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THE DIGITAL SKILLS CONDUCIVE TO USING THE INTERNET AND MOBILE BANKING SERVICES IN LIGHT OF NATIONWIDE OWN RESEARCH RESULTS

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Abstract: The progress and dissemination of information and communication technologies represent an important factor of socio-economic development. Using the opportunities they offer, requires the respective competencies from society. The purpose of the article is to assess the level of digital skills conducive to using the Internet and mobile banking services against the background of the general digital skills presented by Poles. The research methods applied in the article are as follows: the subject literature studies, descriptive and comparative analysis as well as the nationwide survey research conducted in March 2020 using the CAWI method. The analysis and interpretation of the research material allowed the verification of the following research hypothesis – the high level of the general digital skills presented by Poles has a positive impact on the scope of their skills conducive to using both the Internet and mobile banking services.

Keywords: digital skills, Internet banking, mobile banking.

1. Introduction

The progress resulting from the development of information and communication technologies (ICT) is a natural accelerator of the transformations occurring in contemporary socio-economic space. The technological revolution we are currently experiencing, along with its implied causes and consequences, changes the image of modern societies and corrects the way of the economy's functioning, including its components developed by, e.g., the banking sector. The concept of the knowledge--based economy and the corresponding idea of an information society are naturally combined with the efficient and comprehensive application of knowledge and information, both from an individual and a general perspective. The opportunities resulting from such actions remain a function of, among others, digital competences, the acquisition and development of which is approached as an element of the essential skills gained and expanded in the process of lifelong learning. Nowadays digital competences, and digital skills as their part, are becoming an indispensable set of attributes assigned to an individual acting as a competitor on the labour market, but more importantly, they also represent a necessary advantage allowing the realization of daily tasks and functions (including the use of banking services). The shortage of these skills and/or their maladjustment to the contemporary challenges put before a human being, understood as part of the socio-economic system, is a limitation of their development abilities and, at the same time, results in an obvious disadvantage or inability to carry out the specific, individualized human needs required in every sphere of life.

The problem addressed in this article and also its purpose is to assess the level of digital skills conducive to using the Internet and mobile banking services against the background of the general digital skills presented by Poles. The structure and content of the study, as well as the applied research methods, were selected to achieve the adopted purpose including: subject literature studies, descriptive and comparative analysis and also the nationwide survey conducted in March 2020 using the CAWI method. The analysis and interpretation of the research material aimed at verifying the following research hypothesis – the high level of the general digital skills shown by Poles has a positive impact on the scope of their skills conducive to using both the Internet and mobile banking services.

2. Digital competences and their elements – theoretical background

The analysis of the meaning carried by the concept of "competence"[1] allows to conclude that this term should be understood as the specific range of prerogatives assigned to an individual, providing him/her with the opportunity of dealing with

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[1] *Słownik języka polskiego* defines competencies as the scope of entitlements and powers related to the functioning of an organizational unit authority as well as the scope of someone's knowledge, responsibility and skills (2005, p. 348).

certain matters and making specific decisions in this domain, as well as describes the scope of knowledge, skills and powers of a particular person. According to Jasiewicz (2018, p. 122), both the aforementioned dimensions of these competences should be combined, which would, in turn, allow for understanding this category as the potential for undertaking specific actions. Such a perspective has become the basis for formulating a popular definition of this term, indicating that competences are recognized as knowledge, skills and attitudes which facilitate carrying out specific activities in an effective manner (Spa, 2014, p. 52, see Jasiewicz, 2018, p. 122).

Digital competences, being one of the desired attributes of a modern person, do not represent a clear-cut and unambiguous concept from the perspective of the elements which describe/explain them. For example, Gallardo-Echenique (2015, p. 2 etc.) and Tarkowski, Mierzecka, Jasiewicz (2015, p. 28) state that although these competences are the key element of debates focused on the issues referring to an information society and knowledge-based economy, their understanding and interpretation follow different paths, covering such concepts as: e-skills, e-competences, computer skills, digital literacy and digital skills. The diversity of descriptions of this category is presented in Table 1.

Understanding the essence of digital competences can be based on two concepts resulting from their interpretation, i.e. a traditional (catalogue/functional) approach and also a relational one. In traditional terms, these competences are perceived as a catalogue (set) of specific skills and knowledge which should be acquired by every member of society, regardless of their individual predispositions, experiences or expectations (Buchholtz, Buchner, Filiciak, Jasiewicz, Kabicz, Mierzecka, and Zaniewska 2015, p. 11; Sidak, 2016, p. 369). The factor differentiating digital competences in this approach refers to demographic features alone (e.g. age, education level). The perspective adopted in this case is a consequence of the assumption about the 'transmission' transfer type of both the knowledge and skills catalogue developed by experts which, in turn, can be used at various levels of the social functioning performed by an individual. Buchholtz et al. (2015, p. 11) indicate that (…) *the traditional approach is based on the belief that it is necessary to level out the existing social divisions, also in the field of education and various skills. Therefore, it is not contradictory to the relational approach, which emphasizes both individual needs and motivations of information and communication technologies' users, defined in the scope of the needs and benefits referring to all spheres of life.*

The relational approach, being the response to the perception of competences as the closed set of knowledge and skills needed by every individual, is complementary to the aforementioned traditional perspective. It assumes that information technologies do not create any separate space for an individual's activity, but remain an integral element of each of them, whereas their task is to improve the actions undertaken by an individual. This approach individualizes the set of digital competences assigned to/required from an individual in the perspective of the formulated needs, motivations, predispositions and experiences (Jasiewicz, 2018). However, regardless of the approach

Table 1. Overview of the definitions of digital competences

Digital competencies	Source
(…) include certain, critical and responsible use of digital technologies and interest in them for the purposes of learning, work and social participation. They refer to the skill of using information and data, communication and cooperation, media literacy, digital content development (including programming), security (including digital comfort and competences related to cyber security), intellectual property issues, problem solving and critical thinking.	(EU Council Recommendation of 22 May 2018 on competencies ..., 2018)
(…) a collection of knowledge, skills and attitudes required in the process of using ITC and digital media to: perform tasks, solve problems, communicate, manage information, cooperate, create and share content and also effective, efficient, autonomous, critical, creative knowledge development, work, learning, socialization, consumption and position strengthening (empowerment).	(Ferrari, 2012, p. 31)
(…) the ability to understand and apply information available in various electronic formats and sources, efficient use of ICT tools, as well as critical thinking and assessment being the condition for taking optimal advantage of information, regardless of their presentation method and quality.	(Tarnowski, 2015, p. 30)
(…) a set of skills determining an effective use of electronic media, including IT competences (the use of hardware and software), information competences (searching, assessing and applying information) as well as communication and relational competences in the new media environment (creative use of new media, communication and constructing relationships based on ICT tools). It also refers to the knowledge of legal provisions and mechanisms of media economics, including ethical application of new technologies.	(Batorski, Płoszaj, Jasiewicz, Czerniawska, and Peszat, 2012, p. 10)
(…) the skill of discovering and applying new technologies in a flexible manner to analyse and provide a critical assessment of information and to use technological potential in solving the emerging problems as well as developing and sharing knowledge along with the awareness of one's own responsibilities and respect for mutual rights.	(Calvani, Cartelli, Fini, and Ranieri, 2008 p. 186)
(…) they clearly require more than just knowledge about the use of ICT related devices and applications. Smart application of ICT involves special attention, knowledge and attitudes towards both legal and ethical aspects of privacy and security resulting from these technologies application as well as their social role.	(Janssen, Stoyanov, Ferrari, Punie, Pannekeet, and Sloep, 2013, p. 480)
(…) a set of information oriented competences covering information retrieval skills, understanding it, as well as the assessment of its credibility and usefulness and also IT competences, which include computer and other electronic devices literacy, using the internet and various types of applications and software along with digital content development.	(Information society…, 2014)

Source: authors' compilation.

adopted for the purposes of understanding and interpreting the essence of digital competences, they should be combined with the broadly approached ability to use modern information and communication technologies, and thus apply them in the process aimed at both the efficient and effective achievement of the objectives put before an individual in every sphere and at every stage of his/her life.

The assessment of the level of digital competences assigned to human beings has to be carried out within the specific framework determining their scope (level) and categorization (catalogue/typology). Such activity becomes the basis for this assessment objectification, as well as creates a database for comparing the competences achieved in time and space (it is also a starting point for defining and presenting opinions on social policies, an element of which is the development of the addressed competences).

The DIGCOMP standard is an example of the solutions used in this respect, where the digital competences framework includes 21 competences identified in the following areas: information, communication, content creation, security and problem solving, assessed at three levels of their advancement (basic, intermediate, advanced), taking into account the relevant examples and applications for specific purposes (Ferrari, 2012, pp. 4-6). Another solution used to assess digital competences is the UNESCO model, which evaluates the set of key media and information competences included in three basic task groups: access and retrieval of information, their understanding and assessment, as well as content creation and sharing (*Global Media and ...*, 2013, pp. 45 et seq.). In addition to the competency models referred to above, other sets are also used in practice and listed in such studies as the European Association for Viewers Interests and the Catalogue of media and information competences (Tarkowski, Mierzecka, Jasiewicz, Filiciak, Kisilowska, Klimczuk, and Bojanowska 2015, p. 40).

The assessment results of the digital competences level, regardless of the adopted model for their classification and measurement, as well as its scope, change in terms of the time function[2]. This condition is, among others, a natural consequence of the occurring educational processes, generational changes or the complexity level of new technologies. For example, the European Commission document entitled Digital Economy and Society Index (DESI) Country Report Poland 2019 (2019, pp. 3, 8 etc.), indicates that despite the discussed index growth, Poland ranks 25th among 28 EU countries and this has not changed since 2017. In turn, the assessment of one of the areas creating this measure, i.e. human capital shows, among others, that 46% of Poles had basic digital skills in 2019 (44% in 2017) and 21% demonstrated above--basic skills (19% in 2017)[3]. Although these percentages increase on the time

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[2] See e.g. (*Społeczeństwo informacyjne w Polsce ...*, 2014, 2019; *Indeks gospodarki cyfrowej...*, 2019).

[3] Report entitled *Measuring Digital Skills across the EU: EU wide indicators of Digital Competence* (2014, p. 14) based on DIGCOMP standard indicates that in 2014 over 35% of Poles did not have any digital competences and approximately 22% at a low level. Less than 5% of Poles admitted having high competences at that time.

function, they are still far from the EU average of 57% and 31%, respectively. Interestingly, from the perspective of the problems addressed in this article, the descriptions of these statistics usually do not provide the detailed information on digital skills conducive to using specific products or services offered by the selected economy sectors and branches, which experience the consequences of a technical and information revolution very strongly (e.g. the banking sector). On the one hand, this situation creates space for research and assessment of the occurring relationships, e.g. between the level of general digital competences and those conducive to using specific services or products, whereas on the other, it determines the area of interest for the activities focused on expanding and improving specific competences.

3. Methodology of the research

The authors, referring to the discussion presented in the above section of the article and being aware of the multidirectional correlations between the requirements formulated by financial intermediaries in the area of using their products, based on both digital and information technologies, as well as the digital skills of their users, have adopted a demand perspective. This approach allowed formulating the purpose of the article, i.e. the assessment of the level of digital skills supporting the use of online and mobile banking services against the background of the general digital skills presented by Poles.

The realization of this goal was possible by providing the answers to the following research questions:

1. What is the declarative level of the general digital skills presented by the surveyed population?

2. What features can be attributed to the profile of a person declaring high general digital skills?

3. What is the ranking of digital skills which support using the Internet and mobile banking services?

4. What is the level of digital skills which support using the Internet and mobile banking services of the analysed population?

5. What features can be attributed to people presenting high, medium and low levels of digital skills which support using the Internet and mobile banking services?

6. Is the level of digital skills which support using the Internet and mobile banking services demonstrated by people with high general digital skills higher than their average in the analysed population?

Adopting the above objective has become the basis for putting forward the following research hypothesis: *The high level of general digital skills presented by Poles has a positive impact on the scope of their skills which support using the Internet and mobile banking services.*

The diagnosis of these skills was based on the results of a survey conducted by the authors in March 2020 using the CAWI (*Computer-Assisted Web Interview*)

method covering a nationwide sample of 1040 respondents. These studies constitute part of the research project entitled *Self-exclusion from the digital banking services in light of the features presented by Generations X, Y, Z.* The research sample was selected using random and quota sampling. The sample structure was corrected using the analytical weight to match the structure of Poles in terms of the key features related to the subject of the study. The weight construction took into account the following socio-demographic variables: gender, age, education, income level and the size of the place of their residence (see Table 2).

Table 2. Research sample – characteristics

Gender (*n* = 100%)				
Women			*Men*	
53.10%			46.90%	
Age (*n* = 100%)				
≤ 24 years of age	*25-34 years of age*	*35-49 years of age*	*>50 years of age*	
12.40%	20.70%	23.90%	43.00%	
Education (*n* = 100%)				
Elementary/vocational		*Secondary*	*Higher*	
9.90%		44.20%	45.90%	
Net income (PLN) (*n* = 100%)				
≤ 2000	*2001-3000*	*3001-5000*	*> 5000*	*No answer*
24.90%	22.10%	23.00%	10.00%	20.00%
Place of residence (*n* = 100%)				
Village	*City <20 thou.*	*City 20-99 thou.*	*City 100-199 thou.*	*City 200-499 thou.*	*City >500 thou.*
39.10%	10.20%	19.60%	9.40%	8.60%	13.10%

Source: authors' compilation based on the conducted survey.

The studied population covered 53% of women and 47% of men. This group included 43% of people aged over 50, almost 24% of people aged 35-49, 21% of the respondents declared being between 25 and 34 years of age, while 12% were 24 and younger. Approximately 46% of the respondents were university graduates, and more than half had secondary and elementary/vocational education (44% and 10%, respectively). The monthly net income of the vast majority of the analysed population ranged from PLN 2001 to 5000. A detailed analysis of this parameter distribution shows that the net income of every tenth respondent was higher than PLN 5000, 23.00% of the respondents earned between PLN 3001 and 5000 per month, whereas 21.00% between PLN 2001 and 3000. About a quarter of the surveyed population received a monthly net income of less than PLN 2000.

One in five respondents refused to answer the question about their income level; 40% of the analysed population lived in rural areas and the remainder were residents of various size cities.

4. General digital skills as a factor supporting the use of the Internet and mobile banking services – research results

The assessment of the declarative level of skills examined in the article resulted from the analysis of the distribution of answers indicating whether the following statement is true or false – "I have high general digital skills" (see Figure 1).
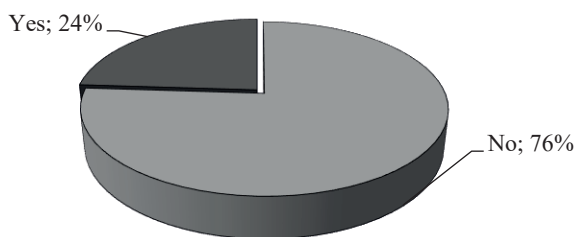

Fig. 1. The distribution of indications regarding the following statement –
I have high general digital skills

Source: authors' compilation based on the conducted survey.

In the presented self-assessment, 76% of the respondents declared that the level of their general digital skills is not high. Such a situation, in the authors' opinion, confirms both their self-criticism and an extensive degree of objectivity in self--assessment regarding the discussed skills and shows space for actions aimed at expanding and deepening the scope of the skills under study.

Making the assessment of the above indications, in the cross-section of features attributed to the analysed population, more specifically it is possible, on the one hand, to approach the distribution of these skills in greater detail and, on the other, outline the profile of a person either characterised with such attributes or lacking them (see Table 3).

Adopting the criterion of gender allows stating that men assess their general digital skills as more advanced compared to women, and even this higher self--assessment is presented in the environment indicating that, on average, 76.% of the surveyed do not recognize their skills as high.

The focus on age criterion, in turn, proves that the lowest self-assessment of the analysed skills is shown by people over the age of 50. It is also not surprising that young people under 24 years of age, evaluate their general digital skills the highest. This situation is a natural consequence of the conditions in which these age groups

Table 3. The distribution of indications regarding the following statement –
I have high general digital skills, according to the features of the studied population

Gender											
Women (n = 100%)						*Men (n = 100%)*					
Yes			No			Yes			No		
21%			79%			**27%**			73%		
Age											
≤ 24 years of age (n = 100%)		*25-34 years of age (n = 100%)*		*35-49 years of age (n = 100%)*			*>50 years of age (n = 100%)*				
Yes	No	Yes	No	Yes		No	Yes		No		
33%	66%	29%	71%	27%		73%	16%		84%		
Education											
Elementary/vocational (n = 100%)			*Secondary (n = 100%)*				*Higher (n = 100%)*				
Yes		No		Yes		No		Yes		No	
20%		80%		23%		77%		**25%**		75%	
Net income (PLN)											
<2000 (n = 100%)		*2001-3000 (n = 100%)*		*3001-5000 (n = 100%)*		*>5000 (n = 100%)*			*No answer (n = 100%)*		
Yes	No	Yes	No	Yes	No	Yes		No	Yes		No
6%	94%	10%	90%	18%	82%	**23%**		77%	12%		88%
Place of residence (thou. residents)											
Village (n = 100%)		*City <20 (n = 100%)*		*City 20-99 (n = 100%)*		*City 100-199 (n = 100%)*		*City 200-499. (n = 100%)*		*City >500 (n = 100%)*	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
24%	76%	18%	82%	18%	82%	26%	74%	26%	74%	**32%**	68%

Source: authors' compilation based on the conducted survey.

have been living and fulfilling their functions (professional, social)[4]. Moreover, a negative correlation between the length of life and the level of discussed skills in the remaining age groups is also important from the perspective of the conducted analyses.

The analysis of the correlations between the level of education and self--assessment of the general digital skills allows for indicating that the respondents who completed their education at elementary/vocational level assess their skills the lowest. Only 1 in 5 respondents from this group consider their level of skills as high.

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[4] No in-depth analysis of the features assigned to the representatives of particular generations was conducted, since this issue does not constitute the core objective of this article.

Another conclusion resulting from the conducted analysis, is the observed, evidently higher level of the declared skills along with higher level of education.

Adopting the next criterion, i.e. earned income, gives grounds for stating that only 6% of people earning the lowest net income (< PLN 2000) can identify themselves as possessing high general digital skills. In turn, the individuals assessing their skills the highest are placed on the other side of the income scale (> PLN 5000). As in the case of the education criterion, a positive correlation between the level of income and the declared skills is also observed here.

The assessment of the criterion referring to the place of residence allows to conclude that the highest level of declared skills is demonstrated by the residents of the largest Polish cities. Interestingly, village residents declare a higher level of these skills than the respondents living in cities of up to 100,000 inhabitants, representing almost 30% of the analysed population size.

Having considered the aforementioned statistics, it was possible to outline the profile of a person representing a high level of the declared general digital skills. Such a person is a young, well-educated man (under 24 years of age, a higher
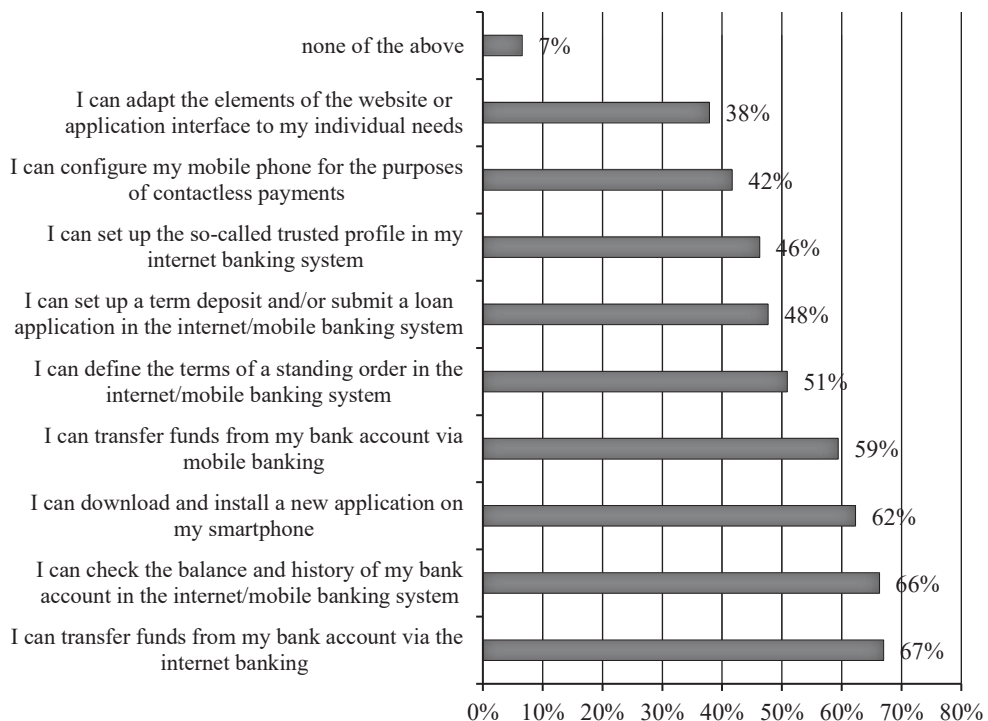

Fig. 2. Percentage of the presented digital skills supporting the use of the Internet and mobile banking services according to the respondents' indications

Source: authors' compilation based on the conducted survey.

education level graduate), residing in a large city (> 500,000 inhabitants) and earning a net income of over PLN 5000 per month.

Another area of the performed comparisons that allows to formulate answers to the adopted research questions is the assessment of the ranking listing these digital skills which support using the Internet and mobile banking services. In this case, the respondents were asked to indicate their skills within the specified set (see Figure 2).

The skills most frequently indicated by the respondents were as follows: a) making a transfer via the Internet banking (67% of responses); b) checking the balance and history of the bank account in the Internet and mobile banking system (66% of responses); c) downloading and installing a new application on the smartphone (62%).

The least frequently indicated skills were placed on the opposite side of the scale. They included as follows: a) adapting the website or application interface to the individual needs (38% of indications); b) configuring the phone for the purposes of contactless payments (42% of indications); c) setting up a trusted profile in the Internet banking system (46% of indications).

The presented distribution clearly demonstrates that the surveyed respondents have acquired the skills needed to carry out simple, not requiring an in-depth knowledge, activities related to both the Internet and mobile banking. It is also interesting that the respondents do not show a seemingly easy ability to configure the interface of websites and applications they are using and, moreover, they are not able to set up the so-called trusted profile in the used Internet banking system[5]. This situation can be explained by:

- proper functionality of a typical interface, corresponding to the simple needs of its users,
- getting used to the layout and set of information provided by the existing method of managing the operation program in use,
- no need to use a specific facility (trusted profile, contactless payment),
- concerns related to using new tools helpful in authorizing one's identity and making payment transactions (trusted profile, contactless payment).

The number of digital skills indicated by the respondents, enabling the use of the Internet and mobile banking services was employed in the next research step, to determine their level (see Figure 3).

A declaration of up to two responses was adopted as a low level of digital skills in the analysed area. This group covered 311 people (i.e. 29.90% of the total number of the respondents), including 69 out of 1040 respondents who did not indicate any of the nine digital skills listed in the question. This situation probably resulted from the fact that 87% of them do not have an online bank account and do not use mobile

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[5] This issue is even more interesting as the discussed profile, primarily in the current epidemiological threat situation, facilitates and accelerates the contact of the person concerned with public institutions and offices.

banking applications on their smartphone or tablet. Over one-third of the surveyed population (35%) selected from three to six of the aforementioned digital skills, and therefore, according to the adopted assumptions, it can be stated that they demonstrate a medium level of skills helpful in using the Internet and mobile banking services. The last group covered people with a high level of digital skills (35.10%) who declared having acquired at least seven of the skills listed in the survey.
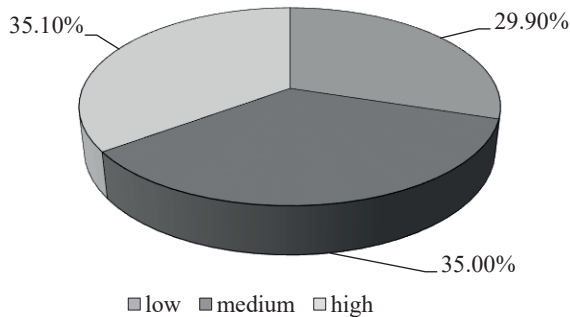

35.10%   29.90%   35.00%

□ low   ■ medium   □ high

Fig. 3. The level of digital skills supporting the use of the Internet and mobile banking services

Source: authors' compilation based on the conducted survey.

Having conducted a detailed analysis of the first group of respondents, a profile of a person showing low digital skills can be identified, i.e. a young man (32.79%) aged 25-34 (36.28%) with a low level of education (elementary/vocational – 33.98%), who lives in a village (36.26%) and earns a net monthly income of over PLN 5000 (37.50%). It is worth highlighting that people with a low level of digital skills necessary for using the Internet and mobile banking services reside predominantly in villages and cities of over 500,000 residents (see Table 4).

The profile of a person with medium digital skills is different. It is a woman (37.50%) aged 50+ (36.27%) with a low level of education level (elementary/ vocational – 41.75%), who lives in a small city of 20,000 to 99,000 residents (40.20%) and earns a monthly net income of less than PLN 2000 (38.61%). The detailed data, characterizing the population with medium digital skills necessary for using the Internet and mobile banking services are provided in Table 5.

As mentioned above, the majority of respondents showed high digital skills necessary for using the Internet and mobile banking services. However, before the profile of this group representative is outlined, it should be noted that neither the gender nor the size of the place of residence can be clearly determined. In the first case, the difference between men and women amounts to 0.10 percentage point, and in the second case the difference between the city of 100-199 thou. and the city of over 500,000 inhabitants is 0.09 percentage points (see Table 6). Therefore, it can be stated that a young person up to 24 years of age (40.31%), with a university degree

Table 4. Characteristics of the population with low digital skills necessary for using the Internet and mobile banking services

Gender					
Women (n = 100%)			*Men (n = 100%)*		
27.36%			**32.79%**		
Age					
≤ 24 years of age (n = 100%)		*25-34 years of age (n = 100%)*	*35-49 years of age (n = 100%)*		*>50 years of age (n = 100%)*
24.03%		**36.28%**	29.32%		28,86%
Education					
Elementary/vocational (n = 100%)		*Secondary (n = 100%)*		*Higher (n = 100%)*	
33.98%		29.13%		33.75%	
Net income (PLN)					
≤ 2000 (n = 100%)	*2001-3000 (n = 100%)*	*3001-5000 (n = 100%)*	*> 5000 (n = 100%)*		*No answer (n = 100%)*
27.03%	26.52%	33.47%	**37.50%**		29.32%
Place of residence (thou. residents)					
Village (n = 100%)	*City <20 (n = 100%)*	*City 20-99 (n = 100%)*	*City 100-199 (n = 100%)*	*City 200-499 (n = 100%)*	*City >500 (n = 100%)*
36.26%	24.53%	22.55%	21.43%	29.21%	32.35%

Source: authors' compilation based on the conducted survey.

Table 5. Characteristics of the population with medium digital skills necessary for using the Internet and mobile banking services

Gender					
Women (n = 100%)			*Men (n = 100%)*		
37.50%			32.17%		
Age					
≤ 24 years of age (n = 100%)		*25-34 years of age (n = 100%)*	*35-49 years of age (n = 100%)*		*>50 years of age (n = 100%)*
35.66%		33.95%	33.33%		**36.27%**
Education					
Elementary/vocational (n = 100%)		*Secondary (n = 100%)*		*Higher (n = 100%)*	
41.75%		34.78%		33.75%	
Net income (PLN)					
≤ 2000 (n = 100%)	*2001-3000 (n = 100%)*	*3001-5000 (n = 100%)*	*> 5000 (n = 100%)*		*No answer (n = 100%)*
38.61%	38.26%	25.52%	29.81%		14.90%
Place of residence (thou. residents)					
Village (n = 100%)	*City <20 (n = 100%)*	*City 20-99 (n = 100%)*	*City 100-199 (n = 100%)*	*City 200-499 (n = 100%)*	*City >500 (n = 100%)*
36.68%	39.62%	**40.20%**	38.77%	34.83%	27.94%

Source: authors' compilation based on the conducted survey.

(36.48%), whose monthly net income ranges between PLN 3000 and 5000 (41.01%) possesses high digital skills. It is also worth emphasizing the correlation showing that the respondents' digital skills increase along with the level of their education.

Table 6. Characteristics of the population with high digital skills necessary for using the Internet and mobile banking services

Gender					
Women (n = 100%)			*Men (n = 100%)*		
35.14%			**35.04%**		
Age					
≤ 24 years of age (n = 100%)	*25-34 years of age (n = 100%)*		*35-49 years of age (n = 100%)*		*>50 years of age (n = 100%)*
40.31%	29.77%		37.35%		34.90%
Education					
Elementary/vocational (n = 100%)		*Secondary (n = 100%)*		*Higher (n = 100%)*	
24.27%		36.09%		**36.48%**	
Net income (PLN)					
≤ 2000 (n = 100%)	*2001-3000 (n = 100%)*	*3001-5000 (n = 100%)*	*> 5000 (n = 100%)*		*No answer (n = 100%)*
34.36%	35.22%	**41.01%**	32.69%		30.28%
Place of residence (thou. residents)					
Village (n = 100%)	*City <20 (n = 100%)*	*City 20-99 (n = 100%)*	*City 100-199 (n = 100%)*	*City 200-499 (n = 100%)*	*City >500 (n = 100%)*
30.96%	35.85%	37.25%	**39.80%**	**35.96%**	39.71%

Source: authors' compilation based on the conducted survey.

Having conducted an in-depth analysis of the group covering 246 people (24.00% of the surveyed population), who declared high general digital skills in terms of the specific abilities they indicated as necessary for using the Internet and mobile banking services, it can be observed that their skills are higher than the average for the entire analysed population. These respondents indicated an average of 6.09 skills used in dealing with the bank, while this indicator for the entire sample was 4.79.

5. Conclusion

Modern information and communication technologies are transforming all sectors of the contemporary economy, and thus used by the banking sector. In Poland, Internet banking services for saving and checking accounts were first offered in 1998 (Solarz, 2006, p. 151), whereas the first mobile banking applications were introduced ten years later. Meanwhile, according to the Polish Bank Association (2020, p. 4), in 2019 the number of individual customer accounts with the option of using the

Internet banking was 37.41 million, and the number of active banking mobile application users reached 12 million. This dynamic development was possible owing to the digital skills of the customers. An assessment of these skills, carried out by the authors based on their own nationwide research indicates that only 24% of Poles declare having high general digital skills. They are mainly young, well-educated people, earning high monthly salaries and living in very large cities. The population of people with high general digital skills is characterized by a higher than average, for all the respondents, level of digital skills helpful in using the Internet and mobile banking services. In the first case, this indicator was at the level of 6.09 for the nine abovementioned skills, and 4.79 in the second case, which allowed for verifying the adopted research hypothesis. Among the most frequently indicated skills necessary for using online banking services the following were listed: making transfers (67%), checking the balance and history of the bank account (66%), and also downloading and installing the application on the smartphone (62%).

As a result of the diagnosis related to the level of digital skills that allow and facilitate using the Internet and mobile banking services, it was found that the analysed population is divided into three groups of a similar size. Over 35% of Poles showed high digital skills, 35% medium, and in the case of low qualifications in the analysed scope, the relevant percentage amounted to approximately 30% of all the respondents. According to the authors, a significant part of Polish society requires support aimed at developing digital skills, both general and those conducive to using the Internet and mobile banking services. Identifying the profiles of people with different levels of digital skills allowed to indicate which social groups should primarily be covered with these activities. They are both young and old individuals, with a low level of education, living mainly in villages and small towns.

The entities performing the role of educators should include both the state and financial institutions. In the first case, it can be implemented through the education system whose active participants are not only the youngest members of the society or the youth, but also senior citizens – the students of the Universities of the Third Age. The Ministry of Digitization (2020) has prepared the Digital Competence Development Program until 2030, focused on an ongoing increase in the level of digital competences by providing everyone in Poland with the opportunity to develop them according to their needs, which will ultimately contribute towards constructing an inclusive, open and modern society and thus a better quality of life for the citizens. Obviously, through such education the state is developing the general digital skills of its citizens and, as the research results conducted by the authors show, people with better general digital skills also demonstrate higher skills used in the Internet and mobile banking. The latter should be developed by banks, e.g. as part of *Corporate Social Responsibility* (CSR), which is currently expanded by *Corporate Digital Responsibility* (CDR) (see Lobschat et al., 2019). The CDR concept is based on the recognition that the organizations acting for technology development and also the ones which use technology to provide services are required to do so in a way that

essentially leads to a positive future. This concept involves counteracting the threats arising from digitization and, at the same time, takes advantage of its opportunities[6]. It tries to find a balance and direct the digital progress towards such technology which has a positive impact on the environment (Suchacka, 2019, p. 13). According to FXMAG (2020), the winner of the competition "TOP CDR Technologically Responsible Company" organized in April 2020 under the patronage of, among others, the Ministry of Entrepreneurship and Technology, the Ministry of Investment and Development, the Ministry of Science and Higher Education, as well as the National Centre for Research and Development, was the Millennium Bank. This competition honours companies which implement solutions that counteract digital exclusion, remain user-friendly and support the process of digital education.

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[6] As part of one of the largest financial education programmes in Europe – "Bankers for Education", the following project has been functioning – "Security in Cyberspace", which covers such participants as Pekao S.A., Santander Bank Polska, ING Bank Śląski and mBank. For example, in 2018, Santander Bank Polska and the Santander Bank Polska Foundation (2020) conducted an educational campaign on cybersecurity, secure usage of electronic banking and online payments. 350 000 pupils, students and senior citizens took part in this action. This activity is one of many undertakings aimed at increasing society's openness to digital services offered by banks, including security and full awareness of their usage.

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UMIEJĘTNOŚCI CYFROWE SPRZYJAJĄCE WYKORZYSTANIU USŁUG BANKOWOŚCI INTERNETOWEJ W ŚWIETLE WYNIKÓW OGÓLNOPOLSKICH BADAŃ WŁASNYCH

Streszczenie: Postęp i upowszechnienie technologii informacyjno-komunikacyjnych są istotnymi czynnikami rozwoju społeczno-gospodarczego. Wykorzystanie związanych z nimi szans wymaga od społeczeństwa posiadania odpowiednich kompetencji. Celem artykułu jest ocena poziomu umiejętności cyfrowych, wspierających wykorzystanie usług bankowości internetowej i mobilnej na tle ogólnych umiejętności cyfrowych Polaków. Zastosowane w artykule metody badawcze to: studia literatury tematu, analiza opisowa i porównawcza oraz ogólnopolskie badania sondażowe przeprowadzone w marcu 2020 r. metodą CAWI. Analiza i interpretacja materiału badawczego pozwoliły na weryfikację następującej hipotezy badawczej – wysoki poziom ogólnych umiejętności cyfrowych Polaków korzystnie wpływa na zakres ich umiejętności wspierających wykorzystanie usług bankowości internetowej i mobilnej.

Słowa kluczowe: umiejętności cyfrowe, bankowość internetowa, bankowość mobilna.