



Tablets for inclusive teaching and learning in a mainstream setting – a need analysis

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Abstract:

The article presents the results of international research on the use of mobile technologies as a support in the process of educating students with special educational needs. A team of researchers from five European countries conducted a survey among teachers using tablets while working with students with disabilities. Answers from the respondents reveal the image of educators who seek on their own, without any systemic support, opportunities to strengthen the educational opportunities of their pupils. The research results indicate that systemic organizational, methodical and financial solutions should be developed to facilitate the introduction of mobile devices for special and inclusive education.

1. Introduction

The universal nature of mobile technology makes them an important tool to support people with special educational needs. Intuitive handling, small size and easy to carry from place to place are features that make tablets and smartphones a very important tool to support those in the process of communicating with the world, learning, working, playing. Mobile technologies are particularly important in the process of social integration, offering people with disabilities unique possibilities by such accessibility features like VoiceOver, zoom (text enlargement to any size), assistive touch, video descriptions, an intelligent personal assistant (Siri), hearing aids and sound processors, invert colors, and many more features to facilitate the organization of daily life.

Breaking down environmental barriers, making it difficult or impossible for people with disabilities to participate in society, has become one of the priority activities related to their rehabilitation. A very important step in this direction was the creation of a new ICF classification by WHO at the beginning of the 21st century (International Classification of Functioning, Disability and Health). This classification complements the medical approach to disability that represented the WHO definition of 1980, with a social aspect. It uses the term “disability” to emphasize “the multidimensional phenomenon resulting from interactions between people and their physical and social surroundings. Disability is not perceived as a phenomenon of categorizing people,



but as a universal human experience, which makes it possible to see that people with disabilities are not a minority group. Disability is understood here not only as a result of injury, but rather as a result of the barrier that a person encounters in the environment (Wapiennik, Piotrowicz 2003: 23). New technologies support the process of removing these barriers, both in the role of prostheses for the functions performed by damaged organs, as well as didactic aids which support the equalisation of chances of students and their proper social functioning. Satisfying social functioning is the right of every individual and the goal which they seek with the support of carers and teachers. As Brown, Nietupski, & Hamre-Nietupski write, the quality of this satisfying human presence in society is influenced by „an ever changing, expanding, localized, and personalized cluster of factors that each person must possess in order to function as productively and independently as possible in socially, vocationally, and domestically integrated adult community environments” (Brown, Nietupski, & Hamre-Nietupski, as cited in: Ayres, Mechling, Sansosti 2008: 260). Mobile technologies enable eliminating or limiting many deficits around these factors. The enormous possibilities of mobile technologies in supporting the social functioning of people with disabilities make the role of technologies in therapy and support of these people continue to grow.

Extremely dynamic development of digital technologies, especially mobile technologies, in recent years, however, puts both researchers and practitioners of special and inclusive education in a difficult situation. On the one hand, they can see the potential of using completely new tools at work with students with special educational needs, which offers large, previously unavailable opportunities, but on the other hand – due to the rapid development of ICT – these technologies are not and cannot be thoroughly researched in terms of physical, psychological, social and cognitive consequences of their application. This fact raises distrust of mobile tools on the part of some practitioners and researchers. Combined with the cost of equipment, this means that mobile technologies, despite their huge potential, are used to a relatively small extent in schools at work with students with various types of special educational needs.

However, as ICT in education researchers point out, while considering the introduction of inaccurately tested solutions to the education process, one should remember that „in the absence of conclusive data, educational decisions ought to be based on assumptions which, if incorrect, will have the least dangerous effect on the likelihood that students will be able to function independently as adults” (Ayres, Mechling, Sansosti 2008: 261). In other words, every opportunity should be taken to optimize the student’s chances for proper social functioning in the future, even in a situation of (limited) research uncertainty. The effect of this uncertainty, however, is the situation in which there is no comprehensive model for incorporating these technologies into inclusive and special education, which makes interested teachers, often passionate, look for solutions – not just methodically but often financially – on their own.

This is a general situation, also in countries where the economic factor does not play a significant role. For example, Ayres, Mechling, and Sansosti write about the situation of teachers in the USA, who receive little support here (Ayres, Mechling, Sansosti 2008). Douglass, Wojcik & Thompson (2012: 59-70). They emphasize that the relatively low costs of mobile technology in comparison to other assistive technologies make these devices a very valuable resource, but in case of a difficult economic situation the costs may constitute a barrier for people with disabilities.

The value of mobile devices and applications in the process of supporting the development and social functioning of pupils with special educational needs results both from their availability and the diversity of the offer. The classic division of educational applications into creative and content apps in the case of special and inclusive education is complemented by yet another, extremely important division – into apps/instructional technologies which shape skills and assistant apps. Importantly, here in both cases, it is also possible to use apps not dedicated to special education, but used as such by a teacher who knows how to use digital tools efficiently. The provision, which was included in the American IDEA Act (Individuals with Disabilities Education Improvement Act, 2004), aimed at guaranteeing students with disabilities access to public, free and individualized education at the highest level defines assistive technologies as „any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities” (IDEA 2004, Part B, Section 612, [1]). Assistive technologies usually play a supporting role permanently which helps minimalise the symptoms of disability and reduce deficits. Such is the role of, communication software for people who have difficulty speaking (Rozmik, SmallTalk Aphasia) or advanced applications for the blind, processing a picture from a smartphone camera into voice information



(Seeing AI). In the case of instructional technologies, often designed for rehabilitation, the task is to support the user in acquiring new skills or restoring the old ones, lost as a result of illness or accident (eg Social Stories for people with autism spectrum disorders, Afast for speech training).

Technology, even the most modern technology, remains only and exclusively a tool that can be used in a variety of ways, depending on the needs and – which is very important – user's competence (Kopciwicz, Bougsiaa 2017). The power of technical means is therefore derived not from what they are, but from how they are used. The competently applied technology will not be a special and inclusive panacea for all problems, but its skillful use can increase many areas of student independence. The lack of ICT teachers' competences will result – at best – in not exploiting the tool's potential, and at worst – in the fact that the use of technology may prove to be counterproductive, making it difficult for the student to achieve the planned and otherwise available goals. Therefore, the systemic solutions are needed not only in the area of financial support, but also in methodological and technical training addressed to teachers working with students with special educational needs.

2. Description of the research and characteristics of the studied group

As part of the international MICOOL project (Mobile Intercultural Cooperative Learning), a team consisting of Polish researchers (The Maria Grzegorzewska University), Irish (Dublin City University, infocus Training Ltd) German (Staatliches Schulamt Lörrach) and Portuguese (Agrupamento de Escolas de Figueiró dos Vinhos) conducted research among teachers using tablets in working with students with special educational needs (with different types of disability). The aim of the study was to recognize the scope of application of mobile technologies by teachers of special and inclusive education and their opinion on the usefulness of these technologies as support in the process of education and rehabilitation. The problems that were analyzed in particular were questions about strategies adopted both by schools and by teachers in introducing mobile technologies to work with students with special needs, the reasons for difficulties in introducing mobile technologies to special education, as well as reasons for reaching teachers for these devices despite significant problems with their acquisition.

The method used in the study was a diagnostic survey. The choice of such method, despite the probability of the small size of the sample was made to take the advantage of determining the content of the questions precisely and obtaining the corresponding translation results of the tool (questionnaire). This was extremely important in this international research, where respondents from several different countries were surveyed. The resulting questionnaire took into consideration the cultural and linguistic differences as well as the diversity of systemic solutions in the countries studied.

The questionnaire, taking into account cultural differences and diversity of system solutions in the studied countries, was originally prepared in Polish, translated into English, and then, in order to verify the accuracy of the translation, again translated into Polish. After obtaining the uniform content of the questionnaires, the English version was submitted for translation to the other countries. The research was conducted in the period from March to June 2017 among teachers from Poland, Germany, Ireland and Portugal. The choice of the group was purposeful, the questionnaire was sent via the Internet only to teachers who use tablets with students with various types of disabilities.

For the purposes of the study, 48 respondents from the above four countries were able to take part in the survey. The largest group which participated in the survey comprised the respondents from Poland (25 persons) and from Germany (14 persons). A number of teachers also completed surveys in Ireland and Portugal. Reaching teachers representing the desired group was extremely difficult due to the lack of systemic solutions in the field of technological support for inclusive and special education in each of the countries studied. Teachers who decide to introduce mobile technologies as an element of work with a student with special educational needs, independently look for sources of knowledge, and often also financial resources for equipping their institution. In most cases, the respondents represent a small number of people in the country, enthusiasts of new technologies, devotedly and enthusiastically seeking optimal solutions to support the development of their students. The vast majority of respondents were women (40 out of 48 people surveyed). All respondents graduated from university, 80% of the group had a master's degree, one person indicated that he had the title of professor, two completed post-graduate studies. The majority of respondents were in the age range of 30-39 (16 people) and 40-49 (18 people). 10 people – 50-59, and three – 59+. One respondent did not turn 29. Most of the respondents were



a group of experienced educators. Only two respondents declared that they worked in the teaching profession for less than 10 years. The largest group – 8 people – taught at school for 10-14 years, and five had more than 25 years of experience (all from Germany). A total of 40 respondents indicated that they worked in inclusive education settings where students with special needs were accommodated in mainstream classrooms. Respondents declaring work in special institutions came from Poland and Germany (5 and 3 people respectively).

3. Digital tools used when working with students with disabilities

Respondents were asked to indicate how often and which digital tools they use when working with students. Among the mentioned devices, the most popular were laptops (41/48 respondents), tablets (35/48) and interactive whiteboards (29/48), both in terms of frequency of device selection and time of use. Smartphones (18/48), video and digital cameras (26/48), as well as specialist assistive technologies (22/48) were less frequently mentioned.

The declared time and frequency of use of most devices by teachers from individual countries are similar. Poles more often than other respondents use an audio player. Only 2/25 of the respondents in this group do not use the CD player, the rest use up to 5 hours a week (17 people) or more. By comparison – out of 22 respondents from other countries (one of the respondents omitted this part of the survey) as many as 13 declared that they did not use such devices. Such a significant difference may be the result of differences in school equipment in Poland and Western Europe. Audio players, mainly CDs, were relatively cheap and useful equipment, present everywhere in Polish classrooms. Teaching material, collected by teachers on CDs, is still used by them, and the constantly underinvested education does not create many opportunities for replacement of equipment or change of technology which still fulfills its basic function. On the other hand, German respondents, being a group of respondents with the highest average age, do not, in fact, use smartphones at work with students with SEN (only one respondent per 14 – age group: below 40) – says that he uses a smartphone during classes, up to 5 hours per week). By comparison, among the other 27 study participants, 15 people use smartphones during lessons (of which 1/3 over 5 hours per week). For only one respondent (from Poland), a smartphone is a replacement device for a lesson tablet that he does not have. Other smartphone users are also active and very active users of tablets, which may surprise, given that both devices perform similar functions and work on the same applications. Smartphones are probably useful during classes outside the school building, where there is no access to the wi-fi network – the majority of school tablets are not equipped with SIM cards, which would generate additional costs, so access to the Internet is obtained only through the school router. This is the case in all countries studied.

It is worth emphasizing that the vast majority of Polish teachers surveyed use video and digital cameras (19/25) in their work. They do so more willingly than respondents from other countries, which can be a sign of great creativity and commitment of respondents from Poland, trying to make the lessons more attractive, but also taking full advantage of the potential of audiovisual media. On the other hand, the lower interest of teachers from Germany, Ireland and Portugal in photography and film equipment may paradoxically result from the more modern and polyvalent equipment of their institutions. Everything you need to take pictures or assemble a movie with is in a tablet equipped with high-quality applications, simpler to use for people with physical or intellectual disabilities than in a traditional video camera. Schools that bought equipment a few or a dozen or so years ago, however, have it until today, so – in the absence of funds to purchase modern mobile electronic devices – it is used by teachers and students.

The surveyed teachers, although they reach for various technological devices in the didactic process, use them with moderation. The answer most often chosen by the respondents is “up to 5 hours a week”, a considerably smaller group uses them longer, and only a few respondents chose the answers meaning more than 10 hours. This means that the surveyed teachers, even if they were the greatest enthusiasts of digitization of education, treat digital devices with a reasonable distance, as one of many in the repertoire of didactic resources, which should each time be chosen to the intended goal.

In the further part of the research, teachers were asked about these goals – areas of education and upbringing, in which mobile technologies can be a significant support in working with a student with SEN (Galanciak, Weiss, Siwicki 2018), but also about mobile devices owned by the institutions and the difficulties faced by schools deciding to introduce such devices.

4. Strategies for using tablets at work with students with disabilities

The opinion of the respondents confirmed the lack of a uniform system of introducing mobile technologies into schools. In answer to the question about the number of tablets that teachers have at their disposal, a large variety of answers have been obtained. Not only every country, but every school, by a process of trial and error, or due to certain financial possibilities (or lack of them), chooses a different model of tablet sharing. Among the answers given by teachers were, among others: “2 sets of 10 tablets – borrowed for lessons after signing up” (Teacher 1, Poland), “At school there is access to several, a dozen or so tablets – you can rent them. For my class team with 5 people I have one tablet permanently” (Teacher 2, Poland), “Two sets of 25 tablets” (Teacher 3, Poland), “several tablets” (Teacher 1, Germany), “we have some old tablets” (Teacher 2, Germany).

Among the applications most commonly used by students, respondents indicated, among others, applications supporting physical, emotional and social development, related to digital literacy, performance sharing (communicators), and group work. So there is a huge variety of uses for mobile technology in working with students with special educational needs. It is worth noting that teachers differentiate methods of working with students. Mobile technologies of particular types are used by them most often up to 5 hours per week or – less often – up to 10 hours per week (ie on average 1-2 hours per day). Single teachers use applications of various types more often.

Table 1. Supporting applications with accessibility features – frequency of use (in Poland)

	Apps for Physical and Motor Skill Development	Apps for Social and Emotional Development	Apps for Numeracy Development	Apps for Communication, Language and Literacy	Apps for developing digital media literacy & presentations	Apps for Teamwork and Collaboration	Apps for Gaming and Gamification	Apps for Social Media (e.g. Facebook, Twitter) to share student work and facilitate collaboration
0 hrs/week never	11	10	11	4	5	6	8	9
1-5 hrs/week	12	11	12	11	14	12	12	13
6-10 hrs/week	1	3	0	8	3	3	2	0
11-20 hrs/week.	1	0	0	1	1	2	1	1
21 + hrs/week	0	0	1	0	0	0	0	0

Source: MICOOL survey research instrument

The knowledge of a large number of applications supporting the individual needs of students with disabilities demonstrated by teachers is worth noticing. Respondents were asked to name the programs they use the most. In the case of applications supporting the development of people with autism spectrum, universal applications supporting speech development were indicated as the most useful (LetMe Talk, Polish apps – Speech and Gadaczek, GoTalk Now) and dedicated to students with autism spectrum disorders (Autimo, in Poland mainly DrOmnibus educational applications). In the case of hearing impairments, the most frequently mentioned are TapSpeak, but also the universal, knowledge-checking Quizlet.

Teachers working with students with visual impairments named tools allowing for font enlargement and voice processing of the text. Apps which support students with emotional disorders (Finger Face, Autimo – Discover emotions, Touch emotions, Emotions, feelings and colors) are also very popular among teachers, as well as applications supporting the student’s overall development and their ability to organize everyday life (Training Faces, Find Me, My House). However, the largest group of applications indicated by teachers are those that they think are useful in working with students with intellectual disabilities and with various learning disorders. What is important, the vast majority of them are universal tools, not created for the needs of special education. According to the respondents, these apps also prove useful to students with SEN.



The presence of applications such as My Mosaic, Explain Everything, Post-it, Kahoot, Gravity, Kaleido, Scratch Harry, GlowDraw, Dobble, SpeedyFingers, TimeTelling, Scratch Junior, Math Kid, Popplet, Padlet, Duolingo in the special education teacher tool catalogue confirms the observation by Emmy Bond, who claims that technologies are often used to support people with disabilities in an unexpected and innovative way, not predicted by their creators or sellers (Bond 2014: 180). A creative teacher can use every available tool to support the development of his students – they do not have to be tools dedicated to special education. What’s more, especially in integrated education, it is extremely important that all students are able to use the solutions offered in lessons. Many applications used by teachers meet this condition, allowing blurring the boundaries between students’ skills. As Ayres, Mechling and Sansosti (2013: 260) rightly state, „Broadly, technology is no different from any other tool. The power comes not from what it is, but rather how it is used. Technology cannot help with everything, but skilled application of technology can increase many areas of independence [for students with special needs – SG et al.]”.

5. Teachers’ ICT competencies – in the opinion of respondents

Teachers themselves assess their ICT competences as fine and, similarly, their ability to use ICT potential in school didactics. As mentioned earlier, this is probably due to the fact that the introduction of mobile technologies for special and inclusive education was primarily inspired by ICT enthusiasts who care about their own professional development and broaden their knowledge on their own. There are also those, however, who would be eager to receive some support in the field.

Table 2. Teachers’ assessment of their own ICT competence level necessary to use digital devices during lessons (scale 1-6)

Country	1	2	3	4	5	6
Poland (N=25)	2	2	3	5	6	7
Germany (N=14)	1	2	3	2	2	4
Portugal (N=5)	-	-	1	2	2	-
Ireland (N=4)	-	-	-	-	2	2

1 – no ICT competence

6 – high level of ICT competence

Source: MICOOL survey research instrument

A confirmation of the above thesis may be the fact that contrary to expectations, the oldest teachers do not declare lower competences in ICT than their younger colleagues, who would be at home in the world of new technologies. This applies both to the skills needed to use mobile technologies and applications in every educational context, as well as those that allow to use their potential in working with students with special educational needs.

Table 3. The age of respondents and the assessment of their own skills in the field of ICT, allowing the use of digital technologies in every educational context (scale 1-6)

Age	1	2	3	4	5	6
25-29 (N=1)	-	-	1	-	-	-
30-39 (N=15)	1	2	4	1	3	4
40-49 (N=18)	2	1	4	4	3	4
50-59 (N=10)	-	-	4	1	3	2
60+ (N=3)	-	-	1	1	-	1

1 – no ICT competence

6 – high level of ICT competence

Source: MICOOL survey research instrument



The distribution of answers in all age groups is quite similar. Approximately half of respondents feel good and very good in the world of new technologies, although for the first three age groups, a high percentage of people feeling less confident in it may be surprising. It would seem that the most active groups on the labor market and in the social space should feel at home in digital reality. The distribution of answers presented above may suggest a worrying conclusion that in the pedagogues' environment (even those interested in ICT in education) the sense of having digital competences is too low, which may be the result of insufficient emphasis on this issue in the process of acquiring professional competences. Teachers – digitally self-taught – do not feel confident in the reality they have to grasp on their own. Although they declare that they manage without techno-pedagogical support, the reality seems different.

The average of grades in groups of 30- and 40-year-olds is very similar to each other (respectively 3.9 and 3.8), which in case of the younger ones may also be a bit surprising. The generation of thirty-year-olds (the so-called Y generation) – it might seem – is already, at least partially, a generation of digital natives, while their self-esteem in the study does not differ much from the opinion of their older colleagues. Both groups, however, clearly differ in the percentage of indications from the middle of the scale – in the case of thirty-year-olds, which is significant, they hardly appear: respondents either feel great or very bad in the world of digital technologies. Perhaps this state corresponds with the scale of their activity in the use of digital media also for private use, but such a thesis would require further research.

One can be surprised by the high degree of certainty that the oldest respondents declare in using ICT, mostly (and in the case of the 60+ group in total) coming from Germany. Only one person from this group (a Polish respondent) assessed his level of digital competence as very low. This condition may be influenced by many interrelated factors, such as more and more effective social and digital activation programs, the need to stay in the labor market for a long time, forcing older teachers to further education in many areas, willingness to keep up with students who are settled in digital reality, and fascination with opportunities new technologies offer – not available with traditional teaching aids. It is worth noting that among the men (eight here, quite few represented in the study in general), none of them defined their level of digital skills as low. Almost all of them describe their skills as excellent and – in individual indications – very good.

The distribution of answers in the question about the digital competence of the respondents looks very similar, but only in relation to working with students with special educational needs. When assessing digital competences related to working with pupils with the SPE, the rates are slightly higher. Respondents feel more confident in this area of digital didactics, which they deal with on a daily basis.

6. Reasons for difficulties in introducing mobile technologies to schools

Respondents were also asked how difficult it was to put tablets into their schools. In all countries, the lack of financial solutions facilitating the purchase of mobile devices has been identified as a major problem. Parents' fear of passing on the burden of buying and maintaining new equipment is also a problem. The chances of purchase are even further reduced if there is already another type of electronic equipment in the school, although undoubtedly mobile technologies have a lot of new, innovative features with huge educational potential, previously unavailable (among others they allow simultaneous work in the application / network and field, outside the classroom or school space). It happens that teachers themselves, at their own cost or with a great financial effort, try to get equipment for students. Symptomatic was the statement of one of the teachers from Poland, who wrote in the comment: "I desperately need help with the purchase of tablets for my students. For the moment, I bought myself three tablets for them" (Teacher 4, Poland).

As far as substantive reasons are concerned, lack of time for training and lack of training for teachers were quite significant, although it should be emphasized that in the opinion of respondents these factors seem less important than those arising from the financial background. In the case of respondents from Germany, there was also the issue of fear of the lack of appropriate digital competences in comparison with other research participants rather reluctant to use tablets. It seems, however, that this is not a matter of cultural difference, but a correlation with the age of respondents: the majority of respondents from Germany were in the 50-59 age group, or even 60+, and it was they who pointed to concerns related to digital competences. What is interesting, however, it did not affect the frequency of using new technologies in comparison to their younger German colleagues.



Table 4. Reasons for difficulties in introducing tablets (Poland and Germany), problem scale: 1-6

	Poland						Germany					
	1	2	3	4	5	6	1	2	3	4	5	6
Unwilling attitude of parents to finance the purchase of tablets	11	2	3	2	1	3	4	0	4	1	2	2
No financial support	4	4	1	1	4	9	1	1	1	1	2	7
No integration between existing ICT infrastructure and new tablets	7	6	1	3	3	2	2	1	1	4	2	3
Unwilling attitude of teachers (tablets considered unnecessary)	13	4	-	2	1	2	3	3	1	1	4	1
Focus on traditional methods of teaching	11	6	1	1	1	2	9	2	-	1	2	-
Unwilling attitude of teachers due to their low level or lack of ICT skills	10	6	2	2	-	2	-	4	1	5	2	2
No time to prepare for innovative/ new technologies	8	10	1	1	-	2	-	2	5	4	-	3
No training provided for teachers on using tablets in teaching and learning	7	6	5	-	2	2	-	4	4	3	1	2

1 – least important
6 – most important

Source: MICOOL survey research instrument

The distribution of responses presented above shows that teachers are focused on self-dealing with the substantive side of using new technologies – they do not receive too much institutional support and do not count on it (perhaps knowing the realities of the system in which they operate). The main source of problems, however, is seen in external financial factors. In most cases, they have the sense that they will cope – if no one interferes – and elementary conditions for action will be created. However, it should be emphasized that despite the fact that the respondents were teachers who work with new technologies every day and in many cases they volunteered, they also report the need for further training. This need increases in the case of older respondents who are less confident in the world of mobile media. Therefore, teachers who do not use new technologies and who want to reach for them should be able to count not only on financial support, but also substantive in the form of courses and trainings.

7. Discussion:

The results of the research presented above provide a snapshot of of teachers using mobile technologies in special education in selected countries. From the answers given by them, there is a picture of educators looking for their own, without any systemic support, solutions to strengthen the educational opportunities of their students. They are aware of the extraordinary potential of new technologies, but are judged in a realistic way (and in the case of older generation teachers with more inhibitions). They know what a tablet can do for them in class, but are realistic in their expectations. They appreciate it's just technology and that the power of the tool depends primarily on the student and the teacher. Properly and responsibly used mobile devices and applications can be a great support for the student, both as an assistant, as well as a pedagogic and creative technology. "Working with the use of iPads has greatly improved the quality of work with a student with special educational needs", writes a Polish respondent in the commentary to the questionnaire (Teacher from Poland 2). "I use tablets just as often with students who do not have special educational needs" (Teacher from Poland 3) – declares another, working in an inclusive setting, thus emphasizing the universal character and integrative potential of the medium.

Mobile technologies are now an integral part of the world of young people, who rarely part with their smartphones, tablets or other devices that provide constant access to the Internet. Access to these technologies



and the ability to use them is therefore an important element of the social integration of people with disabilities. The myriad of assistive and training applications on the market, created for students with special educational needs (see the catalog of more than 300,000 applications of this type at One Place for Special Needs – www.oneplaceforspecialneeds.com), can play a fundamental role in the process of this integration, facilitating or even allowing communication, building correct social relations, acquiring knowledge (Stetter 2018; Stetter, Hughes 2011).

There is no doubt that there should be systemic solutions to facilitate the introduction of mobile devices for special and inclusive education. Tablets with large screens and the possibility of installing additional pads supporting manual operation of the device seem in this case a tool with greater potential than the more easily available (because today almost ubiquitous), but relatively small size smartphones (whose potential is also not used in school, as shown by Teen 2003 research carried out in 2016 by the Polish research institute NASK – see Tanaś et al. 2017: 32).

These must be solutions for both institutional and facility-specific equipment, including universal solutions (the number of school-based tablets – depending on the type of school and the disability of students), and the support of teachers through the organization of training, workshops and network co-operation.

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