of life positions is invariably tied to the script concept. It refers to our attitude towards ourselves and our surroundings, presenting the possibility of adopting one of the following four positions and the corresponding social interactions:

1. I am OK, you are OK – cooperation (healthy position)
2. I am not OK, you are OK – avoiding (depressive position)
3. I am OK, you are not OK – rejection (paranoid position)
4. I am not OK, you are not OK – helplessness (impasse)

The script of an adult is based on one of the above positions, but the individual does not remain in a given position all the time. Depending on the situation and the relations with the surroundings, this position may change.¹⁶

The last term worth mentioning from the standpoint of using transactional analysis in the field of media education is transactional games. Simply put, it can be referred to as a series of hidden transactions which are supposed to result in psychological benefits for one of the parties. Each of them is a process with a distinct beginning, culmination and an end, and contains a “trap” in which the other party to the transaction is caught. J. Jagieła points out that they usually serve as defence mechanism for people who seek

¹⁵ I. Stewart, V. Joines, *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017, p. 198.

¹⁶ I. Stewart, V. Joines, *Analiza transakcyjna dzisiaj*, Dom Wydawniczy REBIS, Poznań, 2017, pp. 154–155.

support and recognition of their own value, but at the same time do not believe that they can receive it in a sincere and open way.¹⁷

How can the issues described above be related to the field of media education? At this point it is worth mentioning the research carried out at the end of the 20th century by B. Reeves and C. Nass. In a number of experiments, they demonstrated that in contact with the media (primarily with a computer), humans tend to behave in a way that is similar to how they behave in typical interpersonal relationships. In the book, where they published results of their research and their conclusions, they wrote about assigning attributes that we used to treat as typically human to achievements of technology. It seems that a direct quote of the authors' work is fitting here: "Human reactions show that the media are more than just tools. When treated politely, media can invade our personal space, can have a personality that matches our own, can be team members and activate gender stereotypes. They can evoke emotional reactions, require attention, threaten us, impact our memory and change the notions of what is natural. The media are full participants in our social and real world."¹⁸ At the first glance, such a point of view seems to be highly debatable and controversial. However, if we take a closer look at the practice of our daily contact with new technologies, it is hard not to admit that the authors were right – after all, many people tend to get angry at their computer, tell it to hurry up or express their gratitude for a job well done. Do we express similar emotions towards other tools we use? B. Reeves and C. Nass write about the "personality of the media." Of course, the devices do not have intrinsic personalities. However, it is often the case that the user actually assigns some personality traits to them at the moment when they use them, in some way projecting their expectations or fears onto them. The ranks of educated people include those who

¹⁷ J. Jagieła, *Gry psychologiczne w szkole*, Oficyna Wydawnicza Nauczycieli, Kielce, 2004, p. 121.

¹⁸ B. Reeves, C. Nass. *Media i ludzie*, Państwowy Instytut Wydawniczy, Warsaw, 2000, p. 294.

cannot imagine life without technology and those who approach it anxiously. It would seem that age may be the main determinant of such attitudes, but is it really? In the light of the need to answer such questions, the concepts of transactional analysis described above may prove (and prove) to be extremely useful.

An article was mentioned at the beginning of this paper, which served as a kind of inspiration for writing this paper. The author took a closer look at the possibilities of taking advantage of the concepts of transactional analysis in research related to media education, namely the analysis of the relational character of human – new media relationships, which were also cited in this paper. Since, according to the research by B. Reeves and C. Nass, we attribute some personality to computers, maybe we also attribute some structure of Ego states to them? And, as already mentioned, TA offers us tools called egograms for studying these relations. Perhaps the way we treat new media depends to some extent on our dominant script drivers or life positions. Perhaps the presence of a computer in our environment may determine the emergence of new, specific transactional games. During the few years that have passed since the publication of that article, theoretical studies and several research initiatives have emerged, which to a small extent allow us to dispel some of the above doubts. In 2016, a monograph by the author of this article entitled *Duch w maszynie... Kim jest dla nas komputer? Charakterystyka relacji w języku analizy transakcyjnej* was published in print, containing conclusions from studies, in which an attempt was made to analyse the structure of the Ego states assigned to the computer by the user, using a number of tools, including a properly matched adjective egogram by J. Jagieła.¹⁹ The study group comprised 196 subjects. The conclusions drawn were surprising to some extent. It was expected that there would be dependencies between the purpose and use of computers and the Ego states assigned to the

¹⁹ Z. Łęski, *Duch w maszynie... Kim jest dla nas komputer? Charakterystyka relacji w języku analizy transakcyjnej*, Wydawnictwo im. Stanisława Podobińskiego Akademii im. J. Długosza w Częstochowie, Częstochowa, 2016, pp. 115–123.

devices. It was also expected that the devices would not be given the full structure by the respondents. It was assumed, for example, that people who use these devices mainly for work would primarily assign them the Adult state, and those who mainly play would most probably go with the Child. Meanwhile, it turned out that regardless of the time, purpose or method of using the devices, the respondents assigned them structures that largely correspond to the ones they themselves have. It could even be said that there was a clear tendency to “humanise” machines.²⁰ This confirms the conclusions resulting from experiments by B. Reeves and C. Nass.

The publication mentioned in the above paragraph is an example of the use of structural analysis. The conclusions demonstrate the phenomenon of projecting a similar structure of Ego states onto the machine as people use themselves, but says very little about the relationship between humans and new technologies. To this end, it would be necessary to analyse the transactions, which would make for a much more difficult task. To some extent it was undertaken by A. Pierzchała in articles: “Rodzic, Dorosły, Dziecko – jak można opisać komunikację na forach internetowych z punktu widzenia Analizy Transakcyjnej”²¹ and “Po dwóch stronach ekranu, czyli wirtualne relacje interpersonalne w perspektywie analizy transakcyjnej.”²² The author made an attempt at a qualitative analysis of posts on on-line discussion forums in terms of identifying the areas of the self, from which the participant started the interaction

²⁰ Z. Łęski, *Duch w maszynie... Kim jest dla nas komputer? Charakterystyka relacji w języku analizy transakcyjnej*, Wydawnictwo im. Stanisława Podobińskiego Akademii im. J. Długosza w Częstochowie, Częstochowa, 2016, pp. 63–65; 111.

²¹ A. Pierzchała, “Rodzic, Dorosły, Dziecko – jak można opisać komunikację na forach internetowych z punktu widzenia Analizy Transakcyjnej” [in:] *Oblicza internetu. (Re)de niowanie sieci*, ed. M. Sokółowski, Wydawnictwo Państwowej Wyższej Szkoły Zawodowej w Elblągu, Elbląg, 2010, pp. 104–119.

²² A. Pierzchała, “Po dwóch stronach ekranu, czyli wirtualne relacje interpersonalne w perspektywie analizy transakcyjnej” [in:] *Bezpieczeństwo dzieci i młodzieży w przestrzeni wirtualnej – teoria i praktyka. Prace naukowe GWSP*, ed. Ewa Golbik-Madej, Gliwicka Wyższa Szkoła Przedsiębiorczości, Gliwice, 2016, pp. 117–128.

and the characteristics of the type of message sent (a total of 506 posts were analysed). Adult turned out to be the dominant state, apart from the forum devoted to politics, where the Parent clearly won, and the forum for singles, where transactions were most often started from the level of the Child.²³ However, these studies focus on transactions between users, carried out thanks to new technologies. Communication in cyberspace has its own specificity and is significantly different from communication in the real world. It is much easier to express emotions, get angry or create statements that we would never say in "the real world." This was pointed out by P. Wallace in *Internet Psychology* at the beginning of the 21st century.²⁴ However, the question of the specificity of the transaction between the user and the computer remains open. We are still waiting for interesting research initiatives and the resulting publications.

Other concepts present in transactional analysis discussed in this publication include life script and positions. So far, only a single article analysing the impact of the script on the use of computers from the theoretical standpoint was published in print;²⁵ However, a monograph by the author of this paper, which deals with this particular issue, among many others, is being published. In the light of the research carried out for the purposes of this publication (394 people aged 14-29 took part in the study), no significant relationships were observed between such variables as the emotional attitudes towards new media, self-assessment of the respondents'

²³ A. Pierzchała, "Po dwóch stronach ekranu, czyli wirtualne relacje interpersonalne w perspektywie analizy transakcyjnej" [in:] *Bezpieczeństwo dzieci i młodzieży w przestrzeni wirtualnej – teoria i praktyka. Prace naukowe GWSP*, ed. Ewa Golbik-Madej, Gliwicka Wyższa Szkoła Przedsiębiorczości, Gliwice, 2016, p. 124.

²⁴ P. Wallace, *Psychologia Internetu*, Dom Wydawniczy REBIS, Poznań, 2005, pp. 147-206.

²⁵ Z. Łęski, A. Pierzchała, "Życie w grze czy gra w życie. Rola skryptu życiowego w kształtowaniu postaw graczy" [in:] *Edukacja międzykulturowa w warunkach kultury globalnej. Od rozważań definicyjnych do praktycznych zastosowań*, N. Dębowska, M. Walachowska, N. Starik (eds.), Wydawnictwo Wyższej Szkoły Bezpieczeństwa, Poznań, 2014, pp. 55-63.

ability to use them or their purpose and the frequency with which they use them, and the users' dominant script drivers or their life positions. It should be stressed, however, that the respondents were representatives of the young generation, for whom computers and the Internet constitute both a part of their everyday life, as well as a necessity. Therefore, this topic is still open for further research in other age groups. It is worth mentioning that the above mentioned research has brought a very interesting conclusion regarding the classification of the so-called Generation Y and Generation Z. The obtained results cast a shadow of doubt on the above division. The representatives of Generation Y (older respondents – born between 1985 and 1999) do not differ from the representatives of Generation Z (younger people – born in 2000 and later) neither in terms of the Ego states structure, nor in terms of script drivers or life positions. There were also no significant differences in the manner, purpose and frequency of use of new technologies. It should be stressed that so far there have been no reliable research papers on this subject, and opinions on the above mentioned generations and differences between them were shaped primarily on the basis of assumptions and theses published on popular websites.

The concept of transactional games in the context of media education seems to be an extremely interesting issue. The emergence of new media may have triggered the emergence of new games between users; for example, a classic game “my thing is better than yours” may now concern a smartphone, and it seems to be often observed between users of devices of different brands and vendors. There is also the question whether do we have a greater tendency to initiate games with other people than in the real world while communicating in the cyberspace. It is also worth noting that there are probably also games that are directly related between humans and the medium. It is not difficult to imagine a user who deliberately manipulates the difficulty level of a computer game or educational software in order to prove that they are good at something or, on the contrary, that they are not able to do something. Unfortunately, this topic still awaits both the theoretical and empirical studies.

To summarise the considerations presented in this article, it is worth referring directly to the issues of media education. Undoubtedly, we are currently dealing with significant shortcomings in this field, both among the younger and older generations. This is indicated not only by the observations of the surrounding reality and our functioning in the world of media, but also by the results of studies related, for example, to the safety of children and young people on the Internet, which are carried out on a regular basis by many individuals and organisations (such as NASK.)²⁶ Perhaps a better understanding of the specificity of our contact with new media is the key to increasing the effectiveness of educational and preventive activities in this area. In this context, transactional analysis gives researchers a great opportunity. At the same time, as this article shows, the potential of TA remains untapped. There are still not enough empirical initiatives to meet both the opportunities offered by this concept and the needs generated by modern times and the dynamic development of new technologies. In conclusion, it is to be hoped that this text will become an inspiration and encouragement for many researchers to draw upon transactional analysis and, with its help, try to better understand the specificity of human functioning in contact with new technologies.

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²⁶ Pokolenie 3.0. w świecie wirtualnym i realnym – raport z badań NASK. <https://www.nask.pl/download/1/447/Nastolatki30NASK.pdf> (retrieved on: 16.08.2018).

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Digital Communicators – creators or imitators?

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The article touches upon the issue of influence of modern digital media on the attitudes of recipients/ broadcasters (digital communicators) related to their creative activities. The first indication applies to the fact that the development of digital technologies introduces a new digital order of communication (from the primary order, through the secondary and hybrid order, to the digital order), which in turn provides communicators with a broad spectrum of new methods and tools of communication including tools permitting creative activities. Second of all, it is noted that despite the mentioned rich offer of digital tools and the promotion of creative attitudes, digital media, in particular global social media, are dominated by attitudes of re-production related both to common re-distribution of existing content (sharing, copying and pasting, etc.), and even limiting creativity entirely (likes, tags). The remarks made are compared to opinions of digital media researchers and neurobiologists indicating on the one hand the weakening/ dissolution of the reception of content by digital media (the negative effect of multi-tasking), and on the other hand, the supersaturation of emotions related to the reception of content (negative influence of computer games). In conclusion, attention is turned to the necessity of establishing in contemporary communicators (on all levels of education) of digital communication competences, in particular the promotion of creative attitudes related to these competences.

KEY WORDS: education, multimedia, culture, digital technologies, digital humanities, creativity

The specifics of communication complexity in the beginning of the 21st century influencing directly the creative attitudes of digital communicators¹ is related to the coexistence in everyday lives of two communication systems that are fundamental nowadays: the **analogue** system, related to communication practices and tools stemming from the original verbal and non-verbal audio-visual order executed interpersonally and indirectly with the use of analogue means, and the **digital** system, related exclusively to practices and tools stemming from the world of computer (digital) technologies. Both these orders or systems control and organise differently their related modes and forms of communication, whereby the differences are so fundamental that de facto the sole dominant form of communication (even if it is transitional according to the already-mentioned Kurzweil) between people² is **hybrid communication** entailing the continuous transition/ fusion of communicators between both these systems (an example of this „communication schizophrenia“ is the simultaneous coexistence of persons, in particular so-called public figures, as physical beings and virtual media beings)³.

¹ I use the term ‘digital communicator’ to describe a person participating in the process of communication using new digital media, both as a sender/ broadcaster (active communicator) as well as a recipient (passive communicator), communicating both with other people as well as machines. The active digital communicator is also a person who consciously creates/ processes/ publishes digital content, and the passive digital communicator is a person that exclusively receives content published by other users of the net. In specific cases one may speak e. g. of responsive and non-responsive passive digital communicators – with the non-responsive recipient being for instance a passive viewer of a film played online, and the responsive recipient being a person, who actively participates in the screening (e. g. uses tools, scrolls, pauses, comments and evaluates with the use of the built-in tools, etc.).

² Even though it must be confessed that since their very beginnings, are trying to communicate with people in the analogue system, and in the reality of the 21st century, this communication is becoming more and more autonomous.

The language of new media, or creativity within the confines of code

Even if it is fairly simple to understand the economic sources of dynamic expansion of information technologies and new digital media, the explanation of social popularity of digital media resulting in their ubiquity and omnipresence in social and cultural life of the 21st century seems more difficult to explain. It suffices to say that over the course of no more than 20 years (from halfway through the 1990s until approx. 2015), digital technologies have completely remodelled contemporary popular culture, turning niche messages, typical for instance for comic books or computer games, into mainstream messages on a global scale, influencing the common cultural awareness. One of the simplest sources of this state of affairs hide in the mentioned economy (the digital change is just plain worth it⁴), but also in human nature: if something is cheap and simple (in terms of reception as well), then it quickly becomes popular and common, turning into a common good. Two fundamental laws are at work here: the first is the Gresham–Copernicus law, which states that bad money (e. g. cheaper to manufacture) drives out good money⁵. The second general law was summarised

³ Conf. M. Wobalis, *Hybrydowy podręcznik multimedialny narzędziem czytania tekstów kultury*, [in:] *Teksty kultury w szkole*, ed. by B. Myrdzik, L. Tymiakin, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin 2008, pp. 377–386. L.W. Zacher, *Refleksje o ideologii cyfrowego świata*, [in:] L.W. Zacher, *Nasza cyfrowa przyszłość. Nadzieje – ryzyka – znaki zapytania*, Komitet Prognoz „Polska 2000 Plus” przy Prezydium PAN, Warszawa 2012, p. 115; S. Puppel, *The human communication orders and the principle of natural language sustainability*, „Oikeios Logos” 2012, no. 9, pp. 9–10. http://www.keko.amu.edu.pl/sites/default/files/oikeios_logos_nr9.pdf, accessed on: 17.08.2018.

⁴ One of thousands of examples of the reduction of costs through the digital revolution can be the process of upgrades of technologies of film playback in cinemas, from expensive (and dangerous) of celluloid tape to radically cheaper and safer digital carriers.

⁵ This law also encompasses the storage of „higher” culture. https://en.wikipedia.org/wiki/Gresham-Copernicus_law.

in the Polish film „The Cruise” (Pl. Rejs) by director Marek Piwoński in the words of engineer Mamoń, stating that we prefer most these songs (or, such cultural content) that we already know⁶. Both these laws have fundamental importance for the understanding of 21st century converted culture, to which for the purposes of this paper I will refer to as a **culture of imitation**⁷. What once seemed niche and local, becomes common and global contemporarily; what was enjoyed by a narrow group, becomes [a] mass [phenomenon] thanks to the Internet (frequently ignoring aesthetic, ethical or legal criteria). As we will show in a moment, of fundamental importance for the immediate and global spread of digital culture are primarily the sole specifics of structure of the language of new media and the close relationship of the digital message with the technological carrier.

The fundamental structural material of each digital message is the bit, as the smallest information unit, which for one does not have a physical form, but additionally solely determines the status of electric voltage in a closed electronic circuit. Beginning with the 1950s, thanks to Claude Shannon, we are hence able to determine both the mode of virtual „connection” of individual bits into larger pieces of information, their transmission through various connections, and, finally, their transformation into algorithmically simplified (compressed) structures according to the rules of information entropy. Irrespective, however, from the entire technological entourage of digital communication, what constitutes the existence of a digital being is exclusively this status of electric voltage indicated above: this voltage either is (1) or isn't there (0). At the same time, each more complex form of information, being an image, sound,

⁶ „Dear sir, I have an exact mind. I like melodies that I have already heard once. Just like that. Well... now... through... well, reminiscence. Indeed, how can I like a song that I am only hearing for the first time”. [Online, in the original Polish:] <https://pl.wikiquote.org/wiki/Rejs>, accessed on: 03.09.2018.

⁷ Imitation: 1. The act of imitating. 2. A copy or simulation; something that is not the real thing. Online: <https://en.wiktionary.org/wiki/imitation>, Accessed on: 03.09.2018.

text, film, computer game, contains in itself this very ingredient – 0 or 1, in a form multiplied by a code suitable for that form. The bit, perceived metaphorically, is hence to the digital world what the simplest particle is for the physical world – the difference, however, entails the fact that the first is exclusively a virtual state, with the other always being a material construct composed of two or more atoms. The above remark, concerning the physicality of a material being, seems necessary to understand the most significant limitations of the digital environment, in which contemporary digital communication practices (including creative ones) occur. Indeed, the environment is always: a) **virtual** – it „exists” within the space of an electronic device, and is only accessible through a device of this kind, b) **technological** – it „exists” exclusively through devices using infrastructure based on electric technologies, c) **conventional** – the sensory representation of a virtual being perceived by man is always dependent on the transmitting tool, hence, it may take different forms for different recipients, d) **closed** – the message is always limited by the capabilities of the devices and the assumptions of the encoded algorithm. Furthermore, each communicative form of action in such a limited environment will possess the following two fundamental inherent flaws: one will stem from the necessity of full immersion in just one environment (it is impossible to fuse a bit and a particle, and it is impossible to be analogue and digital at once), the second will stem from the necessity of usage of completely different tools of navigation in the relevant space (digital reality cannot be transferred into the material world without the usage of technologies depending on electric current).

Listed were the general limitations of the communication space of the recipient/ creator as part of digital reality. Further ones stem from the structure of the digital message itself, a topic, on which e. g. Lev Manovich extensively wrote about. The author of *The Language of New Media*⁸ had distinguished between five rules that cha-

⁸ Manovich L., *Język nowych mediów*, Oficyna Wydawnicza Łośgraf, Warszawa 2012.

racterise/ describe new digital media: numerical representation, modularity, variability, automation and cultural transcoding. Each property of new media – if we look at them from the standpoint of their influence on creative attitudes – plays an important role for the emergence and the forms of execution of digital creative practices.

The constitutive rules of the language of new media as described by Manovich have their source in their numerical representation, hence, the digital nature of the message as described above. The numerical message, irrespective of whether it emerged directly within the digital tool or whether it was transferred to this tool through digitalisation, will always describe the world using a language of bits and nothing else. Considering the fact that each object of new media (text, images, sounds, videos) can be described mathematically in machine code, it can very simply be algorithmically processed by any sort of digital computational device. The most frequent processes of this kind are e. g. automatic contrast or colour saturation corrections for photographs, automatic volume changes, changes to film playback speeds, font sizes.⁹

An important property of new media stemming directly from the numerical representation is their modularity, describing the phenomenon of construction of the message of portions independent of each other, which are composed of further groups of other independent parts, down to the level of indivisible components of a digital message (e. g. the pixels of an image). Such a message structure makes for the fact that it is very easy to interfere (transform, remove, alter) in the area of the individual components of a message, without influencing the structure of the whole. Modula-

⁹ Conf. Negroponte N., *Cyfrowe życie. Jak się odnaleźć w świecie komputerów*, Książka i Wiedza, Warszawa 1997. Presently, we are able to store digitised copies of analogue information stored on different carriers from a few to even several hundred years, without any loss. Conf. Bliski T., *Pamięć nośniki i systemy przechowywania danych*, WNT, Warszawa 2008, Witczak D., Sobkowiak K., *Problemy przechowywania danych cyfrowych w bibliotekach*, „Elektroniczne czasopismo Biblioteki Głównej Uniwersytetu Pedagogicznego w Krakowie”, 2014 no. 5. [Online:] <http://www.bg.up.krakow.pl/newbie/index.php/bie/article/viewFile/70/69>. Accessed on: 20.06.2017.

rity is experienced most frequently in digital photo editing (error removal, image correction), in advertising, in digital art. Due to the fact that there exist dozens of applications permitting such modes of editing, this is also a very popular mode of quickly expressing opinions in the form of images (so-called „memes”). In music, modularity is responsible for enabling creators to freely mix and re-mix audio tracks. In recording studios and professional film laboratories, it becomes possible thanks to modularity to digitally repair, clean (re-master) damaged or destroyed analogue recordings or films¹⁰.

A further property of new media that is important from the standpoint of media creativity is their variability. This describes the multitude of possible creatable versions of a digital object, irrespective of its format, size or content. As Manovich says, no digital object is something that is determined once and for all – it can always exist in many versions that are different from each other, or variations. The multiplication of versions is an operation that is by definition uniquely simple for computer devices (as it is machine-based) and it entails the multiplication of components of code. In this context, the number of copies, versions, variants can theoretically be unlimited¹¹.

The properties of new digital media described above tie in perfectly the possibility of machine automation, thanks to which each activity related to any interference in code (creation, processing, distribution of code) can be supported through full automation (e. g. low-level [activities] managed by application functions), limited only by the technical capabilities of the device. Thanks to automation and thanks to a suitably designed algorithm, the computer programme, through the power of computer technology, is able to independently execute, instead of man, numerous activities according to a pre-determined schematic, e. g. image sharpening, removal of ‘noise’ in a sound track, overlaying of filters, effects, etc.

¹⁰ Manovich L., *Język nowych mediów...*, pp. 95–97.

¹¹ Manovich L., *Język nowych mediów...*, pp. 102–114.

A machine/ computer programme may also work in this way, being able to create art forms instead of man – such a machine can independently collect data (e. g. according to a favourite colour or topic) and transform images/ sounds/ texts, creating entirely new variations. Such a programme really exists, and is named (quite symbolically) the „Painting Fool”. It was created by Simon Colton in the year 2006 and its „artistic work” entails taking patterns/ ideas/ inspirations from the Internet and creating their imitations (using a suitable algorithm). In most cases, however, the „Painting Fool” randomly creates collages, abstract images or diverse visual creations imitating real art¹². Created were also a few graphics robots, referred to by their creators as „artists”, the creative process in which most frequently entails the mechanical creation of a drawing/ picture from a supplied pattern or camera image¹³.

The last important property of digital media, and the most interesting one from the point of view of digital humanism, is (cultural) transcoding, referred to by Manovich as a deeper form of automation and variability¹⁴. The author of *The Language of New Media* notes that computerisation had divided media into a purely digital area and the real cultural area existing directly beside it (but also together with it). Considering the fact that digital cultural texts may easily be copied, multiplied, distributed and archived, they very quickly become a solid and living context for traditional (analogue) culture.

¹² It is presently possible to automate many complex (multi-stage, hence, multi-level) activities, such as automatic control of cars, planes (permitting not only flights from point ‘a’ to point ‘b’ but also taking off and landing), industrial equipment (self-managing robots). Issues related to robotics, in particular to the creation of autonomous robots (e. g. self-driving cars) are broadly commented on in the latter, and examples of solutions (e. g. cars tested by the company Google) indicate that such products and services have a chance at becoming the everyday reality within the next few years. Conf. Jezierski E., *Dynamika robotów*, Wydawnictwo Naukowo – Techniczne, Warszawa 2006, Ulatowski W., *Sterowanie ruchem autonomicznie sterowanych pojazdów*, „Pomiary Automatyka Robotyka” 2004 no. 1.

¹³ *Robot artystą?* „Blog wiedzy o nowych technologiach”, [Online:] <http://www.blogotech.eu/index.php/1503-robot-artysta> [accessed: 3.09.2018].

¹⁴ Manovich L., *Język nowych mediów...*, pp. 114–118.

Both spaces influence each other, as a result of which, a new digital culture emerges, being a mix of human and computer-based meanings.

Creative work within the area of new media is simple, easy and commonly available, and the smartphone in the pocket of 2018's teenager is a 1990s multi-million-dollar supercomputer able to automate the majority of basic activities related to, among others, editing media. Changing a photo made using a camera into its version imitating a charcoal drawing, transforming the image of a landscape into an impressionist painting, slowing down a fast-paced music track or removing the vocals, cleaning up an old photograph or removing visible technical flaws, the fusion of several short films into a longer one, including a title and captions – these activities are very simple and can be done in most cases 'on the fly' by an experienced cellular phone user. In addition, a 'work' 'created' in this way may be published and promoted right after it is created, using further digital tools available on the Internet.

So, in the context of the above musings, who is the author in the world of new media? A programmer? A modifier? A re-creator? An imitator? Or maybe exclusively a skilled operator of digital tools?

Information overload, or the sleeping brain

The influence of the poly-sensory/ multimedia message on the perception of their recipients was already the topic of hundreds, if not thousands of books, articles, papers from various areas of science (from neurobiology to applied linguistics and cultural science). Thanks to this, we now know pretty well that the influence of the multimedia message on perception is strong, significant, and that it leaves a permanent mark in the mind of the recipient. For years as well we have been dealing with the term '**information overload**' as introduced by Alvin Toffler already in the 1970s, referring to the condition, in which an excess (diversity) of information transferred simultaneously significantly impedes the reception of the conveyed

message¹⁵. Manfred Spitzer had devoted a separate chapter of the book *Learning: The Human Brain and the School of Life* to so-called **selective attention** (being one of the effects of information overload), writing: „Selective attention has at its disposal a specific and limited capacity to process information, which is directed at incoming tasks. The more capacity is reserved for a specific task, the more does it occur at a cost for other tasks.”¹⁶ This information should be paired with the fact that the human brain not only functions in full autonomy (e. g. one cannot use ‘will power’ to order the brain to focus on just one piece of information), but in addition it is very economical, not to say thrifty (or even stingy) when it comes to making use of energy. So, if a particular mental task is too time-/ work consuming/ or boring/ tiring for the brain, then it will simply cease handling it. This phenomenon, and in particular the effects of overload influencing so-called superficiality of reception of digital content (e. g. when viewing websites) was described extensively by Nicholas Carr (*The Shallows: What the Internet Is Doing to Our Brains*), Gary Small and Gigi Vorgan (*iBrain: Surviving the Technological Alteration of the Modern Mind*), as well as the already mentioned Manfred Spitzer in his book *Digital Dementia*. Carr notes: „Dozens of studies by psychologists, neurobiologists, paedagogues or website designers all lead to the same conclusion: when we go on-line, we enter an environment that encourages skimming instead of reading, chaotic thinking and superficial learning. Of course, one may ponder deeply when surfing the Internet, just like one can remain on the surface when reading a book. However, this is not a mode of thinking that is supported and rewarded by the discussed technology.”¹⁷

On the other hand, the quoted neurobiologists (Spitzer in particular), and specifically neuro-didacticians (with the conclusions of

¹⁵ A. Toffler, *Future Shock*, Bantam Books, 1970.

¹⁶ M. Spitzer, *Jak uczy się mózg*, Wydawnictwo Naukowe PWN, Warszawa 2012, p. 113.

¹⁷ N. Carr, *Płytki umysł. Jak Internet wpływa na nasz mózg*, Helion, Gliwice 2010, pp. 145-146.

Marzena Żylińska¹⁸ (noteworthy in terms of Polish literature) rightly point to the fact that contemporary generations of digital communicators are so specialised in the reception of digital media that the process of reception of complex messages (so-called. „multitasking”, or the simultaneous active browsing of websites, listening to music and writing text messages) is so natural for them that it does not constitute any particular attraction for their brains – so, in order to become excited, they either need a much stronger stimulus, or there may arise the risk that their brains will „fall asleep”. The ability to efficiently receive many messages at once, including the simultaneous usage of some of them, has become for a group of researchers (among them Gary Small, Gigi Vorgan) the basis to believe (somewhat controversially in view of certain researchers) that in the process of evolution of the brain, a significant change had occurred permitting the naming of new generations raised in the world of digital media as the digital generation that significantly differs from older, analogue generations (Prensky had described this divide in the year 2001 as „digital natives” and „digital immigrants”¹⁹). Among brain researchers, this ‘active’ clicking (there is even talk of a culture of zapping) has furious opponents, because in the long term, it leads to weakening of stimuli and superficiality of message reception (the eye moves quickly from one piece of information to the next)²⁰. In this context, noted must be one simple fact – didactic tools entailing for the most part ‘clicking’ operations are not primarily tools serving efficient acquisition of information and learning, but learning efficient (even masterful) clicking.

¹⁸ M. Żylińska, *Neurodydaktyka, Nauczanie i uczenie się przyjazne mózgowi*, Wydawnictwo Naukowe Uniwersytetu Mikołaja Kopernika, Toruń 2013.

¹⁹ Prensky M., *Digital Natives, Digital Immigrants* [in:] *On the Horizon*, Vol. 9, No. 5, MCB University Press, Bradford 2001. [Online:] <http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf> [accessed: 17.01.2017].

²⁰ Conf. A. Zając, *Uczenie się w sieci przez zapping*, „Neodidagmata” 2011, 31/32, pp. 109–126.

Within the topic mentioned in this context, it is worth it to take a closer look at how the digital message influences primarily the media creativity of recipients (in particular young ones), and in what way the digital model of communication executed using multi-media tools, and social media in particular, creates or stimulates such attitudes.

One of the more interesting analyses of the influence of new media on the young recipient is provided by Jadwiga Izdebska in the article *Multimedia zagrażające współczesnemu dziecku* (Pl. Multimedia as a threat to the contemporary child), focusing mainly on the influence of media on the efficiency of brains (omitting hearing, however), in particular the emotional and psychological condition of the recipient – and these areas, as is well known, are particularly important to the willingness/ need to express/ provide creative work.

Table 1. The wrong influence of the computer and the Internet on a child²¹

Categories	Symptoms
Health	Illnesses: of the eyes, the skeletal system, the nervous system; allergies
Communication using the Internet	Shallowed, short signals, a language of abbreviations, a limited range of signals
Behaviour	Behaviour: aggressive, arrogant, vulgar, conflict-provoking
Emotions	Fears, nightmares, feelings of fright, overexcitement, indifference to evil, aggression, harm
Reduction of time for:	Direct social contacts, school learning, house duties, family duties, family contacts, discussions, physical activity, sport, readership, other forms of participation in higher culture
Brain/ the mental sphere	Cognitive relativism, ethical relativism, intellectual passivity and laziness, removal of the difference between reality and fiction, removal of the differences between law and lawlessness, disadvantageous changes to vocabulary
Making contacts with the inappropriate people	paedophiles, homosexuals, gangs, sects

²¹ Izdebska J., *Multimedia zagrażające współczesnemu dziecku*, W: Izdebska J., Sosnowski T., *Dziecko i media elektroniczne – nowy wymiar dzieciństwa. Komputer i Internet w życiu dziecka i obraz jego dzieciństwa*, vol. 2, Białystok 2005, p. 108.

The creator/ re-creator in a culture of imitation

The information overload, as well as the selectivity and superficiality of reception of information, also significantly influences the interference of the well-being of digital communicators, and at the same time, the execution of creative attitudes. These, being much more tiring for brains overloaded with multimedia, are replaced by much simpler and less demanding **imitatory activities**. In this regard, significant „aid“ for overloaded brains, as indicated by the already-quoted Nicholas Carr, is found in the form of digital information tools that focus on options related to the processing and distribution of existing messages (edit/share/like) rather than the cumbersome and time-consuming creation of these from scratch. As we were able to show in the second part, new digital media, by their very digital nature, are messages limited by capabilities of the digital code that constitutes them. To say it simply – thanks to digital tools, we are only able to create what was assumed at the time they were produced (e. g. when the functions of a device or a software programme were created), and exclusively within the space of activities described within the code. Hence, if the device or software does not have a function that would interest the creator, they have to search for a further tool or (and in most cases due to lack of time, lack of engagement, talent, computer skills) be limited to the functions available at hand. In this manner, Facebook becomes a graphics tool, and the montage of a film to be viewed by millions of viewers can be completed with a smart phone application. However, irrespective of the number of available functions of devices and software, the digital creator will always be limited by the space of the code and the lack of possibility of transgressing the selected system of communication. As we mentioned earlier, the language of new digital media is constituted by properties entailing copying and transforming the existing message using existing computer tools [rather than] the creation of completely new content. Existing digital tools related to creating (e. g. drawing software, digital musical instruments, digital cameras and camcorders) are provided

with so many automatic functions that already at the stage of creation of new works, it is de facto created either following a pattern or through a pattern permitting the modification of an existing work. In other words – it is simpler and easier to create „something new” from an existing source (e. g. a template) than creating (e. g. with a painting application) an original work. It is simpler and easier to transform an existing „meme” than create and promote a completely new one, and each of these imitations is a further digital variation of the original, as described by Manovich.

It is worth noting that the creation of imitations ceased to be perceived as a flaw, shortcoming or lack of creativity in the contemporary culture of convergence. Exactly the opposite is happening – something that is similar to other popular messages is rising as a value, and thanks to efficient imitation, the author/ re-creator/ imitator may boast good knowledge of the current cultural code. Apt observers of social media note the flow of digital media fashions that follow one another, being able to easily identify and classify them – also thanks to computer tools themselves, which efficiently classify the most popular messages (top 100 YouTube films, most popular Facebook sites, most eagerly watched Instagram accounts, etc.). The decisive majority of social tools support imitation work offering tools akin to „like/dislike”, permitting not only references by the communicator to the received content, but primarily the classification of messages that are liked or disliked. Instead of a text comment to a photograph, suggested is marking of persons with the click of a mouse, and instead of the expression of emotions, the tool offers a range of ready emoticons showing joy, sadness, anger, etc. Ever clearer is becoming the tendency of social media site operators to depart from the establishment of individual messages requiring complex writing skills (e. g. the creation of subordinate-clause compound sentences), a good example of which is the imposition on communicators of e. g. a limit of the characters (letters) that they may include in a message.

A further noteworthy tool supporting imitatory work is the option of sharing/ resharing, permitting the redistribution of the most popu-

lar messages instead of more complex commenting/ recommending one's favourite messages. The sharing of a message is treated as recommending it to other communicators, and, thus, the accession by the person sharing to the network of official and unofficial distributors of digital messages. At the same time, the culture of imitation exhibits repetitive phenomena of emergence of short-term media stars, achieving within a short time seven-digit indicators of not only viewers, but re-distributors, and, to follow, imitators. In a digital culture of imitation thus perceived, a significant role is played by novelty (or the freshness of a message) and its popularity, frequently achieved by the simplest/ most primitive means, e. g. through controversy or conscious reference to other popular messages. A minor role is played not only by aesthetic quality, innovation or legal requirements, but even the technical quality of the message.

Since the time of dynamic development of digital media (towards the end of the 1990s, among others, [the original file-sharing site] Napster, followed by the BitTorrent protocol-based sites), and then social media and streaming file sites (MySpace, YouTube, Spotify, [the recent music streaming service] Napster, etc.) noticeable is the contesting or even questioning of the reasonability of restrictive care for copyrights on materials made available in the global network. Some more radical users of the net believe in the right of every user of the net to freely use any content in any way. Public perception and the reality of the culture of imitation has this approach not only resulting in work not only entailing the „appropriation“ of particularly popular names or even images found in the global network. In this way, the creator living in the real world consciously and willingly becomes a virtual being described by their digital nick and avatar.

Looking for creativity

In a situation of so common availability of digital tools, and under conditions of so strongly globalised digital media culture (in addition, as we have attempted to show, being a culture based on imita-

tion), it is uncommonly difficult to estimate any sort of vision of the future with respect to creative attitudes. Despite this, one may venture to formulate some conclusions that are somewhat general and which transgress technological limitations, which are always variable.

First of all, contemporary technological reality is a transitional state, and the direction of further development of digital tools is difficult to estimate. The interfaces presently used for communication between man and machine are entirely outdated. The keyboard has over 100 years, the computer mouse is just fifty years younger, computer monitors – or rather the lifestyle that they force – are responsible for a growing group of diseases of affluence. What will the interfaces of the future look like? They will certainly be different than the ones of today, and the tendencies of their development and the most recent trends indicate that the management of devices will grow ever closer to natural forms of communication of man, covering, among others, the possibility of direct communication of man with machine through senses.

Irrespective of the direction, in which the continued development of technology will go, the competences that will distinguish man against the machines of the future will be the ability to think creatively/ critically and complex, multi-level communication competences, spanning not only historic mods of communication (speech, written words, non-verbal communication), but also empathy, intuition and the tendency to take risks. Decidedly retreat in turn will all those competences that could be simulated by machines and the artificial intelligence managing them. In this view, the main stress of education in the coming years on all levels should be laid on the development of communication competences, related both to better communicating between people in the physical world, as well as the digital communication competences facilitating the communication of humans with virtual beings. Irrespective of the above, however – what will become most important is the development of competences permitting man to achieve an existential harmony, including the execution of creative attitudes and the achievement of well-being in life.

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From Passive Recipients to Active Media-Creators: Small Children and ICT in the Light of Own Studies

ABSTRACT: Agnieszka Iwanicka, *From Passive Recipients to Active Media-Creators: Small Children and ICT in the Light of Own Studies*, Interdisciplinary Contexts of Special Pedagogy, No. 23, Poznań 2018. Pp. 135-152. Adam Mickiewicz University Press. ISSN 2300-391X. DOI: <https://doi.org/10.14746/ikps.2018.23.08>

Small children show a lot of media activity: they are perfectly capable of handling new technologies as they have been using them since the first years of their life. The types of activities that they manifest depend on the family home and the behaviour they observe in their parents. With their support and with the provision of positive patterns, children may become not only passive media users, but also active media content creators who, in the course of time, will have a real impact on the reality in which they are growing up. In the paper, the author presents selected results of own research which verifies the role that the media play in the life of a child in an early school age. The author tries to determine if children only display passive and imitative media activities or whether there is also active media creation.

KEY WORDS: ICT, media, media literacy, coding, media content creator, children in early school age

Introduction

Mediatization of the contemporary world is a fact; it brings a lot of novelties not only in the sphere of communication (e.g. change of the type and the quality of human interactions), information and

education, but also in the sphere of our daily activities. The media that we choose depend on the level of their attraction for us, the degree of satisfaction of needs in the off-line world and the impact of the immediate environment. The situation is slightly different in the case of small children and activities undertaken by them: in this case, the significance of the family environment is greater, along with personal models delivered by parents and other adult persons (e.g. grandparents) from the immediate surroundings. A child learns how to use the media from them and they determine when and in which mode the child is going to use the ICT. In the initial period of the child's life, the parents (and in subsequent years also the school and the teachers) are liable for the broadly understood media education of the child, whereas the mode in which they use the media is reflected in the media competence of their children, along with media activities undertaken by them¹. Parents' high media competence usually translates to the same level of competence in children: through their behaviour, they not only initiate, but also facilitate learning the correct use of the ICT, offering them a positive example².

A small child is not capable of handling the reception of media communications: he/ she needs the support of adults in striving to become their conscious and critical recipient, so that the media become a useful tool for the child, which will be used in line with the pre-determined purposes. Only in effect of such activities can the child become an active media-creator - the creator of media content and not only a passive consumer of communications delivered by other users of new technologies. A media-active person possesses extensive competence that allows for full participation in the digital reality: such person consciously uses the media and is capable of making a critical evaluation of the media, is familiar with the mechanisms of media impact, chooses valuable communications, verifies their origin, inde-

¹ J. Juszczyk-Rygałło, *Wczesnoszkolna edukacja medialna jako wprowadzenie do edukacji całościowej*, Prace Naukowe Akademii im. Jana Długosza w Częstochowie. Pedagogika 2015, vol. XXIV, p. 90.

² J. Marsch et al., *Digital Beginnings: Young Children's Use of Popular Culture, Media and New Technology*, Sheffield, 2015, p. 12.

pendently creates materials that are subsequently posted, e.g., on the network for common use or are used for own needs (e.g. work, entertainment), is familiar with and knows how to use the available tools necessary for performing a given activity, is able to work in a group using new technologies. In the modern times, persons actively using the media in the broadly-understood process of creation (providers of media content: media-creators) are perceived as possessing the highest media competence and desired at the labour market.

Media activity of children in early school age seemed a sufficiently interesting subject matter to the author of this paper; it led to a decision to check whether such activity existed in this period of children's life and the nature that it acquired during the child's leisure time, in his/ her immediate family environment. The major results from the study are presented below.

Relation Between Child and Media

Early childhood is more and more related to the new media - in particular screen-type media (including, e.g., smartphones, tablets and computers with Internet access) are gaining popularity³. According to the most recent reports, children are the most frequent Internet users. UNICEF notes that 1 out of 3 Internet users is a child⁴, whereas the age of media initiation is significantly lowered. According to Batorski, as many as 21% of children use the Internet already at the age of 3; at the age of 4, the percentage spikes to 25%, whereas among first graders it reaches almost 70%. A definite majority of children who start school education are already familiar with the new technologies: being careful observers, they grow watching their parents and siblings use the media⁵. Therefore, it seems justified to consider the types of media

³ J. Juszczyk-Rygałło, *Wczesnoszkolna edukacja medialna jako wprowadzenie do edukacji całościowej*, p. 94.

⁴ Unicef, *The State of the World's Children 2017: Children in a Digital World*, https://www.unicef.org/publications/index_101992.html [access: 9.06.2018].

⁵ D. Batorski, *Technologie i media w domach i życiu Polaków*, [in:] *Diagnoza społeczna 2015: Warunki i jakość życia Polaków*, ed. J. Czapiński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2015, pp. 373-395.

activities that children in early school age are engaged in. Which media do they use in their leisure time and what is the quality of such contact? Is it only passive and imitative or are children also the creators of media content? Such questions seemed sufficiently important for the author of the paper to make the subject matter of the study the presence of media in the life of a child in early school age. Verification of the type and the scope of media activities undertaken by the children was particularly interesting.

The studies carried out by the author – the results of which are only partially presented in this paper – had a diagnostic nature and constituted pilot studies. Their purpose was standardisation of the pre-determined research procedure, including the research tool, and they were aimed at determining a given state of affairs, without the intention of delving into the existing causal dependencies among them⁶. A diagnostic survey was used in the study along with the on-line questionnaire technique. The questionnaire contained 30 questions which had a closed form with categories to choose from, a scale, rankings and open elements. Persons participating in the study were parents of children in early school age (grades 1–3 of primary school). 192 persons took part in the survey, including as many as 185 women and only 7 men; the majority of them were residents of large cities (75%), above 30 years of age (70%) and had two or more children (69%). In all of the respondents' homes, there was at least one television set with access to satellite television and computer with Internet access (as many as 40% of households had two or more computers). All the respondents had telephones with Internet access, as many as 60% of parents declared that their children also had their own smartphones. This type of access to new technology translates to media skills of children – as shown by studies, over one-third of children can already use touch screens, smartphones or tablets before turning one⁷. The age of children's

⁶ M. Łobocki, *Wprowadzenie do metodologii badań pedagogicznych*, Oficyna Wydawnicza Impuls, Kraków 2004, p. 67.

⁷ cf. H. Kabali et al., *First Exposure and Use of Mobile Media in Young Children*, Pediatric Academic Societies' Annual Meeting, 25–28.04.2015, San Diego, Abstract:

media initiation is lowered year by year: in 2011, the percentage of one-year old children using the media was on the level of 10% only. Similarly, the scale of the diagnosed phenomenon grows in other age groups; with respect to children aged 5–8, it reaches a very high threshold of 83% of media users⁸. Without doubt, such state of affairs results from the general availability of new information and communication technologies, significant reduction in the cost of their production and purchase and displacement of the traditional media (the co-called old, analogue) by the multimedia, known as the new media. The material status of families plays a significant role in the availability of the media; however, it is not tantamount to their intense use - the higher the education of parents and their media awareness, the more careful the use of media in such families is⁹.

As many as 95% of children have intense contact with the media even before they start to attend primary school and this percentage is continually growing¹⁰. According to the studies performed by the author, all children (irrespective of the education of their parents and place of residence) had daily contact with the media: television (90% of respondents), tablet (40%), computer with Internet access

http://www.abstracts2view.com/pas/view.php?nu=PAS15L1_1165.3; 2015; C. Kemp, *Babies as young as 6 months using mobile media: Survey shows most 2-year-olds using mobile devices, with some spending more than an hour a day on screens*, AAP News, <https://www.aap.org/en-us/about-the-aap/aap-press-room/pages/Babies-as-Young-as-6-Months-Using-Mobile-Media.aspx> [access: 10.08.2018].

⁸ cf. A Common Sense Media Research Study, *Zero to eight. Children's Media Use in America* in 2011, 2013, <https://www.common sense media.org/research/zero-to-eight-childrens-media-use-in-america-2013> [access: 10.08.2018]; D. Batorski, *Technologie i media w domach i życiu Polaków*, [in:] *Diagnoza społeczna 2015: Warunki i jakość życia Polaków*, ed. J. Czapiński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2015, pp. 373–395.

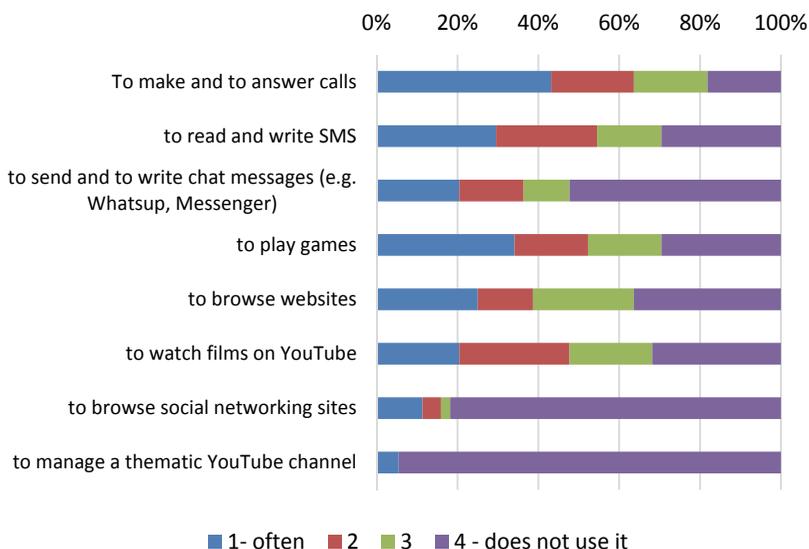
⁹ D. Batorski, *Dzieci z sieci – dostęp i korzystanie z internetu przez dzieci w wieku przedszkolnym*, [in:] *Małe dzieci w świecie technologii informacyjno-komunikacyjnych. Pomędzy utopijnymi szansami a przesadzonymi zagrożeniami*, ed. J. Pyżalski, Wydawnictwo "Eter", Łódź 2017, p. 87.

¹⁰ D. Batorski, *Technologie i media w domach i życiu Polaków*, [in:] *Diagnoza społeczna 2015: Warunki i jakość życia Polaków*, ed. J. Czapiński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2015, pp. 373–395.

(60%) or mobile telephone (69%) - own or belonging to their parents. The frequency of having and using the mobile phone - a smartphone - increases together with the child's age - a clear growth is recorded in the third grade, after the child attends the First Holy Communion¹¹. Children use smartphones most frequently to make and to answer calls, to play games and to browse the Internet; only a slight percentage of children use telephones to browse social networking sites or perform other activities, e.g. manage their own thematic YouTube channel.

Diagram No. 1. Use of smartphones by children

For what purpose does your child use telephone?



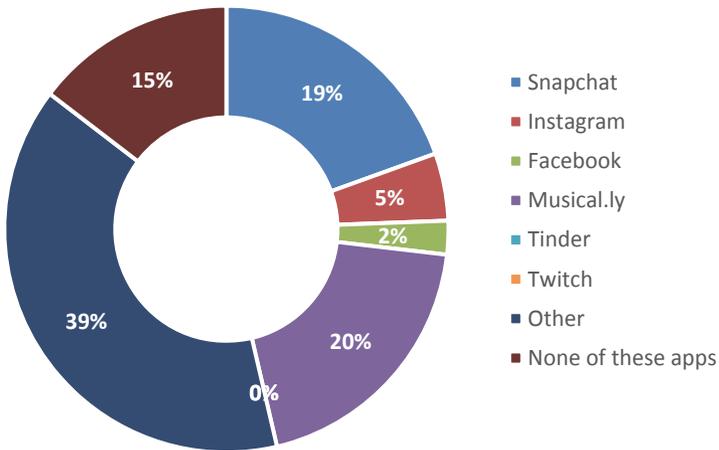
Source: results of own studies

¹¹ D. Batorski, *Dzieci z sieci – dostęp i korzystanie z internetu przez dzieci w wieku przedszkolnym*, [in:] *Małe dzieci w świecie technologii informacyjno-komunikacyjnych. Pomiędzy utopijnymi szansami a przesadzonymi zagrożeniami*, ed. J. Pyżalski, Wydawnictwo "Eter", Łódź 2017, p. 80.

If a child has a telephone, popular applications are often installed on it, such as: Snapchat, Instagram or Musical.ly (nowadays TikTok). A very small percentage of children have Facebook accounts, which is a good thing due to the fact that Facebook is formally allowed as of 13 years of age. This may testify to increasing media awareness of parents who do not allow their children to use this popular social site too early. Growing awareness of parents is also recorded with respect to the time that children devote to the media. As many as 60% of parents declare that they control the amount of time that their children spend using the individual media. However, 19% concede that they do not pay attention to it or agree to bend the rules and give in to the child, extending the stipulated time of using the media (21%).

Diagram No. 2. Apps installed on the child’s telephone

Does your child have any of the apps listed below installed on the phone



Source: results of own studies

Among children who had the popular application called Musical.ly, as many as 65% actively created their own videos which they shared with other users. The others were passive observers. Their case was similar with Snapchat and Instagram – they are willingly used by children to take photos (80%), record short films (45%) or make the so-called Instastories (20%), which are subsequently posted on sites and evaluated or commented on by other Internet users. However, these are not the products that tackle any valuable subjects – most often, they show the daily life of children, activities undertaken by them, hobbies and interests, their immediate surroundings, favourite items, animals, accounts of films viewed or songs listened to. Nevertheless, children willingly use these apps, not only to record their own materials, but also to view the content made available by other users.

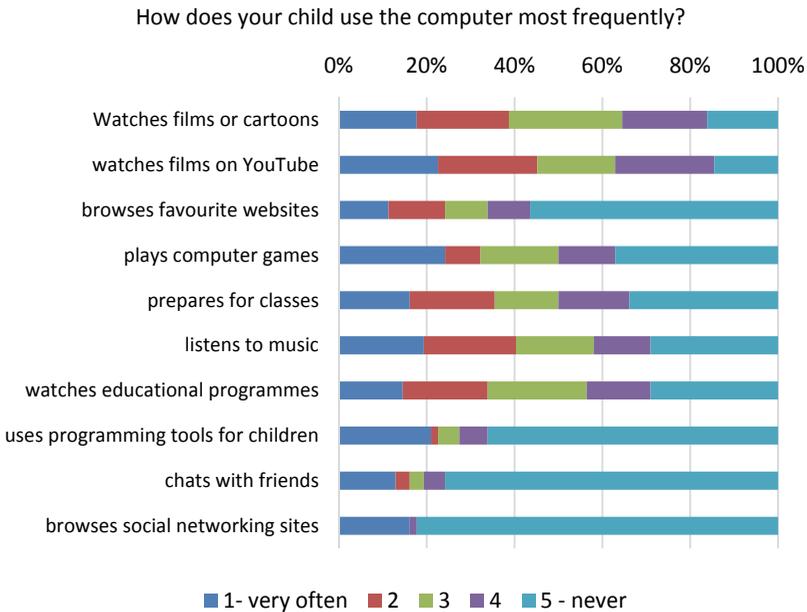
Television, which had been popular until recently, is losing its attraction more and more, becoming a medium that accompanies other activities performed by the child (like the radio in the past). This may result from absence of its interactivity – this is a medium with a typically passive character, which is unattractive for children who are accustomed to responsive media. According to parents' declarations, whilst watching television (usually cartoons or animated films) as many as 60% of children perform other activities at the same time, e.g. play with traditional toys (35%), check their phone (10%), do something on the computer (6%), prepare for school (4%) or eat a meal (5%). A tablet is gaining popularity among children: the percentage of children using it grows year by year; more children use tablets than computers with Internet access¹². Its attractiveness is definitely determined by easy, almost intuitive use, interface often adjusted to the child's age, high mobility of the device (it is easy to carry it to a place convenient for the child, without the necessity of connecting to power supply) and relatively safe use

¹² D. Batorski, *Technologie i media w domach i życiu Polaków*, [in:] *Diagnoza społeczna 2015: Warunki i jakość życia Polaków*, ed. J. Czapieński, T. Panek, Rada Monitoringu Społecznego, Warsaw 2015, pp. 373–395.

- the probability that the child will encounter undesired content when using a tablet is much smaller, as most often only applications, cartoons and films verified by parents are installed on it. Its feature is also interactivity, which is an important trait of multimedia: children know that they can immediately react to certain media content, influence its shape or even create new content. Tablets, computers and smartphones are the most interactive media for them, simultaneously acquiring the status of the most attractive.

When asked about activities performed by children on the computer, parents indicate as follows: playing computer games and watching films on YouTube. Subsequently, there is also programming, listening to the music and watching cartoons and films.

Diagram No. 3: Activities performed by children on computers



Source: results of own studies

It is worth adding that the feature distinguishing youngest generations is the need of high interactivity of the media environment, coupled with the skills and the desire to co-create the content subsequently posted on-line and the feeling of affiliation with the virtual community that acquires the traits of a real society for them.

Child As the Creator of Media Content

In the EU Kids On-line¹³ project, three types of roles were selected which young people using new technologies may adopt. They may be the recipients of content, the participants (when they contact other Internet users on-line) or the actors, when independently, of own accord, they undertake certain activities with the use of the Internet. As the recipients of media content, they do not perform any activities apart from passive use of the media resources, adjusted to their cognitive potential (by assumption). As the participants, they fully use the interactivity of the media to communicate with other members of the group to which they belong (family, peer group, interest groups), depending on their age and skills either with the assistance of adults or independently, with the use of chats and social networking sites. Such participation not only enables communication, but also exchange of various types of information. The third of the adopted roles – the actors – allows for creative expression of self through independent production, creation and eventually publication of media content, which is the core of the aforementioned idea of content creation¹⁴. This role is available to few young people: in the author's surveys, only a small percentage

¹³ S. Livingstone, L. Haddon, EU Kids On-line: Final report. LSE, London 2009, [http://www.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20I%20\(006-9\)/EU%20Kids%20Online%20I%20Reports/EUKidsOnlineFinalReport.pdf](http://www.lse.ac.uk/media@lse/research/EUKidsOnline/EU%20Kids%20I%20(006-9)/EU%20Kids%20Online%20I%20Reports/EUKidsOnlineFinalReport.pdf) [access: 10.08.2018], p. 10.

¹⁴ A. Lenhart, M. Madden, A.R. Macgill, *Teens and Social Media*, Pew Internet & American Life Project, 2009, <http://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/> [access: 10.08.2018].

of children in this age was involved in such a stance, the rest adopted the two other roles. Other studies show that our stereotypical perception of the Internet as a place where children and young people manifest negative behaviour and are dealing exclusively with threats is misleading: the majority of activities undertaken by them were of neutral or positive character¹⁵. However, only a small portion are active measures, exceeding the average Internet use. Among them, it is possible to include activities particularly valuable not only for the individual, but for the entire society, creative activities, activities developing creativity or supporting development. Little is known about them, as it is the Internet threats that are usually within the researchers' interests; there are still very few studies with a holistic approach (thus indicating both positive and negative aspects) to the possibilities of the use of Internet by children, even though positive changes are noticeable¹⁶.

Children use the media primarily for entertainment purposes¹⁷, and they do it with a significant skill. They have no problems with independent use of the television (100% of respondents), tablet (88%), smartphone (79%) or computer (only 37% need slight assistance of parents to turn on a favourite cartoon, a DVD film or to find a website). In the age group that was of interest for the author,

¹⁵ D. Finkelhor, K. J. Mitchell, J. Wolak, *Online victimization: A report on the nation's youth*, National Center for the Missing and Exploited Children, Alexandria 2000, http://www.unh.edu/ccrc/pdf/Victimization_Online_Survey.pdf [access: 11.08.2018]; E. Dunkels, G-M. Franberg, C. Hallgren, *Young people and online risks* [in:] *Youth Culture and Net Culture: Online Social Practices*, ed. E. Dunkels, G-M. Franberg, C. Hallgren, I-Global 2011, <http://www.mucl.se/sites/default/files/young-people-and-online-risk.pdf> [access:11.08.2018].

¹⁶ J. Pyżalski, *Od paradygmatu ryzyka do paradygmatu szans: prorozwojowej i prospołeczne używanie internetu przez dzieci i młodzież*, [in:] *Nastolatki wobec internetu*, ed. M. Tanaś, NASK, Warsaw 2016, https://akademia.nask.pl/publikacje/Nastolatki_wobec_internetu_.pdf [access: 11.08.2018], p. 57.

¹⁷ R. Zevenbergen, H. Logan, *Computer use by preschool children: Rethinking practices as digital natives come to preschool*, *Australian Journal of Early Childhood*, 2008, https://research-repository.griffith.edu.au/bitstream/handle/10072/23047/53861_1.pdf;jsessionid=5AECB87B4BB315B523C9AD98D3513C3F?sequence=1 [access: 10.08.2018].

there was a significant diversity with respect to the mode of using the new technologies - from passive reception of media communications (e.g. watching films and cartoons) to a quite active stance, e.g. making films, taking photos with the use of the camera in the smartphone or programming educational robots. In the context of children's media activity, it is worth differentiating between the creative and imitative activities: derivative and repetitive behaviour is evaluated as a lower form of activity and called imitative; higher and innovative behaviour goes beyond the stereotypical conduct and instils creative activities with innovative elements¹⁸. New communication and information technologies provoke children to manifest active and creative behaviour – the computer and the Internet¹⁹ occupy a special place in this respect, along with educational robots. Programming in simple, visual languages, e.g. in Scratch, performs well in this role; it not only teaches the children logical, algorithmic thinking, but also develops creativity, imagination and active, creative operation. Even though the programme as such is a product of somebody else's activity and creative stance, it may stimulate such behaviour on the side of its users. Educational robots become more and more popular ICT tools: their price is still a barrier; nevertheless, more and more schools decide to buy them and use them to implement the core curriculum, which for a year has been featuring a provision about the necessity of implementing new technologies - including the programming-related skills in the early school education. They also start to appear in private homes (11% of the examined parents declared having it), which is a good thing, as they are an excellent tool developing the child's creativity, teaching logical and analytical thinking, independent problem solving, accuracy, precision and conscientiousness. They also integrate families:

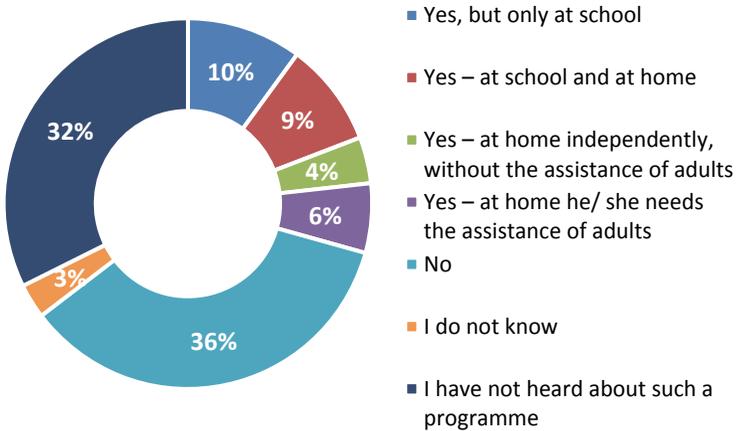
¹⁸ E.B. Hurlock, *Rozwój dziecka*, PWN, Warszawa 1985, s. 90; M. Przetacznik-Gierowska, G. Makiello-Jarża, *Psychologia rozwojowa i wychowawcza wieku dziecięcego*, WSiP, Warszawa 1992, pp. 57.

¹⁹ S. Papert, *Burze mózgow. Dzieci i komputery*, Wydawnictwo Naukowe PWN, Warszawa 1996, p. 16; A. Walat, *Wprowadzenie do języka i środowiska Logo*, OELiZK, Warsaw 1996, p. 27.

only 8% of parents declared that their child played with such robot at home independently; others needed adult assistance, which provides a great opportunity for playing and working together.

Diagram No. 4. Coding in Scratch by children in early-school age

Does your child code in an educational programme such as Scratch?



Source: results of own studies

The new core curriculum introduced to schools on 1 September 2017 sets the following objectives for the teacher: developing creativity, critical and logical thinking ability, reasoning, arguing and concluding, exciting the students' cognitive curiosity and motivation to learn²⁰. The majority of changes are related to the students'

²⁰ Ministry of National Education, Core Curriculum for General Education for Primary Schools, http://edukacja.wczesnoszkolna.edu.pl/wpcontent/uploads/2017/02/podstawa_programowa_2017_sp_edukacja.wczesnoszkolna.edupl.pdf, p. 1 [access: 01.08.2018].

accomplishments in the area of programming and solving problems with the use of computers and other digital devices and refer to such activities as: using computer to perform a task, visual programming, creation of computer graphic communications, use of Internet resources. Such possibilities are offered by the above-mentioned Scratch programming, which gains popularity in the Polish schools, as well as outside of them, in the child's home environment.

Programming is a skill that allows children to develop creative thinking, draw logical conclusions, improve analytical skills and reach solutions independently. Next to native and foreign language skills, it is considered the third language today, necessary to understand the world surrounding us and the dynamic communication and information changes that occur in it. Its popularisation is however not aimed at educating throngs of programmers: it is primarily aimed at ensuring that a child/ pupil ceases to be a passive recipient of the ICT and is able to use it creatively and with understanding for own needs and purposes.

Depending on the child's skills, his/ her needs and interests, the ICT instruments offer a possibility of various types of behaviour mastering the child's essential competence. They allow for becoming involved in activities which are not only attractive for the child, but also stimulate and motivate the child's development. In this place, it is worth referring to *edutainment and playful learning* - thanks to the fact that the producers of the ICT tools try to package them in the most attractive form, for many children they become a good source of entertainment and play used for educational purposes²¹. Such devices include the above-mentioned educational robots, programmes that teach coding or programmable Lego WeDo blocks - the child masters vital skills when playing with them. Apart

²¹ M. Resnick, *Computer as Paintbrush: Technology, Play, and the Creative Society*, [in:] *Play = Learning: How play motivates and enhances children's cognitive and social-emotional growth*, ed. D. Singer, R. Golikoff, K. Hirsh-Pasek, Oxford University Press, 2006, http://www.computerclubhouse.org/sites/default/files/ComputerAsPaintbrush_Singer.pdf, [access: 10.08.2018].

from the above-listed benefits, it is also possible to mention: counting, combining items in groups, segregating, practical use of previously acquired knowledge by incorporating it with the newly acquired information. They are not very popular now, but they start to appear in the Polish homes, encouraging children to creative learning via playing. 13% of respondent parents declared that they had such blocks (among this group, only 8% of children use them very often, the rest rarely uses them for playing/ learning).

From the point of view of the child's development, particularly valuable are these ICT instruments that not only develop certain tool-type media skills (e.g. programmes/ tutorials for taking photos or making films), but also have a potential for being used for educational and creative purposes²². These tools that prepare the children for the role of **media-creators** or the so-called **content creators** are particularly important from the point of view of the child's development. As shown by the survey, persons who are active on the Internet often manifest such patterns of functioning in the off-line environment²³ (e.g. at school, in a peer group, circle of interests, etc.). Younger children manifest less creative and active behaviour with the use of the media; creative activities are often carried out with the assistance of adults - however, easy to use ICT instruments result in the fact that young children start to be active creators online and our task is to encourage children to use them, showing good practice and examples of valuable use of the ICT tools.

Recapitulation

Thanks to the media, children experience success, observe their progress and development in a given area and feel fulfilled when they can share their products with others, present them to peers and

²² M. Resnick, *Computer as Paintbrush: Technology, Play, and the Creative Society...*

²³ A. Lenhart, M. Madden, A.R. Macgill, *Teens and Social Media*, *Pew Internet & American Life Project*, 2009, <http://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/>, [access: 10.08.2018].

use the ICT instruments together²⁴. Co-sharing is an important feature of the new media: such tools as YouTube, Instagram, Snapchat or Musical.ly rely their operation on the idea of creating new content on the one hand and on the other on making it available and sharing it with other users. This feature is a value coveted by children in an early school age, for whom appreciation of the peer group is of great significance - nowadays, it is possible to gain it by showing one's own products in social networking sites. Compliments (in the form of positive comments) from the group have a great value for the child: they boost his/ her competence and constitute a confirmation that the efforts made in functioning in a social group were noticed. In order to receive them, one simply has to cease to be a passive on-line observer and show some activity, a specific action which would be noticed by others. These activities acquire diverse forms, depending on the medium in which the child displays his/ her creativity. For the purpose of the study, the author differentiated such activities as: taking photos with the smartphone, making films and videos, managing a thematic YouTube channel, coding in visual programmes such as Scratch, programming education robots or Lego WeDo blocks. The above-listed activities are not yet strongly embedded in the life of a child during first years of the primary school: they are more of a supplement to the activities performed with the use of media, their passive reception, stirring curiosity rather than inspiring for independent searches and creative activities. The supportive presence of adults is important in this respect: adults show technological novelties to children, teach how to use them in a desired manner so that they contribute to the child's development. Without doubt, all of the child's on-line activities should be managed and controlled by parents. Their ongoing and careful presence seems to be justified and desired until the child becomes aware of potential dangerous behaviour that may be encountered on-line.

²⁴ I. Kalaš, *Recognizing the Potential of ICT in Early Childhood Education*, UNESCO Institute for Information Technologies in Education, Moscow 2010, <https://iite.unesco.org/publications/3214673/>, [access: 10.08.2018].

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Internet activity and the sense of anlienation of young people in the media age

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The media have become man's natural environment. The younger generation matures in a highly developed society, and the media provide young people with the opportunity to satisfy their fundamental needs, including those related to interpersonal contact. But is it really so? This raises the question of the link between the Internet activity of young people and their sense of alienation. The article is an attempt at answering this problem. The research was carried out using the diagnostic survey method among 196 students of secondary schools in the Podkarpackie and Lesser Polish voivodeships.

KEY WORDS: internet activity, alienation, young people

Introduction

The 21st century, compared to the past centuries, is doubtless a time of intertwining of two worlds – the real and the virtual. Mass media, as a necessary component of the daily lives of people, along with the *mediatisation* of reality, have become the reason for the fact that today's civilisation has been hailed as the „media civilisation”¹.

¹ T. Goban-Klas, *Cywilizacja medialna*, Wydawnictwo WSiP, Warszawa 2005, p. 6.

Thanks to the Internet, the media society has started to change even further. „Today, anybody can supply services and content, recommendations and advice (...) One can endlessly switch back and forth between the virtual and the real worlds – they are entirely fused”². In the beginning, technological novelties were only an interesting addition to everyday lives. However, over several years, they have become indispensable. We cannot imagine lives without phones or the Internet. We have entered a time, when we are continuously active in the area of telecommunications – the ‘always on’ age³. Technology also constitutes a significant cause of social changes, it influences society and this influence is unconditional. The Internet had contributed to radical changes in the social functioning of an individual. „Irreversible changes in our mode of working, playing, perceiving the world and in the way we deal with each other”⁴. We are living a so-called digital life. Our phones have changed into photographic cameras, notebooks, calendars, dictionaries, game consoles, television sets and many more⁵. A virtual revolution had taken place. All our daily activities are conducted via the Internet. The search engine on the tablet, phone or laptop that is always open. Interpersonal communication is not about direct contact any more – it’s become intermediated. Young Internet users in particular actively utilise this platform of communication to exchange information and messages related to their common interests, convictions or attitudes”⁶. The Internet had become for them a new reality, in which they function daily. As they say „[...] we do not use the web, we live in it and with it. [...] Each of our formative experiences

² D. Lombard, *Globalna wioska cyfrowa: drugie życie sieci*, Wydawnictwo MT Biznes, Warszawa, 2009, p. 14.

³ D. Lombard, *Globalna wioska cyfrowa: drugie życie sieci*, Wydawnictwo MT Biznes, Warszawa, 2009, pp. 94-95.

⁴ E. Aboujaoude, *Wirtualna osobowość naszych czasów, mroczna strona e-osobowości*, Wydawnictwo Uniwersytetu Jagiellońskiego Wydanie I, Kraków 2012 p. 12.

⁵ E. Aboujaoude, *Wirtualna osobowość naszych czasów, mroczna strona e-osobowości*, Wydawnictwo Uniwersytetu Jagiellońskiego Wydanie I, Kraków 2012 p. 11.

⁶ T. Smektała, *Public relations w internecie*, Wydawnictwo Astrum, Wrocław 2006, p. 53.

contained a natural degree of the Internet. On-line we made friends, argued, we prepared crib notes online, arranged to meet for parties and learning together, fell in love and split up⁷. The media have presently become a „cultural and social system⁸. However, the possibilities offered by the use of the Internet are determined to a much greater extent now by the intensity of the issue of social alienation. „We are living in a time, when people close to each other in the physical sense are removed from each other, and people far away from each other become close⁹. Science utilises many definitions of alienation. One of the first concepts of alienation was proposed by Gwynn Nettler, describing it as „separation or isolation of man from other „natural” objects. He understands alienation as separation from society and from its culture¹⁰. Most concepts of alienation consider it to be a perceptible drop in quality of social relations (disappointment, loss of illusions, breakdown of the system of social expectations)¹¹. The core of the alienation personality is the generalised feeling of alienation that is primarily characterised by the feeling of anomie, pointlessness, self-alienation, helplessness or abandonment¹². It can be a particularly dangerous phenomenon in the context of young people, who are more than others threatened by experiencing isolation, and, accordingly, loneliness. During adolescence, they experience fast psycho-social development, the individ-

⁷ P. Czerski, Do analogowych, „Polityka”, 2012, no. 10(2849), pp. 64–65.

⁸ J. Morbitzer, O istocie medialności młodego pokolenia, „Neodidagmata”, 2012, 33/34, pp. 133–134.

⁹ T. Goban-Klas, *Spółczeństwo masowe, informacyjne, sieciowe czy medialne?* [in:] „Ethos, Katolicki Uniwersytet Lubelski”, users.uj.edu.pl/~usgoban/files/spoleczenstwo_medialne.doc, accessed on November 20th, 2016.

¹⁰ A. Turska-Kawa, Poczucie alienacji a użytkowanie mediów. W poszukiwaniu nowych obszarów zastosowania teorii użytkowania i gratyfikacji. Uniwersytet Śląski, Katowice 2011, p. 18.

¹¹ A. Turska-Kawa, Poczucie alienacji a użytkowanie mediów. W poszukiwaniu nowych obszarów zastosowania teorii użytkowania i gratyfikacji. Uniwersytet Śląski, Katowice 2011, pp. 16–24.

¹² A. Jakubik, K. Piastowska, Osobowość alienacyjna a schizofrenia paranoidalna, „Studia Psychologia: 1, 2000, pp. 69–80.

ual begins to perceive themselves as a partner in social relations and ascribes a personal significance to these relations. Hence, the feeling of loneliness during youth may constitute a significant risk of development of improper changes to personality, and also cause pathological behaviour¹³. The author of the present study had hence set for herself the goal of diagnosing the feeling of alienation in youths in the context of their media activity.

Research methodology

Studies of the media activity of youths were conducted at four upper secondary schools in the Subcarpathian and Lesser Polish voivodeships on a sample of 196 people. The study included youths from the following schools: The general upper secondary school of Biecz, Rzeszów school complex, the Cyprian Kamil Norwid general upper secondary school of Rzeszów and the Juliusz Słowacki innovative school complex of Jarosław. The feeling of alienation in turn was studied in 98 pupils of two from the four schools named above. The breakdown of the research sample is presented in the following table.

Table 1. Gender and count of the studied pupils

	Secondary school of Biecz		School complex of Rzeszów		Secondary school of Rzeszów		Innovative school complex of Jarosław	
	N	%	N	%	N	%	N	%
Female	31	64.5	23	46	39	78	22	45.8
Male	17	35,5	27	54	11	22	26	54.2
Total	48	100	50	100	50	100	48	100

Source: Results of studies conducted by U. Błądzińska, J. Kalinowska, B. Kusa, P. Czełusniak as part of bachelor paper studies.

¹³ Z. Dołęga, *Samotność młodzieży: analiza teoretyczna i studia empiryczne*, Wydawnictwo Uniwersytetu Śląskiego, Katowice, 2003, p. 26.

The research was conducted by the diagnostic survey method. The utilised tool was the questionnaire of the survey – „*My on-line activity*”, developed by G. Wąsowicz and M. Styśko-Kunkowska¹⁴, used to diagnose media activity of youths, and the survey questionnaire of the „Z” Alienation Perception Scale by Agnieszka Turska-Kawa¹⁵ analysing the feeling of loneliness in respondents. For the present study, and due to the breadth of the collected material, the analysis only utilises a part of the obtained research results.

Research results

The analysis of results commenced with the diagnosis of media activity of upper secondary school youths. The table below presents the frequency of usage of the Internet by youths in the last year.

Table 2. Frequency of usage of the Internet in the most recent year

How frequently did you use the Internet in the most recent year?													
Never		Once a month or more rarely		2-3 times a month		Once a week		Several times a week		Once a day		More than once a day	
L	%	L	%	L	%	L	%	L	%	L	%	L	%
–	–	–	–	–	–	–	–	1		6		189	96

As the results indicate, 96% of those surveyed use the Internet more than once a day. This fact is not surprising, as we are dealing with the „always on” generation. The obtained data also confirms

¹⁴ G. Wąsowicz and M. Styśko-Kunkowska, *Młodzież w Internecie – zagrożenie uzależnieniem. Podręcznik do kwestionariusza MAWI*, Wydawnictwo Naukowe Scholar, Warszawa 2014.

¹⁵ A. Turska-Kawa, *Poczucie alienacji a użytkowanie mediów. W poszukiwaniu nowych obszarów zastosowania teorii użytkowania i gratyfikacji*, Wydawnictwo Naukowe „Śląsk”, Katowice 2011.

the results of research by other authors. For instance, the study „Teenagers 3.0”, conducted in the year 2017 shows that the decisive majority of respondents stated that they used the Internet many times a day or the entire time: at home (80.0%), at school (39.2%), at friends (32.4%), in public spaces, where WiFi is available (29.7%)¹⁶.

Interesting is also the fact of responses to the question about how the time spent by youths on-line compares to the preceding year. The obtained data is shown in the graph below.

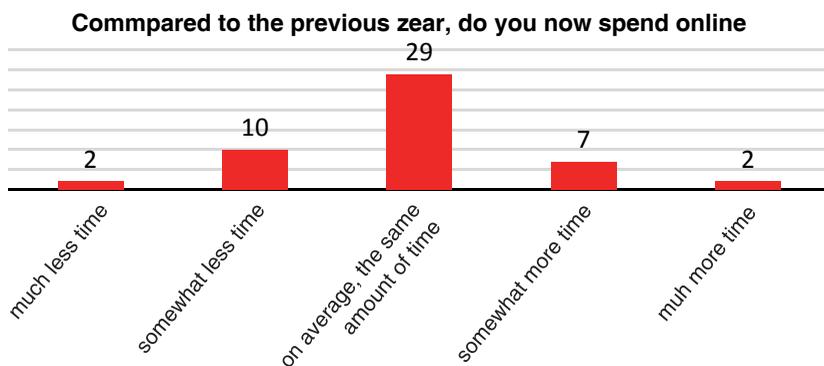


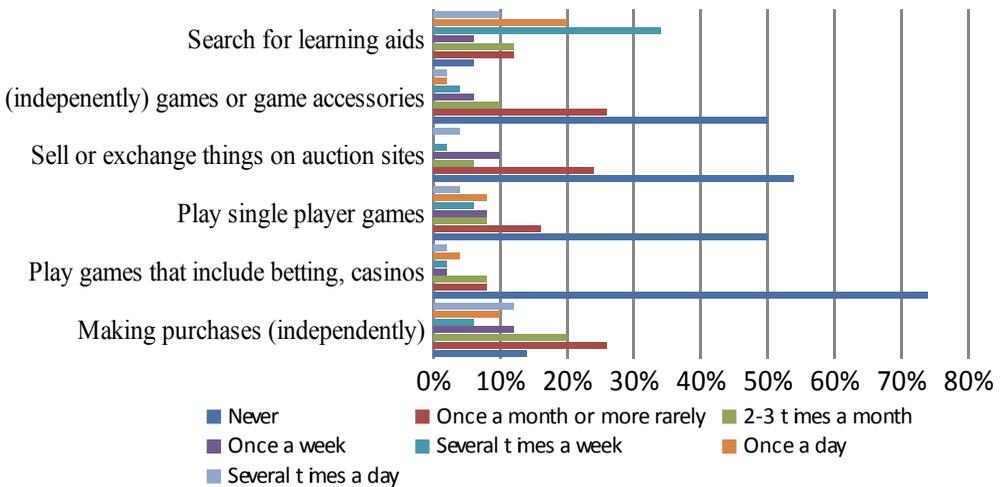
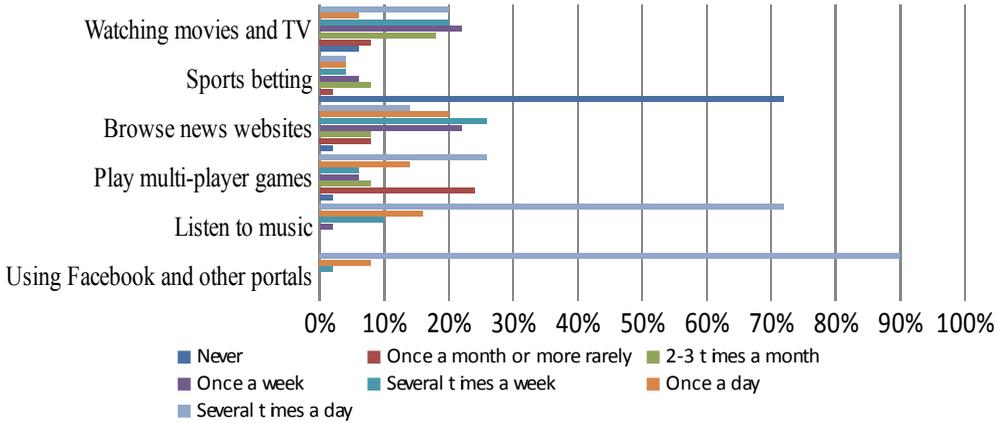
Diagram 1. Volume of time spent on-line as compared to the previous year

Close to 60% of youths declared that they spend the same amount of time on-line as they did the previous year. For close to 40% of respondents, this time has changed (dropped or increased). The causes that influenced the change of on-line activity were caused primarily by perfecting in what the relevant person is doing in reality (learning, extracurricular activities, hobby) and caring for their future. Upper secondary school youths are already at an age, at which they

¹⁶ Report from the study Nastolatki 3.0 [Teenagers 3.0] conducted by the Workshop for Educational applications of Information and Communications Technologies of the Polish Research and Academic Computer Network, Warszawa 2017, p. 7, <https://www.nask.pl/pl/o-nask/eksperci-nask/publikacje-naukowe/688,Raport-z-badania-Nastolatki-30.html>, of 24.05.2018.

start thinking about their future more seriously than in the past. Hence, the time spent learning is very important to them.

A further problem that was studied applies to the on-line activity most frequently chosen by youths. The results are included in the diagrams below.



Diagrams 2 and 3. Frequency of on-line activities in the most recent year

Table 3. Causes of spending more time on-line

	Does not fit me at all		Fits me very weakly		Fits me weakly		Fits me in average		Fits me strongly		Fits me very strongly	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
I spend the same amount of time or more amount of time on-line, because:												
I discover new, fascinating websites and they draw me in	12	6	20	10	32	16	36	18	68	35	28	14
It's nice to forget about one's daily worries	20	10	24	12	28	14	24	12	58	30	42	21
The internet draws me in regularly and I use it more and more	24	12	32	16	46	23	58	30	20	10	16	8
I prefer to be on-line than meet friends in real life	138	70	43	22	15	8	-	0	-	0	-	0
Time spent off-line is a time when I feel bad	128	65	62	32	6	3	-	0	-	0	-	0
I discover new opportunities offered by the Internet and I can't let go	25	13	42	21	40	20	60	31	18	9	11	6
I want to forget about my worries	34	17	40	20	35	18	34	17	28	14	25	13
I frequently spend more and more time on-line, because it is a nice feeling	24	12	20	10	32	16	64	33	40	20	16	8
I prefer to be on-line than talk to people in real life	58	30	32	16	54	28	32	16	12	6	8	4
Time spent off-line is a struggle	40	20	43	22	89	45	24	12	-	0	-	0
I get to know new games and I can't let go of them	74	38	30	15	26	13	42	21	24	12	-	0

I need to take a break from reality	60	31	56	29	26	13	28	14	26	13	-	0
I spend more and more time on-line, because I feel good then	58	30	28	14	24	12	58	30	14	7	14	7
I don't really care about people in the real world	60	31	58	30	32	16	34	17	12	6	-	0
I miss something when I am off-line	82	42	32	16	35	18	21	11	12	6	14	7
I need to relieve stress	50	26	28	14	32	16	46	23	28	14	12	6
This improves my mood	52	27	20	10	12	6	60	31	36	18	16	8
I feel better among people who I only know on-line	48	24	40	20	40	20	32	16	28	14	8	4
Without the Internet, life is empty	69	35	49	25	42	21	28	14	8	4	-	0
I am fascinated by the world of the Internet that knows no boundaries	72	37	32	16	24	12	36	18	12	6	20	10

The obtained results indicate that the most popular on-line activity of youths is using Facebook and other social media sites (90%), with the second being listening to music (70%). The achieved results align with data from research by, for instance, B. Komorowska (popularity of social media sites 86%, listening to music and watching films on-line (81%). These are the most frequently chosen forms of activity of upper secondary school pupils¹⁷. The on-line activities chosen most rarely or never are those related to on-line gambling and shopping. Youths frequently does not come into contact with sports betting (72%), gambling or casino games (74%) and active participation in auction sites (54%). These results are identical with the results of M. Styśko-Kunkowska and G. Wąsowicz (85% of persons did not come into contact with sports betting, 87.8% with gambling and casinos, and 73.5% with auction sites¹⁸.

The table below presents the results of research concerning the time spent on-line.

As indicated by results of the studied, youths treat the Internet as a source of fun (61%) and the place where they can discover new, fascinating websites (68%). This is confirmed by the study entitled „*Internet addiction (netoholism) among Polish upper secondary school youths*”, which showed that in most cases (74%) being on-line is identified as a form of entertainment. The third place in turn (57%) as evaluated by those surveyed, surfing the web was an effective way to combat boredom¹⁹. As research indicates, being off-line does not cause significant discomfort in these pupils. 60% of the studied

¹⁷ B. Komorowska, *Aktywność internetowa dzieci i młodzieży – wskazania dla praktyki pedagogicznej*, Katolicki Uniwersytet Lubelski Jana Pawła II.

¹⁸ M. Styśko-Kunkowska, G. Wąsowicz, *Uzależnienia od e-czynności wśród młodzieży: diagnoza i determinanty*, Instytut Studiów Społecznych Uniwersytetu Warszawskiego, 2014.

¹⁹ I. Białokoz-Kalinowska et al., *Uzależnienie od internetu (siecioholizm) wśród młodzieży licealnej – konsekwencje zdrowotne i psychospołeczne*, Klinika Pediatrii i Zaburzeń Rozwoju Dzieci i Młodzieży Uniwersytetu Medycznego w Białymstoku, Białystok. 2011, <http://yadda.icm.edu.pl/yadda/element/bwmeta1.element.psjd-7769c8b2-758f-4b9e-8cab-35595d16e2d6>, p. 374, [accessed on: 24.05.2018].

youths do not believe that life without the Internet is empty. Despite the fact that contemporary youths that are so strongly enveloped by the internet, and it would seem that they do not imagine their daily functioning without it, we cannot talk here about pathological reactions of youths to lack of Internet access or a dependency on it. The obtained data does not confirm the results of the study „*Teenagers 3.0*”, according to which over half of those surveyed feels irritated if the Internet stops working or if they do not have access to it (64.2%)²⁰. One may surmise that this is caused by the field of research and the age of the surveyed youths. For upper secondary school pupils, the Internet is significant, but contact with people, especially in real life, is important. In this case, this is confirmed by the study „*Teenagers 3.0*”, according to which the young generation evaluates more highly real people from their social circle – parents, friends – than persons from the virtual space²¹.

In order not to feel loneliness, important is the fact of spending time in the company of others. This has significance in particular in the real world. Man is a social creature, which, just like air, needs the presence of others. However, one of the fundamental needs of man is direct contact with another person. It is contact like this that builds strong bonds. Along with the development of intermediated communication, these bonds weaken. Communication using the Internet is not able to fully replace direct face-to-face communication. Hence, interesting has become the fact of searching for the answer to the question with whom contemporary youths spend

²⁰ Report from the study *Nastolatki 3.0* conducted by the Workshop for Educational applications of Information and Communications Technologies of the Polish Research and Academic Computer Network, Warszawa 2017, p. 17 <https://www.nask.pl/pl/o-nask/eksperci-nask/publikacje-naukowe/688,Raport-z-badania-Nastolatki-30.html>, of 24.05.2018.

²¹ Report from the study *Nastolatki 3.0* conducted by the Workshop for Educational applications of Information and Communications Technologies of the Polish Research and Academic Computer Network, Warszawa 2017, p. 71 <https://www.nask.pl/pl/o-nask/eksperci-nask/publikacje-naukowe/688,Raport-z-badania-Nastolatki-30.html>, of 24.05.2018. p. 71.

time, both in the real, as well as in the virtual world. Are youths accompanied only by acquaintances, or by parents as well, and do they spend their time on-line with parents, too.

The table below presents the results of trials concerning spending of time by upper secondary school pupils.

Modes of spending free time	Does not fit at all	Fits very weakly	Fits weakly	Average fit	Fits strongly	Fits very strongly
1. Surfing the Internet with mum and/ or dad	56%	26%	3%	10%	5%	-
2. Spending free time with friends in the real world	1%	2%	5%	14%	32%	46%
3. Shopping on-line with mum and/ or dad	34%	22%	18%	16%	9%	2%
4. Spending free time outside	1%	3%	18%	26%	30%	22%
5. Playing on-line games with mum and/ or dad	98%	2%	-	-	-	-
6. I devote my free time to develop my skills and passions (in e. g. sports, art, music, languages, etc.)	1%	12%	10%	20%	25%	32%
7. Watching films/ TV on-line with mum and/ or dad	24%	30%	2%	26%	14%	4%
8. Listening to music on-line with mum and/ or dad	50%	16%	4%	16%	10%	4%

The table above shows that youths do not spend time on the Internet with their parents. They are at such an age that acquaintances are more important to them than family. The only activity performed together with parents is watching films or TV on-line, however, this activity is not significant. The analysed pupils, however, are keen to spend free time together with their acquaintances outside. Important is also the development of their passions.

So, do contemporary youths, those that were analysed, feel lonely? Selected results of research were presented in the table below.

Table 4. Selected symptoms possibly indicating a feeling of alienation among youths

No.		I definitely agree		I rather agree		I rather disagree		I definitely disagree	
		N	%	N	%	N	%	N	%
1.	I rather feel low self-esteem	20	20.4	29	29.5	31	31.7	18	18.4
2.	I believe that I am not submissive	5	5.1	24	24.5	36	36.7	33	33.7
3.	There are many situations, in which I do not know how to behave at all	13	13.2	32	32.7	41	42	12	12.2
4.	One rather cannot include me among those that show initiative	12	12.2	21	21.4	43	43.9	22	22.5
5.	I frequently feel that I am not myself	10	10.2	22	22.4	21	21.4	45	46
6.	I belong to the group of strong people	30	30.6	36	36.7	26	26.5	6	6.2
7.	My home is something that's very important to me	76	77.6	16	16.4	3	3	3	3
8.	I feel needed, e. g. by my family, friends	57	58.1	25	25.6	10	10.2	6	6.1
9.	There are values, for which it is worth living and working, e. g. home, work, justice	72	73.4	17	17.3	3	3	6	6.3
10.	I do not have anyone to return to	5	5.1	4	4.1	17	17.3	72	73.5
11.	It's generally clear what's most important in life	44	44.9	38	38.7	12	12.2	4	4.2
12.	My relationships with others are superficial	11	11.2	14	14.2	41	41.9	33	33.7
13.	I do not have friends	5	5.1	4	4.1	16	16.3	73	74.5

As the research results show, youths perceive themselves as being strong, self-certain, with initiative, able to behave in various life situations. This confirms the properties of the so-called Z generation. Encouraging is the fact that home, family, friends pose a significant value for the respondents. For 93.6% of those surveyed, their home is very important, and 83.7% of upper secondary school pu-

pils feel needed by others. They do not describe their relationships as superficial. Only 9.2% of those surveyed stated that they have nobody to return to. It may be suspected, hence, that the youths analysed do not feel alone. The results of the study are more optimistic than the results achieved by S. Rebisz, I. Sikora and K. Smoleń-Rębisz (13% of those surveyed declaring a feeling of general emptiness around them, believing that they have an overly limited circle of friends and acquaintances; every eighth of those surveyed frequently feeling abandoned (12.3%) and experiencing a lack of people around them (11.2%), every ninth pupil surveyed (approx. 11%) declaring experiencing the feeling of loneliness and alienation)²².

Summary

The Internet is a tool of satisfaction of many personal needs of man. It offers, among others, the possibility of achieving social approval, dominance, making contacts, free activity. In particular among youths, who, abusing the Internet to satisfy their needs, make numerous acquaintances only on-line, reflecting significantly in the feeling of alienation in the real world. However, despite frequent use of the media, functioning at the same time in two worlds, the real and the virtual, upper secondary school pupils do not feel lonely. What is significant, they are also aware of having values significant in life, such as home, work, justice. These are very encouraging survey results, in particular considering the fact of contemporary youths spending so much time on-line. The business psychologist J. Santorski formulates a valuable hint concerning coping in the contemporary world, saying: „*Victorious will be the one who will fuse the knowledge of state-of-the-art technologies with the world of traditional values*”²³. One must not forget that the fellow being, in

²² S. Rebisz, I. Sikora, K. Smoleń-Rębisz, *Poczucie samotności a poziom uzależnienia od internetu wśród adolescentów*, „Edukacja - Technika - Informatyka” no. 1/15/2016, p. 95.

²³ J. Santorski, *Pytania na drogę*. Newsweek, February 2005, p. 2.

particular the one closest, is the most important value. Already the ancient philosopher Aristotle concluded that „Man is by nature a social animal; an individual who is unsocial naturally and not accidentally is either beneath our notice or more than human. Society is something that precedes the individual. Anyone who either cannot lead the common life or is so self-sufficient as not to need to, and therefore does not partake of society, is either a beast or a god.”²⁴

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²⁴ Aronson E.: *Człowiek istota społeczna*. Wydawnictwo Naukowe PWN, Warszawa 2004, p. 12.

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Supporting the creative development of children from socially disadvantaged backgrounds in selected contexts of media education

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The aim of the article is to present selected contexts of media education in supporting the creative development of children from disfavoured backgrounds. This analysis was based on the results of research carried out by the author in the framework of a doctoral dissertation at the daycare centre in Poznań. In the final part of the article, the author presents proposals for changes concerning the introduction of media education elements in daycare centres.

KEY WORDS: creative development in children, socially disfavoured backgrounds, media education, non-formal education

Introduction

For many years now, the media have been one of the most important communication and information channels. The popularisation of mass media in the 20th century made a significant impact on

cultural changes, and the development of new technologies observed in recent years contributes to their massive growth and has an impact on their character. Undoubtedly, new media accompany us every day, in every activity undertaken. However, the dynamic development of new media does not coincide with changes in the educational system taking place at the same rapid pace. Despite the long-postulated need of introducing media education, which encompasses “teaching about the media, through the media and to the media”,¹ the situation in Polish schools is still worrisome. The report on the state of media education in Poland, commissioned by the National Broadcasting Council (KRRiT) in 2000,² led to initiating a number of changes in some schools, concerning following modern trends in the use of new technologies in working with children and youth; however, there are still a rather sizeable number of schools that have not implemented and did not undertake to implement the basic objectives of media education.

However, school is not the only educational environment in which children and young people function. The list of the most important educational environments outside school include the family, which is a basic and natural educational environment and the local surroundings.³ Thus, human development (in a multifaceted context) is conditioned by all types of environments in which the person participates – both through deliberate and unintended influences.⁴ This results in social inequalities, which arise as the result of

¹ W. Strykowski, M. Kąkolewicz, S. Ubermanowicz, “Kompetencje nauczycieli edukacji medialnej”, *Neodidagmata*, 29/30, Wydawnictwo Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2008, p. 55.

² J. Juszczak-Rygałło, “O potrzebie rewitalizacji edukacji medialnej”, [in:] *Pedagogika*, K. Rędziński, M. Łapot (eds.), Volume XXV, no. 2, Wydawca Akademia im. Jana Długosza w Częstochowie, Częstochowa 2016, p. 135.

³ W. Sroczynski, *Szkice do pedagogiki środowiskowej*, Wydawnictwo Uniwersytetu Przyrodniczo-Humanistycznego w Siedlcach, Siedlce 2016, p. 165-188.

⁴ K. Segiet, “„Wyjść poza zastane schematy”. Znaczenie edukacji i działań modyfikujących środowisko życia człowieka”, [in:] *Animacja w środowisku. O potrzebie kreowania działań lokalnych (teoria a praktyka społeczna)*, K. Segiet, K. Słupska, A. Tokaj (eds.), Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2017, p. 49.

civilisational, cultural, informational changes and technological progress. Moreover, they also cause distribution and reproduction of environmental and socio-cultural capital. In socially disadvantaged or underprivileged environments, where inequalities arise due to the lower opportunities of an individual from a given group to exercise the rights and privileges to which everyone is entitled,⁵ such as families threatened with marginalisation or social exclusion, as well as those from ethnic or national groups and families in which children have difficulties at school or problems with their peers, there are more visible problems and issues resulting mainly from the disturbed functioning of the family or school environment. Thus, the theses concerning crises of the modern family or educational systems are highlighted and further emphasised. As a result, the leading role of mass media and new technologies in everyday life (especially among the youngest generations) is becomes noticeable and clearly visible. The omnipresence of the media can be observed in all spheres of life – in the aforementioned education system, in the family or political system, in public life, as well as during study, work or leisure. This has a significant impact on changing lifestyles, value systems and behavioural patterns in ever younger generations.⁶ Therefore, in recent years, there were postulates and calls to “develop a national curriculum of formal (educational system) and informal (family environment, cultural institutions, NGOs) media education covering all social and age groups, with a particular focus on children and youth.”⁷

⁵ A. Zbonikowski, “Społeczne oddziaływania defaworyzujące a poczucie własnej wartości dzieci i młodzieży”, [in:] *Psychospołeczne uwarunkowania defaworyzacji dzieci i młodzieży*, K. Hirszel, R. Szczepanik, A. Zbonikowski, D. Modrzejewska (eds.), Wydawnictwo Difin SA, Warszawa 2010, p. 13.

⁶ E. Wysocka, “Zagrożenia społeczno-kulturowe dla rozwoju młodego pokolenia” [in:] *Dzieci i młodzież w niegościnnym świecie. Zagrożenia rozwojowe i społeczne*, ed. E. Wysocka, Wydawnictwo Akademickie Żak, Warszawa 2012, p. 107.

⁷ J. Juszczyk-Rygałło, “O potrzebie rewitalizacji edukacji medialnej”, [in:] *Pedagogika*, K. Rędziński, M. Łapot (eds.), Volume XXV, no. 2, Wydawca Akademia im. Jana Długosza w Częstochowie, Częstochowa 2016, p. 136.

Media education and creative development of the child

Every person has creative potential, not just those with talent. However, its development (especially during childhood) is conditioned by adults (parents, guardians, teachers), who should encourage and create space for creative thinking and activity of the child.⁸ Children from socially disadvantaged backgrounds rarely experience this type of support at home. Moreover, it should be remembered that creative development also concerns the media or hypermedia aspects. School seems to be the first environment (following the family environment) where the child should receive appropriate support in this respect. Therefore, contemporary teachers face many challenges, which are posed by – among other things – socio-cultural changes. They should not only be professional and follow the latest trends in education, but also update and keep developing their competences. Above all, when teaching a young person, they must be a reflective educator who will take into account all the areas in which contemporary children and youth function, because their role does not only concern the transfer of knowledge, but also the development of children's personalities, identities, desires, goals and dreams.⁹ Unfortunately, the situation in the Polish educational environment does not offer positive forecasts for a rapid change in the situation found at Polish schools. Examples include Anna Michniuk's study on new media school¹⁰ and Danuta Morańska's rese-

⁸ M.A. Runco, "To understand is to create: An epistemological perspective on human nature and personal creativity", [in:] *Everyday creativity and New views of human nature. Psychological, social, and spiritual perspectives*, ed. R. Richards, American Psychological Association, Washington 2007, pp. 91-107.

⁹ I. Żeber-Dzikowska, "Teacher's and student's creativity as a challenge for the modern education", [in:] *Pedagogika*, K. Rędziński, M. Łopot (eds.), Volume XXV, no. 2, Wydawca Akademia im. Jana Długosza w Częstochowie, Częstochowa 2016, p. 37.

¹⁰ A. Michniuk, "Współczesna, nowomediałna(?) szkoła – próba charakterystyki", [in:] *Edukacyjne i społeczne wyzwania rzeczywistości cyfrowej*, ed. A. Iwanicka, Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2017, pp. 101-123.

arch focusing on the use of modern educational methods and information technology during classes.¹¹ In both cases, the authors declare that while there are some modernised schools, which have a willing staff and possibilities to carry out teaching with the use of new media (as well as for the creative development of students), but they are still a minority in relation to schools, which for various reasons did not yet introduce the necessary changes in the teaching and learning process. Meanwhile, the main ideas of media education (mentioned in the introduction) focus not only on developing media literacy and its impact or introduction of students to media culture, but also on acquiring new knowledge and competences, as well as their practical use.¹² Therefore, the ability to use equipment (which is often mentioned by teachers as a barrier to the use of new media during classes, in the context of media competence of a modern teacher compared to students student – because in the opinion of teachers it is the students who have higher competences in this area)¹³ is not sufficient and this knowledge does not necessarily lead to creative activity of the student.

Another issue concerns education and supporting creativity when the child is at a young age. It should be noted that children are exposed to new information technologies at diverse levels at an increasingly young age. These days, small children (aged 3 or older) usually use new media in their family homes, and later – at pre-school age – also outside the home (if modern educational methods and techniques are employed in kindergarten). It should not come

¹¹ D. Morańska, “Nauczyciel wobec wyzwań społeczeństwa informacyjnego”, [in:] *Edukacyjne i społeczne wyzwania rzeczywistości cyfrowej*, ed. A. Iwanicka, Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2017, pp. 47-56.

¹² A. Ogonowska, *Współczesna edukacja medialna: teoria i rzeczywistość*, Wydawnictwo Naukowe Uniwersytetu Pedagogicznego, Kraków 2013, p. 31.

¹³ Cf. A. Michniuk, “Współczesna, nowomediałna(?) szkoła – próba charakterystyki”, [in:] *Edukacyjne i społeczne wyzwania rzeczywistości cyfrowej*, ed. A. Iwanicka, Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2017, pp. 104.

as a surprise that children are also proficient in the use of new media at later stages of education. In addition, the use of media at such an early age is linked to changes in the cognitive, physical, motor, social and emotional functioning of children, which is also very dynamic.¹⁴ In a situation where media education is not implemented in the educational process at all or is carried out incorrectly (in kindergarten, school or among adults), voluntary participation in the world of media may result in tangible negative impacts or even endanger individual development, for example as a result of improper selection of messages and media content, or failure to exploit the potential of multimedia and hypermedia materials and media tools. In the latest 2018 EU Kids Online report (full report to be published in December 2018), prepared under the guidance of Jacek Pyżalski in partnership with the Orange Foundation, based on the study of a group of 1300 respondents aged 9-17, the team of researchers presents the following conclusions: „Many students have not been acquainted with any rules concerning the use of the Internet. One in three students indicate that teachers at school never or almost never talk about on-line safety matters. As many as 40 per cent of students claim that there are no established rules for using the Internet at school, and 45% of respondents never talked to teachers about proper on-line behaviour and best practices on-line.”¹⁵ Therefore, the spread of on-line violence, with very different levels of intensity diverse types,¹⁶ which can lead to risky behaviours hindering not only their development, but also the lives of children and

¹⁴ M. Klichowski, J. Pyżalski, K. Kuszak, A. Klichowska, „Jak technologie informacyjno-komunikacyjne mogą wspierać rozwój dziecka w wieku przedszkolnym? – studium teoretyczne”, [in:] *Małe dzieci w świecie technologii informacyjno-komunikacyjnych – pomiędzy utopijnymi szansami a przesadzonymi zagrożeniami*, ed. J. Pyżalski, Wydawnictwo Naukowe Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań 2017, p. 116.

¹⁵ <https://fundacja.orange.pl/aktualnosci/artypul/90-proc-nastolatkow-nieumie-tworczo-korzystac-z-technologii/> [retrieved on: 24.09.2018].

¹⁶ J. Pyżalski, *Agresja elektroniczna i cyberbullying jako nowe ryzykowne zachowania młodzieży*, Oficyna Wydawnicza „Impuls”, Kraków 2012.

young people is yet another issue stemming from the lacking media education in the lives of the young generation.

The third area which is of particular importance for children from socially disadvantaged backgrounds in the context of creative development and media competence is the local environment. When a child does not experience support in a family home or school, or when they do not have sufficient support, day care institutions available in the local environment are often the last place in the child's immediate environment. In Poland, these institutions provide free assistance, supporting families in fulfilling family functions, and their regular activities (daily, twice a week, etc.) are directed mainly to children and youth experiencing unfavourable (economic, social and cultural) situation in the family home, particularly experiencing educational and school failures. Such institutions (community centres socio-therapeutic centres, therapeutic centres, backyard form, clubs, centres or daycares for children and youth), the activities are focused mainly on conducting classes aimed at strengthening educational opportunities for children and young people from disadvantaged environments, as well as filling knowledge gaps and getting children up to speed.¹⁷

The author's own research, carried out as part of a comparative study, which constituted a part of her doctoral dissertation on the art of socially disadvantaged children in local support and care centres, raised many issues pertaining to education in a much broader context. For the purpose of this article, the author decided to present a part of the study, which concerns only the issue of media education. The research had a qualitative and quantitative character and was carried out using the case study method in institutions in the city of Poznań. The study used the technique of observation, questionnaire interview and drawings of children, accompanied with conversation about their works.

Classes in the group of younger children aged 6–12 took place on Mondays and Wednesdays and lasted for 4.5 hours. Each Wed-

¹⁷ Act of 9 June 2011 on Family Support and Foster Families, Dz. U. [Journal of Laws] of 2013, item 135, as amended, Article 24.

nesday, in theory children had 5 computers with access to the Internet at their disposal (3 of which were working) and 15 minutes for games. There was a maximum of 12 children in the group (participation in classes organised by such institutions is voluntary). Every Wednesday there were 15% to 20% more participants than on Monday. The author also noted punctuality and enthusiasm, motivated by free time with computers. The participants used the computers in turns (15 minutes per participant), according to the "first come, first served" rule, coupled with "if you have homework, you have to do it first." The rest of the participants could use their free time for entertainment. In reality, a maximum of 4 children did their homework and the rest sat at the computers, even though only three of them could use them at a time – the rest watched and cheered on their friends playing games, and after a while they would switch. During all classes, no child gave up the possibility to play video games. Most children chose arcade games (92% of children) and logical games (8%). This was an effect of the rules of the institution, saying that only educational games were allowed. During the entire observation period (3 months) nobody was interested in repairing the remaining computers. There were no educational classes regarding media – including classes without equipment.

During interviews with tutors (4 persons) in a given institution, they came to the unanimous conclusion that computer, IT and media classes – speaking more broadly, classes using new technologies – are not carried out at their institution, despite the fact that one of the tutors was a Computer Science graduate with a master's title. All tutors were active teachers in public primary schools. Moreover, according to their declarations, they do not consider this type of activity to be a way to develop children's creativity. In one of the opinions, the tutor noted that: "New media rather hamper the education of these children, since due to the computer classes on Wednesdays, they find it difficult for them to focus on anything else. They often come from difficult, disadvantaged environments, four of them do not have access to a computer at home, but at least one of the parents of each child has a smartphone. On the other hand, they won't be able to

print homework from their smartphone, and our printer often breaks down. Children find themselves between a rock and a hard place, because if they don't have homework at school, they either get negative points or a note for parents." Another tutor's answer regarding the turn-based system at the institution was: "If children didn't know the rules, they would just keep playing games, and we do our best to show them that these games are not everything. We have a plan for this time. Apart from that we have a lot of board games, so we offer children an opportunity to play, especially those who can only watch. Sometimes we even manage to convince someone."

However, in response to the question whether they imagine modern world without the use of new media, the tutors unanimously said that they do not. However, in their arguments, they often alluded to the fact that "these children do not need it right now, other needs are far more important, because not all children can eat a hot meal at home."

In the case of classes supporting multi-faceted development of children, the tutors mainly used the offer of subject classes – to be more precise, the subjects which the children found the most troublesome at school, including mathematics, Polish and English. The notion of classes pertaining to supporting the child's creativity were conflated by all tutors with art classes and activities. One of the tutors declared "I am the supervisor of an art club at my school, I like to do such things myself, we often work creatively with children coming here. I bring the supplies, I tell them what it is, and then we make things. It's always a great time. Children often ask me what to do, what to use, what colour to choose, I give them suggestions and tips, because I already know them a little bit and know what they like. Recently we made decorative decoupage gift boxes for their loved ones. Before Christmas we often make Christmas cards, which are sent to our sponsors, then we choose the most beautiful ones." One of the tutors noted that "some children have creative ideas, for example during an afternoon tea we always discuss current issues or I ask a question. Children have such a great imagination that it's always fun."

In conclusion, we should refer to the fact that in the context of belief in educational opportunities for children from socially disadvantaged backgrounds, tutors tend to focus on providing them with bare necessities, completely disregarding the fact that new media are present in everyday life. In thinking about children's development and their potential they refer to the principles of social, cultural and economic reproduction (according to Karl Marx's theory of copying patterns from their immediate surroundings). The tutors participating in the study do not see the educational potential in information and communication technologies, which is conducive to the development of creativity and the expression of children's own selves. They do not interpret them as tools to help shape their identity and social ties, or to strengthen their participation in social life, even though they themselves notice that they cannot imagine modern life without new technologies. However, it should be noted that children attending day care institutions are treated as triple disadvantaged by tutors, because they come from underprivileged backgrounds, mostly do not have the equipment, opportunities and competences to use the media, for example in the creative process, and moreover, the tutors do not even give them a chance to change their thinking about their future, for example by imitating family models.

The time spent on games in the day-care centre does not develop children's creative and media competences, perhaps it provides entertainment, which children from socially disadvantaged backgrounds experience less often than their peers. However, as the authors note in the aforementioned conclusions of the 2018 EU Kids Online report concerning children and teenagers in Poland: "90 per cent of teenagers are unable to use technology in a creative manner"¹⁸ "The most common on-line activities are content consumption - watching videos and listening to music, as well as communicating with friends and loved ones. More than 80 percent of

¹⁸ <https://fundacja.orange.pl/aktualnosci/artykul/90-proc-nastolatkow-nie-umie-tworczo-korzystac-z-technologii/> [retrieved on: 24.09.2018].

respondents claim that they have used this option at least once in the last month.”¹⁹ As a result, children and young people’s passive use of the Internet and the untapped potential that technologies bring into our everyday lives is not just about children from socially disadvantaged backgrounds. This report only confirms that immediate changes in the education system are necessary and that media education itself should be one of the most important elements of the new curriculum, as young people need adults to accompany them in discovering previously unknown areas of knowledge.

Instead of a conclusion

In conclusion, day care institutions play an important role in the lives of children and youth from socially disadvantaged backgrounds. However, the managers and tutors working at these institutions should update and modernise the offer of classes. Usually, these institutions do not have large financial resources, although they can draft projects and take part in competitions organised by the European Union, as well as various national and local institutions and authorities. In addition, they can also invite external companies to cooperate, which might for example include providing equipment to work with children.

The most important, however, are the willingness to change and update the knowledge about the perception of creativity and media by the educators themselves. If the view of reproduction hinders even the educators’ thinking about the chance for the development of children and youth from socially disadvantaged backgrounds to take other actions, better patterns of behaviour and change their situation for the better, even the best-equipped institution will be unable to provide good results.

In addition, the introduction of media education does not always require the presence of equipment and highly qualified staff –

¹⁹ <https://fundacja.orange.pl/aktualnosci/artukul/90-proc-nastolatkow-nie-umie-tworczo-korzystac-z-technologie/> [retrieved on: 24.09.2018].

just a bit of commitment, broadening the knowledge in a given field and an open attitude is all that is needed. The involvement of the tutor in acquiring new competences – for example concerning theoretical issues pertaining to the media, such as cyberbullying and hate on the Internet, but also in the implementation of “programming unplugged” programmes, or even inviting external tutors and educators to conduct workshops for children on media tools that will be useful in their education. This will certainly increase the attractiveness of classes and activities, but it might also contribute to a real change in the lives of those young people who are already doomed to failure by many people – including from the child’s immediate environment – due to their socially disadvantaged background.

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Transmedia story as an example of creative possibilities of fandom

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The subject of the article is the creative activity of fan communities (fandom), with particular emphasis on the transmedia storytelling – stories presented simultaneously by means of various media. The development of the Internet in the Web 2.0 formula opened up a number of possibilities for the creation of fandoms focused on specific TV series, films, books or video games. The main manifestations of the activity of these groups can be boiled down, on the one hand, to analysing and commenting on a given cultural text, and on the other hand, to developing it by adding new stories, often using a different medium than the one originally used.

KEY WORDS: fandom, transmedia storytelling, remix culture, creativity

The emergence of the Internet and providing access to a growing number of users for commercial purposes with each passing year represents an unquestionable milestone in the development of culture in recent decades. The interactivity of Web 2.0 opened up new possibilities for media consumers. They no longer had to passively consume the content provided by institutionalised broadcasters. The foundation and *raison d'être* of social media platforms

such as Youtube and Facebook is primarily the content created by ordinary users, presented on these websites as videos, photographs, comments or personal reflections. The possibility of contacting others, building relationships revolving around a specific topic (books, films, music genres, etc.) enabled enthusiasts of each manifestation of culture to find each other (at least in theory) among millions of Internet users and to share their passions. Web 2.0 offers much more possibilities than Web 1.0. The idea of prosumption, which was described by A. Toffler decades ago,¹ became possible. The consumer-customer of the new type – prosumer – combines the characteristics of the consumer and the producer. On the one hand, they are recipients of media content that they consume thanks to the constantly evolving means of mass communication. On the other hand, they have the ability to produce, and thus create their own content. Of course, this creative activity of prosumers requires more competence than passive consumption – primarily technical and IT skills related to the operation of electronic devices, as well as an appropriate level of knowledge about the Internet and the places where their products and creations can be made public.

Therefore, the culture of participation, which H. Jenkins described as contrasting with the older convictions regarding the passive attitude of the media audience, gains relevance and shape.² In the culture of participation, consumers (and their particular type – fans) are invited to actively participate in the creation and redistribution of new content.³ The borders between traditional roles are thus

¹ A. Toffler, *Trzecia fala*, translated by: E. Woydyłło, M. Kłobukowski, Wydawnictwo Kurpisz S.A., Poznań 2006, pp. 305-329. Cf. Szymusiak T., *Prosument – Prosumpcja – Prosumeryzm: Ekonomiczne oraz społeczne korzyści prosumpcji na przykładzie Polski oraz Niemiec (podejście naukowe)*, Wydawnictwo Bezkręsy Wiedzy, Saarbrücken, 2015.

² H. Jenkins, *Kultura konwergencji. Zderzenie starych i nowych mediów*, translated by: M. Bernatowicz, M. Filiciak, Wydawnictwa Akademickie i Profesjonalne, Warsaw, 2007, p. 9.

³ H. Jenkins, *Kultura konwergencji. Zderzenie starych i nowych mediów*, translated by: M. Bernatowicz, M. Filiciak, Wydawnictwa Akademickie i Profesjonalne, Warsaw, 2007, p. 257.

blurred. The Internet user becomes not only the recipient, but also the sender. A professional creator can fulfil themselves from the position of a cultural text admirer, while their place will be taken over by an amateur. This approach to the nature of culture at the beginning of the 21st century has found its critics. A. Keen was frank in his descriptions of the cult of an amateur,⁴ who, by putting the average viewer in the role of an expert, leads to degradation and then to the destruction of the value of culture. While one can agree with the thesis that fetishisation of grass-roots creativity and putting it on the pedestal may lead to relatively negative effects in the long run, demonising all such cultural products seems to be unfounded. Expanding the media and communication competences of their users, as well as the related potential for building relations and the society involved in the creation and use of culture, are values that should be nurtured and developed.

Another important consequence of the development of Web 2.0, indirectly related to the culture of participation, is the so-called collective intelligence, which can be defined as a kind of added value to the joint actions of all Internet users. Describing this phenomenon, P. Lévy suggests that this cooperation of peers will lead to the emergence of a new form of culture – a circulation of expression, in which all participating users will be simultaneously responsible for creating new content and supporting the activity of other users, and “the distinction between authors and readers, producers and viewers, creators and interpreters will be blurred.”⁵

Web 2.0 enabled the dynamic development of fan communities – fandoms. It needs to be stated that they existed earlier, but it was the Internet – the main medium of McLuhan’s ‘global village’ – which let them ‘find themselves’ in space. What is important in this context is the identification of distinctive features that allow distin-

⁴ A. Keen, *Kult amatora: jak internet niszczy kulturę*, translated by: M. Bernatowicz, K. Topolska-Ghariani, Wydawnictwa Akademickie i Profesjonalne, Warsaw, 2007.

⁵ P. Lévy, *Collective intelligence: Mankind’s Emerging World in Cyberspace*, Perseus Books, Cambridge 1997, p. 20.

guishing an ordinary viewer from a fan. After all, not everyone who likes a given cultural text becomes a fan. According to M. Lisowska-Magdziarz, "a fan is someone who actively expresses their liking, appreciation, admiration for a selected book, comic book, film, television show, video game or another work or product of culture."⁶ The fans (as well as the entire fandom) are characterised by the deeper connection with the text, affecting both the psychological attitude towards the text, as well as the attitude and perception preferences. According to Pearson, "fans adopt cultural texts as parts of their identities, often going so far as to build social networks based on common tastes."⁷ The importance attached to this part of identity and the social networks built on it clearly separates a fan from an ordinary enthusiast, and these social networks gathering the fans of specific cultural products are called fandoms. These products thus become 'cultural attractors,' which attract various communities and serve the role of a focal point for them. This is connected with the function of a 'cultural activator' – a stimulant, which entices fans to make repeated attempts at decoding the meaning of a given product and developing one's own references and contexts of its reading.⁸ This leads to taking on a real shape by the remix culture, the emergence of which was ushered by L. Lessig.⁹ According to the author, quoting, sampling or remixing fragments of existing cultural texts by ordinary users and producing something new on their basis is supposed to contribute to a more democratic development of culture. The role of the technical means of combining (mainly in digital

⁶ M. Lisowska-Magdziarz, *Fandom dla początkujących. Część I. Społeczność i wiedza*, Instytut Dziennikarstwa, Mediów i Komunikacji Społecznej UJ, Krakow 2017, p. 15.

⁷ R. Pearson, "Bachies, Bardies, Trekkies, and Sherlockians", [in:] Gray J., Sandvoss C., Lee Harrington C. (eds.), *Fandom. Identities and Communities in A Mediated World*, New York University Press, New York 2007, pp. 98-109.

⁸ P. Lévy, *Collective intelligence: Mankind's Emerging World in Cyberspace*, Perseus Books, Cambridge 1997, p. 23-24.

⁹ L. Lessig, *Remiks. Aby sztuka i biznes rozkwitły w hybrydowej gospodarce*, Wydawnictwa Akademickie i Profesjonalne, Warsaw. 2009, pp. 60-89.

formats) these fragments and the ability of users to use them is important in this respect.

The activity of the fandom boils down to two types of activity.¹⁰ The first one may be referred to as analytical or affirmative, boiling down to the description and analysis of a given text of culture (another episode of a TV series, a new volume of a book saga, etc.). Fans tend to analyse individual scenes, new characters, their behaviour, as well as coherence and consistency with the previous parts of the series. In other words, they delve into the text, try to understand it better, comment on it, review it and talk about it, in order to eventually become experts in this (relatively narrow) field. The second type of activity can be referred to as creative. Of course, it does not stand in opposition to the former type, instead it serves as its practical use. It mainly encompasses developing themes from a favourite series or book in original stories, alternative endings or stories taking place on the sidelines of the original work. In other words, the creative type can be called another level of initiation, as it is impossible to use the themes and characters characteristic of a given cultural text creatively without a thorough knowledge of it. M. Lisowska-Magdziarz provides a slightly broader description of the activity of contemporary fans, distinguishing seven potential areas – multiple reception of a selected text of culture (both collective and individual); interpretation and analysis of the text; supplementing, organising and exchanging knowledge related to the text; artistic creativity inspired by the text; building and maintaining a community around the text of culture, made up of people with identical tastes and the same reception method, organisational activities and building infrastructure for the community (such as setting up blogs and Facebook fanpages, organising fan meet-ups); as well as self-observation and self-analysis of the text.¹¹

¹⁰ Cf. K. Hellekson, K. Buse, *The Fan Fiction Studies Reader*, University of Iowa Press, Iowa City 2014, pp 3-5.

¹¹ M. Lisowska-Magdziarz, *Fandom dla początkujących. Część I. Społeczność i wiedza*, Instytut Dziennikarstwa, Mediów i Komunikacji Społecznej UJ, Krakow, 2017, p. 16.

The main manifestation of fans' activity, which I would like to focus on in this text, is a transmedia story, also referred to as transmedia storytelling, a creation quite firmly rooted in fan culture, but largely unknown outside it. In subject literature, this term appeared for the first time in H. Jenkins' *Convergence Culture*, published in 2006 (Polish edition was published in 2007.)¹² It is important to distinguish between storytelling as an activity and story as a finished product resulting from this activity. Hence the presence of the term *transmedia storytelling* in English subject literature, describing this phenomenon in a way that emphasises the very act of creation. One of the fuller definitions on the Polish ground was proposed by K. Kopecka-Piech in *Leksykon konwergencji mediów*, claiming that "a transmedia story is a story 'across many media platforms, based on numerous components, which bring about narrative progress. [...]" Unlike multi-platform nature, transmedia nature is based not only on the use of diverse media, but also on the creation of relationships between them, which result in a new, often non-linear storytelling structure. Transmedia does not mean telling the same story on different platforms, but conveying different information about the same world presented. Transmedia storytelling ultimately involves the viewer in a variety of activities, thanks to which they collect individual components in order to discover the entire story. In such a case, the media palette may consist, for example, of a TV series as the main component and the accompanying website, book, video game and a feature film.¹³ One of the first examples of stories of this kind in the mainstream media was the story of Laura Palmer and the town of Twin Peaks. Shortly after the première of the series directed by David Lynch (the first episode was broadcast in April 1990) the book *The Secret Diary of Laura Palmer* appeared on the market (ultimately released in Poland in 2017).

¹² H. Jenkins, *Kultura konwergencji. Zderzenie starych i nowych mediów*, translated by: M. Bernatowicz, M. Filiciak, Wydawnictwa Akademickie i Profesjonalne, Warsaw, 2007, pp. 95–96, 260.

¹³ K. Kopecka-Piech, *Leksykon konwergencji mediów*, Wydawnictwo Universitas, Krakow, 2015, pp. 40–41.

It was written by the girl, whose murder is the starting point of the plot of the TV series, and the first-person narration was supposed to shed a new light on the life of the protagonist. In fact, the book was written by Jennifer Lynch, daughter of the director of the series. The story, made famous by the TV, has thus moved to the printed medium, not in the form of a classic book adaptation, but rather as a way to develop and conclude some of the plot points. The same role was played by *The Animatrix* animated series, which complemented the *Matrix* trilogy.

The main medium used by fans are *fan fiction* stories, often referred to as fanfics. The prosaic form is the easiest to use, as it does not require the authors and creators to use complex technical means, such as a film camera or computer graphic software. One of the largest websites presenting fan works of this kind is Archive of Our Own.¹⁴ The largest Polish website of this kind is FanFiction.pl.¹⁵ Fans also fulfil themselves by creating other forms. Deviantart¹⁶ features artistic work – illustrations, collages, comics, as well as video clips, which are collages of scenes from films or TV series.

The best conditions for the development of a transmedia story appear in the context of expansive universes. The more heroes, including secondary and tertiary characters, the more opportunities for the development of fan-made creations. What is more, the characters are no longer confined to the framework of the world presented in one medium. They can freely move between these worlds and it is all up to the author's own imagination. When fans take the reins of the story over from institutional media creators, the characters story turns from a closed one (in a film or a book) into almost an endless one. When the universe of a given hero is no longer viable for some reason, nothing stands in the way of crossing the fate of said character with completely different characters, from completely different worlds, by means of a so-called *crossover*. One of the most

¹⁴ <https://archiveofourown.org/> [retrieved on: 27.07.2018].

¹⁵ <http://www.fanfiction.pl/> [retrieved on: 27.07.2018].

¹⁶ <https://www.deviantart.com/> [retrieved on: 27.07.2018].

acclaimed stories in this category published at archiveofourown.org is a fan fiction story, which features *Star Wars* characters of go to the Hogwarts School of Witchcraft and Wizardry, made famous by the Harry Potter series.¹⁷ The website has more than 1.5 million users, who published more than 4 million texts on it, belonging to nearly 30,000 different fandoms. The most popular are connected with *Star Wars*, *Harry Potter*, *Sherlock Holmes* and the world of Marvel's superheroes. The fans of Henryk Sienkiewicz's trilogy can also find something for themselves, including for example stories exploring the theme of forbidden love between Jan Skrzetuski and.... Bohun.¹⁸

This denotes an important feature of fan-made works - crossing borders, including those related to eroticism and violence. Things that may not¹⁹ appear in the *mainstream* media and in the official creations associated with a given character or universe can be easily presented and manifested in the world of fandom. Hence the presence of various relationships between the characters, often with erotic themes highlighted in the stories, as well as a stronger emphasis on violence, which is toned down in generally available products of culture.

In *Television Culture*, J. Fiske introduced the division of texts of culture into three levels. The first level is the main text, the message, which can be referred to by the audience (such as film or TV series). The second level texts are all the texts that refer to the first level text (professional film reviews and viewer discussions on the Internet).²⁰ The third level is created by the audience by combining the texts

¹⁷ *Nocturnal Studies and other Peculiar Magic*, <https://archiveofourown.org/works/8694634/chapters/19935013> [retrieved on: 27.07.2018].

¹⁸ *Ogniem i Sercem*, <https://archiveofourown.org/works/13219485/chapters/30238233> [retrieved on: 27.07.2018].

¹⁹ Both through its immoral character, as well as due to the fact of addressing the adventures of a given protagonist to young audiences.

²⁰ Fiske published his book in 1987, at a time when nobody had heard of the widely available Internet, social media and online discussions. Undoubtedly, however, the theses presented there can also be successfully applied to certain aspects of the functioning of the Internet.

from the other two levels. This is where all kinds of *fan fiction* can be found, as the broadest form of processing and reinterpretation of the source text.²¹ This reinterpretation serves a kind of feedback, which goes to the creators of the original work, giving them information about the way it is read by fans and their expectations.

The transmedia narratives are also used by media companies. Global brands, such as comic book superheroes are gradually 'colonising' an increasing number of kinds of media. The stories that once filled the pages of comic books are now being developed in films (both animated and feature films), TV series and video games. The *Star Wars* universe is now available in all media forms. The *Witcher Saga*, which was created by A. Sapkowski, who wrote his series of books, was developed in the form of computer games published by CD Projekt Red, a 13-episode TV series and a feature film directed by Marek Brodzki and produced by Heritage Films (2001), and in 2020 it is to be complemented by another TV series, this time produced by Netflix, an American platform.²² This results in an oversupply of content, since in order to discover the story presented in each of the media, the recipient needs to devote time and get access to the content (also understood as an economic constraint). Self-sufficiency thus becomes an important aspect of transmedia character. Each element of the presented story should form a coherent whole – it should not be necessary to know the film in order to enjoy a video game and vice versa. Of course, knowledge of the whole story makes the experience richer and in a sense fuller, but it should not be a prerequisite for experiencing the stories told in different media.

At this point a sceptical reader might ask whether the works of people unknown to the wider public deserve any interest whatsoever? Does exploiting well-known heroes and placing them in

²¹ Fiske J., *Television culture*, Routledge, New York 2011, pp. 123-125.

²² T. Gardziński, Twórcy Wiedźmina od Netfliksa zaczynają szukać aktorów. Kto zagra Geralta? <https://www.spidersweb.pl/rozrywka/2018/05/23/wiedzmin-netflix-geralt-aktor/> [retrieved on: 26.07.2018].

new situations and contexts make sense? Certainly, these millions of products of fan culture will include works with poor language use and their authors will be far from ever receiving the Nobel Prize for Literature for their works. On the other hand, all creative activities deserve attention, especially in the case of young people. Encouraging interest in literature, developing imagination, honing their writing (or graphic, in the case of illustration or comics) skills, as well as their involvement in the circulation of culture – these are just some of the benefits of perusing this type of cultural texts.

It is worth mentioning one more aspect, which somehow serves as the other side of this coin. The production users' own media content and publishing it on the Internet should certainly be regarded as a positive phenomenon. However, according to a study by Jen Schradie,²³ this phenomenon is associated with the so-called 'digital production gap.' The author tried to answer the question "Who is responsible for the content placed on the Internet?" and thus define a profile of a typical content creator. The study resulted in determining the fact that there was a clear divide between creative, active users and passive ones, focusing only on consuming content, which coincided with education levels and level of income in the family. In other words: the better the financial situation and education, the more likely it was that the person participated actively in creating on-line content. This 'digital production gap' is, in a sense, the next level of digital divide.

However, even if only ten or so per cent of all the Internet users are creative, it does not change the fact that we are dealing with a very dynamically developing branch of on-line creativity. The importance of this phenomenon can be proved by the dynamically developing field of *fan studies*, the publications concerning which were also released in Poland.²⁴

²³ J. Schradie, "The digital production gap: The digital divide and Web 2.0 collide", *Poetics* 39 (2011), pp. 145-168.

²⁴ Cf.: Lisowska-Magdziarz M., *Fandom dla początkujących. Część I. Społeczność i wiedza*, Instytut Dziennikarstwa, Mediów i Komunikacji Społecznej UJ, Krakow, 2017; M. Lisowska-Magdziarz, *Fandom dla początkujących. Część II. Tożsamość i twórczość*, Instytut Dziennikarstwa, Mediów i Komunikacji Społecznej UJ, Krakow, 2018.

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Mobile Technologies As the Medium of Change based on the Classroom Experiences of Teachers from Four European Countries

ABSTRACT: Sylwia Galanciak, Miriam Judge, Anna Weiss, *Mobile Technologies As the Medium of Change based on the Classroom Experiences of Teachers from Four European Countries*, Interdisciplinary Contexts of Special Pedagogy, No. 23, Poznań 2018. Pp. 195–212. Adam Mickiewicz University Press. ISSN 2300-391X. DOI: <https://doi.org/10.14746/ikps.2018.23.12>

The article presents results of a qualitative research conducted among 83 respondents (28 teachers and 55 students) from four European countries, using tablets for work at school. The aim of the research was to investigate the scope of mobile technology usage in teaching and its usefulness in supporting the educational process based on the experiences of teachers and students. The individual interviews and focus group interviews present a picture of teachers and students who realistically assess the advantages and disadvantages of tablets and who now redefine their role in the educational process as a result of their exposure to the pedagogic use of mobile devices

KEY WORDS: mobile technologies, social change, innovation, creativity, teamwork

1. Introduction

“The term «change» (...) is the key to understand our times; for many, the future will happen too fast”¹ wrote Alvin Toffler at the beginning of the 1970s, diagnosing the end of the industrial stage of development of human civilisation and the advent of the third post-industrial wave, with the dominant role of information and new communication technologies. His forecasts, which are almost 50 years old, remain surprisingly valid: in reality, in the catalogue of features defining today’s world, the category of change still occupies a central position. Cultural, economic, technological and social transformations are happening rapidly in all areas of human existence, solidifying the conviction that today, the sole stable feature of the world is, paradoxically, the change. “We are dealing with a total change,” writes Mirosław J. Szymański “(...) In this situation, a new reality is created, along with changed needs, new stimuli and barriers that become factors designating the course of human life.”² He is supported by Krystyna Pankowska, who stresses that such changes “first of all intensify contrasts between generations and, secondly, change the life of individuals, posing new challenges in various areas of existence, including in the realm of education, work, attitude towards the world and values. In this manner, new and hitherto unprecedented pedagogical problems emerge and multiply rapidly.”³

In this complex situation, the role of the teacher has to be redefined, whereas the catalogue of tasks faced by education has to be modified. Today’s students will enter adult life and start working in

¹ A. Toffler, *Szok przyszłości*, Państwowy Instytut Wydawniczy, Warsaw 1974, p. 19.

² M. J. Szymański, *Kryzys i zmiana. Studium nad przemianami edukacyjnymi w Polsce w latach dziewięćdziesiątych*, Wydawnictwo Naukowe AP, Kraków 2006, p. 6.

³ K. Pankowska, *Kultura - sztuka - edukacja w świecie zmian. Refleksje antropologiczno-pedagogiczne*, Wydawnictwa Uniwersytetu Warszawskiego, Warsaw 2013, p. 9.

professions which do not exist yet, but which will most probably be related to the accumulation and processing of information. The necessity of building an information society, resulting from the logic of current technological progress, as well as the emancipation opportunities which are still perceived in it, has become one of the goals officially included in the EU documents.⁴

2. Necessity of Changes and Ostensible Activities

In this situation the school, in order to live up to the reality in which it has to function, must also open up to the new technologies. One of its fundamental tasks is to prepare students to use ICT (information and communication technologies) competently, safely and creatively so that once their formal education has been completed they are capable of functioning in the shimmering, changeable reality, irrespective of the direction which the changes take. As emphasised by Jolanta Szempruch, "in the context of dynamic social changes, the school ceases to be the institution in which a schematic transfer of knowledge takes place, but it becomes a place for its creative search and independent construction."⁵ The main task of school is to prepare people for independent lifelong learning, a necessity when living in an era of constant change. What is more, an ideal graduate is a person who offers hope for becoming the driver of changes, thanks to the capacity of innovative thinking, which drives the technological and the economic development of a country forward. Postulates of education for innovation are emerging, resulting from a remark that absence of innovation unavoidably

⁴ Cf. M. Bangemann i in., Zalecenia dla Rady Europejskiej. Europa i społeczeństwo globalnej informacji, <http://kbn.icm.edu.pl/gsi/raport.html> (access 14.08.2018), Europe 2020 Strategy, http://ec.europa.eu/eu2020/pdf/1_PL_ACT_part1_v1.pdf – along with its component in the form of the European Digital Agenda et al.

⁵ J. Szempruch, *Nauczyciel w warunkach zmiany społecznej i edukacyjnej*, Impuls, Kraków 2012, p. 8.

reduces every country to the role of a subcontractor and a labour force resource for truly creative and affluent economies⁶. Furthermore, as provocatively emphasised by economist Ewa Okoń-Horodyńska, "in the conditions of growing uncertainty and risk, knowledge and experience acquired previously are of little use, thereby depreciating the traditional systems of education. (...) Limited funds [on education - author's note] cannot thus be wasted in the traditional systems of education, which often fail to ensure patency in the channels of professional career."⁷ Postulates of permanent, innovative education that allows students to get their bearings in any conditions have been discussed for a number of years in several international reports, such as the studies of the Club of Rome (*Uczyć się, aby być*⁸ or *Edukacja. W niej jest ukryty skarb*⁹) or the report of P. Lengrand *Obszary permanentnej samoedukacji*¹⁰. Such readiness for self-education and innovation are strictly allied to the use of new technologies, due to the fact that the world today is interested primarily in innovation in the area of STEM (science, technology, engineering, mathematics) and sees the most promising areas for development there.

Meanwhile, today's teachers are left on their own in this situation. Common knowledge pertaining to the models of introducing new technologies to education is lacking, in spite of the fact that such models exist and are applied, even though mainly by teachers or school principals who are true enthusiasts and who thinking

⁶ cf. E. Okoń-Horodyńska, *Edukacja dla innowacji (czy tylko wybrani skazani są na sukces innowacyjny?)*, "Nauka i Szkolnictwo Wyższe" 2009, No. 1/31, pp. 34-54, B. Galwas, *Uwagi o edukacyjnym wysiłku społeczeństwa i konieczność kształcenia ustawicznego*, [in:] *Świat przyszłości a Polska, Komitet Prognoz "Polska w XXI - wieku" przy Prezydium PAN, Dom Wydawniczy Elipsa, Warsaw 1995.*

⁷ E. Okoń-Horodyńska, *Edukacja dla innowacji (czy tylko wybrani skazani są na sukces innowacyjny?)*, "Nauka i Szkolnictwo Wyższe" 2009, No. 1/31, pp. 36-37.

⁸ E. Faure, *Uczyć się, aby być*, PWN, Warsaw 1975.

⁹ J. Delors, *Edukacja. W niej jest ukryty skarb*, Stowarzyszenie Oświatowców Polskich UNESCO, Warsaw 1998.

¹⁰ P. Lengrand, *Obszary permanentnej samoedukacji*, Towarzystwo Wiedzy Powszechnej, Warsaw 1995.

outside the box. The European exception is Switzerland, which, in the Canton of Aargau, offers comprehensive technical and substantive assistance to schools (Imedias Institute in Brugg), who are in the process of integrating information and communication technologies with the content and methods of teaching, inspired by the Kerres implementation model and the increasingly popular methodological SAMR model (also in Poland)¹¹. Nevertheless, a much more frequent situation, not only in Poland, is where the decision-makers' concern about effective and sensible introduction of ICT to school education bears the hallmarks of ostensible but often surface levels actions. For as long as the focus primarily lies on purchase-related projects such as equipping schools with computers or Internet access without also providing funding for on-going device maintenance and supporting teacher training, educational ICT cannot fulfil its change agent potential. A computer or a tablet are mere tools which, without a pedagogical framework, will not on their own fundamentally change or alter teaching. Schools which apply encyclopaedism as the dominant didactic strategy will not suddenly start using the Internet in a creative way, but will only use it for searching for subsequent sources of information. The problem will not be solved on its own even with the change of generations and appearance of teachers who are digital natives¹². As shown by international studies conducted by Àgueda Gras-Velázquez future teachers taught in a traditional manner at school are less willing to deploy new technologies in their teaching¹³. A point also made by

¹¹ More about these models cf. S. Galanciak, A. Weiss, *Nowe technologie w edukacji – między teorią a praktyką pedagogiczną*, [in:] *Nastolatki wobec internetu*, ed. M. Tanaś, NASK, Warsaw 2016, pp. 77–89.

¹² Marc Prensky, *Digital natives, digital immigrants. Part 1*, [in:] „On The Horizon” 9 (5) 2001; Marc Prensky, *Digital natives, digital immigrants. Part 2*, [in:] „On The Horizon” 9 (6) 2001.

¹³ Àgueda Gras-Velázquez, *ICT in STEM Education - Impacts and Challenges ON TEACHERS*, European Schoolnet (EUN Partnership AIBSL), Brussels 2017, http://www.stemalliance.eu/documents/99712/104016/STEM_Alliance_ict-paper-3-on-teachers.pdf/ac115d43-4d17-43f1-8bc6-15fbc0acacbc (access: 13.08.2018).

Judge¹⁴ on the Hermes Thin Client Project in Ireland who noted that younger teachers were less inclined to use their schools computer systems compared to older colleagues and who despite their self proclaimed proficiency with ICT in their day to day lives struggled to transfer this ability into classroom practice. On the other hand, those who were taught by teachers who intensely used ICT show a more positive approach and greater motivation to use such tools in their future work.¹⁵ The report of Àgueda Gras-Velázquez "ICT in STEM Education" indicates just how significant a solid pedagogical framework is to the successful introduction of new technologies in teaching. It seems that without pedagogical theory, teachers move in this area intuitively, making mistakes and failing to use the tools at their disposal in an optimum manner. According to the author, training support - often trivialised in the case of modernisation projects in school education - is also necessary. Devices which are more and more intuitive in use (especially mobile), encourage teachers to use them during classes without fear of the alleged loss of authority when devices fail to service the device.¹⁶ In this instance, it has to be added that in line with the famous statement of Marshall McLuhan that the medium is the message, mobile technologies do not create a revolution in the philosophy of teaching on their own, but on account of the specific nature of working with them, they may offer a great impetus for introducing changes. This is the issue tackled by the results of international studies, which are discussed in the next part of this paper.

¹⁴ Miriam Judge, *Mapping out the terrain in school context: Identifying the challenges of ICT integration during an innovative project*, „Irish Educational Studies”, 32 (3) 2013, pp. 309–333.

¹⁵ Àgueda Gras-Velázquez, *ICT in STEM Education - Impacts and Challenges ON TEACHERS*, European Schoolnet (EUN Partnership AIBSL), Brussels 2017, http://www.stemalliance.eu/documents/99712/104016/STEM_Alliance_ict-paper-3-on-teachers.pdf/ac115d43-4d17-43f1-8bc6-15fbc0acacbc (access: 13.08.2018).

¹⁶ Àgueda Gras-Velázquez, *ICT in STEM Education - Impacts and Challenges ON TEACHERS*, European Schoolnet (EUN Partnership AIBSL), Brussels 2017, p. 34, http://www.stemalliance.eu/documents/99712/104016/STEM_Alliance_ict-paper-3-on-teachers.pdf/ac115d43-4d17-43f1-8bc6-15fbc0acacbc (access: 13.08.2018).

3. Description of Study

As part of the international project “Mobile Intercultural Cooperative Learning”, researchers from Ireland (Dublin City University, infocus Training Ltd.), Poland (Maria Grzegorzewska University in Warsaw), Germany (Staatliches Schulamt Lörrach) and Portugal (Agrupamento de Escolas de Figueiró dos Vinhos) conducted studies among teachers and pupils pertaining to the use of mobile technologies in education. The study, designed and performed under the supervision of Miriam Judge, PhD from Dublin City University, was qualitative in nature and was conducted among 83 teachers and students working on tablets from schools in four countries: Ireland, Poland, Germany and Portugal. The purpose of the study was to assess the extent to which teachers were using mobile devices to support classroom pedagogy and the respondents’ opinions about the usefulness of these technologies to support the education process.¹⁷ The technique applied in the study was structured interview format comprising individual teacher interviews and focus group interviews with students.

A very important thread that became prominent in the study was the issue of change as an element inseparably linked to the deployment of mobile technologies in the process of education which the remainder of this paper will now deal with. It focuses on the statements of teachers as the contractors and usually the architects of such change. Among the respondents special attention should be drawn to teachers from Germany, who specialise in work with children with special educational needs, even though it has to be emphasised that every school covered by the study had students with SEN.

¹⁷ The entire report is available on website: <https://micool.org/wp-content/uploads/2017/12/A-Micool-Project-Cross-European-Case-Study-On-The-Classroom-Use-of-Tablet-Technologies.pdf> (access: 15.08.2018).

4. What Should Be Changed and What Is Changing: Mobile Technologies in the Classroom in the Opinion of Teachers and Students

The interviews with teachers reveal that there is a dualistic nature to the changes discussed here comprising both internal and external manifestations. First of all, at an internal level teachers identified a change in both their personal teaching philosophy and methodology inspired by the use of tablets in their classrooms. As they used the devices they could see that they needed to adapt their teaching approach and methods to become more student centered. This involved encouraging more autonomous student learning and providing more opportunities for creativity and expression, without which mobile devices would continue to be merely an extension of the blackboard, a textbook or a notebook.

Secondly, the outward manifestations of these internal changes as noted by the respondents included: self-development of teachers, emotions accompanying teaching, development of the students' potential, learning teamwork. Crucially, according to the respondents there is a symbiotic link between the two with change at the philosophical level informing the observed changes they were now seeing in their teaching and classrooms.

4.1. Changes: Tasks

What often instils teachers fears of using new technologies is frequently associated with device and system technical failures. However, as noted by the respondents, this is no longer the case with mobile devices which operate at a more intuitive level. The more pressing issue now for them was the necessity of changing one's teaching philosophy of teaching and accepting one's own new role in this process.

4.1.1. Changes in the Teaching Philosophy

One of the more prominent issues in the teachers' statements related to their observations on the changing role of teachers as a result of a shift away from dictactic style teaching to more student autonomous learning. A tablet or a smartphone with creative and knowledge-related applications installed on them encouraged teachers to hand over the tasks of searching, systematising and presenting knowledge to students (acquire knowledge in the form of an animation, a multi-media presentation or a film, they become a more attractive part of work during a class). As noted by a Portuguese teacher: "Yes, using the iPad changed my mode of thinking about the subject of a class because now, instead of simply providing the teaching content, I can challenge my students to search for information which we will later discuss together" (Teacher A, Portugal). Another respondent from the same country says: "The teacher no longer has to explain everything. The only thing that you have to say is: "Now you are going to explore this problem" (Teacher F, Portugal). Students also notice this change: after all, the significant portion of the burden of active searching for and processing knowledge is transferred to them - however, they evaluate it positively: "I think that it offers a completely new dynamics of learning. We are no longer focused on the blackboard and the teacher, but we acquire completely new experiences, expand the horizons and knowledge, search for new things" (Student from the second focus group, Portugal).

In this model of working with students, the role of teachers inevitably changes. "In such case, the teacher's role is always minor" (Teacher C, Poland) claims the respondent teaching German language. This thought is elaborated on by a teacher for whom a change in the method of work with students has become an inspiration for deep self-reflection: "I can say that (under the impact of mobile technologies - author's note) my methods of teaching and learning have changed, but in a deeper sense - in the sense of the philosophy of education, due to the fact that it is now more focused

on the student and less on the teacher... The teacher is almost invisible. Now, I believe that the teacher should simply show the way, that the teacher is only the student's assistant and not some type of god who knows the truth. So, since I have started using tablets, not only my skills related to pedagogical practice developed, but primarily my entire philosophy of teaching and learning has changed" (Teacher B, Poland). Similar self-awareness is also present in the answers of a respondent from Portugal: "Now I understand that when I work with students I am no longer the teacher and they learn from me. This is more about working together, allowing them to help me, and not only about explaining things to them. I can feel that my students like this mode of work more, and I am trying to get to know them better" (Teacher E, Portugal).

4.1.2. Changes in Teaching Practice

It follows clearly from the respondents' statements that a constituent of changes in the philosophy of teaching is a change in the method of work with students. However, this does not entail that the teacher is released from some or all of their obligations. The respondents emphasise that they have even more work, because encouraging student self directing learning requires a lot of advance scenario planning in order to create the conditions for the acquisition of specific knowledge, skills and social competence. In addition, teachers also need to invest time in becoming acquainted with electronic devices, which in the case of mobile technologies means an unending process of searching for new apps and learning how to use them. One of the teachers explains this process: "Obviously, you have to get prepared for every class, because a tablet is a new tool and getting to know it requires more effort to feel ready to use it. First, you have to get to know the applications and then come up with ideas of how to use them. But eventually we master it, and this was also my case (...). Now, I can come up with new plans of classes using the iMovie application or Quizzlet Life or apps related to cre-

ative writing, so even though it is now easy for me, it still requires time (...). With every new tool, we need more time to learn how it works (Teacher B, Poland).

It also follows from the respondents' statements that the use of digital technologies significantly differs from the use of desktop computers - it requires different competence, but also offers different effects. "This year, I have not even been to the computer room, and it is March," says a teacher from Portugal. "I prefer iPads, because I can use them in my classroom without the necessity of going to the computer room. My classes are more interactive now, because I can talk to students and see what they are doing, whereas in the computer room I sit at my desk and look at what they are doing, but without going into any interaction with them. In the case of tablets, the situation is different, because you are walking, talking and entering in interactions" (Teacher C, Portugal).

Use of mobile technologies means additional work for the teacher, but it also gives the feeling of satisfaction. The respondents declare that in effect, their self-esteem improved and they have better relations with students. An excellent example is provided in the statement of a respondent from Poland: "I definitely developed, because I want to show my students that I am as advanced in the use of new technologies as they are. I also want to encourage them to improve their skills, so I try to be a partner... Because I continue to develop with my students. Obviously, it does not come on its own, I have to learn to use new apps. I have to understand them and obviously, every time I fail, I can ask the students and I do not have any problems with it" (Teacher A, Poland).

However, the teachers should not devolve the responsibility for the use of applications to students and hope that they will manage on their own. Using mobile devices is a multidimensional activity and requires varied competence, not only technical. The teacher should possess them. As emphasised by a respondent from Germany: "(...) students are not as competent in using media as it seems to us, even as far as the use of smartphones and tablets is concerned. They need a lot of education in this respect, primarily as far as the

protection of data is concerned, user settings and simplest functions. As teachers, we should not initially expect too much from them" (Teacher 5, Germany).

4.1.3. Who May Experience Difficulties?

Teachers from schools covered by the study in all countries operate without any additional (or simply without none at all) system support. They look for training opportunities and courses on their own, also abroad. The Polish school (non-public) and the Portuguese school have their own sets of tablets; in Irish and German schools, they are made available. However, one cannot expect that every teacher will be determined enough to learn how to use new technologies in the process of education on his/ her own.

One of the respondent students described the preparation of teachers as follows: "I believe that some teachers are not ready. I mean, they are not used to using computers, they prefer to work with text, so they are more old-fashioned and traditional... This is the way in which they learnt and they want to teach others in the same way" (Student, Group 6, Ireland). Another young respondent concurs: "A tablet (author's note) is seen by them as a toy and they do not know how to handle it. It is hard for them, because they were taught in a traditional mode and they do not have extensive knowledge about technology and prefer the blackboard and books. They do not know how to teach with technology. In a certain sense, they are old-fashioned. They have to "feel" the paper and all these things that one has to learn" (Student, Group 2, Ireland). Some teachers assess the situation even more harshly: "The majority of our schools still rely on the philosophy that was probably performing well in the 19th century...." (Teacher A, Poland).

Some schools offer technical support to teachers in the form of an extra person conducting the classes and responsible for operation of equipment. As noted by the respondents, this does not solve the problem. "It is very hard, because the majority of teachers do not want anybody else in the classroom. They are very much against it" (Teacher A, Ireland).

Problems with the use of mobile technologies also result from the current system solutions, where the declared skills that the students should acquire (creativity, independence, teamwork) do not go hand in hand with the official assessment systems. A telling statement of a respondent from Portugal is presented below, even though it seems that it may well have been uttered by Polish respondents:

“In Portugal, we have a huge problem, because our system of education is based on examinations and tests. I could often explore a subject, do something more, but this requires time and I have to deal with absolutely all the content contained in the core curriculum, because if there is something at the examinations that I have not discussed, I will have to deal with parents saying: “You did not discuss it, you did not teach it to them.” I cannot tell them: “Oh, I was trying some new methods with iPads.” This does not work. This is a huge problem. You have to have good grades if you want to get to the university, otherwise you can forget about a good school” (Teacher A, Portugal).

4.2. Changes: Benefits

Apart from personal benefits, such as increased satisfaction with the performed work, a noted improvement in their own teaching methods and the development of a more partnership approach to learning with students, the respondent teachers also noticed numerous beneficial changes pertaining to the development of many desirable student competences, progress which in this respect, they attribute to working with mobile technologies.

4.2.1. Student: Change of Motivation

One of the most obvious and easy-to-observe effects of using tablets and smartphones during classes is the students’ greater interest in the subject matter and greater motivation for work, which is related to it.

“The benefit is greater motivation and interest on the part of students. They are really interested in what they are doing. And because they have a lot of fun, school is no longer so boring to them... All the sitting in the classroom and listening to the teacher, again and again... Thus they are more motivated and this makes work with them more effective” (Teacher C, Portugal). This is confirmed by a Portuguese student: “We learn faster when we have fun!” (Student, Group 6, Portugal).

In this context, it is also worth mentioning another statement: “For a number of years, I was looking for a solution to the problems that I experienced in the classroom, related to the students’ motivation. I believe that the traditional teaching is not enough if we want to make the students fascinated with a subject matter and keep their attention up, which is in reality necessary if they are to learn efficiently. I have always been trying to diversify my methods and iPads seem a very good solution, because students are very much interested in technologies of this type” (Teacher A, Portugal).

A very important benefit is the possibility of exciting interest in all students. Today, very few teenagers are able to resist the charms of tablets or smartphones. This is an observation made by an Irish teacher: “All students were involved in work with the use of iPads. All of them liked the work on the projects that they were pursuing. This really was a great reinforcement of the learning outcome when all of them actively participated in activities” (Teacher 1, School B, Ireland).

4.2.2. Student: Independence and Individualisation

With respect to the necessity of lifelong learning, which is key to twenty-first century learning, one of the main skills that schools need to equip students with is the ability to independently acquire knowledge, verify sources of knowledge and utilise that knowledge in a practical way. The respondents assess the potential of mobile technologies highly in this respect. Students “are more independent

from the teacher and they have more opportunities... They can independently examine information, search for vocabulary, design own dialogues and record a film without the teacher's assistance. They are more involved in the process of learning. And they learn to take responsibility for their own education." (Teacher C, Portugal).

Teachers from Germany who work with children with special educational needs mention another aspect: mobile technologies allow for individualising work with students to a great degree. "I work a lot with students individually, which means that they decide about what they want to work on and I support them in their work. iPad is an excellent didactic aid, because it allows for setting the application in a manner that every child can work at a level adjusted to his/ her potential" (Teacher 3, Germany). Another respondent supports this opinion: "Even weakest students can significantly benefit from the fact that classes may be designed more individually; you can respond directly to their needs, adjusting specific content to them" (Teacher 7, Germany).

4.2.4. Student: Creativity

As noted at the beginning of this paper, a very important and coveted feature of persons entering the labour market is creativity and the ability to think innovatively. These features may be, to a certain extent, worked out and improved, by properly selecting the content and the methods of work with students. As noted by the above-quoted respondent from Portugal, the core curriculum does not always facilitate development of such competence, yet mobile technologies – in a unanimous opinion of respondents – excellently support work on them. "Students are more engaged in learning and they are more creative, they can implement their own ideas," notices one of the respondents (Teacher C, Poland). A teacher from Germany concurs: "I believe that the creative potential (of tablets – author's note) is really great, because children have the possibility of perceiving themselves as creative and they realise that this is not

only a consumer product. For me, it very important that we discourage the students from ordinary consumption" (Teacher 6, Germany). Their remarks are confirmed by an Irish student; however, he ends his enthusiastic response with a bitter conclusion: "I think that making films was great fun. I liked it a lot, because when using iPads, we had to be creative and this is something that we usually do not do at school..." (Student from a focus group, School A, Ireland).

4.2.5. Student: Teamwork

According to respondents, teamwork is another added benefit that the use of mobile technologies in the learning process brings: "I use iPads for teamwork, because then I can help students with various skills," declares one teacher. "When doing work in groups, you can pair students with different talents, who work together and they learn from one another in the sense that a weaker student can learn from better ones. But the good students can also learn. They can help others, which is always good, so they can learn tolerance. This possibility of cooperation and mutual assistance is truly great" (Teacher B, Poland).

Other aspects of cooperation among students while working on projects are noted by a teacher from Ireland: "Due to the fact I never had a sufficient number of tablets at my disposal, my class had to work in pairs or in groups of three. This really helped them understand the meaning of compromise and cooperation, and how to share the ideas and what it means to accept an obligation (...). This was a great lesson of cooperation" (Teacher 4, School B, Ireland). Their conclusions are summed up by a teacher from Germany who made the following observation: "I believe that it is fascinating to see how cooperation is born, how all of these group processes take place, how the students start helping one another" (Teacher 6, Germany).

5. Recapitulation

Introduction of new technologies to schools in a situation when these technologies constitute the driver of socio-economic and cultural transformations is an inevitable and necessary activity. In particular mobile technologies, which constitute a natural environment within which the majority of today's students operate, seem to be very promising tools with respect to didactic utility. Responses by participants who took part in this research as part of the Micool project and whose results are presented in this paper, are testimony to this. The research also confirmed the fact that competent introduction of mobile devices to the classroom, making a full use of their potential, requires substantive, technical and intellectual preparation of the teachers.

Implementation models, such as the Kerres square mentioned earlier, take into account components of the implementation process such as infrastructure, development (human and material resources), media and didactics. But it is necessary to supplement them with the aspect of change - the necessity of its occurrence, the degree of readiness to carry it out by/from the school environment (a headteacher, teachers), possible forms of support in its preparation and sustaining the effects. Readiness for change is in fact not only a sign of our times, but an essential skill of present and future graduates which should be developed by today's school preparing children for the future.

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The new quality of academic education in the face of a civilisation change – the interactive problem-focused lecture

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The article presents important problems that colleges and universities will have to face in order to adapt its didactic offer to the requirements of the present day. The article is based on the research conducted by the author during the training of the researchers and teachers at one of the Polish technical universities.

KEY WORDS: education, modern academic didactics

Introduction

The information technology development is permanently changing the life of people today. A systematic change can also be seen in the output that has humanist or social connotations. The traditional letter has been replaced with the e-mail, while e-books and audiobooks are taking the place hitherto reserved for paper books. Libraries are becoming digitized. Wikipedia and e-journals have come around, while photoblogs, vlogs and blogs steadily replace

diaries and albums. New forms and models of communication and commonly used, e.g. discussion forums and social media. There are electronic information resources such as databases, repositories etc. The Internet has changed or extended the functional scope of products and the way they are used. Many traditional activities now have their modified counterparts in the cyberspace. The important advantage of the contemporary world is not only the fast and open access to information (Web 1.0), but also the possibility to share and co-create information (Web 2.0). For the present day generations immersed in the digital world, this situation seems obvious and natural.

The easy and immediate access to information on the Web and the possibility of personalization and exchange have significantly accelerated the decision-making process and have also impacted the speed and self-sufficiency in the case of solving problems in multiple fields. One could formulate a thesis that owing to the free access to online resources and services that broaden the set of available tools and the human cognitive field, contemporary people are more self-sufficient and emancipated. They can access and use depositories and they also can co-create them thanks to the available mechanisms. Due to the dynamically changing life environment which constantly offers new options to use digital method and cybertools, a contemporary human must put a lot of effort to learn and adapt to the new reality as well as to implement it creatively in everyday activities. This is what the digital civilisation demands. The qualities of contemporary generations, their active lifestyle, efficiency and the ability to adapt fast to new conditions as well as creativity are conducive to the development of key skills in the process of lifelong education.

Who are we teaching?

R. Friedrich and M. Peterson defined the contemporary young generation as Generation C (R. Friedrich, M. Peterson et al., 2010). It refers to three typical characteristics: *connect, communicate, change*.

What decides about belonging to this community is not only age, but also the openness to change and the speed of familiarisation with the new digital reality, i.e. acquiring the qualities of “digital natives”. Most probably, the decisive moment occurs when the Internet and social media become the integral part of the generation’s life (J. Morbitzer, 2012).

The specific feature of Generation C is constant experiencing in order to get more knowledge about the world. Having access to many sources of information, young people construe their knowledge syncretically. They build their own identity and seek balance that ensures stability and security in the situation of permanent development. Such an approach to information is valuable in terms of being open to changes and new solutions. In fact, it is not a distinguishing feature. It belongs to every young generation. What has changed are the methods and tools used by young people nowadays. Generation C is more independent and self-sufficient than people in the previous stages of social development. Thanks to the constant online activities, people have naturally developed the sense of autonomy, the power to decide and the control over one’s actions, including learning. Such attributes as the quick information exchange and decision-making, multi-tasking and resourcefulness derive from the activity on the Web. The research confirms that the cognitive activity of today’s people in combination with the easy access to information considerably accelerates the learning process, including the solution of complex problems. The key matter is, then, the occurrence of the problem situation demanding intellectual efforts and solving it with the use of generally available method, tools and means, including the contemporary digital methods and tools. The stimulation of the cognitive curiosity with the consideration of the strategies employed by young people immersed in the virtual world makes it possible to achieve great educational results.

The constant activity and self-sufficiency of young people in the ever changing reality make them expect novelties from the education methods used in schools, colleges and universities. They expect change and adaptation of the educational process to the contempo-

rary strategies of construing knowledge. To them, the traditional learning models seem anachronistic and lagging behind the present day, especially when they consist in transmission of knowledge that can be found in other generally accessible repositories. They are unwilling to gain knowledge that has only to be remembered. It is demotivating when the knowledge transmission method is assessed negatively. Simultaneously, in their everyday activities, students have quick access to information and they efficiently navigate the online communities. The comparison of one's knowledge with the knowledge of others, mobility and the lack of space and time restrictions in the access to information which are so distinctive for the cyberspace drive the development of new strategies for problem-solving as well as encourage collaboration and engagement, motivating various activities aimed at broadening one's knowledge. At present, cognition is a phenomenological process in line with the principles of hermeneutics (Morańska, 2017).

It is, therefore, expected that for people to creatively make use of the possibilities offered by the new life environment the educational process must prioritize the educational forms and methods which drive the development of problem-focused thinking by using the potential of the learning subjects. Their use should be conducive to reflectiveness (Perkowska-Klejman, 2013) and responsibility in the process of construing knowledge. This issue is considered by B. Bloom and B. Niemierko (Bloom 1984; Niemierko 2002) in the taxonomy of educational goals. Both researchers underline that the educational process should achieve the top goals related to the acquisition of the skills to operate knowledge. *Learning by doing* by J. Dewey is, then, the standard for all present-day organizers of education, including academic teachers. The task of contemporary teachers is to direct and manage the process of students' building up their knowledge as well as to organize a proper learning environment for them.

The continuation of the work on artificial intelligence will have the following result: the personal and professional success will be the reward only for creative individuals who are open to changes

and reflective, who think ahead and can collaborate. Developing such skills and competences is now deemed more important than gaining detailed knowledge which is undergoing dynamic changes.

The key to satisfying the learners' needs and providing them with conditions for active learning is the extension of the set of didactic skills of teachers by adding the problem-focused teaching methods to the academic didactics (Morańska, 2017).

A new perspective on didactics

The new activity models in the world which is a synergy of the real world and the virtual world as well as the change of tools and methods used by contemporary humans have become an essential problem in the present-day didactics, especially in the academia. It can be easily seen that the traditional models of academic education (e.g. the standard informational lecture) do not give the expected results.

The contemporary approach to the educational process needs to include multiple integral elements which interact in a synergistic way. The key elements are:

- the specific qualities of the subjects participating in the didactic process, including their experience as well as the cognitive strategies used in everyday life; in consequence, it is possible to understand the learning mechanisms employed by contemporary students and to adequately plan the educational situations that will correspond to their preferences,
- the educational environment and its correspondence to the life environment of the learners,
- a high level of activity in the learning process,
- a high level of motivation to learn.

One of the key factors that influence the achieved results of education is the stimulation of the motivation to learn. It can be safely concluded that in the contemporary academic didactics it is not only

the “what” (the educational content), but also the “how” (methods of presenting the content) that drives the effectiveness of the educational process. The questions most frequently asked by students are: “why am I learning this”, “what is the point of it?” It is necessary to consider answers to these questions in the planning of the educational process and the arrangement of educational situations by the lecturer.

The adoption of the constructivist paradigm in modern-day didactics (Bruner, 1987) introduces crucial changes in the perception of the educational process and redefines the traditional teacher and student roles. In consequence, the student is perceived as an active subject who construes his or her knowledge in a social environment when performing tasks in line with the educational situation planned by the teacher. The role of the teacher is to manage the learning process of the students. The adoption of the principles for organising the educational content significantly increases the motivation to learn.

1. From the general to the detail, the idea is to present the educational content in a wider context and in keeping with the principles of correlation of the content.
2. From practice to theory, the idea is to indicate where the acquired knowledge can be applied, which justifies the need to acquire it, in line with the principles of the research process.

Respecting the principle of correlation of the educational content and setting the knowledge acquisition in a wider context encourage students to build the structures of knowledge and its organization. The adoption of the principle related to the practical application of the knowledge by presenting examples of how it can be used in situations connected with the given profession or the environment in which the students function makes it possible to see the usefulness of the knowledge and makes the students want to gain it. Teachers of highly abstract subjects (e.g. mathematics) will face the most difficult task in this respect.

Description of research

The described model of the lecture is a proposal based on analyses of the traditional academic lecture and its adequacy to contemporary requirements. The research participants were 28 academic teachers who took part in the training related to the improvement of academic education. These teachers are not pedagogues. The research used the method of individual cases and the technique of competent judges. One should underline the high commitment of the participants in performing the task of developing methodical solutions that are possible to implement in the process of educating students in order to make it more effective.

The research covered the search of the means to make students more engaged in the process of learning. The following issues were indicated as needing improvement:

- low attendance of students at lectures,
- the way that students prepare for exams following the unwritten rule of “memorize, pass and forget”,
- poor engagement of students in tasks and projects,
- negative and unethical behaviours such as imitation, plagiarism and superficial analyses.

The research participants took part in the training courses on the implementation of modern methods of education in the academic didactics. The training was based on the Design Thinking method. Before the potential solutions were developed, there was the empathy stage that consisted in the in-depth analysis of the university students. The next stage was the definition of problems that needed solving.

In this respect, the following tasks were considered in designing the changes to the educational process:

- to make students more interested in the participation in lectures,
- to develop design thinking, creativity, reflectiveness and, in consequence, the responsibility for the learning process,
- to start group processes that would allow to develop social skills.

The interactive problem-focused lecture

Is the contemporary lecturer still a lecturer in the traditional sense? The research participants believe that the answer to this question is “no”. What needs to be changed is the manner of presenting the educational content and the role of the lecturer. One of the proposed solutions is the interactive problem-focused lecture where the lecturer engages the students in collaboration in order to solve the problem that is the topic of the lecture. When the academic teacher interacts with students, he or she refers to their experience and knowledge.

It was determined that each problem-focused lecture should:

- start with the opening question to which the answer would be given during the lecture,
- next, by asking prepared and correctly formulated detailed questions, the lecturer and the students move forward together to solve the problem,
- if there is no feedback from the students, the lecturer gives the information and asks the next question,
- visualization can be used to make the presented information more understandable.

The lecturer is the guide and the mentor who leads students from the knowledge they become aware of to solving the problem, inspiring and provoking them to think and reflect on the next stage of the solution.

The case study method with references to real-life situations and events can be used to prepare the problem-focused lecture. The key task is to activate the students and stimulate their cognitive curiosity, reflection and intellectual efforts.

In the opinion of the lecturers, the use of activating elements can make students more focused and engaged during the lecture. One of the proposed solutions is to organize a quiz during the classes in order to check the students’ level of understanding of the presented content. The control situation can be arranged during or after the lecture. People with the best score can be rewarded in line with join-

tly defined rules. The simple cloud application Kahoot.com can be used to prepare the test. This methodical solution can improve the students' active listening and attendance. The quiz allows to summarize the key topics in the educational content by giving them a specific structure. The way and scope of understanding of the lecture topics are also checked. The advantage of this particular solution is the immediate feedback on the students' progress. The analysis of the quiz results allows to see in detail which content has been understood sufficiently and which has not. The drawback of this solution is the necessary Internet access during the classes. Due to the low, but nevertheless existing probability of technical problems, it is not recommended to use the application for grading the students. Another solution suggested by the research participants in order to encourage the learner's active engagement in the lecture is for them to make graphic notes (e.g. thought maps) illustrating the subject matter of the lecture.

“It used to be the chalk and the blackboard that were enough to make the lecture understandable”

When the lecturing method was discussed, it was pointed out that the lecture could be ineffective despite the use of visualization in order to facilitate the understanding. First, the analysis covered the course of the traditional lecture with special consideration of the role of images on the standard blackboard or on prepared sheets. This case analysis resulted in the following conclusions:

- the lecturer mostly used the spoken word, while the illustrations served to present the key pieces of information that were sequenced in such a way as to form a structure of the content (idea) and the illustrations were discussed during the lecture,
- the illustrated content was crucial for understanding the subject matter,
- the display sheets/boards contained images that were discussed by the lecturer.

To sum up, the visualization complemented the spoken word during the lecture and made it easier to understand. The image was connected with the verbal communication.

The next task performed by the lecturers participating in the research was the analysis of the presentations prepared for the lecture with the use of dedicated applications (e.g. PowerPoint). The analysis detected the following errors of method:

- the presentations often contain too much text, which makes it difficult for the students to follow the lecture and see its main points as well as to understand the essence. They are focused on writing down the text from the presented images, because they want to make it before the lecturer changes the slide,
- simultaneous discussion of the displayed long textual information – the students must choose: either listen or make notes, which is uncomfortable and disrupts the perception of the content,
- a particularly wrong practice is when the lecturer reads the text from the slides,
- the students stop listening actively when they know that the presentation will be later sent to them,
- a badly prepared presentation – the images are too small to be seen by the students at the other end of the hall – the students are unable to interpret the content correctly, the multiple colours and fonts make it difficult to order the content, the lack of contrast and the blurring colours make the image illegible.

The result of the analysis was to define the purpose and the rules of preparing and sharing the lecture presentation.

- Similarly to the traditional blackboard, the content of the presentation should cover only illustrations that facilitate understanding of the lecture (diagrams, tables, charts, drawings, comparisons) and the visualizations should be chronologically correlated with the discussed topics. The slide should not replace what the lecture wants to say. It should be remembered that the lecturer never wrote the entire content on the blackboard. The rule is to minimize the text.

- When the presentation is prepared, the lecturer should check if it is visible and legible from each part of the lecture hall. Longer descriptions should be replaced with symbols whose meanings can be explained at the start of the lecture.
- Colours, types and attributes of the font should be related to the structure of the presented information. It is recommended to use one type of font (preferably sans serif). The structure of information should be created by means of the font attributes (size, bold, italics, underline). Colours carry meanings, so they should be used to indicate the key information or warnings.
- Contrast must be applied as the basic rule during the preparation of the visual presentation.

Another crucial issue was pointed out in the course of the analysis. By displaying information that is full of text, the lecturer will very likely be asked about sharing the visual material. It would be perfectly correct provided that the students treated the presentation as a compendium to be used for further study. Unfortunately, they often approach the received textual material as the main source of preparing for the exam. It must be noted that the conclusion “let them learn at least this” limits the students’ intellectual effort related to the in-depth analysis of information and the search of solutions associated with the learned field based on multiple sources and, moreover, it limits their cognitive activity. In extreme cases, it may even lead to the following explanation by the student: “I didn’t get materials from the lecturer, so I didn’t prepare for the exam”.

It was concluded that the solution could be to create a repository of presentations for the lecture, illustrating the covered topics, which the students can print and bring to lecture in order to fill in additional information, while listening actively. Such a repository could be made available on the university’s e-learning platform. The studies show that students’ notes made in such a manner differ depending on the actual knowledge of each student.

The presented solutions arrived at by the research participants refer to the studies described as part of the psychology of education

(Mietzel, 2003) and psychology of motivation (Franken, 2013). They will be implemented into the educational process in the next semester and evaluated.

Conclusion

The contemporary academic didactics is changing. It needs modification in terms of educational forms and methods in the context of the present-day goals of education. The best strategy could be the use of new methodical solutions which improve the students' engagement in the learning process, motivation, collaboration and healthy competition. In the contemporary learning process, it is crucial to develop thinking, self-reflection and self-perfection. It is also important for the students to achieve a certain level of meta-learning.

The modification of the present-day academic didactics is absolutely necessary. The academic staff must move ahead past their own of educational experiences which are usually inadequate in today's environment.

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Modern technologies and students with dyslexia – opportunities and threats

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The article focuses on the issue of the possibility of using modern technologies in the education and pedagogical therapy of students with developmental dyslexia. The article draws attention to the difficulties experienced by students with developmental dyslexia in contact with modern technologies due to the specificity of their functioning, which consists in the fact that “dyslectic problems do not manifest themselves only within the system of letters, but apply to all the existing systems of signs (symbols) to denote (name, order) the existing reality. This also applies to codes that regulate the use of certain symbols, in other words – dyslexia causes difficulties with the use of symbols and the abstraction and application of rules for the use of these symbols. This may apply both to letters and numbers, as well as music notes, the Morse code, numeric time stamping, etc.”

KEY WORDS: new technologies, dyslexia, difficulties

The 21st century can be characterized as the time of media and their presence in the child’s life does not raise any doubts nowadays. The analysis of the presence of media in the context of their importance for the child’s development has been conducted since the moment of their appearance in the social sphere. The first me-

dium was the radio, which was a focus of attention and a carrier of information, but due to the fact that it did not have images, it has not aroused a great interest of researchers and its impact is not the subject of analyses.

Then television appeared, the importance of which was much greater and which aroused and continues to arouse the interest of those analysing its impact, both in terms of benefits and threats.

Nowadays, ubiquitous digitalization is being observed. The spread of the Internet has contributed to the development of the trend, which consists in the transfer of many areas of life to the "virtual world". The "cyberspace" of the Internet enables its users to engage in many types of activities: exchanging views, accessing scientific information, looking for a job or acquiring knowledge. The phenomenon of moving to "cyberspace" is particularly visible among the younger generation, which cannot imagine living without a computer with Internet access, an iPhone or smartphone with Internet connection and being in constant contact with friends.

It is difficult to determine the age range of people who began the era of new media, otherwise known as the era of "digital natives", but it is assumed that these are people born in the 1980s. The era of "digital natives" is a world in which social media are generally available and widely used. These people are said to be the first population to be born "immersed" in the world of new technologies. Immersion is sometimes defined as "immersion in the content of a medium that causes the loss of sensual contact with the real world"¹.

In 2001, the most frequently quoted work entitled "Digital Natives, Digital Immigrants" appeared,² in which the former term referred to young people growing up with new media and the latter referred to people who were forced to adapt to the presence of new

¹ M. Szpunar, *W stronę nowych mediów*, Wydawnictwo Adam Marszałek, Toruń 2010, p. 19.

² M. Prensky, *Digital Natives, Digital Immigrants*, „On the Horizon”, 2001, vol. 9, No. 5, pp. 1-6.

media that had emerged and disseminated only at some point in their lives.

In the discourse on new media, the term “technological determinism” appeared, which refers to two areas. Technology, which is defined as: “systematic treatment of science, systematic treatment of grammar and speech, or any set of standardised measures to achieve a preconceived result”³. J. Euell also refers to it as: “all the methods that are attained rationally with absolute effectiveness in every field of human activity”⁴. The second part of the concept is determinism, which is a philosophical concept assuming that phenomena occurring in the world condition each other while remaining in a cause-and-effect relationship. Providing information about the type of impact of technology on behaviour is possible by analysing the cause-effect relationship.

M. McLuhan predicted the emergence of the electronic age, but it is not certain whether he took into account its development in the dimension that is being observed and experienced today, when most people have at least one electronic gadget and communicate in an unlimited way, at a very fast pace. Contemporary technological development is so intense that people are not able to meet these requirements and the need to keep up with changes in the electronic media. Universal access to fast-changing content, the transience of information, the fact that it is quickly outdated, but also the time in which we gain knowledge about events from the most distant parts of the globe make us function in a world that is difficult for many to understand. And for the new, younger generations, although the world is much more understandable, in terms of handling and access to equipment and the rules of use, it is much more difficult to understand everyday life.

Many of the things that used to be difficult or even impossible to reach are now at our fingertips and all we need to do is type one

³ B. Siemieniecki, *Komunikacja a społeczeństwo*, [in:] *Pedagogika medialna*, Vol. 1, ed. B. Siemieniecki, Wydawnictwo Naukowe PWN, Warsaw 2008, p. 27.

⁴ B. Siemieniecki, *Komunikacja a społeczeństwo*, [in:] *Pedagogika medialna*, Vol. 1, ed. B. Siemieniecki, Wydawnictwo Naukowe PWN, Warsaw 2008, p. 27.

word in the search engine to get information. Children have access to stimuli and experiences that were previously reserved for extreme situations. For example, in order to feel how it is to lose one's life, one had to find oneself in a very specific situation; today it is enough to switch on a simple game to experience such emotions.

It is impossible to state unequivocally that mass media are bad and contribute to the wrong functioning or development of the child, because they are inextricably linked to the era in which we live today, which means that the child must be prepared to use them and treat them as one of the basic tools in his or her life. This, however, requires maturity, which the child does not have by definition, and which is shaped in the course of its development, and which in turn is determined by the technologies that accompany the child. According to the assumptions of M. McLuhan: "We shape our tools and they shape us" and "the media are the extension of man"⁵.

New technologies create new opportunities for working with dyslexic students: they support diagnosis, therapy and correction of disorders. Developmental dyslexia, according to J. Cieszyńska's definition, means "difficulties in a linear processing of information: symbolic, temporal, motor, manual and linguistic"⁶. These are students who experience learning difficulties, understood by the European Dyslexia Association (EDA) as "a different way of acquiring reading, writing and spelling skills that is neurobiologically motivated. Cognitive difficulties [...] can also affect planning and counting skills. This can be caused by a combination of difficulties in phonological processing, operating memory, speed of naming, learning organised material in sequences and automation of basic skills"⁷. To cite M. Korendo "additionally, it should be emphasized that dyslexic problems do not manifest themselves only within the system

⁵ E. Griffin, *Podstawy komunikacji społecznej*, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2003, pp. 343–353.

⁶ J. Cieszyńska, *Zaburzenia linearności – podstawowy wymiar trudności w czytaniu i pisaniu*, p. 5, <http://www.centrummetodykrakowskiej.pl/2,a,do-pobrania.htm> [access: 02.07.2018].

⁷ *Guidebook for parents of children with dyslexia* (2013), e-book, p. 15.

of letters, but concern all the existing systems of signs (symbols) used in order to denote (name, order) the existing reality”⁸.

Symptoms of developmental dyslexia change with age. In the preschool period, the symptoms appear in the form of delays in the development of visual, auditory-language, motor and lateralisation functions, as well as orientation in the body and space scheme. In the case of older children and adolescents, the problems mainly concern the fluency and understanding of the text, limited vocabulary, difficulties in assimilating the rules of correct writing, reviewing and correcting written texts, problems with planning and organizing their own activities⁹.

Organizations associating people with dyslexia offer a variety of devices supporting their functioning. Most often these are: personal computers – laptops, netbooks, palmtops, tablets, hand-held recorders, dictating machines, smartphones, digital cameras, electronic dictionaries and calculators, organizers, scanners and printers of various types¹⁰. New technologies are an excellent aid, a kind of “cognitive prosthesis”, enabling dyslexic students to compensate for their deficits and perform tasks in an alternative way¹¹.

Problems with reading, such as obligatory school reading can be overcome with audiobooks, smartphone apps, “talking” computers or films. Hypertext or semantic maps can also be used. If the problem is the understanding of content, the Internet may help, where

⁸ M. Korendo, *Dysleksja – problem wciąż nieznan*, p. 3, <http://www.centrummetodykrakowskiej.pl/2,a,do-pobrania.htm> [access: 02.07.2018].

⁹ M. Bogdanowicz, *Specyficzne trudności w czytaniu i pisaniu*, [in:] *Dysleksja rozwojowa. Perspektywa psychologiczna*, ed. G. Krasowicz-Kupis, Wydawnictwo Harmonia, Gdańsk 2006, p. 22.

¹⁰ G. Krasowicz-Kupis, *Psychologia dysleksji*, Wydawnictwo Naukowe PWN, Warsaw 2008, pp. 210–211.

¹¹ Cf. R. B. Lewis, *Assistive technology and learning disabilities: Today’s realities and tomorrow’s promises*, „*Journal of Learning Disabilities*” 1998, No. 31, pp. 16–26; M. Crombie, *Różnorodność potrzeb edukacyjnych uczniów jako wyzwanie dla nauczyciela kształcenia początkowego* [in:] *Dysleksja. Teoria i praktyka*, ed. G. Reid, J. Wearmouth, Gdańskie Wydawnictwo Psychologiczne, Gdańsk 2008.

one can easily find elaborations which “translate” and explain the most important threads.

The solution to writing problems are text editors (which check grammatical and punctuation correctness), computer dictionaries of synonymous words, editorial aids, software “anticipating” words, or devices “understanding” voice and able to translate it into writing. The user can change the appearance of the text on the screen: font size and type, its colour, brightness and background colour.

Difficulties related to the creation of texts, reluctance to express oneself in writing (writing reports, studies or protocols) can be minimized by using, for example, graphical representations thanks to presentation programs (e.g. PowerPoint, Persuasion). When there is a need to write something down from the blackboard (unfortunately still a common practice in some schools), dyslexic students can take pictures with smartphones. The recipe for counting problems are spread sheets.

Problems with the organisation and planning of activities are supported by electronic timetables and calendars, computer “reminders”, scheduling systems or graphic “organisers”¹². You can arrange a list of things to do according to their importance, mark them in fonts of different colours, and add audio signals.

Programs such as Dropbox and Evernote are also helpful. The first one allows you to edit files shared with other users and automatically update the file on several computers at the same time. The second one allows you to create notes, attach photos, recordings, videos and links to websites. Thanks to this, the student can use the materials in any place with access to a smartphone and the Internet¹³.

Disturbances associated with spatial imagination can be compensated for by images e.g. in 3D format, which allow the student not only to see, but often experience reality. For example, they can

¹² D. Deutsch-Smith, *Pedagogika specjalna*, Wydawnictwo Akademii Pedagogiki Specjalnej, Warsaw 2009, p. 165.

¹³ M. Łockiewicz, K. M. Bogdanowicz, *Dysleksja u osób dorosłych*, Oficyna Wydawnicza Impuls, Krakow 2013, p. 140.

take virtual walks around the world's largest museums, gaining knowledge about the achievements of mankind. It is also an opportunity to perform experiments, simulations with the use of computer programs, which allow for the understanding, gaining knowledge in a different way, which is particularly important for students with dyslexia, because many of them are not able to master knowledge (even by memory), which they do not understand. For example, it would be difficult to take the children to a nuclear power plant during a chemical class, but by showing them a reactor, not only in the form of a picture, but also during regular operation, would convey the information more strongly than using just text.

Modern technologies are also used in the pedagogical therapy of dyslexic students. Starting from programs introducing children to the world of letters and numbers, through educational games, to utility and information programs. The analysis of educational opportunities offered by the Internet allows us to state that it is a source of knowledge that engages many senses beyond smell and taste. Moreover, it engages the mind and focuses attention during the activity. Searching for specific information requires concentration when typing keywords or copying a link to a website. It can also affect our thinking due to the fact that when we use the Internet we experience alternating focus and distraction of attention, and the latter does not have to be pejorative, as it allows for creative thinking, protects against routine, activates cognitive processes¹⁴.

Computer programs or on-line work on specially designed websites help to improve impaired functions, i.e. language skills, perceptual-motor skills, visual-motor coordination and concentration of attention. Professionally prepared and selected software can fulfil therapeutic and educational functions, meeting individual needs of the student and the therapist's recommendations. The use of a com-

¹⁴ M. Kozielska, Wpływ Internetu na aktywność mózgu i procesy poznawcze człowieka, [in:] Edukacja a nowe technologie w kulturze, informacji i komunikacji, ed. D. Siemieniecka, Wydawnictwo Naukowe Uniwersytetu im. Mikołaja Kopernika, Toruń 2015, pp. 169-170.

puter makes it possible to repeat and practice a given skill many times, with an appropriate choice of difficulty level. As E. Nowicka and A. Popławska note¹⁵, appropriately selected programmes not only support the acquisition of knowledge – assimilation, repetition of knowledge and acquisition of the ability to apply them in practice, but also require independent thinking and problem solving and stimulate activities based on action, research and discovery. Knowledge is passed on in a very attractive way (rich graphics, special sound effects), which is an additional motivation to perform the tasks.

While the use of new technologies in education, development support or pedagogical therapy for dyslexic students is unquestionable and their advantages are widely appreciated, online pedagogical diagnosis for example is not. From 2005 there have been standards for computer and cyber-based testing, developed and published by the International Testing Commission¹⁶, they do not mention the psychological and pedagogical situation of the study itself. This situation – as described by A. Dzikomska – “does not depend on the way in which the research is conducted, whether it is conducted directly or by telecommunication means, because it is much more important to observe the principles of psychological and pedagogical research”¹⁷.

¹⁵ Cf. E. Nowicka, Zawartość edukacyjnych programów komputerowych wspierających zajęcia korekcyjno-kompensacyjne [in:] *Dysleksja – problem znany czy nieznan?*, ed. M. Kostka-Szymańska, G. Krasowicz-Kupis, Wydawnictwo Uniwersytetu Marii Curie-Skłodowskiej, Lublin 2007; Popławska A. D., Korzystanie z komputera i Internetu a sytuacja szkolna ucznia [in:] *Dziecko i media elektroniczne – nowy wymiar dzieciństwa*, ed. J. Izdebska, T. Sosnowski, Trans Humana Wydawnictwo Uniwersyteckie, Białystok 2005.

¹⁶ GUIDELINES OF THE INTERNATIONAL TESTING COMMISSION (ITC), <https://www.practest.com.pl/wytyczne-miedzynarodowej-komisji-ds-testow-itc> [access: 3.08.2018].

¹⁷ A. Dzikomska, Nowatorska forma diagnozy pedagogicznej dla potrzeb nauçzania domowego z wykorzystaniem technologii informacyjnej – studium przypadku, (2013), „Наукові записки Національного університету „Острозька академія”. Психологія і педагогіка, 2013, Вип. 24, pp. 140-148.

Many of the programmes for students with dyslexia available on the Polish market, which support the improvement of disturbed functions, at the beginning introduce the so-called competence tests. On the basis of their results, the child's needs and tasks are indicated. This raises many doubts. It should be remembered that the obtained results are generated thanks to an algorithm implemented by the IT specialist and are not the result of evaluation of an experienced diagnostician. Meanwhile, "linking specific categories of errors to a specific disorder of cognitive functions is, in the light of the latest research, unauthorized, as no correlation has been found between deficits of cognitive functions and specific categories of errors"¹⁸. Besides, as W. Głodowski rightly observes, "one can master computer technology fluently, use the Internet, use the richness of multimedia and information technologies at work, and yet without knowledge of the basic principles of interpersonal communication, the sophisticated technology turns out to be useless. Because someone has to speak, listen, write, watch, formulate their own thoughts and evaluate the thoughts of others. Technology is only an extension of basic human communication skills"¹⁹.

Referring to the findings concerning children's developmental needs, upbringing environments and the tasks they face, it should be noted that new technologies are not able to: participate in satisfying children's needs, build relationships with others, teach the principles of functioning in a group and social roles, etc. Although it should be emphasized that in the social area it is easier to establish contact with other people thanks to the Internet, as language or the ability or possibility to speak is no longer a barrier, which is particularly important for shy people who cannot cope with direct interactions. On the other hand, it can be dangerous as it allows us to abandon the practice of communication skills in direct relations. But

¹⁸ G. Krasowicz-Kupis G., Dlaczego nie znamy (całej) prawdy o dysleksji – czyli rozważania o metodologii badań, [in:] *Diagnoza dysleksji. Najważniejsze problemy*, ed. G. Krasowicz-Kupis, Wydawnictwo Harmonia, Gdańsk 2009, p. 65.

¹⁹ W. Głodowski, *Komunikowanie interpersonalne*, Wydawnictwo Hansa Communication, Warsaw 2006, p. 11.

given that man is a social being and needs the presence of others for proper functioning, this indirect form of contact is much more beneficial than the lack of contact.

Finally, it is worth noting the issues related to the difficulties in using new technologies for people with dyslexia. First of all, the speed of transmission should be mentioned. Nowadays, fast information dominates, assimilated in a very easy way, unfortunately, it also carries a threat in the form of superficial knowledge and may result in the inability to perceive reality in a systematic, linear way, hinder the cause and effectual perception of the changes and processes taking place²⁰. For dyslexic students, this may mean a deepening of the already experienced difficulties in this area.

Moreover, the world of new technologies is primarily a world of signs, emoticons and symbols. It often means "reading" between the words, capturing subtle differences and understanding the meanings given to these symbols. Given the difficulties experienced by dyslexic students in remembering signs of similar appearance, it may be difficult for them to transmit and read messages encoded in the form of symbols. It is difficult to associate emoticons with unambiguous equivalents of the names of emotions, events or activities, which can make it difficult for people with dyslexia to receive information. Moreover, the excessive use of the mechanism of using symbols, abbreviated statements and emoticons is in contradiction with attempts to shape their habits of using full, well-structured statements.

Regardless of the views on the benefits and risks of using new technologies, the education of children and young people, as well as adults today, cannot be achieved without their participation. We are an information society, many of the activities we undertake are based on their use. This requires us to know the technologies and devices we use, but also to include them in the education process.

Media in pedagogical therapy have cognitive and educational, emotional and motivational, as well as action and interaction func-

²⁰ M. Góralaska, *Książki, nowe media i ich czasoprzestrzenie*, Wydawnictwo SBP Nauka, Dydaktyka, Praktyka, Warsaw 2009, pp. 128–130.

tions²¹. Thanks to new technologies, it is possible to teach children more and in a faster way, which would be very difficult or even impossible without them. Students get to know the world using many senses, which is difficult to grasp and describe formally, but the didactic and therapeutic effects are very visible. The possibility of experiencing the world through many senses at the same time, significantly increases cognitive and developmental capabilities. While using the computer, the student must be active, he/she receives content not only passively, but becomes a part of this process of action.

When using a computer, the child acquires knowledge and skills while playing, which makes learning much more enjoyable and positive than sitting at a desk. The computer is patient, which means that the child can repeat the activities many times without worrying about negative reactions, but at the same time it does not allow the child to go further if the task is not completed. For example, you cannot go to another level of difficulty, or get to know another character if you do not achieve a certain level of proficiency. The tasks awaken imagination, allow to achieve success, students can answer a question by e.g. arranging words, quickly change the answer, and visualization also helps to see the mistake²². Although nothing can replace traditional pedagogical therapy, there is no doubt that new technologies provide valuable support in its implementation.

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²¹ J. Pielachowski, W. Strykowski, J. Strykowska, *Kompetencje nauczyciela szkoły współczesnej*, Wydawnictwo eMPi2, Poznań 2007, pp. 60–63.

²² M. Wojtatowicz, *Wykorzystanie tablicy interaktywnej w szkole specjalnej. Część II. Pierwsze kroki przy tablicy*, „Szkola Specjalna” 4/2012, pp. 293–294.

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Parents and the new media in contemporary Polish schools (a survey report)

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This article presents selected conclusions from the survey carried out in 2016 among the junior high schools located in the Lubuskie Voivodeship regarding how the parents assess the new media use in contemporary schools. The text presents parents' opinions on the new media activity of students, the support by the new media in teaching and learning, building contacts between the school and parents as well as the (self-)promotion of the school. The article also contains a short description of the new media activity of parents of contemporary teenagers and the characteristics of the media world in which the parents were brought up.

KEY WORDS: school, new media, parents

Introduction

The parents of contemporary teenagers are people to whom the world of the media is not completely unknown. Their jobs often require that they know some tools, programs or applications so that

they can perform their professional duties. A large group is also active in virtual communities. The present article is an attempt at portraying the parent of a present-day teenager, the media of his/her childhood and, most importantly, his/her opinions and attitudes regarding the new media support in contemporary schools.

The new media activity of the parents of today's teenagers

When describing the present-day parent, it is worth mentioning the results of the survey by TNS ordered by Orange Polska¹ among 500 children and 702 parents (of whom 501 used the Internet, while 201 did not). The parents use the Internet (for purposes outside work) less than their children do. The majority of respondents (65%) say that they spend less than one hour online per day. 31% of the surveyed parents had a Facebook profile, while 10% more had a Nasza Klasa account. The parents were also asked if they spend their time with children on the Internet. 5% of the parents always accompany their children in this type of activity, while 95% do it occasionally. Both the parents (89%) and the children (55%) say that they spend their time online together when looking for materials needed for school. Other types of activities included: watching films (children - 54%, parents - 43%), browsing (children - 52%, parents - 60%), contacting relatives (children - 37%, parents - 56%), playing games (children - 31%, parents - 38%) and searching for information about hobbies (children - 13%, parents - 55%). The last position on this list was: "parents only watching over": children - 6%, parents - 18%. The survey also indicated that as many as 66% of the children helped their parents in finding the content on the Internet. However, this result is contrary to what the parents themselves said. 47% admitted that their computer skills are slightly or definitely worse than their children's skills in this respect.

¹ TNS na zlecenie Orange Polska, Bezpieczeństwo dzieci w internecie. Raport z badań jakościowych i ilościowych, https://panoptykon.org/files/bezpieczenstwo_dzieci_w_internecie_2013.pdf [access: 10 August 2018].

One can also find some interesting data in the report by Poland's Central Statistical Office (*The information society in Poland in 2012–2016*²): nearly 83% of people at the age of 35–44 and 63% at the age of 45–54³ use the Internet, 84% and 63% do it regularly. Nearly twice as many people use the Internet at home than at work, i.e. 87% of people at the age of 35–44 and nearly 68% at the age of 45–54 use the Internet at home, while 40% and nearly 29%, respectively, use it at home. Regarding the manner of using the Internet, nearly 20% of people at the age of 35–44 use online messaging tools. As for the older group, this result was slightly below 10%. 54% at the age of 35–44 and 33% at the age of 45–54 had ordered or purchased goods or services for private use via the Internet within the 12 months preceding the survey. It must also be added that 34% from the younger survey group use mobile devices to access the Internet, while it is 17% for the older group. As shown by the report, the most popular mobile device for accessing the Internet is the mobile phone. It is used by nearly 33% of people at the age of 35–44 and 16% of people at the age of 45–54.

The same report also speaks about the level of digital skills related to information, communication and problem-solving. Optimistically, nearly every other Pole at the age of 45–54 (49.6%) and nearly 70% of people at the age of 35–44 have more than basic information skills. The information skills above the basic level can be observed in people who had been performing several from the below actions within the 3 months preceding the survey: *copying or moving files or folders; using the disk space on the Internet to save documents, images, music files, video files or other files; using the Internet to contact public administration bodies through searching for information on the websites of such bodies; browsing the Internet for information about*

² GUS, Społeczeństwo informacyjne w Polsce 2012–2016, https://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5497/1/10/1/spoleczenstwo_informacyjne_w_polsce_2012-2016.pdf [access: 10 August 2018]

³ Two age groups were chosen for the survey, since the average age of the parents of today's teenagers is between 41 and 45.

goods or services; browsing the Internet for information related to health (e.g. Injuries, illnesses, nutrition, health improvement etc.).

As regards the digital communication skills, it must be noted that the parents of today's teenagers display a slightly lower level. Nearly 33% of adults at the age of 45–54 and 53% of adults at the age of 35–44 have more than basic communication skills. In this report, such skills mean that at least several of the following actions had been performed within the 3 months preceding the survey: *sending and receiving e-mails; using social websites (creating profiles, sending messages to friends or other forms of participation in such portals as Facebook, Twitter, Nasza klasa, Grono etc.); making phone calls over the Internet and/or using the camera for video chats over the Internet (e.g. on Skype or Facetime); posting one's own texts, photos, music, films, software etc. on websites.*

Contemporary parents from the younger and older of the surveyed groups also have a similar level of digital skills related to problem-solving. In this case, the majority (50% of people at the age of 35–44 and 29.7% at the age of 45–54) display more than basic skills, i.e. they had been using the Internet within the preceding 3 months and performed at least one of the actions included on the A list in the survey (that is: *moving files between computers or other devices (e.g. cameras, camcorders, mobile phones or mp3/mp4 players); installing software or applications; changing the settings (options/preferences in the tools menu) of any software, operating programs or security programs (anti-virus programs)*) and the B list (that is: *buying goods or services online for private use within the preceding year; selling goods or services via the Internet, e.g. at online auctions (Allegro, eBay); participation in an online course or using online training materials other than full online courses (e.g. audiovisual materials, software for e-learning, electronic handbooks) or contacting tutors/teachers or other learners via educational websites/portals; the use of online banking*).

Contemporary parents from both age groups show definitely poorer results in the category of digital skills related to software. Skills above the basic level are displayed by nearly 29% of people at the age of 35–44 and slightly below 18% of people at the age of

25–34. However, there are more people who have no skills related to software: 35% at the age of 35–44 and 33.5% at the age of 44–45. It must be added that the report defines the lack of skills related to software as the use of the Internet without performing any actions from the A list within the 3 months preceding the survey (*using text processing programs (e.g. Word, Writer, WordPerfect); using calculations sheets (e.g. Excel); using software for editing photos, videos or audio files*) and from the B list (*creating presentations or documents containing text, images, tables or charts; creating codes in the programming language; using advanced functions of the calculation sheet to organise and analyse data, e.g. sorting, filtering, using formulas, creating charts*). For comparison purposes, people with more than basic skills related to software used the Internet and performed at least one action from the B list within the 3 preceding months.

As it follows from the data presented above, parents of today's junior high school students use the new media, including the mobile media, but their number is lower. The Internet and new technologies are not strange to them – parents often do shopping, read the press and listen to music online. Obviously, the younger group has better results, which is naturally related to the growing availability and popularity of the new media from year to year. The problem is the creative use of the new media connected with making multimedia presentations and widely understood multimedia.

The media in the childhood of the parent of the present-day teenager

The parents of today's teenagers are people at the age of 41–45. While looking at their childhood and experience of the media at school, one has to go back to the second half of the 20th century. These persons were born in the 1970s and they are referred to as the children of the Polish People's Republic. In this period, the most popular media were the radio, television and the press. Some of the

periodicals for young people were *Filipinka* as well as *Razem, Na przelaj, Świat Młodych* and *Jestem*⁴.

<p>15.55 — Program I proponuje</p> <p>16.15 — Redakcja szkolna zapowiada</p> <p>16.30 — Dziennik TV</p> <p>16.40 — Dla młodych widzów — Czy lubisz wiersz?</p> <p>17.30 — Spokojnie z przyrodą</p> <p>17.45 — „Saperzy” — film dokumentalny</p> <p>17.55 — Drogi współczesności</p> <p>18.35 — „Godzina Orleusa” — magazyn muzyczny nr 14</p> <p>19.30 — Dobranoc — Przygody Peti</p> <p>19.30 — Monitor</p> <p>20.15 — „Gwiazdy estrady i ekranu” — czytelnikom „Trybuny Ludu”</p> <p>22.00 — Dziennik TV i wiadomości sportowe</p> <p>22.35 — „Zamierzamy się meżami” — film fab. prod. USA</p> <p>8.50 — Program na niedzielę</p> <p>PROGRAM II</p> <p>14.40 — Program dnia</p> <p>14.45 — „Koncert z przystani” — program rozrywkowy TV NRD</p> <p>17.40 — „Tematy” — odc. III (Kamera, ludzko, zdarzenia)</p> <p>18.10 — „Michał Bylina”</p> <p>18.35 — „Kodzina Durlotów” odc. IV — film seryjny prod. franc.</p> <p>19.30 — Dobranoc</p> <p>19.30 — Monitor</p> <p>20.15 — „Warszawska Jesień 1972” — transmisja z Filharmonii Narodowej w przerwie ok. 20.50 — 24 godziny</p> <p>21.40 — Magazyn „Sztuka”</p> <p>22.15 — Program II proponuje</p> <p>22.35 — Program na niedzielę</p> <p>Niedziela</p> <p>PROGRAM I</p> <p>7.35 — Program dnia</p> <p>7.40 — TV Kurs Rolniczy</p> <p>8.15 — Przypominamy, radzimy</p>	<p>byliński</p> <p>22.05 — Program na wtorek</p> <p>Poniedziałek</p> <p>PROGRAM I</p> <p>14.25 — Program dnia</p> <p>14.50 — Dziennik TV</p> <p>16.40 — Dla dzieci — Zwierzyniec</p> <p>17.25 — Echo Stadionu</p> <p>18.00 — „Z życia Eskimów” — film dokumentalny prod. kanad.</p> <p>18.50 — Miasto gotyckiej ciszy — film dok. prod. TVP</p> <p>18.45 — Eureka</p> <p>19.20 — Dobranoc — „Miś z okienka”</p> <p>19.30 — Dziennik TV</p> <p>20.05 — Teatr TV Leon Kruczkowski „Kordian i chm” cz. I. Reż. Jan Bratkowski. Wykonawcy: Kazimierz Dezyński — Jan Englert, Wincenty Czarzkowski — Wiesław Hańcza, Feluś Czarkowski — Jerzy Żelnik oraz — Helena Bystrzanowska, Joanna Kasperska, Wiesława Niemyska, Barbara Rachwałska, Włodzimierz Bednarski, Janusz Sylczyński, Damian Damiński, Maciej Damiński, Marian Friedman, Jan Gabocki, Wiktor Grołowski, Zygmunt Habot, Józef Kalita, Jan Kociniak, Wacław Kowalski, Zbigniew Kryński, Marek Lewandowski, Stanisław Libner, Olgierd Łukaszewicz, Krzysztof Machowski, Grzegorz Mrówczyński, Wiktor Nawowski, Gabriel Nehrebecki, Józef Nowak, Janusz Paluszkiwicz, Józef Piarecki, Jerosław Skuśki, Stefan Śródka, Karol Strasburger, Wacław Szklarski, Ryszard Szczęchliński, Janusz Ziejewski</p> <p>Po teatrze ok.</p> <p>21.40 — Program publicystyki międzynarodowej</p> <p>21.50 — Program muzyczny</p> <p>21.55 — „Ex libris”</p> <p>22.20 — Dziennik TV</p> <p>22.35 — Program na wtorek</p>	<p>Środa</p> <p>PROGRAM I</p> <p>9.45 — „Hans Beimler” — film fab. prod. NRD — cz. I</p> <p>10.55 — Program dla szkół: Historia kl. V „W Egipcie Faraonów”</p> <p>11.25 — Przerwa</p> <p>11.55 — Program dla szkół: Fizyka — kl. VIII. — Zjawiska świetlne</p> <p>12.25 — Przerwa</p> <p>12.45 — Mechanizacja Rolnictwa (cz. I)</p> <p>13.20 — Mechanizacja Rolnictwa (cz. II)</p> <p>13.50 — Wybieramy zwód</p> <p>14.10 — Przerwa</p> <p>14.25 — Program dnia</p> <p>14.30 — Dziennik TV</p> <p>14.40 — Dla młodych widzów: „Kapitan Polonez” — reportaż filmowy o kpt. Krzysztofie Baranowskim</p> <p>17.35 — Perspektywy techniki</p> <p>18.05 — Śpiewa Katerina Olivera — jug. program rozrywkowy</p> <p>18.25 — Telewizyjny Kurier Warszawski</p> <p>18.45 — „Morskie spotkanie”</p> <p>19.30 — Dobranoc</p> <p>19.30 — Dziennik TV</p> <p>20.05 — „Hans Beimler” — film fab. prod. NRD cz. I</p> <p>21.15 — PRF</p> <p>21.25 — Świat i Polska</p> <p>22.00 — „Balet”</p> <p>22.50 — Dziennik TV i wiadomości sportowe</p> <p>22.50 — Program na czwartek</p> <p>PROGRAM II</p> <p>14.55 — Program dnia</p> <p>17.40 — Dla dzieci: „Zwierzyniec”</p> <p>17.45 — „Portret miasta”</p> <p>18.15 — Poliena — poradnik kosmetyczny</p> <p>18.20 — Z prasy naukowo-technicznej</p> <p>18.30 — „Łalkowe varietete”</p> <p>19.20 — Dobranoc</p> <p>19.30 — Dziennik TV</p> <p>20.05 — „Sztuko” — program popularnonaukowy TV CSRS</p>	<p>22.10 — „Ekspres nr Scenariusz — Krzysz Próchnicki, Włodek Rej, Włodek Białicki. W nawy: Anita Dymasz Zofia Czerwińska, Izab Działka, Teofila Koron wicz, Jerzy Dobrowol Piotr Franczewski, Gus Lutkiewicz, Bohdan Łaż Marian Opania, Wojc Pokora, Tadeusz Ross, (sław Roszkowski, Jerzy rek, Marian Żokajka</p> <p>22.30 — Dziennik TV i wiadomości sportowe</p> <p>22.50 — Program na piątek</p> <p>PROGRAM II</p> <p>17.55 — Program dnia</p> <p>18.30 — Kino Filmów mowanych</p> <p>18.45 — Kolorowe spotkania — program popularn naukowy</p> <p>19.20 — Dobranoc</p> <p>19.30 — Dziennik TV</p> <p>20.05 — „Łódź życia” program rozrywkowy Strajstawa</p> <p>20.50 — 24 godziny</p> <p>21.00 — „W Irrecim ście”</p> <p>21.20 — Program filmowy</p> <p>21.40 — „Niezwykła wizja” — film fab. prod. NRD</p> <p>23.00 — Program na piątek</p> <p>Piątek</p> <p>PROGRAM I</p> <p>8.30 — „Tytko umarty od wie” — film fab. prod. I</p> <p>9.55 — Program dla sz wychowania techniczne kl. I–III lic. „Nowocze zakład pracy”</p> <p>10.25 — Z cyklu: „Człowiek i morze” pt. „Wyspa Cc mef” — film dokumenti prod. amerykańsko-kanadyjski</p> <p>10.55 — Program dla szkół kl. III „Z biletem w ręk”</p> <p>11.20 — Przerwa</p> <p>11.55 — Program dla szkół Przystosowania obronne kl. III lic. „Najtrasczynszy obowiązek”</p> <p>12.25 — Przerwa</p> <p>14.25 — Program dnia</p>
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Illustration 1. An extract from the 1980s TV broadcast list posted by Sebastian

Source: Retro Pewex: <http://retro.pewex.pl/475523>, access: 6 June 2017.

⁴ W. Olejniczak-Szukała, *Obraz polskiej młodzieży lat osiemdziesiątych w świetle prasy młodzieżowej*. Praca doktorska przygotowana pod kierunkiem prof. UAM dr hab. Doroty Skotarczak. Uniwersytet im. Adama Mickiewicza w Poznaniu, Wydział Historyczny, 2012, <https://repozytorium.amu.edu.pl/bitstream/10593/4490/1/doktorat2.pdf> [access: 6 June 2018].

As regards the radio, the youth's favourite channel of the 3rd Program of the Polish Radio (*Trójka*). This channel was mainly about culture. There were no other broadcasters.⁵

The number of available audiovisual content was much larger. The channel 1 of the Polish Television showed a special program for schools from Monday through Friday. The printed TV magazine listed the productions that could be watched. The broadcaster provided the name of the subject, the program's level and the title. A short extract from the TV broadcast list can be seen below (see: Illustration 1). It is a glance into the past: on a Wednesday, at 10:55AM, there was a historical program about the Egyptian Pharaohs for grade 5, while on a Friday, at 9:55AM, high school students could watch a production about modern work facilities.

Following Joanna Sosnowska⁶, the 1980s are the golden age of the Polish programs for kids. It was the time when the number of such programs peaked and some of them have been broadcast until today (e.g. *Ziarno*). It was then that the TV broadcaster discovered that songs and magazines with content for young people could be an interesting way to educate. *5-10-15*, *Pan Tik-Tak* and *Domowe przedszkole* are the top programs for children from that time-period. The adolescents could watch scientific programs such as *Kwant* or the news and music programs such as *LUZ – Ludzie Uwaga Zaczynamy*.

How did young people react and behave? The teacher was not the only source of knowledge for them. Children and adolescents learned a lot from television. It presented various content, often in a more attractive form than teachers did, since it made use of interesting videos, music or inspiring elements. The audiovisual experiences of students outside schools, writes Lechosław Gawrecki⁷,

⁵ E. Korulska, Stokowska, A. *Historia radia*, http://www.ceo.org.pl/sites/default/files/news-files/historia_radia_1.pdf [access: 7 June 2018].

⁶ J. Sosnowska, Polskie telewizyjne programy edukacyjne dla dzieci i młodzieży – zarys historyczny, [in:] *Media w edukacji: Wymiar kulturowy i aksjologiczny*, ed. A. Roguska, Fundacja na Rzecz Dzieci i Młodzieży „Szansa”, Siedlce, 2013.

⁷ L. Gawrecki, Nauczyciel a pozaszkolne doświadczenia ucznia, [in:] *Dokąd zmierza technologia kształcenia*, ed. W. Strykowski, W. Skrzydlewski (ed.). Zakład

were conducive to developing language resources and broadening the knowledge on various phenomena and they also activated the creative and the imitative imagination.

When analysing the role of computers at that time, one must underline that were only starting to appear in schools and households. Their functions were very different from what we know today. There was no access to the Internet. As indicated by the survey dating back to March 1986 – February 1987 in the *Komputer* monthly, the most popular computers in the households were ZX Spectrum (38%) and Atari XL/XE (38%). The next ones on the list were: Comodore (13%) and Amstrad (4%). The surveyed people who did not have a computer stated they wanted to buy the following models: Atari XL/XE (34%), Amstrad CPC (15%), PC (14%), ZX Spectrum (13%), Commodore (12%), Atari ST (7%), Amiga (1%). There were 3,108 respondents.⁸

When computers arrived at schools, there were attempts at starting the IT education, though it was difficult for several reasons. The first was the number of available computers. When analysing the interview published in the *Mikroklan* periodical, it can be gathered that schools had very few computer specimens. One of the schools had a ZX Spectrum 16 Kb, another had three ZX Spectrum Plus, while another had as many as seven devices. The interviewees⁹ underline that the computers were mainly donations. The teachers who took part in this interview emphasised unanimously that computers had to be brought to schools and young people had to be prepared for living in the IT civilisation. The second problem indicated by the teachers in the interview was the staffing shortage: there were no teachers who wanted to teach IT, there were no people with the

Technologii Kształcenia Instytutu Pedagogiki Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań, 1993.

⁸ More information: <http://retrokomputer.pl/jakie-komputery-mielismy-w-domach-w-1986-roku-i18547.html>, [access: 6 June 2018].

⁹ Teachers: Jerzy Kunicki, Henryk Daniszewski, Tadeusz Kuran and Krzysztof Kontek on behalf of *Mikroklan*.

right education to do it.¹⁰ The IT education curriculum that the authorities were working one was supposed to be ready in October 1985 at the least, but the preparations for this project took longer.¹¹

The relevant sources dating back to this period indicated that the computer could have three functions in education: it could be the tutor and assess/control the student's activities, it could be a partner allowing to program specific applications and it could also be a helper in the performance of specific actions. Some of the educational programs of that time were *HyperTalk* and *LogoWriter*. However, the computers were not widely used and they were usually available to people specialising in exact sciences. Students from the humanities classes or disabled people had limited access to computers.¹²

To sum up the media in the childhood of the parents of today's teenagers, they were brought up in a space where the access to the traditional media was more and more open and free. Following the emergence of social movements in the early 1980s, the access to the media was no longer under such a strict control. The media also started developing. Young people could experience their various forms. It was not only the press or the radio, but also television. In the 1980s, computers were being gradually introduced to schools. Though not every present-day parent had access to computers back then, they were not strange devices to them. Each year, the number of available computers grew and they started to be used not only in technology and industry, but also in humanities. The parents had more opportunities to use them. It should also be added that the parents of today's teenagers have witnessed the changes in the access to the media and in their forms. They know how the world, work and life looked like without the Internet. They also see what is

¹⁰ K. Kontek, Oczami nauczycieli, „Mikroklan” Zeszyt 2/1986, <http://idn.org.pl/users/lesz/legend/archiw1.html> [6 June 2017].

¹¹ D. Majewska, W. Majewski, W. Zamiast programu. „Komputer”, April 1986, <http://idn.org.pl/users/lesz/legend/archiw1.html#dwa>, [access: 6 June 2018].

¹² Brelińska, K. Wczoraj, dziś i jutro komputerów w nauczaniu, [in:] Dokaąd zmierza technologia kształcenia, ed. W. Strykowski, W. Skrzydlewski, Poznań: Zakład Technologii Kształcenia Instytutu Pedagogiki Uniwersytetu im. Adama Mickiewicza w Poznaniu, Poznań, 1993.

happening now, when the Internet is pulling the users so strongly into its spaces. This situation definitely impacts the media competences of the parents nowadays.

The survey purpose and methods

The survey purpose was to define the scope in which the new media support the parent in contemporary schools. The survey covered five areas: the new media in the school management, building relations between the school and the parents, the (self-)promotion of the school with the use of the new media, the new media supporting teaching and learning as well as the new media activity of the students. The first area relates to persons responsible for school management, therefore this aspect is not included in the results presented below.

The survey was conducted in 18 junior high schools in the Lubuskie Voivodeship with the participation of students (386 people), teachers (271 people), headmasters (18 people) and parents (357 people). The present article is directly related to the parents. The method was the diagnostic poll for students, parents and teachers, while it was a partially categorised interview for headmasters. The time-period was from April to June 2016.

The survey group description

There were 357 parents of junior high school students among the respondents. The average age was 42 years old. There were 202 women and 64 men. 333 people responded to the question relating to education. 37% of the respondents have secondary education, vocational education - 21,8%, higher education (Master's degree) - 17,4%, higher education (Bachelor's degree) - 7,3%. As regards the professions of the respondents, 20.5% work in the services, 16.6% are unemployed, and 12.7% (49 respondents) work in industry. It should be added that 74 people did not respond to that question,

while 11 people chose the answer *Other*, so the facts relating to the parents' professions may be somewhat different.

The surveyed parents' self-assessment indicates that slightly more than 40% present a high level of knowledge regarding the use of the computer and related devices. Moreover, 51.2% of the respondents stated they could use the Internet very effectively. In reference to computer programs, slightly more than 75% of the surveyed parents indicate at least medium level operating skills.

As viewed by their children, the parents receive a lower assessment in the scope of using the computer, computer programs and the Internet. 34.4% of the surveyed junior high school students stated that their parents' skills related to the Internet use were very good. For computer skills, the result is slightly more than 25% of the students. The closest answers could be seen in the category of computer programs – 28.5% of the students assesses their parents' skills in this scope as average.

As indicated by the survey, 30–40% of the parents need their children's help when using the computer, computer programs or the Internet several times a month. Nearly 50% of the respondents do not need such help when using the Internet.

The students stated they did not help their parents in using the computer or related devices (26.4%) or did it several times a month (36.1%). In the case of computer program, 34.1% of the students said they never helped their parents, while 33.9% stated they did it a few times per month. As regards the help in using the Internet, 41.3% of the respondents said they never helped their parents.

Selected results of own surveys

Building relations between the schools and the parents with the use of the new media

As shown by the survey, the parents were the group that initiated electronic class registers in many schools. Based on the interviews with headmasters, it can be confirmed that parents had been

actively pressing for electronic documentation at the majority of the surveyed schools, since they had been used to this form of communication since the primary school. More than $\frac{1}{4}$ of the surveyed parents stated that they used electronic registers every day (26.4%). The answers *several times a month* and *several times a week* were given by 22.7% and 22%, respectively. 11.2% of the respondents stated they never used the electronic register, although this tool was available at their children's school. Interestingly, the most popular communication channel is the phone (this answer was given by 40% of the teachers and 31% of the parents). The second in line was meeting in person (22.1% and 30.2%), while the third method was electronic communication via the register and the e-mail (20.7%). In the case of the parents, this answer was the fourth most frequently chosen (9.7% of the respondents). Two persons who selected *Other* specified *Facebook* and *Messenger* (the chat tool made available by Facebook). When justifying the answers, the teachers said that the contact by phone is the quickest way, so of need be, they can call the parent and provide specific information. This method is also effective when parents do not have an account in the electronic register or do not use it. The electronic register is effective in situations where neutral information is conveyed, e.g. about a trip, a money collection or other organisational announcements.

Importantly, though the parents wanted the electronic register, they do not use it for communication purposes. It serves more as the tool for monitoring the progress and attendance of their children. The parents use the electronic register most frequently in order to check their children's grades (290 responses) and attendance (119 responses) as well as to contact the teachers outside the scheduled class meetings (80 responses). 105 people said they did not use the electronic register, while 36 respondents had not access to such a register (since the school did not implement it).

The parents assess the electronic registers highly. 46–60% of the respondents liked the tool's functions listed in the survey. The largest number of the surveyed parents assessed the possibility to contact the teachers via the electronic register.

The (self-)promotion of the school with the use of the new media

12 out of 18 surveyed junior high schools have their profiles on this social website, while 1 runs a regular channel on YouTube. Nearly 60% of the respondents have no opinion on this topic. 22% answered *Yes*, while 18.1% said *No*.

The parents were also asked about their interest in following the school's channel on website enabling the audiovisual material transmission and publication. In this case, the large majority (69%) also had no opinion. Nearly 11% responded affirmatively, while 20% responded negatively.

Unfortunately, the parents did not justify their answers to closed-ended questions, so it is impossible to give any arguments for having/not having a profile in the social media.

The parents tend to have a good opinion on the school websites. More than 60% of the respondents stated they liked the design, the feel, the intuitive navigation, the availability on other devices and the content of the websites.

The survey shows that parents want to follow the information provided by the schools, but they are not sure about posting such content on the social platforms.

The new media supporting the process of teaching/learning and the new media activity of the students

The analysis of the collected data indicated that in this case the parents think similarly to their children. The parents are convinced that when their children prepare for classes, they use virtual encyclopaedias (22.1% out of only 113 responses) and virtual translators (16.8%). Slightly more than 20% of the responses given by the parents suggest that they do not know what tools their children use to prepare for classes. It is quite disturbing, especially that the Internet contains true information alongside false information that can mislead a young person. Another problem is the online violence in its

various forms. If the parents fail to know the sources used by the students and the websites they visit, it can become a direct threat for the young people using the Internet as well as for their closest environment.

As indicated by the survey, young people preparing for classes use mainly *Wikipedia* (70% of the surveyed students), and as many as 40% do it every day. The *Google Translate*, tool is also popular among junior high school students: 70% of the respondents use it at least several times a month. The results differ for other tools: 74% of the surveyed students do not use virtual drives when preparing for classes. Furthermore, 75% of the students do not use virtual documents. The open-ended questions regarding the use of this tools had several responses in the form of: "what is it?", "I never heard of it". The respondents who know the tool say they use it during the IT classes or to prepare specific materials required by the teacher. The students also fail to use free resources available in virtual libraries and video libraries. Only 30% actually do it. The websites with information about the books from the reading list are popular – more than 60% of the respondents use them.

In their free time, 69.3% of the surveyed students use the Internet every day, while only 10.2% do not do it at all. The popular entertainment websites include *YouTube*, *CDA.pl*, *zalukaj.com*. 61.7% of the respondents visit these pages every day. As part of their leisure, the respondents do not use virtual encyclopaedias (42.8%), virtual drives (73.3%), online libraries and video libraries (77.4%) or websites with information about the books from the reading list or with solutions to exercises/tasks (59.5%). The reliable sources of information such as video libraries, online encyclopaedias and e-libraries were not within the youth's area of interest.

Conclusions

The analysis of the sources and of the conducted survey results indicate that the parents of the present-day adolescents are people who are familiar with the Internet and the new media tools. It must

be admitted that the parents of today's teenagers sometimes need help with some devices, programs or applications, but such basic operations as checking the e-mail, having a social media profile or online shopping do not present any major problems to them. The serious issue is that the parents do not know what their children do online, which websites they visit and what type of activity they engage in. This ignorance may lead to multiple problems in upbringing and development. Teenagers are going through a very sensitive time in their lives and can be vulnerable to various influences. It is easy to convince them that something false is true. Of course, this situation will gradually change, since younger parents will have more knowledge and awareness of the opportunities and the threats of the new media. However, until this awareness of using the new media in our society is still insufficient, it is necessary to educate students and parents in this respect.

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