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Technology for inclusion: mobile apps in supporting people with disabilities and socially excluded groups

The ongoing social changes can contribute to the minimalization of negative phenomena, such as social exclusion, marginalization, discrimination, or stigmatization. Technological solutions supporting educational activities in the context of lifelong learning and social work and people at risk of social exclusion are increasingly becoming an area of analysis regarding their usefulness, quality, differentiation, and adaptation to environmental and local contexts. This paper focuses on analyses of mobile applications as a tool for supporting people at risk of social exclusion in the context of lifelong, informal learning. The authors describe the theoretical, social, and educational background of crucial aspects of social exclusion. The authors also present examples of selected mobile applications that are important and valuable in enhancing the lifelong education of people from groups at risk of social exclusion. The authors focus on indicating those essential solutions that can be perceived as tools that help strengthen the emotional and psychological aspects of everyday life of people from socially marginalized groups. The authors also present mobile apps that are important in the context of everyday support for people with disabilities. The paper also emphasizes the importance of applications for developing parental and social competencies of people from groups at risk of social exclusion.

Keywords: mobile applications, social exclusion, social support, lifelong learning, educational environment

Technologia włączająca: aplikacje mobilne we wspieraniu osób z niepełnosprawnością oraz osób z grup zagrożonych wykluczeniem społecznym

Zachodzące zmiany społeczne mogą przyczynić się do minimalizacji negatywnych zjawisk, takich jak wykluczenie społeczne, marginalizacja, dyskryminacja czy stygmatyzacja. Rozwiązania technologiczne wspierające działalność edukacyjną w kontekście uczenia się przez całe życie, pracy socjalnej oraz w kontekście funkcjonowania osób zagrożonych wykluczeniem społecznym coraz częściej stają się obszarem analiz pod kątem ich przydatności, jakości, zróżnicowania i dostosowania do kontekstów środowiskowych i lokalnych. W artykule skupiono się na analizach aplikacji mobilnych jako narzędzi wspierających osoby z niepełnosprawnościami oraz osoby zagrożone wykluczeniem społecznym w kontekście uczenia się nieformalnego przez całe życie. Autorzy opisują teoretyczne, społeczne i edukacyjne podłoże kluczowych aspektów wykluczenia społecznego. Przedstawiają także przykłady wybranych aplikacji mobilnych, które są istotne i wartościowe we wspieraniu edukacji ustawicznej osób z grup zagrożonych wykluczeniem społecznym i osób z niepełnosprawnościami. Tekst koncentruje się na wskazaniu tych istotnych rozwiązań, które można postrzegać jako narzędzia pomagające wzmocnić emocjonalne i psychologiczne aspekty życia codziennego osób z grup marginalizowanych społecznie. Podkreślono także znaczenie aplikacji dla rozwijania kompetencji rodzicielskich i społecznych osób z grup zagrożonych wykluczeniem społecznym.

Słowa kluczowe: aplikacje mobilne, wykluczenie społeczne, wsparcie społeczne, uczenie się przez całe życie, środowisko edukacyjne

Introduction

As modern technologies drastically change and shape modern education (both in formal and informal contexts) and social support systems, it is crucial to analyze whether these tools genuinely support social inclusion or reinforce existing divides and inequalities. This paper investigates whether and how mobile applications enhance accessibility, facilitate lifelong learning, and contribute to reducing the social exclusion of people with disabilities and other socially marginalized groups. This paper aims to present an example of valuable solutions a few mobile apps that promote the inclusion of those groups. The main research problem addressed in this paper is how mobile applications can support the social and educational inclusion of people with disabilities and other marginalized groups.

We place considerations regarding modern tools for supporting people at risk of social exclusion in the broad context of pedagogical ecology – as an essential research perspective of great practical significance. Pedagogical ecology is the study and research of the entire educational relations in the living environment of individuals. “Living environment” is both the “world experienced” by the individual, as processes and relations, and the objective “surroundings”, i.e., the living conditions of the individual (Krasoń, 2014, p. 80). The most significant

cognitive, analytical, and diagnostic element of practicing pedagogical ecology is obtaining knowledge about the processes and conditions of functioning in the environment for designing solutions and supporting tools that activate, enable, and strengthen development opportunities. Therefore, the educational environment understood in this classical way constitutes a theoretical framework for consideration of modern educational tools (and not only educational ones). The contemporary educational landscape is invariably created by environments that pedagogues call educational environments. Modern analysis within the educational environment and digital changes include such crucial areas as a sociocultural approach to learning based on modern technologies (Pachler, 2009). This research perspective shows explicitly that learning with the use of technology needs to include deep reflection on social structures, cultural norms, and the needs of socially marginalized groups (Pachler, 2009). Within the current perspective on educational environments, there is also profound debate on digital inclusion, equity, and empowerment and how to align with those ideas within formal and informal learning (Eden et al., 2024). This analysis also includes crucial social issues such as the digital divide (Tang et al., 2024). Debates about how to make new solutions valuable and interesting, for example, by incorporating elements of gamification, are also worth mentioning (Oliveira et al., 2024). Mobile applications are currently tools that organize and create social and individual reality. Referring to the literature on the subject and to the authors' own experiences, it is necessary to emphasize their enormous scope, possibilities and multitude of applications. This reality has quickly acquired a democratic character and a thoroughly egalitarian dimension. The aim of this text is to present the spectrum of modern tools in the form of mobile applications dedicated to socially excluded people and those at risk of social exclusion, as well as a critical analysis of the social nature of the digital transformation that we have been witnessing as researchers and users of the Internet for a dozen or so (dozens?) years. We based our paper on a theoretical review of mobile applications that contribute to the social inclusion of people with disabilities and other socially marginalized groups. The research follows a qualitative approach, synthesizing literature findings and mobile app analyses. The selection of mobile applications was based on their relevance to key themes within the central issue of social inclusion, such as accessibility, digital equity, gamification, and informal learning. The review draws upon pedagogical ecology and sociocultural perspectives on digital education, providing a conceptual analysis and empirical data collection. This approach allows for a comprehensive understanding of how mobile applications act as educational and social support tools within socially marginalized groups.

Social inclusion and exclusion within Information Society

In 2023, in the population of people aged 16–74, people with a limited level of general digital skills accounted for 6.4%. With a basic level of 24.3% and above-basic digital skills – 20.0%. 3.8% of the surveyed population showed no digital skills whatsoever. Currently, the ICT sector – Information and Communications Technology, which deals with the production and use of telecommunications and computer devices, and the accompanying services, is developing incredibly dynamically. Its potential is still growing, and its reach and influence cover every sphere of human life, both in the individual and social dimensions. This sector is also the subject of social research, including pedagogical research, in the field of educational potential, limitations, dangers, development opportunities, and structure in the vertical and horizontal dimensions. One of the areas of research in the recently popular area of social innovation is reflection on the importance of mobile applications for the daily functioning of socially excluded people.

The 1960s saw the beginnings of understanding exclusion in sociological and social categories. This was when the way of perceiving this phenomenon, previously understood in political and economic categories, began to change. This concept gained particular significance with the publication of René Lenoir's book *Les Exclus*. According to its content, the group of excluded people included all those, who in the 1970s in France, had no right to receive social benefits. These were disabled people, the elderly, children experiencing violence in their family homes, drug addicts, criminals, and single parents. This book is one of the first attempts to define exclusion. In the 1980s, this group was joined by school graduates who did not take up employment, and in the 1990s by immigrants. Over time, the concept of social exclusion, which has European roots, began to compete with the American concept of the lower class (Nalaskowski, 2007, p. 23). The preliminary analysis of the literature suggests that the issue of social exclusion is problematic from a research perspective. Both in terms of definitions and the formulation of explanations and generalizations, we are dealing with a multitude of theoretical approaches. It does not help that social exclusion as a research category is present in many scientific disciplines: sociology, anthropology, pedagogy, history, philosophy, economics, law, archaeology, and others. Generally speaking, it can be stated that the concept of social exclusion is synonymous with exclusion. It describes the effect of a specific social, political, economic, and cultural process. It can be associated with the terms deculturation, poverty, and externalization. Social exclusion is a literal translation of the words social exclusion and exclusion sociale – English and French terms that became the basis for Polish concepts. Interestingly, that the concept of social exclusion in Polish scientific literature

was used very sporadically until the end of the 20th century; it can be said that it was a niche concept. It became popular only after 2000, mainly during Poland's accession to the European Union (Nalaskowski, 2007, p. 21, 35). Defining the problem and addressing the issue of exclusion/marginalization is not the result of the emergence of areas of exclusion and the excluded or those at risk of social exclusion. It is obvious that if societies existed, their edges, margins and exclusion zones had to exist as well. After all, nothing significant has changed in the most basic mechanisms of collective life. The fact that exclusion is currently talked, and written about so much is the result of a change in the hierarchy of assessments and political priorities that jointly define the structure of problems that we generally consider to be the most significant (Nalaskowski, 2007, p. 21). Most studies on exclusion in Poland focus on:

- analysis and counteracting unemployment,
- analysis of poverty and income differentiation and social assistance programs,
- problems of people with disabilities,
- sources and prevention of homelessness, the situation of children (inheritance of exclusion),
- social rights for individual groups with particular emphasis on minorities (especially migrants),
- regional policy,
- post-penitentiary care (Czapiński & Panek, 2015, p. 397).

For the purposes of this paper, it can be assumed that socially excluded people are individuals or groups who, for various reasons, do not fully participate in the social, economic, cultural, or political life of society. Key areas and aspects of social exclusion, in the context of the issues discussed, are:

- economic social exclusion: unemployment, low income (poverty), lack of access to education,
- social exclusion: social isolation (sense of loneliness, lack of support), discrimination (based on age, gender, race, religion, sexual orientation, disability),
- political social exclusion: lack of representation, limited access to information (or inability to select and process it),
- cultural social exclusion: a language barrier, cultural issues,
- spatial social exclusion: physical spaces occupied by the excluded; districts, and areas,
- institutional social exclusion: exclusion from access to public services, including care services.

The focus on counteracting social exclusion should be the central axis of interest not only in the social policies of individual countries but, perhaps above all,

in the work of social researchers. Focus on the description of the phenomenon is a format that has already been exhausted. One of the more interesting areas of applied research and actual initiatives is the systematic and dynamic growth of the mobile applications sector, which aims to support the everyday functioning of socially excluded people and those at risk of social exclusion.

Mobile applications as a tool for informal education in the context of social exclusion

The ongoing social changes can contribute to the minimalization of negative phenomena, such as social exclusion, marginalization, discrimination, or stigmatization. However, they can also cause negative situations and reinforcement of phenomena that limit the opportunities for social, professional, educational, or cultural activity of people from groups at risk of social exclusion. Abtonio López Peláez, Sang-Mok Suh, and Sergei Zelenev (2023) emphasize that social inclusion and social exclusion are reproduced and accelerated within the online world (López Peláez et al., 2023). The COVID-19 pandemic has fast-tracked the digital transformation process in which individuals and groups are immersed, speeding up virtualization, online work and education, online culture consumption, and the emergence of new technologies (López Peláez et al., 2021).

The new generation of smartphones combines unlimited ways of communication and the availability of thousands of applications that affect how we live, as well as the relationship between society, culture, and technology. From a research and academic perspective this situation also means thinking about how mobile apps can and should be used for education, both in the context of formal and informal learning. Within the framework of educational activities, smartphones can be used in both individual learning support and in the form of group activities organized for children, adolescents, and adults. Mobile applications based on modern solutions can be particularly useful in working with people from groups at risk of social exclusion. This means, among other things, using such solutions in working with people with disabilities whose physical, motor, sensory, or cognitive difficulties may cause difficulties in using materials created in traditional form (books, text materials, written worksheets) (Alper, 2017). It also means using mobile apps for people who may be socially excluded because of their social issues connected with social maladjustment (Hur et al., 2018), adaptation difficulties due to being a migrant (Lindström & Hashemi, 2019), cognitive or linguistic difficulties such as dementia (Chelberg et al., 2022), or due to being a member of a minority group (Nollen et al., 2014). Modern technologies allow for greater individualization of activities through the ability to tailor content to the needs of a given person or

group of people, such as in terms of font size or visual elements, adding audio or voiceover reading content, or changing navigation options on a given website, platform or mobile app. Such solutions will be essential, for example, for people with visual or hearing disabilities or those with difficulty with hand dexterity.

Technological solutions supporting educational activities in the context of life-long learning, social work, and people at risk of social exclusion are increasingly becoming an area of analysis in terms of their usefulness, quality, differentiation, and adaptation to environmental and local contexts. Researchers emphasize that the implementation of modern technologies should be analyzed not only in terms of the use of gadgets, applications, and tools but also in terms of how the introduced solutions affect the shape of the relationship between those offering social support and individuals and groups who receive this institutional or informal support in a changed form – hybrid (combining traditional activities with online support) or entirely implemented through the Internet and modern solutions (Almaguer-Kalixto & Marcuello-Servós, 2023). Carmen Marcuello-Servós (2022) notes that digital society in computer-mediated communications implies intermingling four key aspects: users, software, hardware, and social, digital contexts. Concerning users, the research or educational analyses primarily focus on abilities, digital literacy, competence, and inclusion/exclusion through access. Hardware means basic technological infrastructure such as electrical supply, computers, and communication networks Marcuello-Servós (2022). Social and digital contexts are crucial as they mean different aspects and layers of symbolic and material exchange within the digital society. Our paper focuses mainly on the fourth aspect proposed by Marcuello-Servós (2022) of digital society, which is software – apps, programs, and tools. Such elements as mobile apps are immanently connected with other layers of digital society. When we analyze software, we need to consider the broader context of technology, which is hardware infrastructure. To effectively analyze software, we need to see it also in connection with users' abilities and competencies in order to be able to see a broad social and digital context of activities and tools provided for people who may be socially excluded.

Analysis of mobile applications in the context of informal learning by people at the risk of social exclusion

In the next part, we will present examples of selected mobile applications that are important and valuable in enhancing the lifelong education of people from groups at risk of social exclusion. We will focus on indicating those essential solutions that can be perceived as tools that are helpful in strengthening the emotional and psychological aspects of everyday life of people from socially marginalized groups.

We will also present mobile apps that are important in the context of everyday support for people with disabilities. We will also emphasize the importance of applications for the development of parental and social competencies of people from groups at risk of social exclusion. Social exclusion is a multidimensional process that includes educational, economic, social, cultural, organizational, and political barriers. In our paper, social exclusion is analyzed in the context of digital learning and accessibility, focusing on how mobile applications can serve as tools to counteract the educational and social marginalization of people with disabilities and other socially marginalized groups. This paper reviews and analyzes mobile applications that aim to address these barriers by offering valuable solutions for informal learning. We focused on mobile apps, which are characterized by inclusive elements such as properly implemented accessibility, gamification, and functions for communication and community-building options.

Thinking about the importance of modern technologies in the context of socially maladjusted children and adolescents is particularly relevant, as this group of people is at risk of social exclusion due to deficiencies in social and emotional functioning or difficulties in responding and behaving appropriately in complex social situations. Analyses indicate that the dynamic development of the Internet and uncontrolled access to it by young people may influence a greater tendency towards socially unacceptable behaviors. The content presented in television programs, advertisements, and on the Internet is very often characterized by aggressiveness, brutality, violence, vulgarity, or sex, causing young people to internalize such content as their attitudes and subsequently begin to put them into practice (Koch-Kozioł et al., 2018). In this regard, an essential task of educators is to point out to young people those solutions (e.g., mobile apps) that will be relevant in the context of strengthening positive social behavior, developing commitment, and preventing aggression or self-aggression. Also meaningful are those technological tools that will encourage socially maladjusted people to learn in terms of school knowledge and informal education. The mobile applications presented below can be proposed as valuable solutions useful in pedagogical practice.

In the context of the emotional development of socially maladjusted people, applications that allow monitoring of behavior, changes in behavior, and reactions, both to difficult and positive situations, can be valuable. In this context, the Journal of Feelings app [Dziennik Uczuć] can be useful, which, with the help of a simple structure, allows a person to record experiences, making it possible to analyze temporal changes in behavior or reactions in relation to contact with other people. Combined with psychological or emotional support implemented in a traditional form, this application can be an essential source of support for socially maladjusted people as a tool for identifying the causes of difficulties in the emotional or social areas of functioning. To develop communication in an

educational way, applications that are available on a virtual interface (chatbox) can be used. An example of such a mobile application is Simi Simi, which is based on an attractive form of communication between an animated character and a user. This app can also be an interesting solution introduced as part of a social training programs or sociotherapy in therapy, education, or social rehabilitation provided for socially maladjusted children. However, it can also be an attractive addition to social work practice or therapy for young people and adults who have problems understanding social communication and proper ways of reacting to different social situations. Applications in this form can be used as a tool for exercises for proper communication with others.

Non-formal educational mobile apps for people from socially excluded groups also include support provided to people with intellectual disabilities and autism spectrum disorders in the context of independence and psychological help (Ayres et al., 2013). Modern technologies can also be essential in facilitating daily functioning, acquiring knowledge, and developing interpersonal contacts, which will strengthen their social inclusion. In this context, applications focused on enabling the transfer of information to people with speech difficulties are of particular importance. An example of such an application is HearUs, which is based on reading aloud written text (Taneja et al., 2023). Due to its intuitive word prompting system, another mobile tool – the Parrot One app – allows users to create long speeches with just a few clicks efficiently. For visual impairment difficulties, apps such as Seeing Assistant Home or Seeing Assistant Move, which support the independence of people with visual dysfunctions due to the option of reading QR codes posted on, for example, furniture, home appliances, or devices, can be useful. A remarkable solution that can be used as a tool for preventing social exclusion is the BeMyEyes application, which, through a video call, volunteers provide people with visual dysfunctions or disabilities explanations to solve problems that they may encounter during regular everyday tasks. Mobile apps that include communication between people from different social groups are vital tools in the context of ensuring increased social awareness of the needs of people who are discriminated, or marginalized (Dockery & Krzystolik, 2020). An interesting solution that can play an essential role in informal education and support for families of people with disabilities is the E-vademecum application of a person with disabilities [E-wademecum osoby z niepełnosprawnością]. This app is also practical and serves as a guidebook containing helpful information ranging from discounts and benefits to which a person with disabilities is entitled in Poland. This app also enables collecting all relevant contacts in one place.

Informal education in the context of modern technologies also involves using mobile tools to teach skills related to parenting. Such solutions can be particularly valuable for people with intellectual disabilities who are parents or for people who,

due to the lack of positive family models, have not had the opportunity to gain knowledge about proper child care, upbringing, and taking care of the basic biological, emotional, and psychological needs of children under their care. For this purpose, mobile applications are also being created that are aimed at strengthening people from groups at risk of social exclusion. Providing information about parenthood adjusted to the needs of specific groups of people via smartphone app has the potential to make psychosocial support more engaging, more efficient, and less expensive while reaching people who might otherwise not be able to participate in traditional forms of informal education (Lee & Walsh, 2015). An example of such tools is mDad mobile app that focuses on helping fathers understand their role as parents of young children in the context of providing emotional and psychological support. This app uses an approach based on proper targeting by using humor and non-clinical language, presenting topics important to fathers, and providing a parenting resources list. The language used in mDad is crucial as messages are positively framed and underscore the importance of fathers (Lee & Walsh, 2015). More and more parenting and childcare mobile apps are on the market, which can be successfully used to strengthen the parenting skills of people from socially marginalized groups. Such applications include, e.g. Baby+, Baby Manager, Baby Monitor & Alarm. The range of apps of value to parents also includes apps that teach planning, organizing the day, and keeping the house in order. This can include, among others, Clean Up, Kids! or DoYourPromise. In addition, mobile apps such as PlaceFlare or FamCal can be helpful in organizing activities for the whole family. The importance of such solutions in the context of supporting people from backgrounds at risk of social exclusion due to difficulties in the social, emotional, educational, or cognitive spheres is highlighted by researchers as a tool to support and counteract social exclusion (David et al., 2023; Virani et al., 2021).

Discussion

While pointing out the positive aspects of using modern technologies to support the educational activities of people from groups at risk of social exclusion, researchers cannot ignore the issues that raise doubts or are essential in terms of critical analyses of modern technologies as activities supporting systemic activities of educational and aid organizations (Alshayban et al., 2020). It is essential to pay attention to the availability of mobile applications. Not all solutions will be free of charge, which will be a significant limitation for people with financial difficulties. Some free applications only offer part of the functionality, and access to the entire offer of a given service requires additional costs. This will involve discontinuing the use of a given service by people for whom this expense is too

high. Using free tools may involve the need to watch advertisements inserted by the application's creators. This may cause sensory difficulties, e.g., for people with autism or ADHD, because these ads are often loud and based on flashing visual elements. This may also be a difficulty related to the regular use of a given application. In addition, language difficulties related to the fact that some applications are only available in English will also cause a situation in which some people will not be willing to use them or will not have the needed language skills. In addition, applications are not always adapted to the language capabilities of people with difficulties in the cognitive sphere because they are based on overly complicated sentences or specialist terminology. Adapting applications to the needs of people from different social groups is crucial in the context of analyzing the created mobile applications. This requires appropriate consideration of the visual and linguistic layer of the developed applications, as well as their price availability and clear, precise instructions for using these tools. There are still difficulties in this area that affect people from different groups. As Súilleabháin noted: "It could be argued that public-sector social services focus their resources on frontline service delivery and do not routinely have the financial capacity and advanced technical support systems to enable the creation of bespoke, tailored apps and social media resources [...]" (2023, p. 244).

Another aspect that should be mentioned is the technical skills in the field of computer equipment operation. These skills are not evident and natural for everyone. It is not only about the ability to operate the application itself but also the Internet, mobile and stationary devices. Accessibility issues also include access to the network and fast Internet. There are regions in Poland where access to fast Internet is a luxury good (villages, some regions, suburbs). A crucial aspect of the discussion is also the issue of Internet addiction, which is a severe social problem. Excessive use of electronic devices has many negative consequences. It disrupts relationships with the real world and can lead to mood disorders, depression, and problems with self-esteem. It also has a destructive effect on hormonal balance, and relationships in the family and in social groups (peers, friends). Addiction to electronic devices also means many somatic problems. Excessive exposure to emotional stressors can cause chronically elevated cortisol levels and elevated blood pressure. This is a direct path to obesity, diabetes, dementia, stroke, or heart attack. These are threats that should not be underestimated.

Conclusion

The arrival of digital devices – the Internet, technology, smart devices, social media platforms, and mobile apps – shows that children, teenagers, and adults engage in a social world outside their microsystems. This means the need to take a number of supportive actions, both in the context of individual and group support. Modern technological solutions may be a key element of systemic support for people from marginalized, excluded, stigmatized groups. Mobile applications introduced thoughtfully and adapted to the needs and capabilities of specific people may become an essential source of knowledge for people with disabilities, socially maladjusted people, and people with adaptation difficulties resulting from, for example, a change of place of living (migrants). Applications can play an essential educational role due to providing knowledge and information on critical topics related to everyday life. Applications can support the field of communication, creating social networks, and developing professional and educational skills or competencies in the field of parenting or childcare. Educators, organizations, and social workers must be aware of the “complexity of online life” (Hansen et al., 2017) to understand the potential opportunities and risks of using mobile apps to support socially excluded people. Skills in life-long learning and social work practice are also necessary as a means of communication between people providing and receiving support. This extends beyond the mechanics of using mobile apps to acquiring communication strategies for building and maintaining a community of people from different social groups. Only a complex, properly planned approach to using technologies (such as mobile apps) creates a space for informal education for people from socially excluded groups.

Mobile applications are a modern and essential tools in the process of supporting people at risk of social exclusion. This support can be implemented in many fields and may concern many areas. Through the lens of pedagogical ecology, mobile applications should not be analyzed only as tools supporting education but as a symbol of current trends within pedagogical ecology, which focuses on analyzing how different innovative solutions align with social, cultural, and technological changes. The mobile apps’ ability to boost informal and lifelong learning aligns with contemporary ecological perspectives, which highlight the variety of interconnections between learners and their environments. In this study, we reviewed the possibilities referring to areas widely represented in the Polish socially excluded population and at risk of exclusion. However, the list is open. Thanks to the universal access to smartphones and the variety of functions offered by modern technologies, these applications can act as a bridge between individuals and social support systems/entities/organizations. They can be used to support

communication, the process of independence, growing into society, and supporting recovery. They support the development of skills, increase access to information, and facilitate everyday functioning in a world from which it is easy to “fall out” and find yourself on its margins. However, the effectiveness of the described support possibilities through the use of applications depends on their appropriate design, which takes into account the specific needs of users and the barriers they may encounter. It is also crucial to ensure ease of use, linguistic and cultural accessibility, and cooperation with institutions interested in including this form in their routine and everyday life. In summary, mobile technologies can really contribute to reducing social inequalities and support people at risk of marginalization. However, their effectiveness requires broad support from both application developers and the education system. Promoting inclusive forms of using digital technologies is only the beginning of a path that requires cooperation between pedagogical and political environments and representatives of individual public and social institutions. This is an element of the present and the future, and the direction of its development determines whether its potential will build an egalitarian or elitist society.

References

- Almaguer-Kalixto P.E., & Marcuello-Servós C. (2023). Sociocybernetics for Digital Social Work: A Second Order Approach. In: A. López Peláez & G. Kirwan (eds.), *The Routledge International Handbook of Digital Social Work* (pp. 81–93). Abingdon: Routledge. <https://doi.org/10.4324/9781003048459-10>
- Alper M. (2017). *Giving voice: Mobile communication, disability, and inequality*. Cambridge: MIT Press.
- Alshayban A., Ahmed I., & Malek S. (2020). Accessibility issues in android apps: state of affairs, sentiments, and ways forward. In: *Proceedings of the ACM/IEEE 42nd International Conference on Software Engineering* (pp. 1323–1334). <https://doi.org/10.1145/3377811.3380392>
- Ayres K.M., Mechling L., & Sansosti F.J. (2013). The use of mobile technologies to assist with life skills/independence of students with moderate/severe intellectual disability and/or autism spectrum disorders: Considerations for the future of school psychology. *Psychology in the Schools*, 50(3), 259–271. <https://doi.org/10.1002/pits.21673>
- Chelberg G.R., Neuhaus M., Mothershaw A. et al. (2022). Mobile apps for dementia awareness, support, and prevention—review and evaluation. *Disability and Rehabilitation*, 44(17), 4909–4920. <https://doi.org/10.1080/09638288.2021.1914755>
- Czapiński J., & Panek T. (2015). *Diagnoza społeczna 2015: warunki i jakość życia Polaków*. Warszawa: Rada Monitoringu Społecznego.

- David O.A., Iuga I.A., & Miron I.S. (2023). Parenting: There is an app for that. A systematic review of parenting interventions apps. *Children and Youth Services Review*, 107385. <https://doi.org/10.1016/j.chilyouth.2023.107385>
- Dockery D.M., & Krzystolik, M.G. (2020). The use of mobile applications as low-vision aids: a pilot study. *Rhode Island Medical Journal*, 103(8), 69–72.
- Eden C.A., Chisom O.N., & Adeniyi I.S. (2024). Promoting digital literacy and social equity in education: lessons from successful initiatives. *International Journal of Management & Entrepreneurship Research*, 6(3), 687–696. <https://doi.org/10.51594/ijmer.v6i3.880>
- Hansen H., Björktomt S., & Svalastog A. (2017). Digital society generates new challenges on Child Welfare Services. *Croatian Medical Journal*, 58, 80–83. <https://doi.org/10.3325/cmj.2017.58.90>
- Hur J.W., Kim B., Park D. et al. (2018). A scenario-based cognitive behavioral therapy mobile app to reduce dysfunctional beliefs in individuals with depression: a randomized controlled trial. *Telemedicine and e-Health*, 24(9), 710–716. <https://doi.org/10.1089/tmj.2017.0214>
- Koch-Koziół M., Reiter M., & Uram P. (2018). Niedostosowanie społeczne – przegląd wybranych interwencji resocjalizacyjnych. *Probacja*, 3, 51–74.
- Krasoń K. (ed.) (2014). *Zbigniew Kwieciński. Doctor Honoris Causa Universitatis Silesiensis*. Katowice: Uniwersytet Śląski.
- Lee S.J., & Walsh T.B. (2015). Using technology in social work practice: The mDad (Mobile Device Assisted Dad) case study. *Advances in Social Work*, 16(1), 107–124. <https://doi.org/10.3390/info12090377>
- Lindström N.B., & Hashemi S.S. (2019). Mobile Technology for Social Inclusion of Migrants in the Age of Globalization: A Case Study of Newly Arrived Healthcare Professionals in Sweden. *International Journal of Technology, Knowledge and Society*, 15(2), 1–18. <https://doi.org/10.18848/1832-3669/CGP/v15i02/1-18>
- López Peláez A., Erro-Garcés A., Pinilla García F.J. et al. (2021). Working in the 21st century. The coronavirus crisis: A driver of digitalisation, teleworking, and innovation, with unintended social consequences. *Information*, 12(9), 377. <https://doi.org/10.3390/info12090377>
- López Peláez A., Suh S.M., & Zelenev S. (eds.) (2023). *Digital Transformation and Social Well-Being. Promoting an Inclusive Society*. London: Routledge.
- Marcuello-Servós C. (2022). Social welfare and inclusion in digital societies: Surveillance, data capitalism and COVID-19. In: *Digital transformation and social well-being* (pp. 23–36). London: Routledge. <https://doi.org/10.4324/9781003312208-3>
- Nalaskowski F. (2007). *Ubóstwo a wykluczenie z kultury jako problem dla edukacji*. Olsztyn: Wydawnictwo Uczelniane Wyższej Szkoły Informatyki i Ekonomii TWP.
- Nollen N.L., Mayo M.S., Carlson S.E. et al. (2014). Mobile technology for obesity prevention: a randomized pilot study in racial-and ethnic-minority girls. *American Journal of Preventive Medicine*, 46(4), 404–408. <https://doi.org/10.1016/j.amepre.2013.12.011>
- Oliveira M., Abelha A., Sousa R. et al. (2024). Gamification in mobile applications: techniques, benefits and challenges. *Procedia Computer Science*, 251, 678–683. <https://doi.org/10.1016/j.procs.2024.11.168>

- Pachler N. (2009). The socio-cultural ecological approach to mobile learning: an overview. In: B. Bachmair (ed.), *Medienbildung in neuen Kulturräumen: die deutschsprachige Diskussion* (pp. 153–167). Wiesbaden: VS Verlag für Sozialwissenschaften.
- Súilleabháin F.Ó. (2023). Technology and Children. A Role for Social Work? In: A. López Peláez, & G. Kirwan (eds.), *The Routledge International Handbook of Digital Social Work* (pp. 240–250). London: Routledge.
- Taneja S., Suri B., Thakur N. et al. (2023). HearUs: A Cognitive Assistive Tool for People With Visual Impairment. In: *AI-Assisted Special Education for Students With Exceptional Needs* (pp. 222–240). IGI Global. <https://doi.org/10.4018/979-8-3693-0378-8.ch010>
- Tang Q., Kamarudin S., Rahman S. et al. (2024). Bridging Gaps in Online Learning: A Systematic Literature Review on the Digital Divide. *Journal of Education and Learning*, 14(1), 161–176. <https://doi.org/10.5539/jel.v14n1p161>
- Virani A., Duffett-Leger L., & Letourneau N. (2021). Parents' use of mobile applications in the first year of parenthood: a narrative review of the literature. *Health Technology*, 5. <https://doi.org/10.21037/ht-20-28>