



## Experiencing Digital Education

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June 24, 2020

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## **EXPERIENCING DIGITAL EDUCATION**

### **ABSTRACT**

In my research, I sought the answer to the question of how the extension of Hungarian public education in digital distance education - due to the situation created by the virus - affected teachers, students, and parents. We were the first to ask teachers about the experience of digital education with the help of a questionnaire survey by type of institution and settlement. I also consider the preparations and the way of implementation to be imperative. In our research, preparedness, preparatory work for education, and balance with family life appear first.

The second part of my research shows the attitude of parents towards digital education. In this, I asked about their technical background, their time frames, their methodological knowledge, in addition to the fact that I also want to give subjective feedback on how to improve the digital way of distance learning. My research aims to explore, in a non-representative way, the feedback that comes from the community of educators and parents. In connection with these feedbacks, I would like to provide support to developers, decision-makers, and education organizers on the means to achieve greater impact and the needs of the actors in the system. I want to present a positive vision hoping that this transitional situation will mobilize energies that will invigorate traditional education methodologies and embrace 21st-century methods in education.

Keywords: digital education, distance learning, teaching methodology

Department: Sociology of Education

DOI number: 10.13140/RG.2.2.36400.38408

### **1. INTRODUCTION**

Shortly after the appearance of the coronavirus, educational institutions (first in higher education and then in all institutional units of public education) switched to digital distance learning at the discretion of the government.

Educators, children, and institutions were able to wait for the emergence of online education with a sufficient number of IT tools. However, did all the knowledge and conditions really exist for this? Did the educators have the right tools, software, and competencies? Are the subjects they teach suitable for teaching them online? Was there an idea, a strategy, on what interface, surfaces, and what content is necessary/sufficient to convey? We sought answers to these questions in our research survey of educators.

Are parents able and fit to support their children's learning? Are they able to keep track of what is going on in the online space? Do/did they have the means for children to study while parents work from home? Do parents have time to support their children's learning? These questions are just some of the ones we have been waiting for answers and received responses.

One thing is for sure: no one thought that digital distance learning would need to be introduced at such a speed one day. Unexpectedly, both pupils/students and educators have to switch to these systems and pass on all their knowledge and support to their students without personal contact.

### **2. METHODOLOGY**

In our secondary analysis, we first go around the conceptual framework. At the end of our research, we gather the experiences that have accumulated in the recent period through the eyes of educators and parents with the help of literature sources and primary research.

In our primary research, we asked parents and educators about their experiences with implementing digital agendas. Our research is distorted by online availability alone, but we hypothesized that the activity of both educators and parents in the online space provides an opportunity to complete these questionnaires. We expected that those with higher education would be overrepresented among parents.

Based on our questionnaire survey, which is not representative, 312 educators completed our online questionnaire. Among the parents, 901 responses were received to our online questionnaire, of which 887 responses could be evaluated.

### **3. CONCEPTUAL FRAMEWORK**

On 9 April 2020, the Government of Hungary and the Educational Authority published a methodological recommendation for out-of-classroom digital work schedules. But what does this digital agenda mean? First, because students participate in the out-of-classroom, digital work schedule in educational work, absenteeism at school cannot be interpreted. The institution must provide continuing education in all subjects following the curriculum requirements and record it in a digital diary. A child who does not log in e.g. for the lesson organized with digital devices must accomplish the tasks and the learning of the curriculum subsequently. Teachers can also "meet" each other in the online space, meetings and discussions take place here. Keep in view, however, that any transition, especially in a high-volume system involving hundreds of thousands of people, will take time. Of course, a weekend just was not enough for teachers and students with different digital methodological skills, technical backgrounds, and motivations to make the immediate transition.

As part of the Digital Welfare Program, Hungary's Digital Education Strategy was completed on June 30, 2016. According to this, "digital transformation is not a matter of choice: it is an inevitable phenomenon that everyone must be prepared for, as no one can compete in the 21st century with 20th-century knowledge. Digital tools and approaches need to be brought into classrooms as they are more deeply integrated into our daily lives." (Government of Hungary, 2016: 5) According to the goal, it is important that digital education is not a digitally supported version of traditional education, but also renews its approach, methodology and system of requirements and creates an open educational environment that reflects the challenges of the digital age. According to the Association of Informatics, Telecommunications, and Electronics Enterprises (IVSZ), digital education is a complex system consisting of several overlapping elements, which cannot function without each other. The association has compiled a set of conditions in European comparison without which digital education will not work effectively. Digital education requires adequate bandwidth, equipment, and digital comprehension. Contrary to popular belief, it is a problem for today's young people to pay electronically for a check or to book a train ticket. Device usage is often exhausted in social or multimedia features. The above contents and expectations apply to the institutional environment. From the point of view of the population, there is an even greater disparity in the use of IT equipment and bandwidth in households, especially in disadvantaged areas.

Isaac Pitman (1813-1897) invented shorthand and created correspondence education. The most characteristic feature of distance learning is that the teacher and the student are not in the same place, and the student spends the majority of the training time alone, he/she studies independently, in a smaller part the consultations appear. Based on this conceptual framework, a centralized system coordinates the individual learning of several students at the same time, in which the spatial-temporal similarity does not appear between the parties. Why, then, is it expected that both the teacher and the student are in front of the screen in digital distance learning all the time?

In her book, Kovács Ilma (Kovács 2006) perfectly summarizes the changes in the role and interpretation of distance education since 1973. According to this, the student had previously worked independently on the contents of the training package with the help of a written guide in the independent learning phase. Today, educators can supplement this guide with online communication tools. This package then included slides, audio tapes, later videocassettes, and then radio and television programs were incorporated into the process. Today, the use of electronic devices and/or the World Wide Web has also been implemented in e-learning or digital distance learning. The change is that much of the content is available on the Internet, possibly via email or other electronic media. About electronic distance learning in Hungary approx. We have been talking since 2000, which was fundamentally different from previous distance learning.

The question is not how we access the curriculum and educational resources, because that is constantly changing, but how can we adapt to the changing learning environment and what strategies, styles, and methods can we master? The answer lies in self-management ability, digital and other competency development, time management, and motivation. Perhaps the modest self-management capacity of the individual and the educator also causes difficulties in rapid transformation due to the viral crisis.

## **4. RESULTS**

### ***4.1. DIGITAL EDUCATION THROUGH THE EYES OF THE EDUCATOR***

The government ordered the development of a digital agenda on March 13, 2020, and from that date, elementary and high school students were not allowed to attend public education institutions. From this time on, institutions were obliged to provide opportunities for learning and the acquisition of study requirements in the form of distance learning. For educators who wanted to use the frontal teaching method and are reluctant to use digital techniques, this option is certainly a big challenge to prevail in a new type of educational organization, pedagogical methodology, accountability, control, and entirely new time management. Trust within the institution will also be put on a new footing. Trust on the part of leaders towards educators and trust on the part of educators towards children and students. (Covey - Link - Merrill 2013)

In our research, we want to analyze the results and experiences of the introduction of digital education at some points - based on the answers of more than 300 teachers (315). We know that we have not yet moved away from the event long enough to draw fully emotionally independent conclusions, yet we believe that these responses provide an opportunity to reflect on the direction in which it is appropriate to move in this area.

Nearly 15% of the educators in our survey did not participate in any training that would have included digital teaching tools. This answer does not mean that they would not understand it at all - as it is possible that there are teachers of informatics and computer science among them - just that they did not participate in the training. 27.8% of the respondents participated in one training, and 14.2% in more than five training programs. 43% of respondents have attended 2-5 training in the recent period.

Concerning the proximity of digital education training programs, in our experience, we regarded it to be best if they took place within a year. 36.9% of the respondents participated in training within one year, 32.2% in 1-3 years, while 30.9% of the respondents participated in training in three years. There may have been differences in the interpretation of these pieces of training. We are also lagging in several surveys in the proportion of participants in adult education, mainly because we do not include in-house or short-term in-service training programs. However, we can state that a third of educators who have attended such training for more than three years have relatively worn-out knowledge of programs, interfaces, and platforms.

Based on the answers, education with digital tools is close to educators, 72.1% of them feel completely or rather comfortable using them. However, it is thought-provoking how respondents (27.9%) who do not, or rather not support this method at all, experience teaching from home. They should enlist the help of colleagues who are at home in both methodology and technical skills.

In your opinion, to what extent can the content of the subject(s) you teach be transferred by digital means? The purpose of our question was to explore the need and the necessity for a personal presence. We can see from the responses that there is no 10% of those who say that the subject can be fully transferred by digital means. 25.5% of the respondents think that the subject matter is highly transferable, while quite a large percentage (51.6%) regards it as transferable, but a personal presence is recommended.

Nearly 90% of the responding educators have the necessary equipment. A significant part of the respondents procured them by themselves. For almost 20% of them, their employers provided the equipments. Personal involvement is inevitable in such a process - given that colleagues often use the devices for private purposes as well. The results are good because there is no 1% of respondents who say they do not have the tools for digital education at all. It is noteworthy that the questionnaire could only be completed using digital means, so these samples cannot be considered fully authentic.

Based on the assessments, 5.1% of students are fully prepared, 45.7% are prepared but still need to learn this form of education. More than 50% of these students can use the tools at a skill level, and it is not a technical problem for them to have access to the appropriate educational content and interfaces. 42.2% of students experienced many deficiencies, while 7% were not prepared at all for digital education. Association of Informatics, Telecommunications, and Electronics Enterprises

This survey also supports what was previously confirmed by the research and experience of the Association of Informatics, Telecommunications, and Electronics Enterprises (IVSZ), according to which students are outstanding in the use of community and media content, but perform modestly in practical, practical, educational purposes.

Deficiencies and tasks to be solved are the main areas of our research. What could be the reason if digital education is not effective? What can cause it? Are you not used to this method? Are not they sacrificing enough time to learn? Has their self-government not yet developed?

Cannot handle the technique and software at a skill level? Are not they motivated enough? In the following, we can only give some answers to the above questions.

According to educators, the most significant shortcoming in students' digital education is to be found in time management and methodological readiness. There are also considerable gaps in parental support and technical equipment. Parental support requires very different competencies and time frames according to each age group. While pre-school and primary school children still call for almost complete supervision and professional help in education, high school, and secondary school students can already be expected to manage their time independently and use digital tools at a skill level. Nonetheless, the majority of educators (74.6%) highlighted time management as a shortcoming. The fact is that most institutions do not teach effective time management.

The other similarly significant shortcoming can be found in methodological readiness. Nearly three-quarters of educators responded that it was completely or very inadequate. On the one hand, we can view this answer as a critique of their previous self-preparation, and on the other hand, the training and support of children in this respect appeared only minimally.

While in other countries 60-80% of educational content is also available in downloadable digital versions (USA, Austria, Estonia, etc.), in Hungary the current urging digital agenda has accelerated the development of television content and digital interfaces and platforms.

We wanted to measure the general mood among the educators. According to this, 8.6% of them are happy with the digital work schedule and are happy to teach from home. One-third to one-

third said they were happy to teach from home, but had reservations about effectiveness, and were reluctant to teach from home, but this new situation could bring many results. We consider a very high proportion of 24.6% who are reluctant to teach from home and are already waiting to return to school. According to the above, more than 50% of the respondents prefer to continue working in the institution among colleagues and children. Educators feel comfortable in their community.

The above is also supported by the fact that only 15.9% of the responding educators stated that they can teach completely well from home. Nearly 50% of them can teach well from home, but they have challenges. More than a third of the respondents find it difficult to work from home and to manage teaching and family.

Finally, we asked educators to indicate how much time they spend preparing for education on an average digital education day. 6.5% of respondents do not spend an hour preparing. Presumably, their content, their digital devices were already available before. The remaining responses spent more than one-third of the time over 1-3, 3-5, and 5 hours preparing. Based on professional opinions, we may note that producing digital content initially takes much more time than preparing for a traditional class. This fact is also because methodological and technical knowledge is not yet sufficiently developed, and that teachers are looking for software and platforms suitable for their subject.

#### ***4. 2. DIGITAL EDUCATION THROUGH THE EYES OF PARENTS***

We presented our parental questionnaire also two weeks after the start of digital distance learning and nearly 900 people (885 people) completed it evaluably in one week.

Those with tertiary education were over-represented among respondents (60.5%), presumably because they are more problem-sensitive and have a more developed digital competence.

45% of respondents have one child, 38% have two children, 13.2% have three children, and 2.4% have more than three children.

3.5% of the respondents study at home with a pre-school child, 47.3% with a lower school child, 32.6% with a high school child, and 16.7% with a secondary school child. Interestingly, nearly 80% of the responses came from parents of the primary school age group, while less than 20% from secondary schools. Based on the feedback, the most difficult to solve learning at home was for the parents of primary school students, including those of lower grades.

16.9% of parents were not working at the time of the survey, 48% were working from home, while 35.1% were working at their workplaces.

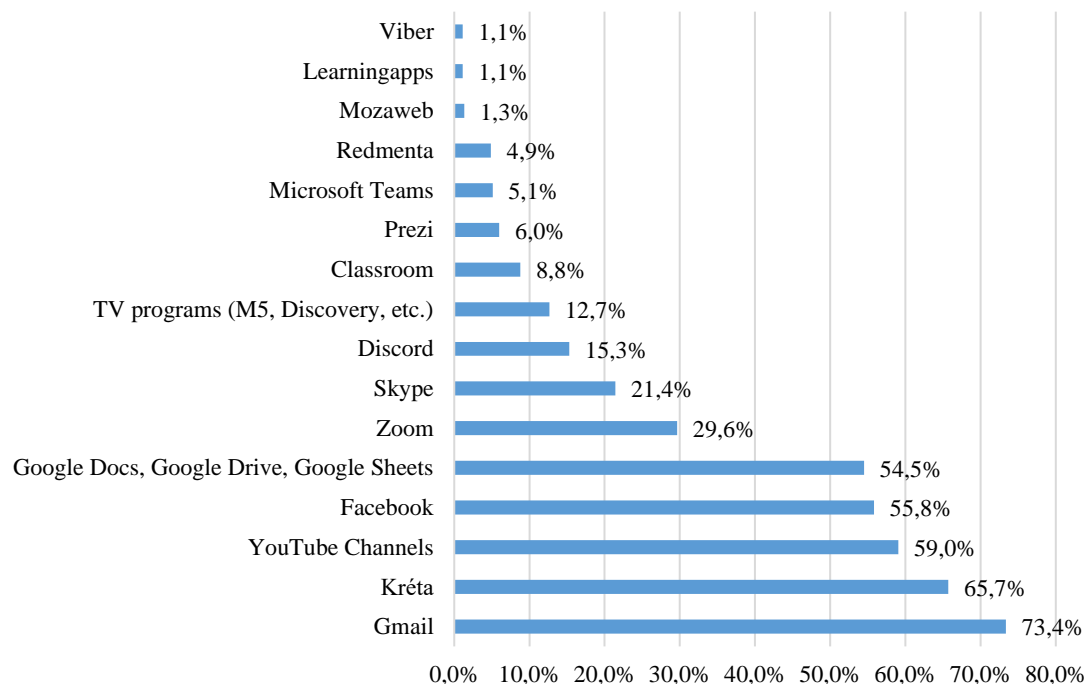
Nearly 40% of parents spend 0-2 hours studying with their children, 30% spend 2-3 hours, while 3-5% spend 3-5 hours, and 9% reported over 5 hours. On average, respondents invested 2 hours 33 minutes of their time per day on teaching since the introduction of digital distance learning. Based on parental feedback, the necessary and sufficient amount of time, on the other hand, would have been 3 hours 47 minutes on average. 60% say they should spend more than 3 hours, while 22.7% should spend 2-3 hours with the child in front of the monitor for successful performance.

Parents' proficiency in digital devices is, in their own opinion, higher than average. 73.9% of respondents rate their knowledge as better than average, while 14.3% rate it as average. We think, these responses stem from a higher level of education, but given that 83% of the responding parents are in employment, the average expenditure is relatively high in terms of family and employment.

The majority of parents (56.3%) can solve digital distance learning with 3-5 programs, but nearly a quarter of them need to use more programs for learning. Nearly 20% consider training to be feasible using only 1-2 programs. The first three places in the programs used are Gmail's mail system, Kréta and Youtube channels, and we also find the largest social media, Google products and Zoom and Skype applications.

Discord and television channels follow the line. We summarized the programs and channels selected from the options and freely entered. In our diagram, we report devices with more than 10 mentions:

1. figure: Tools used in digital education



Resource: own editing from research data

The responses show the acceptance of social media and individual Youtube channels in addition to Kréta, which is mandatory in public schools. There is a need to use an easy-to-use, group-based integrated interface that is also suitable for receiving feedback from educators. Considering international experience, a system that supports distance learning and integrates groups integrated into a video-sharing portal would be the most viable, which also supports individual access to content.

Learning to work with their children, often while working from home, required a great investment of energy on the part of the parents. Nonetheless, a significant proportion of parents (66.6%) were fully or partially satisfied with the support provided to their child and less than 10% felt unable to provide adequate support in their studies. This high satisfaction rate is partly due to the high proportion of graduates participating in the survey, whose knowledge; attitude and opportunities help their children much better.

#### ***4.3 DIGITAL AWARENESS AND MENTAL, PHYSICAL HEALTH***

Keeping the proportion of online space and personal relationships in a healthy balance is a serious challenge for many parents. Unrestricted access to social media and video content requires parental practices in which the basic elements of personal relationships, real, verbal communication, and social integration are often relegated to the background (Habók - Czirfusz 2013, Wallence 1999). It is not easy to strengthen sports, real friendships, communities that appear in space. With digital distance education from pre-school age onwards, children and young people have found themselves forced using digital tools that can cause serious damage to their social relationships and communication skills in the long run (Pacsuta 2016). In

addition, it is difficult to find a balance in health care with 5-6 hours of digital device use per day.

## 5. CONCLUSIONS

To implement digital education more effectively, it is first necessary for both educators and parents to be aware of its exact content and to reach a consensus on its instruments. Teachers have received a significant number of IT and other training, digital education is close to them, but we can say their methodological knowledge in this field is heterogeneous. Educators have the right tools, but only some of their subjects can be taught without personal contact. The biggest challenge for students is the skill-level use of devices, methodological knowledge, time management, and the simultaneous provision of equipment to families. The solution could be a platform - familiar to educators, parents and children - that is easy to use and integrates key features of online interfaces. Thus, knowledge could be transferred to children more experientially and parents' timescales would be less used by the diverse surfaces of digital education.

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