Information and Media Literacy of Polish Children According to the Results of "Children of the Net" and "Children of the Net 2.0" Studies

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Abstract. No empirical multidimensional research investigated media and information literacy (MIL) of Polish children and youth until 2012. To fill that gap, we executed two projects: "Children of the Net: Communication Competencies of Children" (2012) and "Children of the Net 2.0: Communication Competencies of Youth" (2013). This paper presents our research findings. The studies aimed to identify the MIL level in students aged 9-13 and 13-16, respectively, and to explore competencies development contexts. We adopted a qualitative approach called a methodological bricolage which was described by Denzin and Lincoln. Central to the studies was competence assessment based on a structured qualitative interview (group 9-13) and a survey (group 13-16). Other research tasks based on different methods referred to the common framework, i.e. our MIL model. The findings provided knowledge about actual MIL competencies in the studied groups and helped establish where particular MIL competencies develop and children's attitudes to new technology-mediated communication are shaped.

Keywords: MIL competencies, school, digital literacy, digital natives, Poland.

1 Introduction

In Poland, the notion "digital natives"[1] commonly connotes a substantial competence in using information and communication technologies. The association is rooted in the conviction that growing up in an environment suffused with digital media, in which the young communicate with others, peers in particular, chiefly via the Internet, must have fostered development of their media and information competencies.

Although the literature on Polish youngsters' skill and efficiency in using the Internet is ample, until 2012 only few sources were based on empirical research [1-3]. Consequently, we did not have any data or findings which could verify the common ideas about media and information literacy (MIL) of Polish children and youth. The studies that were carried out probed selected activities in which the young engaged on the Internet (e.g. using social-networking websites) and risks (e.g. cyberbullying) or advantages (e.g. social learning on the Internet, application of digital content). Alternately, the studies focused on selected competencies, such as information retrieval skills. Having spotted that a comprehensive approach[2] was still missing in research on MIL of youngsters, we decided to fill the gap with our two projects: „Children of the Net: communication competencies of children" (2012) [4] and „Children of the Net 2.0: communication competencies of youth" (2013) [5].

Our objective was to identify the level of MIL in Polish children from two age groups (aged 9-13 and 13-16, respectively) and to understand the contexts in which media- and information-related knowledge, competencies and attitudes are being or should be developed.

Our research was triggered by a pamphlet titled "We, the Children of the Net"[3] authored by Piotr Czerski, a poet and IT specialist [6], and first published in 2012 in *Dziennik Bałtycki*, a supplement to the nationwide daily *Polska. The Times*. Many Polish and foreign journalists celebrated the text (which was translated into thirteen languages, among others into English [7], German [8] and French [9]) as a "Generation Web Manifesto." Czerski acts as an advocate of the "Internet generation," recognizing the Internet as a legitimate communication space: "We grew up with the Internet and on the Internet. This is what makes us different; this is what makes the crucial, although surprising from your point of view, difference: we do not 'surf' and the Internet to us is not a 'place' or 'virtual space.' The Internet to us is not something external to reality but a part of it: an invisible yet constantly present layer intertwined with the physical environment" [7]. The communication competencies addressed in our project titles

[1] A person born in the late 1990s and having access to computer and the Internet from a very early age on.
[2] Analyses of various MIL competencies levels.
[3] Our translation of the original title "My, dzieci sieci" is "We, the Children of Net". In *The Atlantic* it was translated as "We, the Kids of Net."

refer to his idea of the mediated communication as a relevant and genuine communication form having very real effects. We use this concept interchangeably with MIL.

2 Methodological Bricolage

Our research framework draws on an article by Livingstone [11] which reviews approaches in research on children's use of the Internet. The sheer volume of diverse perspectives outlined in the article encouraged us to try to devise a method which would facilitate competence assessment and, at the same time, facilitate an in-depth reflection on the collected data. We realized that to make sense of our findings we had to explore the complex contexts in which MIL competencies develop. Therefore, we opted for a multidimensional approach that is a methodological bricolage.

The concept of bricolage was described by Denzin and Lincoln as a methodological orientation within the interpretive framework which allows the researcher to flexibly combine available perspectives, methods and materials [19]. Such amalgamation of the research process components has practical implications. It makes it possible to construct an image of reality out of its fragments. To explain this methodological approach, Denzin and Lincoln resort to a patchwork metaphor. The bricolage method enabled us to be flexible in constructing our research framework. However, we are fully aware that the knowledge we obtained unavoidably has a different status and "is always in process, developing, culturally specific, and power-inscribed" as Kincheloe stresses, [20]. Still, we did not find its dynamic nature to be an obstacle since we apprehend the rapidity of changes in the digital environment as well as the pace at which knowledge about human activity on the Internet is becoming obsolete.

At the centre of our "patchwork" lies the query about the level of communication competencies of Polish students in education stage 2 (9-13 years of age, "Children of Net") and stage 3 (13-16 years of age, "Children of Net 2.0"). In the Polish schooling system, stage 2 corresponds to grades 4-6 of elementary school, and stage 3 to gymnasium (i.e. lower-secondary school).

We took various paths to assess "the competencies level". In "Children of the Net" study we used the structured qualitative interview, while in "Children of the Net 2.0" we opted for a survey in a large quantitative sample. Since we did not intend to compare the two kinds of findings, we were under no obligation to apply the same method (or rather methods) in the two projects. We designed also supplementary research tasks (further elements of our patchwork). In the former study, they included a structured interview with the guardians of our young respondents, participatory observation, an analysis of the Web portals most popular with the users in this particular age-group and a qualitative and quantitative analysis of school curricula. In the latter study, we undertook an analysis of Polish youth's social network profiles and a qualitative and quantitative analysis of school curricula. We worked upon the assumption that the data collected in those ways would help us understand the context better and identify the scope and extent of formal an informal MIL education.

2.1 Competence Model

We constructed[4] an expert competence model of MIL (Table 1) to serve us as a framework and point of reference for particular research tasks. The construction of the model proceeded in the following stages: first, we identified the MIL standards which are most frequently discussed in journals pertaining to Library and Information Science (LIS) (e.g. [10], [16]) and the Polish recommendations for MIL education [17]; second, we discussed the compatibility of the foreign standards with the Polish cultural context and utility of these documents as tools for investigating competencies; third, we designed a model for "Children of the Net" studies; and, fourth, we had the model assessed by external reviewers and modified it accordingly.

The model's structure is comprised of three items: area, standard and competence. It contains also examples (omitted in Table 1) which vary between the projects because of the respondents' different

[4] Our interdisciplinary team included specialists in library and information studies, education, philosophy and sociology.

ages. The examples helped us understand what MIL actually was and develop particular tools (e.g. the interview questionnaire, gauges in the curriculum analysis, etc.).

In accordance with the IFLA MIL Recommendations, we treated "media literacy" and "information literacy" as a single construct which entails empowerment of individuals in navigating in the media and information systems (environments) and their capacity to effectively and efficiently use information conveyed by objects, institutions and people [18]. However, our model contains areas to which either information competencies (information behaviors, production behaviors; therein ability to use information and/or create content) or media competencies (life on the Internet; therein ability to build one's self-image and Web identity) are more pertinent.

3 Findings

As our research was multidimensional, the presentation of our findings is preceded by a short methodological introduction.

3.1 Children of the Net

Method. In the "Children of the Net" project, we applied a qualitative competence analysis. We conducted structured interviews with individuals aged 9-13 (N=30), residents of five cities: Gdańsk, Poznań, Toruń, Warszawa and Zielona Góra. The respondent groups from all cities were equipotent and non-randomly sampled. The study was overt, that is the respondents were informed about the aims of the research beforehand.

Competence Assessment: Findings. Items included in the interview were related to the standard-dimension of our model. Most of the children answered the questions pertaining to Standard 1 correctly (19 and 25, respectively). More problems surfaced in items designed to test the children's understanding of the Internet culture components. The item which involved finding information necessary for problem-solving revealed the children's superficial approach. In most cases (28), they relied on the data retrieved from the website on top of the browser's list and uncritically accepted the opinions they chanced upon (their decisions were not based on reliable information). The item checking their ability to distinguish fact from opinion in a provided text showed a considerable difference between younger and older respondents within the group (no nine-year-old was able to answer correctly). We noted a similar correlation as regards the (in) ability to identify commercial content. Content explicitly presented as an advertisement was correctly identified, but latent advertising in most cases went unrecognized. In items checking the children's attitudes to cyberbullying, very few children (4) declared taking action. However, when asked what a victim could do in such circumstances, the respondents suggested reporting to an adult (28), a parent or a teacher. When cyberbullying concerned a disliked person, theyopted to take the wrong conduct (ridiculing the person on the Internet).

Although the findings cannot be extrapolated onto the whole population of Polish children, we obtained qualitative knowledge about differences between the declared and the actual competencies of the respondents (in a preliminary conversation the children uniformly assessed their MIL rather highly). The differences in question surfaced in all interviews.

Table 1. Internet competencies model for children aged 9-13 ("Children of the Net") and 13-16 ("Children of the Net 2.0") [4-5].

Area	Standard	Competence
Information behaviors	1. Skillful and effective retrieval of information	Recognizes information needs; Formulates questions based on information needs; Knows that there are multiple information sources; Finds, selects and evaluates sources of information; Archives information.
	2. Critical assessment of	Understands the content of communication; Finds, selects and evaluates information; Distinguishes opinion

	information	from fact; Distinguishes commercial from non-commercial content.
Production behaviors	3. Creation, processing and presentation of content	Creates new content; Processes the content found on the Internet and the self-created content; Presents the new and/or processed content.
	4. Legal awareness of content production and distribution	Is aware of legal and ethical dimensions of content production; Knows what content can be legally processed; Knows his/her rights as an author of the content posted on the Internet; Recognizes ownership problems as related to the Internet activities.
Life on the Internet	5. Empathy and self-image	Knows that the Internet is a common space shared by many people; Attends to empathy in the Internet communication; Builds self-image thoughtfully and site-consciously.
	6. Security and privacy	Knows risks inherent in the Internet navigation; Is able to cope with the Internet-related threats; Controls information shared with others; Is aware of links and differences between the Internet-mediated and non-mediated communication; Observes the computer hygiene rules.
	7. Participation in the Internet communities	Recognizes elements of the Internet culture; Actively participates in the Internet communities; Initiates and develops the Internet communities based on shared tasks.

Findings from Supplementary Research Tasks. The interviews with the guardians of children aged 9-13 (N=30) reveal that they perceive the Internet as a time-consuming medium. As regards their monitoring of the Internet use, they declare proactive parenting characterized by granting a child considerable freedom and stepping in only when something was going wrong. More than half of the guardians (n=19) stated that they talked with the children about the Internet. At the same time, it is alarming that a large group of our respondents (n=11) did not find it necessary. The guardians would be worried if they knew that the children communicated with strangers, but at the same time one in three stated they did not know with whom the child talked on the Internet. The home, a potential site of comprehensive family MIL education, apparently fails to fulfill that role.

Analysis of a sample of the students' profiles on social networks shows that they are oriented towards social interaction. Posts and commentaries serve the phatic function rather than discussion or exchange of views. The children rarely author the content posted in their profiles, tending rather to distribute the already existing content, which increases the incidence of "chain" e-mails and communications. Summing up, Facebook and other social networks are used first and foremost to find entertainment and sustain contacts.

Participatory observation in one of the Polish elementary schools (in Gdańsk) revealed a certain recurrent phenomenon. Students' school identities tend to diverge considerably from their social network profiles. The on-line identity seemed overdrawn and larger than life. Our respondents' profiles featured false claims, and their owners frequently engaged in high-risk behaviors (e.g. invited unknown people) and started multiple accounts, creating thereby alternative personalities.

The quantitative analysis of school curricula aimed to establish how far the curriculum for education stage 2 students provides for developing the competencies included in the model by collecting data from 48 students. The analysis was based on the summary statistics technique.

The qualitative analysis of school curricula was non-structured and critically informed. It aimed to identify hidden agendas, proposed (student-teacher, student-student) communication patterns, ways of engaging students in self-guided competence development, proposed aids (ICT), and reliance on students' own experience in using information/the media. The analysis included selected curricula (which have already been quantitatively investigated) both those saturated and those not saturated with MIL education content.

The qualitative and quantitative analyses of school curricula showed that they provide for MIL formation mostly outside of the Internet environment. They prioritize information competencies, ignoring preparation for handling the Internet-mediated factors in constructing relationships with others.

3.2 Children of the Net 2.0

Method. In the "Children of the Net 2.0" project, we assessed the competencies level by means of a quantitative method. We surveyed a large sample of respondents (N=742) including lower-secondary school students in Pomerania Voivodship. We chose the schools based on random quota sampling (whereby the proportion rendered by the place-of-residence variable was taken into account), using the database of all such schools in the voivodship (N=438, as of September 30, 2012). Samples of particular classes were approximately equal.

Dependent variables correspond to the standard-dimension in the competence model. To establish the correlation between these variables and socio-demographic factors, we defined the following independent variables: (1) school grade, (2) sex, (3) type and size of the place of residence, (4) parental education, (5) assessment of the Internet skills, (6) years of Internet use, (7) frequency of Internet use, (8) the average time spent on using the Internet, (9) the number of devices and tools used (e.g. computer, smart-phone, console), and (10) the number of devices and tools used (e.g. computer, smart-phone, console) that a person owns or has exclusive use.

Competence Assessment: Findings. Below, we present selected findings which render the fullest picture of the Polish youth's MIL competencies and the context in which they appear. Most of the respondents (80.1%) use the Internet every day, but not longer than three hours a day (67.5%). This finding belies the widespread idea of teenagers constantly submerged in the net.

The Internet connection is more frequently established by a cell phone (62.7%) than by a stationary computer (56.1%) or a portable one (51.5%). Most of the respondents use more than one device.

The websites frequented by the respondents the most include social networks, chatrooms and blogs (87.5%), especially Facebook, ask.fm, youtube, and Polish kwejk.pl.

Most Polish youngsters assess their MIL competencies as good or very good (Table 2).

Because the declared self-assessment is an imperfect indicator, the questionnaire items were formulated as tasks – ones adjusted to the respondents' age – which tested the actual knowledge and skills included in the competencies model.

For the information retrieval item, only 67 respondents (9.2%) were able to understand search queries which contained logical operators. Correct answers were more frequently given by boys. The scores were also related to parental education (the higher the education level, the more likely the correct answer was).

Only (41.3%), of the respondents correctly identified the purposes of popular Internet portals with girls scoring better in such items. As regards the assessment of specialist sources' utility for scientific problem-solving ("How many Polish households have no TV set?"), the respondents most frequently selected inadequate sources, placing the recommended scientific journal at the end of their pick-list. At the same time, however, they regarded references to scientific research as a criterion of a text's reliability (57.8%).

Table 2. Self-assessed MIL competencies

	How do you assess your Internet skills	Frequency	% of valid answers
Valid	Average at best	197	28.8
	Rather good	279	40.8
	Very good	208	30.4
	Total	684	100.00
No data	Difficult to say	33	
	No data	25	
	Total	58	
	Total (valid and no data)	742	

The students were also rather seriously challenged by items which tested critical information reception. Only a small group correctly distinguished between the provided examples of facts and opinions (14.7%). The eldest respondents, big city residents and multi-device users scored better in such items.

To understand the context of productive skills development, we asked the students about their active involvement in creation of new content. Such activities were far more frequently reported by girls (65.4%) than by boys (34.3%). Also, engagement in creative practices turned out to be correlated with the Internet use frequency (the more often one uses the Internet, the more frequently one engages in production behaviors). Practical knowledge of copyright regulations is an important component of productive competencies. Merely 4.3% of the sample correctly answered the question about what is and what is not legally admissible (e.g. sharing films). Interestingly, the students who self-assessed their MIL competencies lower were more likely to give a correct answer in that item.

The students displayed ignorance of netiquette rules. As many as 64% of them identified capital letters in an Internet post as a way of underscoring its importance. Girls' knowledge of netiquette was better than boys'.

The tasks related to security on the Web showed that the students were able to handle technological risks, but were not adequately prepared for dealing with psycho-social threats. When queried about logins and passwords, they chose stronger options, yet at the same time one in four respondents declared readiness to undertake high-risk behavior to check the identity of a stranger met on the Internet.

The analysis of correlations between independent variables and the variables corresponding to the standards in the competencies model showed a strong interdependence between parental education, respondents' age, place of residence, frequency of the Internet use and the number of devices used therein on the one hand and the self-assessed and actual MIL competencies on the other. This reveals an image of social stratification with children from wealthier families (access to many devices) – equipped with better cultural capital, and students of better schools in big cities having far better opportunities to develop their MIL.

Findings from Supplementary Research Tasks. We analyzed the most frequented websites, including Facebook and themed portals, such as Demotywatory.pl and Kwejk.pl (with fun graphics).[5] The findings of the Facebook profiles analysis proved particularly useful in understanding the context of information competencies. Many profiles aim at "self-display" and use textual and pictorial elements to establish one's individuality. We were surprised to come across students' profiles which exposed and commented on sexually charged characteristics: "Is Ania [Annie] a hot chick?" or "Is Krzysiek [Chris] good at kissing?" Related group profiles of students were reputed as pretty and sexually attractive ("sweet pussies"), with their owners' approval.

The analyzed curricula for lower-secondary schools (quantitative analysis: N=73) made more room for students' involvement with the Internet, but still did not provide any learning content related to the Internet's social functions.

4 Conclusion

The methodology allowed us to view competencies as an outcome of interactions (as conceived in interactionist and not behavioral terms) among various environments: home, school, peer group, and selected Internet communities. We believe that each of these "sites" promotes the formation of different kinds of competencies. School (and school-related duties) shape content retrieval and production skills while the home and peer contacts shape children's and youth's attitudes to various activities engaged in on the Internet. The Internet communities, in turn, serve as spaces of adaptation to the Internet culture.

The fragments of reality that we obtained – [19] parts of our bricolage "patchwork" – enable us to critique the image disseminated by the Polish media of a child and a teenager as an information literate. The technical command, indeed more rapidly acquired and observable in the young, does not go hand in

[5] Based on the ranking of Megapanel PBI/Gemius.

hand with a concomitant faster development of critical competencies. Reproduction, which our research shows to be the basis of functioning in digital culture, does not herald productive skills (the content shared with others is, for the most part, retrieved and not self-created). The superficiality of MIL competencies in Polish "digital natives" suggests two options. Either we reductively re-define MIL as simply "being at home with technology" to comply with the publically propagated opinions, or rather we negate the validity of these opinions.

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