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Hearing and Hearing-Impaired Adolescents and the Use of the Internet: A Report From Research Conducted in Poland

Abstract

The article presents the second attempt in Poland at examining the use of the Internet by 150 hearing and hearing-impaired adolescents. The empirical research concerned both groups “navigating” in the virtual world. A comparative analysis was carried out on the differentiation, dependencies, and correlations between a group of hearing respondents (girls and boys) and a group with hearing impairment in terms of their intrapersonal and interpersonal attitudes and attitudes towards the world. The intrapersonal sphere included self-image and self-esteem in a global aspect. It consisted of non-specific, general self-esteem, and partial self-esteem: the cognitive, intellectual, physical, characterological, and socio-moral spheres. Interpersonal attitudes were understood in the eyes of the respondent as an image of the rest of society and the relations between them. Thus, the sphere of “others towards me” appeared, based on the sense of support from the social environment, appreciation or indifference, threat from others, or a sense of security, among other things. In the area of “me towards others,” the dependencies concerned pro-social behavior, the general attitude towards other people, an altruistic attitude, egocentrism or sociability, a tendency

to isolate oneself, aggression or a lack of aggressive behavior, problematic use of the Internet – an adaptation of IAT A. Young, which measures a subject's sense of loneliness by De J. Gierveld – content sought on the Internet, the positive aspects of using the Internet, risks associated with it, and addiction.

Keywords: deafness, Internet, addiction adolescent

Introduction

When in the 1960s Marshall McLuhan coined the term “global village” and predicted the digital revolution, hardly anyone was willing to admit that a real breakthrough was approaching and that we were gradually entering a new information age. This “global village” was supposed to shorten the distance between people, provide unlimited access to information, and open a new way to communicate on a global scale. Today, when Internet access is quick and expected, it can be considered an absolutely integral part of the functioning of most of us. Thanks to this tool, the virtual world has become more and more similar to the real world over the years. Due to this similarity, millions of users – children, adolescents, adults, and seniors – are now taking advantage of the many opportunities offered by the Internet. Interestingly, the age criterion is not the only decisive one here. The unique and unlimited technological possibilities also attract people with a range of disabilities.

The media around the world talk more and more about the problems of people with hearing impairment, and there are laws and regulations to facilitate their daily existence. Recognizing the difficulties of this social group, specialists and politicians work in a number of ways to enable free access to goods and various social institutions and to eliminate all barriers (Holmstrom & Schonstrom, 2017). In our empirical research, analysis, and (re)interpretations, we referred to hearing and hearing-impaired adolescents and their Internet use. It is extremely difficult for hearing people to understand the world of the deaf and its realities. The deaf live among us, but the language, communication, educational, cultural,

and conceptual barriers does not integrate but separates them from the rest of society (McKee et al., 2013; Knoors et al., 2019). Polish (Plutecka 2015; Jagoszewska 2016; Bartnikowska 2010; Woynarowska 2010; Cytowska 2012; Krakowiak & Dziurda-Multan, 2006) and foreign studies (e.g., Long et al., 2021; Allen et al., 2016) have indicated reluctance and difficulties in understanding and communicating with them, which causes a feeling of loneliness and isolation, for example, among 50,000 children in the UK (Daniels, 2019). The innovative research on the subject includes a project by Chilean, Colombian, and Spanish scientists on the Internet of Things for children with hearing impairment. By presenting tangible user interfaces of TUI, (Talkative User Interface) the authors presented a non-traditional way of interacting with digital technology. The Internet of Things can help children develop emotional, psychosocial, psychomotor, cognitive, and visual skills. A high level is achieved through interactive communication and building social and emotional skills (Cano et al., 2020). On the other hand, analyses of descriptive and inferential statistics in a Nigerian cross-sectional study on the quality of life of deaf and hearing-impaired students from the Ibadan metropolitan area indicate poor quality of life in 57.8%. Stigmatization and discrimination contribute to this, whereas participation in community and social interactions between the two groups is promoted. Students at special high schools who grew up in higher-income families can count on a better quality of life (Jaiyeola & Adeyemo, 2018).

As a result of many changes that have occurred over the past few years, people with hearing impairment have integrated into the larger community. To a large extent, this state of affairs is related to unlimited Internet access; their online presence has become more and more visible. The emerging websites or forums for users with hearing impairment are places where they make new acquaintances – not only among other deaf people, but also among their hearing peers. Therefore, the hearing-impaired interact with the environment of hearing people using this medium (Krause, 2011). They look for current information, entertainment, and job offers online, but most of all for new friends, often with similar disabilities. The difference, however, is that this contact is in fact limited

to those closest to them – peers and neighbors – and sometimes to random people. On the other hand, on the web, the possibilities of making contact are endless. Young people want to become an equal virtual user, create and build a specific virtual environment, arrange a synergistic space, seek answers to the changing reality, participate in the exchange of thoughts, and immerse themselves as much as possible in the secrets of innovative digitization. The smart phone applications, instant messengers, and programs available on the market use timeless and easily understood symbols. The trends in communication, on the other hand, are moving towards more and more abbreviated statements, using emoticons and single words.

It would seem that using this form of communication and the opportunities offered by the web would be perceived as particularly attractive for these people. Aronson (2009) called humans social beings, seeing in the Internet a chance to satisfy the social needs of society. He also drew attention to the dangers of using this medium without reflection. These dangers are valid for all social groups, including hearing-impaired people. In his theory, McLuhan formulated the statement that modern media have become an extension of the human senses. So, are they particularly significant for people with sensory disabilities? The period of adolescence is difficult and full of challenges. The search for social acceptance and confirmation of one's value in the eyes of other people is characteristic of this developmental period. Interdisciplinary research on children and adolescents with hearing impairment (e.g., Mekonnen et al., 2015; Movallali et al., 2018) indicates that their functioning is clearly related to specific social and emotional problems. The so-called theory of mind holds that the skillful understanding and use of symbolism creates a common field of attention and separates one's thoughts and needs from the perspective of another person. In one word, the theory of mind is based on the ability to look beyond one's own point of view and to understand what the other person is about and how their intentions are presented (Stachyra, 2010). Therefore, by analyzing the results and interpretation of Polish and foreign empirical research (Podgórska-Jachnik, 2013; Kobosko, 2018; Plutecka, 2015; Young et al., 2008), we discover that

depending on the families and in what environment the deaf children were brought up, there are clear differences in terms of their emotional and social functioning. Teenagers who lived in hearing families usually demonstrate less adaptation than deaf children growing up in deaf families. Moreover, they are exposed to numerous mental problems that can manifest in controlling emotions, self-esteem and self-image, or the aforementioned social competences (Calderon & Greenberg, 2003: 182; Fellingner et al., 2012: 1040). The emotional regulation in this group is characterized by marked impulsiveness and difficulties in controlling it, as well as aggression. Most tend to have negative emotions and low self-esteem. These factors favor the inhibition of the ability to verbalize emotions, which is necessary in the process of regulating them (Dyck & Denver, 2003). Self-image and self-esteem are negative and most often inadequate. As Movallali et al. (2018) rightly pointed out, in this situation there are often additional feelings of loneliness, alienation, and isolation. The level of self-acceptance and self-image may be inflated. This, in turn, is associated with narcissistic disorder, which is more common in hearing-impaired adolescents than in their hearing peers. The former group has firmly limited patterns of social and individual behavior, limited social roles, and less empathy and adequate behavior in interaction with others. In this group, behavioral disorders are more common: tendencies to engage in risky behavior, seeking strong stimuli, aggression towards people and animals, theft, fraud, damage to property, and slightly more serious oppositional and defiant disorders, attention deficit, and hyperactivity. Hearing-impaired adolescents are more likely to be rejected by their peers. They may experience unpleasant situations of ridicule or stigmatization related to their deafness. Long-term behavior of this nature may lead to social phobias, neuroses, or emotional or mental disorders (Kobosko, 2018).

Despite the growing social awareness of people with disabilities and numerous social campaigns aimed at integrating them with the general public, it still happens that these people are treated as a completely separate group, defined by a specific disability. The most common explanation for this is the still-functioning myths and stereotypes that stand

in opposition to attempts to integrate the two environments. The concept of integration itself can be understood in many ways, but it usually comes down to the key principle of acceptance and recognition of any differences in behavior and communication (Wójcik, 2008). Disorders in this area result in a significant deterioration in the social functioning of adolescents. There is a risk that they will lock themselves in safe and predictable patterns in order to avoid the anxiety and emotional tension associated with interpersonal contact (Padden, 2015). This situation may become the beginning of social isolation and avoidance of contact with an adolescent's social environment, in which interactions are governed by laws that are incomprehensible to them. Another aspect that develops adaptive abilities is the support of the closest family environment. It is the family, as the first social group to which a young person belongs, that equips them with interpersonal skills and teaches them how to function in the larger society. The young person's self-esteem also develops within their immediate family and in the case of people with hearing impairment, it turns out that it is most often inadequate and underestimated (Dyck & Denver, 2003). These factors can inhibit the ability to verbalize emotions or openly communicate one's needs, desires, or fears and can increase feelings of alienation, isolation, and loneliness.

Method

The main aim of the research is to find differences in the use of the Internet between hearing-impaired and hearing adolescents. The main goal also included the assumption that some differences between the groups (e.g., the level of self-esteem, area of social position, and area of negative emotions) may be the key to this important issue.

2.1. Research Hypotheses

Our research topic includes various conditions for using the Internet. Several main and detailed problems and hypotheses were selected for the research:

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- P1: What personal factors differentiate the use of the Internet of the young people in the study group?
- P2: Do the physical, socio-moral, characterological spheres, support from others, lack of a sense of threat, pro-sociality, aggressiveness, meaning and organization of the world, goodwill of the world, sense of effectiveness, lack of a sense of helplessness, self-esteem, interpersonal relations, attitude to the external world, or feeling of loneliness correlate with the way the two groups use the Internet and to what extent?
- P3: What non-personal factors significantly determine the use of the Internet by young people in the two groups?
- P4: Is the absence of hearing impairment correlated with problematic Internet use and to what extent? Do the respondents' age or gender determine their problematic use of the Internet and to what extent?
- H1: Selected personality factors determine the way the Internet is used by adolescents.
- H2: Selected non-personality factors determine the way the Internet is used by adolescents.
- H3: A lack of hearing impairment is correlated with problematic Internet usage, as are age and gender.

The dependent variable was the use of the Internet by hearing and hearing-impaired adolescents; the independent variables were personality factors; and the mediating variables were non-personality factors.

2.2. Instruments

The research used quantitative methods – testing methods and questionnaires – namely, the “Problematic Internet Use Test” (PUI), which is an original adaptation of Kimberly Young’s “Internet Addiction Test,” the “Questionnaire of Intrapersonal and Interpersonal Attitudes and Attitudes

towards the World" (KNIIS) by Bartłomiej Gołek, and the "Scale for Measuring the Sense of Loneliness" (SPS) by Jenny de Jong Gierveld.

2.3. Participants

The subject of Internet use among adolescents has been raised many times in research performed in Poland and abroad. Studies have been conducted by Czyż and Plutecka (2018) – social activity of deaf adolescents on the Internet; educational audiophonology, Improve (2012) – personality determinants of Internet addiction; (Barłóg, 2015) – problematic Internet addiction; (Wójcik, 2017) – using Internet by Polish youth – the grounded theory method; (Majchrzak, Ogińska-Bulik, 2010) – risky behaviors related to cyberspace – Polish adaptation of the Internet Addiction Test; (Augustynek 2010) – computer addiction; (Morbitzner 2018) – benefits and threats online. Diagnosis, prevalence, therapy. Among foreign publications in this area, topics related to young people being addicted to using the Internet and other related risks prevail (e.g., Ranaeiy et al., 2016; Castellacci & Tveito, 2018; McDool et al., 2020; Greenfield, 2011; Kim et al., 2008; Livingstone et al., 2011). All Polish studies, however, referred to non-disabled pupils or students. The novel issue of Internet usage among people with hearing impairment has yet to be fully researched. It is difficult, but most of all it has been overlooked and ignored. Therefore, we decided to take up this task and present our research results. The subject of our empirical research was the diagnosis, possibilities and specificity of functioning hearing and hearing-impaired adolescents, aged 15–20, using the Internet. The aim of the research was to search for differences, correlations, and dependencies in the use of the Internet (style, effectiveness, positive and negative aspects, threats, and risk of addiction) as well as personality and non-personality factors, sense of well-being, interpersonal relations, and social involvement between the two intentionally selected groups. The study group consisted of 150 respondents ranging in age from 15 to 18 years: 75 hearing people and 75 hearing-impaired people.

Results

The youth participating in the research attended mass and special boarding schools in the Małopolskie, Wielkopolskie, and Podkarpackie provinces in Poland. The KNIIS questionnaire covered the following areas of self-esteem: self-esteem in the cognitive/intellectual sphere (SPI), self-esteem in the physical sphere (SF), self-esteem in the socio-moral sphere (SSM), self-esteem in characterology (SCH), support and appreciation from others (WS), no sense of threat (BZA), prosociality (PROS), lack of aggressiveness (BAGR), reasonableness and self-organization of the world (SZS), goodwill of the world (PrzS), sense of effectiveness (PoczS), lack of a feeling of helplessness (BPB), and global self-esteem (SSS). The SPS questionnaire distinguished the general area, the area of social position, and the area of negative emotions. The relationships between the variables (correlations) were analyzed separately in two groups. The analysis was preceded by a statistical description of the two study groups. Parametric tests of statistical significance were used because their assumptions were met. Student's *t* test was used to analyze the intergroup differences and Pearson's *r* correlation was used. Assumptions about the normality of the distribution and homogeneity of the variance are not important when the samples are large (over 30 people) and relatively equal (King & Minium, 2009).

Table 1. Analysis of the Differences Between the Female Respondents With Hearing Impairment (NS) and the Group of Hearing Female Respondents (S)

Dependent variable	Average		Standard deviation		t	p
	S	NS	S	NS		
KNIIS SPI	15.61	11.78	1.89	2.23	7.92	<0.001
KNIIS SF	16.17	13.08	1.78	2.07	6.81	<0.001
KNIIS SSM	14.58	12.57	1.75	1.85	4.79	<0.001
KNIIS SCH	14.69	13.16	1.83	2.41	3.05	0.003

KNIS WS	17.00	10.32	2.39	1.68	13.82	<0.001
KNIS BZA	16.03	10.84	2.44	1.89	10.16	<0.001
KNIS PROS	15.17	13.81	2.65	2.07	2.44	0.017
KNIS BAGR	12.25	8.43	1.61	1.44	10.67	<0.001
KNIS SZS	13.47	9.59	1.44	1.88	9.87	<0.001
KNIS PrzS	13.31	9.65	1.82	1.87	8.46	<0.001
KNIS PoczS	15.64	12.76	1.84	1.80	6.77	<0.001
KNIS BPB	14.42	10.32	2.71	2.07	7.27	<0.001
KNIS SSS	61.06	50.59	5.25	5.21	8.54	<0.001
KNIS FI	60.44	43.41	7.16	3.01	13.32	<0.001
KNIS IWM	33.03	21.16	4.37	2.56	14.20	<0.001
KNIS JWI	27.42	22.24	3.40	2.23	7.71	<0.001
KNIS ObrS	26.78	19.24	2.21	2.88	12.52	<0.001
KNIS OZ	30.06	23.08	4.02	2.82	8.60	<0.001
SPS Neg. emotions	10.86	19.22	1.15	2.33	-19.31	<0.001
SPS Social pos.	19.78	12.35	0.90	2.15	19.16	<0.001
SPS general	14.81	40.49	1.97	4.32	-32.50	<0.001
PUI	29.00	84.57	11.60	6.58	-25.26	<0.001

Data on the analysis of differences between the subgroup of girls with hearing impairment and that of hearing-impaired girls are presented in Table 1. The analysis of the data presented in Table 1 shows that all differences between hearing and deaf respondents were statistically significant. The hearing-impaired girls obtained lower values in almost every area of the questionnaires. The largest differences from the KNIS were related to interpersonal functioning (43.41 points for NS and 60.44 points for S), the sphere of global self-esteem (50.59 points for NS and 61.06 points for S), and the feeling of receiving support from others (17.00 points for S and 10.32 points for NS). In only three areas were the results of girls with hearing impairment significantly higher: the general area of

risky online behavior (PUI), the general level of loneliness (SPS), and the area of negative emotions (SPS).

Table 2. Analysis of the Differences Between the Male Respondents With Hearing Impairment (NS) and the Male Hearing Respondents (S)

Dependent variable	Average		Standard deviation		t	p
	S	NS	S	NS		
KNIS SPI	16.10	10.89	1.87	1.74	12.64	<0.001
KNIS SF	17.49	13.13	1.89	2.30	9.08	<0.001
KNIS SSM	15.51	11.87	1.79	2.33	7.72	<0.001
KNIS SCH	15.21	13.18	1.73	2.10	4.60	<0.001
KNIS WS	17.72	10.11	1.81	2.33	16.03	<0.001
KNIS BZA	16.69	10.74	1.42	2.48	12.98	<0.001
KNIS PROS	16.46	15.47	1.67	2.81	1.88	0.064
KNIS BAGR	12.72	8.68	2.49	1.79	8.14	<0.001
KNIS SZS	12.10	9.87	1.82	2.12	4.97	<0.001
KNIS PrzS	12.46	8.50	2.35	2.41	7.30	<0.001
KNIS PoczS	15.77	13.95	1.84	2.01	4.15	<0.001
KNIS BPB	15.44	11.47	2.09	2.04	8.43	<0.001
KNIS SSS	64.31	49.08	4.54	4.38	14.98	<0.001
KNIS FI	63.59	45.00	4.16	5.27	17.20	<0.001
KNIS IWM	34.41	20.84	2.36	4.00	18.17	<0.001
KNIS JWI	29.18	24.16	3.09	3.24	6.96	<0.001
KNIS Obr_S	24.56	18.37	2.85	3.57	8.44	<0.001
KNIS OZ	31.21	25.42	3.11	3.26	7.97	<0.001
SPS Neg. emotions	11.56	19.24	1.96	1.92	-17.35	<0.001
SPS Social pos.	19.21	12.74	1.96	2.06	14.10	<0.001
SPS general	16.62	40.08	4.26	5.05	-22.07	<0.001
PUI	27.28	72.21	18.79	11.70	-12.55	<0.001

The data on the differences between the boys with hearing impairment and the hearing boys are presented in Table 2. Analyzing the data in Table 2, it can be concluded that, as was the case with the girls, the hearing respondents achieved higher results in almost all areas of the questionnaires. This is especially visible in the results from the KNIIS in global self-esteem: (64.31 points for S and 49.08 points for NS) and interpersonal functioning (63.59 points for S and 45.00 points for NS). However, in the case of two areas, these proportions turned out to be completely inverted: in problematic Internet use, respondents with hearing impairment obtained an average of 72.21 points, while the group of hearing respondents reached only 27.28 points. It was similar in the case of a general sense of loneliness (40.08 points for NS and 16.62 points for S). The third and smallest difference concerned the area of negative emotions (19.24 points for NS and 11.56 points for S).

When comparing the two groups of adolescents, several differences can be identified, which are visible in the context of the above analysis. Between the group of hearing adolescents and respondents with hearing impairment, it was observed that they obtained different values for all the variables under study. What is particularly noticeable in the comparison of many of the analyzed areas is the drastically greater tendency for problematic Internet use in the group of respondents with hearing impairment. In addition, this group also showed higher scores for overall loneliness and negative emotions. In fact, on all scales on the KNIIS questionnaire, the group of respondents with hearing impairment scored lower than their hearing peers. On the other hand, it was the hearing people who had significantly higher values in terms of global self-esteem and interpersonal functioning.

As for the gender differences, they were not large among the hearing respondents. In the sphere of problematic use of the Internet, the girls were marginally better. They obtained statistically significantly higher results in terms of world image on the KNIIS and of social position on the SPS. The boys, on the other hand, achieved higher scores than the girls in general self-esteem and interpersonal functioning. In the group of respondents with hearing impairment, the girls obtained

statistically significantly higher results than the boys in a feeling of favor from the world and problematic use of the Internet (KNIIS). The boys showed higher scores than the girls in terms of prosociality, a sense of effectiveness, a lack of a sense of helplessness, “me towards others,” and overall picture of life from the KNIIS questionnaire. All of the differences between the subgroup of hearing girls and that of girls with hearing impairment turned out to be statistically significant. However, the greatest disproportion concerned the problematic use of the Internet and a general feeling of loneliness – higher scores the girls with hearing impairment in this respect. On the other hand, the greatest disproportion between the two subgroups of boys concerned the problematic use of the Internet and a general feeling of loneliness, account the hearing-impaired respondents. All hearing and hearing-impaired respondents were asked about the type of content they sought on the Internet (Tables 3 and 4).

**Table 3. Responses From the Hearing Adolescents
About Using the Internet**

Response	Number	Percentage value
A. Current news from the country and the world	12	6%
B. Auction services (online shops)	8	4%
C. Music and/or films	57	28.5%
D. Online games	61	30.5%
E. Thematic forums	4	2%
F. Social networks	35	17.5%
G. Pornographic content	12	6%
H. Dating websites	11	5.5%
TOTAL RESPONSES	200	100%

Table 4. Responses From the Adolescents With Hearing Impairment About Using the Internet

Response	Number	Percentage value
A. Current news from the country and the world	72	20.3%
B. Auction services (online shops)	6	1.7%
C. Music and/or films	10	2.8%
D. Online games	4	1.1%
E. Thematic forums	65	18.3%
F. Social networks	73	20.6%
G. Pornographic content	57	16.1%
H. Dating websites	68	19.1%
TOTAL RESPONSES	355	100%

The analysis of the results (Tables 3 and 4) shows that there are different Internet-related needs in the two groups of respondents. In the case of hearing adolescents, there was a clear tendency to treat the Internet as a source of entertainment and pleasant leisure time. Almost one third respondents (30.5%) play online games, either alone or in groups of friends; 28.5% answered that they mainly search for movies and music online, referring to the popular platforms YouTube, cda.pl or filmweb.pl; in third place was the need to use social networking sites (e.g., nasza-klasa.pl or facebook.pl). The responses from the respondents with hearing impairment were different. Among the main content which is particularly popular for this group of young people on the Internet, the most popular were current news from the country and the world and social networks (20.3% and 20.6%, respectively), thematic forums – mainly websites intended strictly for people with a hearing impairment, such as deaf.pl – (18.3%), as well as dating sites and pornographic content (19.1% and 16.1%, respectively). The clear difference in the expectations and needs of the respondent groups can be summarized as follows: the

hearing respondents most often search for entertainment content on the web, while the respondents with hearing impairment put more emphasis on searching the Internet for news and making contact with other people. The rationale behind this choice may be directly related to the special needs of a person with a hearing impairment. With access to websites offering news stories, which are usually even enriched with videos, a person with a hearing impairment is able to find out what the article or story is about. Unlike television, which transmits its content based mainly on the auditory channel, the Internet offers this group of recipients written content, photos, or videos that can be played repeatedly.

The respondents with hearing impairment also largely indicated Internet use related to direct contact with another person – thematic forums, dating sites, or social networking sites. These responses indicate an increased need to socialize and integrate with the rest of society. Due to their disability, face-to-face contact is not always possible, if only because of the language barrier (the predominance of a significant and profound degree of hearing loss), a feeling of shame, or being different from their interlocutors. The results clearly show a need to introduce deaf people to society and to promote inclusiveness in contact with them. These needs increase during adolescence and early adulthood. In order to counteract the feelings of alienation, isolation, and loneliness, it is advisable to surround young people with hearing impairments with kind attention and care and, if necessary, psychological support.

Discussion and Conclusion

The period of adolescence is a unique time in a young person's life – demanding, difficult, and full of new challenges in many aspects of life. The search for acceptance, understanding or the satisfaction of one's own needs often becomes an overriding issue that significantly influences self-esteem. Comparing the two groups of respondents in terms of their online activity and the additional factors that determine this activity, it is easy to notice a main conclusion from the research undertaken.

Feelings of loneliness, rejection, and being misunderstood pushes young people into risky behaviors and significantly increases the risk of a range of addictions. Comparing the results in terms of the gender of the respondents, there is a clear difference between hearing and deaf respondents – the girls with hearing impairment obtained significantly lower values in almost every area of the questionnaires used. The clearest differences concerned interpersonal functioning (43.41 points for NS and 60.44 points for S), the global sphere/general self-esteem (50.59 points for NS and 61.06 points for S), and the feeling of receiving support from others (17.00 points for S and 10.32 points for NS). Higher scores for girls with hearing impairment were recorded only in the areas of risky online behavior (84.57 points for NS and 29.00 points for S), the general level of loneliness (40.49 NS and 14.81 S), and the area of negative emotions (19.22 points for NS and 10.86 points for S), which justifies the conclusions presented by the authors. In the case of the male subgroup of respondents, these relationships were similar. It was the hearing respondents who scored higher in almost all areas of the questionnaires used. This was especially visible in global self-esteem (64.31 points for S and 49.08 points for NS) and interpersonal functioning (63.59 points for S and 45.00 points for NS). However, in the case of two areas, these proportions turned out to be completely reversed: problematic Internet use (72.21 points for NS and 27.28 points for S) and a general feeling of loneliness (40.08 points for NS and 16.62 points for S). The last difference concerned the area of negative emotions (19.24 points for NS and 11.56 for S).

The research results indicate that selected personal factors determined the problematic use of the Internet in one case – the socio-moral sphere in hearing respondents – at a moderate level (32** on the Pearson scale). Other personal factors did not correlate statistically significantly with the problematic use of the Internet in both groups. In terms of non-personal factors, two statistically significant correlations were found in the respondents with hearing impairment: a negative correlation between age and problematic Internet use (-23* on the Pearson scale) and a significant correlation in terms of age and Internet use (84.57

points for F and 72.21 points for M). There were no statistically significant correlations in this area among the hearing respondents.

In summary, what is particularly noticeable across all the surveyed areas is the drastically greater tendency for problematic Internet use, a general feeling of loneliness, and negative emotions in the respondents with hearing impairment. As mentioned earlier, the feelings of loneliness, being misunderstood, and lacking communication with close family, which the deaf respondents complained of, certainly significantly strengthen these tendencies. This theory is supported by numerous studies showing the correlation of early childhood trauma with the tendency for addictions later in life (Schore, 1994; Higley & Linnoila, 1997; Teicher, 2000; Meaney, 2002). In view of these reports, it seems particularly important to sensitize parents to building a healthy relationship and bond with their own child. Even unconscious messages, behavior, or attitudes can increase children's feelings of rejection and loneliness. In the school environment, however, an issue worth considering could be regular meetings and workshops with an educator or psychologist who would help young people face the challenges and difficulties typical of adolescence. It would also be important to build young people's self-esteem during such meetings. Educators and teachers should also reassure them that in the event of any difficulties they can count on their support and, if necessary, they will be referred to appropriate institutions or specialists. Appropriate preventive measures can significantly contribute to reducing the difficulties of adolescents with hearing impairment, which were so clearly visible in the course of the research.

References

- Allen, S., Yen, Z., & Archbold, S. (2016). *Educational Services for Deaf Children in Europe: Views and Experiences of Parents*. The Ear Foundation.
- Aronson, E. (2009). *Człowiek istota społeczna* [The Social Animal]. PWN.
- Augustynek, A. (2010). *Psychologia. Jak ślimak piął się pod górę* [Psychology: How the Snail Climbs Uphill]. Difin.
- Barłóg, M. J. (2015). Relationship Between Personality and Internet Addiction. *Hygeia Public Health*, 50(1), 197–202.
- Bartnikowska, U. (2010). *Sytuacja społeczna i rodzinna słyszących dzieci niesłyszących rodziców* [Social and Family Situation of Hearing Children of Deaf Parents]. Akapit.
- Calderon, R., & Greenberg, M. T. (2003). Social and Emotional Development of Deaf Children: Family, School, and Program Effects. In M. Marschark & P. E. Spencer (Eds.), *The Oxford Handbook of Deaf Studies, Language, and Education*. Oxford University Press.
- Cano, S., Penenory, V., Collazas, C. A., & Albiol-Perez, S. (2020). Designing Internet of Tangible Things for Children with Hearing Impairment. *Information*, 11(70), 2–13.
- Castellacci, F., & Tyeito, V., (2018). Internet Use and Well-Being: A Survey and a Theoretical Framework. *Research Policy*, 47(1), 308–325.
<https://doi.org/10.1016/j.respol.2017.11.007>
- Cytowska, B. (2012). *Trudne drogi adaptacji, wątki emancypacyjne w analizie sytuacji dorosłych osób z niepełnosprawnością intelektualną we współczesnym społeczeństwie polskim* [Difficult Paths to Acceptance: Emancipation Motives in the Analysis of the Situation of Adults with Intellectual Disability in Contemporary Polish Society]. Impuls.
- Czyż, A., & Plutecka, K. (2018). *Zarys audiofonologii edukacyjnej* [Outline of Educational Audiophonology]. Uniwersytet Pedagogiczny.
- Daniels, S. (2019). The International Deaf Children's Society Says the Research, conducted for... to the isolation and loneliness that many deaf children and young, source: <https://www.ncds.org.uk/dist/images/ncds-logo.png> [access: 22.12.220].
- Dyck, M. J., & Denver, E. (2003). Can the Emotion Recognition Ability of Deaf Children Be Enhanced? A Pilot Study. *Journal of Deaf Studies and Deaf Education*, 8(3) 348–356.

- Fellinger, J., Holzinger, D., & Pollard, R. (2012). Mental Health of Deaf People. *The Lancet*, 379(9820), 1037–1044.
- Gebrekirstos, M., Savolainen, H., Lehtomaki, E., & Kuorelahti, M. (2016). The Self-Concept of Deaf/Hard-Of-Hearing and Hearing Students. *Journal of Deaf Studies and Deaf Education*, 21(4), 345–351. DOI:10.1093/deafened/enw041.
- Greenfield, M. (2011). The Addictive Properties of Internet Usage. In K. S. Young, N. Abreu (Eds.), *Internet Addiction: A Handbook and Guide to Evaluation and Treatment*. John Wiley and Sons.
- Gołek, B., & Wysocka, E. (2011). *Kwestionariusz Nastawień Intrapersonalnych, Interpersonalnych i Nastawień Wobec świata (KNIIS)* [The Questionnaire on Intrapersonal and Interpersonal Attitudes and Those Towards the World]. Krakowskie Towarzystwo Edukacyjne.
- Higley, J. D., & Linnoila, M. (1997). Low Central Nervous System Serotonergic Activity Is Traitlike and Correlates With Impulsive Behavior. *Annals of the New York Academy of Science*, Vol. 836, 39.
- Holmstrom, I., & Schonstrom, K. (2017). Resources for Deaf and Hard-Of-Hearing Students in Mainstream Schools in Sweden: A Survey. *Deafness & Educational International*, 19(1), 29–39. <https://doi.org/10.1080/14643154.2017.1292670>
- Jagoszewska, I. (2016). W poszukiwaniu drogi do emancypacji – oczekiwania niesłyszących [In Search For Ways of Emancipation – Expectations of the Deaf]. *Interdyscyplinarne Konteksty Pedagogiki Specjalnej*, 12, 135–163.
- Jaiyeola, M. T., & Adeyemo, A. A. (2018). Quality of Life of Deaf and Hard-Of-Hearing Students in Ibadan Metropolis, Nigeria. *PLOS One*, 13(1), 1–11. <https://doi.org/10.1371/journal.pone.0190130>
- Kim, E. J., Namkoong, K., Ku, T., & Kim, S. J. (2008). The Relationship Between Online Game Addiction and Aggression, Self-Control, and Narcissistic Personality Traits. *Eur Psychiatry*, Apr. 23(3), 212–228.
- King, B., & Minium, E. (2009). *Statystyka dla psychologów i pedagogów* [Statistics for Psychologists and Educators]. PWN.
- Knors, H., Brons, M., & Marschark, M. (Eds.). (2019). *Deaf Education Beyond the Western World*. Oxford University Press.
- Kobosko, J. (2018). Tożsamość społeczno – kulturowa a samoocena osób głuchych z implantem ślimakowym, komunikujących się w języku polskim fonicznym – badania wstępne [The sociocultural identity of deaf persons with a cochlear

-
- implant using Polish phonic language and their self-esteem – a preliminary study]. *Edukacja*, 147(4), 125–135.
- Krakowiak, K., & Dziurda-Multan, A. (2006). „Nie głos ale słowo” ... *Przekraczanie barier w wychowaniu osób z uszkodzeniami słuchu* [“Not a Voice, but a Word” ... Overcoming Barriers in Educating People With Hearing Impairment]. Katolicki Uniwersytet Lubelski.
- Krause, A. (2011). *Współczesne paradygmaty pedagogiki specjalnej* [Contemporary Paradigms of Special Needs Education]. Impuls.
- Livingstone, S., Haddon, L., Görzig, A., & Ólafsson, K. (2011). *Risks and Safety on the Internet – The Perspective of European Children: Full Findings and Policy Implications From the EU Kids Online Survey of 9–16-Year-Olds and Their Parents in 25 Countries*. European Community Safer Internet Plus Programme. Report.
- Long, J., Attuguayefio, T., & Hudson, J. L. (2021). Factors Associated with Anxiety Symptoms in Australian Deaf or Hard-Of-Hearing Children. *The Journal of Deaf Studies and Deaf Education*, Vol. 26, 13–20. <https://doi.org/10.1093/deafed/enaa035>
- Majchrzak, P. (2010). Psychospołeczne skutki użytkowania Internetu. In N. Ogińska-Bulik (Ed.), *Meandry wykluczenia społecznego* [Social and Psychological Effects of Internet Use in the Concept of Social Exclusion]. WWSP & TWP.
- Makaruk, K., & Wójcik, S. (2013). *Nadużywanie Internetu przez młodzież: wyniki badania EU NETAD* [Internet Addictive Behaviour Among Adolescents: Results of EU NETAD Research]. *Dziecko Krzywdzone: teoria, badania, praktyka*. 12/1, 35–48.
- McDool, E., Powell, P., Roberts, J., & Taylor, K. (2020). The Internet and Children’s Psychological Wellbeing. *Journal of Health Economics*, 69(1), 308–325. <https://doi.org/10.1016/j.jhealeco.2019.102274>
- McKee, M., Schlehofer, D., & Thew, D. (2013). Ethical Issues in Conducting Research With Deaf Populations. *American Journal of Public Health*, 103(12), 2174–2178.
- Meaney, M. J. (2002). Environmental Regulation of the Development of Mesolimbic Dopamine Systems: A Neurobiological Mechanism for Vulnerability to Drug Abuse? *Psychoneuroendocrinology*, Vol. 27, 127–138.
- Mekonnen, M., Savolainen, H., Lehtomaki, E., & Kuorelahti, M. (2015). Socio-emotional Problems Experienced by Deaf and Hard-Of-Hearing Students in Ethiopia. *Journal Deafness & Education International*, 17(3), 155–162.

- Morbitzer, J. (2018). W poszukiwaniu nowych (meta)modeli edukacji w XXI wieku [In Search of New (Meta)Models of Education in the 21st Century]. *Studia Edukacyjne*, 50, 1–23.
- Movallali, G., Mousavi, Z., & Hakimi-Rad, E. (2018). Feeling of Loneliness in Deaf Adolescents: The Effect of an Online Life Skills Program. *European Journal of Social Sciences*, 12(1), 131–137.
- Padden, C. (2015). Communication. In B. Reiss, R. Adams, & D. Serlin (Eds.), *Keywords in Disability Studies*. NYU Press.
- Plutecka, K. (2015). Zmiany społeczne w polskiej surdopedagogice [Social Changes in Polish Superpedagogy]. *Niepełnosprawność i Rehabilitacja*, 15(2), 3–15.
- Podgórska-Jachnik, D. (2002). Zastosowanie planu „kwadratu łacińskiego” w badaniach ekperymentalnych w pedagogice specjalnej [The Use of Latin-Square Designs in Experimental Research in Special Education]. In J. Pańczyk (Ed.), *Forum Pedagogów Specjalnych XXI Wieku*, Vol. 2. Uniwersytet Łódzki.
- Podgórska-Jachnik, D. (2013). *Głusi, emancypacje* [The Deaf, Emancipations]. Uniwersytet Łódzki.
- Poprawa, R. (2012). Problematyczne używanie Internetu – symptomy i metoda diagnozy. Badania wśród dorastającej młodzieży [Problematic Internet Use – Symptoms And Diagnostic Method: A Study Among Teenagers]. *Psychologia Jakości Życia*, 11(1), 57–82.
- Ranaey, S., Reza Taghavi, M., & Ali Goodarzi, M. (2016). The Effect of Loneliness on Social Networking Site Use and Its Related Behaviors. *Global Journal of Health Science*, 8(8), 162–173. <https://doi: 10.5539/gjhs.v8n8p162>
- Schore, A. N. (1994). *Affect Regulation and the Origin of the Self*. Hillsdale.
- Snoddon, K. (2020). “It Seemed Like if You Chose Sign Language You Were Going To Be Punished”: A Narrative Case Study of Participant Experiences With Supporting a Deaf Child in Ontario Early Childhood Education and Care. *Deafness & Education International*, 22(4), 1–20. <https://doi.org/10.1080/14643154.2020.1840763>
- Stachyra, J. (2010). *Zdolności poznawcze i możliwości umysłowe uczniów z uszkodzonym słuchem* [Cognitive Abilities and Mental Capabilities of Hearing-Impaired Students]. Uniwersytet Marii Curie-Skłodowskiej.
- Teicher, M. H. (2000). Wounds That Time Will not Heal: The Neurobiology of Child Abuse. *Cerebrum: The Dana Forum on Brain Science*, 2(4).

-
- Wojnarowska, A. (2010). *Niepełnosprawność intelektualna w publicznym i prywatnym dyskursie* [Intellectual Disability in Public and Private Discourse]. Impuls.
- Wójcik, M. (2008). *Wybrane aspekty społecznego funkcjonowania młodzieży słyszczącej i niesłyszącej* [Selected Aspects of the Social Functioning of Hearing and Deaf Youth]. Impuls.
- Wójcik, S. (2017). Zagrożenia dzieci i młodzieży w Internecie [Threats for Children and Young People on the Internet]. *Dziecko Krzywdzone. Teoria. Badania. Praktyka*, 16(1), 271–288.
- Young, A., Green, L., & Rogers, K. D. (2008). Deaf Young People in the Net of Threats: Empirical Research. *Deafness & Education International*, 10(1), 40–55.