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Digital words... Harnessing technology to develop literacy skills in early education of children (on the example of the Polish language)

2014

MUZEUM HISTORII POLSKI

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Digital words… Harnessing technology to develop literacy skills in early education of children (on the example of the Polish language)

Cyfrowe słowa… Wykorzystanie technologii w rozwijaniu kompetencji językowych dzieci na etapie wczesnoszkolnym (na przykładzie języka polskiego)

Introduction

Immersion of contemporary children into digital culture is both an obvious and trivial fact nowadays. For today's young people, referred to as the *digital generation,* the internet is their natural environment and they have constant access to it. This phenomenon is presented in the research and works of Tapscott[1], Livingstone[2], Holmes[3], as well as international and Polish reports. An average age of virtual initiation in Europe is between 7 and 11 years (in Poland – 9 years). However, the local research shows that two thirds of Polish preschoolers, aged 3 to 6, use the internet more than once a week. One web session lasts about 45 minutes. With age, frequency of contacts with the network is on the increase. 35% among 7–9 year olds (and 62% among 10–14 year olds) use the Internet on a daily basis. In the oldest group, as many as 67 percent of children have their own computer. The 7–14 age group is one of the three fastest-growing groups of net users. During the years 2007–2010, the group has increased by almost a half, and the time that the average web surfer aged 7–14 spends online, lengthened by two hours a month. The number of the so-called *heavy users*, using the net at least a few times a week,

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[1] D. Tapscott, *Cyfrowa dorosłość. Jak pokolenie sieci zmienia nasz świat,* Warszawa 2010.

[2] S. Livingstone, E. Helsper, *Gradations in Digital Inclusion: Children, Young People and the Digital Divide,* "New Media & Society" 9(4)/2007.

[3] J. Holmes, *Cyberkids or Divided Generations? Characterising Young People's Internet Use in the UK with Generic, Continuum or Typological Models,* "New Media & Society" 13(7)/2011.

reached more than 80 percent in this age group (cf. Megapanel / PBI, October 2010). Children in the 7–12 age group constitute 9% of all Internet users[4]. Using the Internet is now an integral part of children's everyday life. According to the report, on average, 93% of young Internet users (9–16 years) in Europe use the network at least once a week, and 60% go online every day or almost every day (Report from the research EU Kids Online 2011)[5]. Research shows that most children exploit the network for entertainment purposes (sites with games and movies), information (search engines and directories) and communication (social networking sites and instant messaging where available), as well as education (gaining knowledge, doing homework assignments). It turns out that since the times of early childhood education, the main communicative competences have been intensified in three main areas: ludic (play and contact with others), informative (efficient and effective way of reaching information), "production" (creation, processing, publishing content). Their intensification indicates the formation of a new type of communication skills: digital literacy[6], based on the encoding and decoding polisemiotic messages (picture, sound, word). The consequence is disavowal of words as the dominant medium of communication of thoughts (antylogocentricism).

Linguistic competences of digital children

The multiplicity of interactions carried out through the new media, the so-called "culture of participation", changes both communicators (participants of communication) and the very medium of communication – language code. In verbal activities, undertaken by children, a colloquial language dominates, which can be characterized by perceptual concreteness (preoperational, contextual and imaginary thinking), situational and immediacy of communication[7]. This variety is referred to as "written speech", because of the form of communication. However, there is lack of typical features of written language, e.g.

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[4]   *Aktywność dzieci w Internecie*, [online:] http://www.telix.pl/images/sprawozdania/raport-ekid-2-edycja.pdf, access: 1.06.2014.

[5]   S. Livingstone, L. Haddon, A. Görzig, K. Ólafsson, *Risks and Safety on the Internet: The Perspective of European Children. Full Findings*, London 2011.

[6]   J. Grzenia, *Komunikacja językowa w Internecie*, Warszawa 2008.

[7]   A. Skudrzyk, J. Warchala, *Literacy of the Young Generation in a Diglossing Environment*, Katowice 2012.

obeying linguistic rules, manifestations of conceptuality (abstract thinking), formality (development of "restricted code" instead of "elaborated code" – terminology by B. Bernstein[8]. It is dangerous for mother tongue acquisition by children in a formal and standard variation. At the first stage of education children acquire a language competence, understood as the ability to use language units and rules in a correct way. They also develop their communicative competence associated with locating the message in the right context and pragmatic (sociolinguistic) one, which refers to the ability to use a language appropriately in different social situations. Therefore, the learners do operations on words, sentences and communications[9]. At the first stage, there is a gap between children's preferred communication trends based on multimodal perception and encoding and decoding of words which become a vehicle of traditional culture in formal (school) education. It is highlighted in the research report: *Net Children. Communication skills of the youngest children*[10], in which using the Internet in a creative, active and safe way is included in children's communicative competences.

Reading, text comprehension and writing as forms revealing children's linguistic skills – diagnosis based on Polish and international documents: the core curriculum of general education and research reports.

Learners' language skills in the area of mother tongue at the first stage of education are determined by *The general education core curriculum for primary schools from 23 December 2008*[11].

In the above-mentioned document the following aspects are pointed out: "reading is understood as a simple task, that is the ability to understand, use and process texts in order to be able to gain knowledge, develop emotionally, intellectually and morally and to participate in society's life" as well as "the ability to communicate in mother tongue and foreign language, both orally and in written

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8   B. Berstein, *Socjolingwistyka a społeczne sposoby kształcenia*, in: *Język i społeczeństwo*, ed. M. Głowiński, Warszawa 1980.

9   K. Borawska, *Umiejętności językowe dziecka kończącego edukację wczesnoszkolną*, Białystok 2004.

10   *Dzieci sieci. Kompetencje komunikacyjne najmłodszych. Raport z badań*, ed. P. Siuda, G. Stunża, Gdańsk 2012, [online:] http://www.dzieci-sieci.pl/raport_IKM_dzieci_sieci.pdf, access: 12.04.2014.

11   *Podstawa programowa kształcenia ogólnego dla szkół podstawowych z 23 grudnia 2008 r.*, [online:] http://bip.men.gov.pl/men_bip/akty_prawne/rozporzadzenie_20081223_zal_2.pdf, access: 12.04.2014.

forms". "The ability to use information and communication technologies, including searching for and using information" is also highlighted in the document[12].

The learners finishing the first stage of school education should have the skills of using mother tongue to read, write and to use vocabulary and knowledge of the language in practice to communicate in a variety of forms and contexts. This will allow them to function properly in the society, as well as achieve success at the subsequent stages of education. Therefore, these skills are tested. Within linguistic and communicative competences, areas connected with semantic aspects of reading texts (searching for information, recognizing meaning) and critical and creative ones (processing information, interpretation, valuation, confrontation with child's conceptual knowledge) are frequently tested. Writing, understood as the ability to communicate through a written form, is associated with embracing social principles in language use to create correct, targeted and effective messages. Thus, the attention should be focused on the receiver of the text, its purpose, genre and its content. In the process of mastering writing skills, a semantic aspect of the utterance becomes crucial. The formal side is less important. Therefore, it is assumed that the communicative and pragmalinguistic skills, whose element is the ability to read with comprehension and write (constructing written messages), are closely associated with vocabulary range and foundations of grammatical knowledge (principles). Thereby, the level of vocabulary use and practical application of grammatical rules are tested.

These aspects are included in the tools checking the level of indicated skills, such as: International Tests: PIRLS 2011 International Results in Reading (including the database from the Polish part of PIRLS 2011)[13] as well as OBUT 2012 – Nationwide studies of third grade learners' skills[14].

The results from OBUT indicate that the Polish young learners have problems with searching for specific information in the text. Only about 46% respondents provided correct answers to all the questions, whereas 17% did only 1 out of 3 tasks in a proper way. The authors of the report recommend undertaking certain actions to develop learners' reading skills. A slight disproportion between the results depending on the school location can be noticed. The high-

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[12]   *Ibidem.*
[13]   K. Konarzewski, *TIMSS i PIRLS 2011. Osiągnięcia szkolne polskich trzecioklasistów w perspektywie międzynarodowej*-http://www.cke.edu.pl/images/stories/00000000000 0000_pirls_2011/timss_pirls_2011_raport_koncowy.pdf, access: 12.04.2014.
[14]   *Ogólnopolskie Badania Umiejętności Trzecioklasistów*. Raport OBUT 2012, ed. A. Pregler, E. Wiatrak, Warszawa 2012.

est results were achieved by the learners from schools located in big cities and the lowest ones by the learners from rural areas.

Text interpretation turned out to be even more problematic for the learners than finding specific information. Only 24% of children scored a maximum number of points, doing all the tasks from this area correctly. The biggest group, that is 29% of 3rd grade learners, achieved 3 points. More than 15% of the pupils managed to do only one task in a correct way. The analysis of text interpretation results revealed the differences between the learners from various schools. The differences between the results achieved by the learners from big cities and rural areas are more significant than in the previous task, that is finding specific information in the text.

In general, the results presented in OBUT 2012 indicate a fairy good level of learners' linguistic skills at this stage of education. In various tasks from the areas of reading, writing, application of lexis and grammar high level was revealed. The test comprised 10 tasks, for which the learners could receive maximum 27 points. 4,5% of the learners did all the tasks correctly. The pupils usually scored 24 points (8,1%) as well as 23 or 25 points (7,9% or 7,8%). However, the report authors point out, that learners' linguistic skills should be further developed in the process of primary school education.

In order to compare the outcomes, a reference to PIRLS 2011 International Results in Reading[15] is made. The results show that Polish 3rd grade learners achieved 526 points on the PIRLS reading achievement scale. It is slightly above the scale centerpoint of 500, with the 28th position among 45 participating countries. Polish learners were outperformed by children from neighbouring countries, such as Slovakia, Hungary, the Czech Republic, Croatia and Russia, as well as many others. Poland was ahead of five European countries (Spain, Norway, Belgium, Romania and Malta) and 11 non-European ones. Young Poles coped better with literary texts than informative ones.

The results of the language skills of Polish children can be also discussed on the basis of the analysis of a communicative work produced by learners, that is narrative texts (stories) inspired by an external stimulus (picture). Krystyna Borawska carried out the research among 288 children from third grades in various locations (urban / rural) and with different socioeducational status of the family[16].

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[15] *PIRLS 2012 International Results in Reading*, [online:] http://timssandpirls.bc.edu/pirls2011/downloads/P11_IR_FullBook.pdf, access: 12.04.2014.

[16] K. Borawska, *Umiejętności językowe dziecka*, p. 220.

The following conclusions can be drawn from the discussed reports:

- third grade learners have high abilities in the areas of reading comprehension, writing (processing the text), using the lexis in a proper way and applying grammatical rules correctly[17];
- majority of children fall into the average group;
- language of the examined children, regardless of the achieved level, is creative to a very limited extent[18].

The researchers highlight the need to develop children's communication skills (OBUT 2012, PIRLS 2011). Developing language skills requires creating various opportunities to use the language in a variety of communication and cultural contexts. Thanks to "linguistic activity children master 'the ins and outs' of this cultural tool and gain the ability to communicate and assign meanings in the process of exploring the world"[19].

The implementation of digital tools to foster linguistic literacy

Stimulation of language skills at a lower primary stage, recommended by the authors of the reports, corresponds with our suggestion to use available digital applications to develop learners' communication skills at this stage of education. The reasons of the use of new technologies are enumerated below:

- it is "compatible" with the socio-communicative preferences of children;
- it provides new attractive forms and interactive ways of different operations on the text;
- it provides a multisensory creation of texts (communications) of various kinds (literary, scientific, informative, commercial);
- it allows to add innovation to formal education in the area of acquisition of mother tongue.

In the Institute of School Education at the Jan Kochanowski University in Kielce in 2012 a pilot stage of the project "Digital words" was launched. One of the specific objectives of the project was to examine the effectiveness of ICT to develop literacy of Polish Young Learners at the first level of education. The main research problem focused on the influence of modern digital tools on the devel-

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[17] *Ogólnopolskie Badania Umiejętności Trzecioklasistów.*
[18] K. Borawska, *Umiejętności językowe dziecka*, p. 286.
[19] *Ogólnopolskie Badania Umiejętności Trzecioklasistów*, p. 137.

opment of linguistic, communicative and pragmatic competences. 58 second and third grade learners from two state primary schools located in the city of Kielce participated in the first phase of the project. The lessons taught were both traditional and modern. In the first type, the main resources were paper books. However, in the latter one, modern technologies were employed, such as: interactive whiteboard or Web 2.0 tools (e.g.: *Storybird*[20], *QuizRevolution*[21], *Wordle*[22] (used on the study) and *Tagxedo, Voicethread, Vocaroo, Voki*[23], etc).

Selected results of pilot testing covering traditional operations on texts as well as with the use of modern technology are presented below.

There is a link between traditional (paper, words dominate) and digital teaching aids used to test linguistic and communicative competences:

- in the area of linguistic competence (meaning of words, finding specific information), the differences are not significant;
- in the area of communicative and pragmatic competences, the differences are significant (Storybird: more words, creativity, new heroes, elements of dialogues, new threads);
- 100% of the research participants admitted that they preferred creating their own texts with the use of digital tools to traditional writing on paper;
- Storybird tured out to be the most valuable for 68% of the second grade learners and 83% of third grade ones;
- the learners highlighted the inspiring value of the image to create their own texts what proves the contemporary tendency to polisemiotic coding and decoding communications;
- majority of learners encountered frequent problems connected with basic digital skills, namely using the keyboard while writing their own stories in mother tongue.

To sum up, the results obtained during the pilot stage encouraged the authors to move on to the full-scale project in 2013/2014 school year. The pupils worked with all the applications for the first time, but thanks to the instructions provided by the teacher they instantly learned how to use them. The teachers

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[20] http://storybird.com/
[21] http://www.wordle.net/
[22] http://www.quizrevolution.com/
[23] More informations in paper: A. Wileczek, I. Jaros, *Nowoczesne aplikacje multimedialne w kształceniu polonistycznym (etap wczesnoszkolny)*, in: *Polonistyka dziś – kształcenie dla jutra*, ed. K. Biedrzycki, W. Bobiński, A. Janus-Sitarz, R. Przybylska, Kraków 2014 (in print).

involved in the pilot phase of the project pointed out that useful functionalities of the tools, intuitive ways of using them and easy access made technology – enhanced lessons both teacher- and student-friendly environment, which allowed to increase the learning outcomes.

It should also be highlighted that harnessing digital tools in a skillful way is not only adding variety to classes and modernizing the syllabus to achieve better educational outcomes, but it is also a historical necessity forced by the "immersion" of younger generations in the digital world, which, for them, is just as natural as virtual space.

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SUMMARY

In the paper the outcomes of Polish learners in the area of reading literacy with reference to selected international (PIRLS 2011) and national (Study of the Third Grade Learners' Basic Skills 2010, 2011 and Nationwide Study of the Third Grade Learners' Skills 2012) research results are presented. However, the main aim of the paper is to present some ways of integrating digital tools to foster literacy skills (reading in particular) in early childhood education, and, thus, to support the acquisition of mother tongue. The focus is on developing creativity since this is one of the areas in which learners achieved the lowest results in nationwide studies. Examples of creative, interactive and multisensory ways of learning and enriching the linguistic resources (e.g.: *IWB*, *Storybird*, *Wordle*, *Tagxedo*, *Voicethread*, *Vocaroo*, *Voki*), are referred to. Selected digital tools have been tested by UJK students while teaching lessons to second and third grade learners of primary school. The use of modern technology to develop literacy competence is at the pilot stage. The complete research results revealing the effectiveness of technology-enhanced teaching / learning process in the discussed area will be available in one year.

KEY WORDS: digital words, technology, literacy skills, early education.

STRESZCZENIE

Głównym zadaniem niniejszej pracy jest wskazanie na kilka sposobów integrowania narzędzi cyfrowych w celu rozwijania umiejętności czytania i (w szczególności) pisania w edukacji wczesnoszkolnej. Autorki czynią to w kontekście wyników badań międzynarodowych (PIRLS 2011) i krajowych (m.in. OBUT 2011, 2012) uczniów wczesnej edukacji, w których wskazuje się na niedostatki w zakresie kompetencji tekstotwórczych, związanych z twórczym przetwarzaniem informacji. Autorki stawiają hipotezę, że wybrane aplikacje i narzędzia multimedialne (np. *IWB*, *Storybird*, *Wordle*, *Tagxedo*, *Voicethread*, *Vocaroo*, *Voki*) przyczyniają się do przyrostu kompetencji komunikacyjnej, głównie w zakresie kreatywnego tworzenia i przetwarzania tekstu tudzież wzbogacenia zasobów językowych. Wybrane narzędzia cyfrowe zostały eksperymentalnie przetestowane przez studentów UJK podczas zajęć w klasie drugiej

i trzeciej szkoły podstawowej. Wyniki uzyskane na podstawie testów prowadzonych metodą tradycyjną i za pomocą narzędzi multimedialnych wskazują z jednej strony na pobudzenie kreatywności uczniów w zakresie tworzenia własnego tekstu, a z drugiej obrazują przychylność i zainteresowanie uczniów e-generacji wskazanymi metodami pracy, co może znacznie uefektywnić proces kształcenia nie tylko w obszarze akwizycji języka ojczystego.

Zastosowanie nowoczesnej technologii w celu rozwijania kompetencji czytania i pisania jest na etapie pilotażu. Pełne wyniki badań, wskazujących na skuteczność procesu nauczania / uczenia się wspomagane technologią w omawianym obszarze, będą dostępne po zakończeniu badań.

SŁOWA KLUCZOWE: cyfrowe słowa, technologie, kompetencje językowe, wczesna edukacja.

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