József Balázs Fejes & Norbert Szűcs

Digital learning for disadvantaged students during Covid-19: Perceptions of teachers in Hungary's after-school programmes

[fejesj@edpsy.u-szeged.hu] (University of Szeged)
[szucs.norbert@motivaciomuhely.hu] (University of Szeged)

Abstract

The digital learning instituted in Hungary in the spring of 2020 to help halt the spread of the coronavirus arguably encountered stumbling blocks as regards disadvantaged students. However, we have no information about the details, and mitigating these disadvantages is therefore fraught. The aim of our research is to shed light on the experience of digital learning among disadvantaged students.

We analysed responses to an online questionnaire completed by teachers at 48 of Hungary's after-school programmes (ASPs) who were in contact with over 1000, mostly disadvantaged children. We discussed the questionnaire-based analysis with ten ASP representatives in online workshops.

In addition to ICT devices and internet access, the lack of a learning space is also worth considering as a factor hindering the establishment of objective conditions for learning. When maintaining contact with parents, it is recommended that communication habits that differ from those used with middle-class parents should be taken into account. Developing time management and other skills necessary for independent learning (e.g., reading comprehension, and digital literacy), as well as alleviating the psychological burden, represent central tasks in such situations. Our recommendations may be of use in the event of future school closures and in terms of facilitating digital learning among disadvantaged students.

Keywords: digital learning, disadvantaged students, after-school programme, Covid-19

1. Introduction

Hungary's primary and secondary schools switched to digital learning on 16 March 2020 to prevent the spread of the coronavirus. Students could not attend school, and teachers and students could not meet. Teachers were permitted to use the school infrastructure, but they had to teach online (Governmental decree on the new working procedures in public and vocational education institutions, 2020). Digital learning remained in place until the end of the school year (15 June 2020). The switch to digital learning presumably heightened educational disad-

vantages among the most vulnerable children. However, as we have no information about the details of this situation, it is difficult to develop options to mitigate the disadvantages.

The aim of our study is, first, to examine the consequences of school closures due to coronavirus on students with low socio-economic status (low-SES students), and, second, to make recommendations concerning any challenges that are identified. After-school programmes (ASPs) that support disadvantaged students represent an important potential source of data in respect of how digital learning worked for the children of disadvantaged families. We used an online questionnaire for our analysis, which was completed by teachers at 48 ASPs who maintain contact with over 1000 mostly disadvantaged children and their families. We also discussed the recommendations based on an analysis of the questionnaire with representatives from ten ASPs in two online workshops.

Based on our research, recommendations may be made concerning how to help disadvantaged students catch up in a similar emergency situation and how to organise distance learning for groups that fall behind. In addition, our study stresses some acute problems with which the Hungarian education system is struggling.

2. Theoretical background

2.1 Potential challenges of digital learning for disadvantaged students

All students were forced to learn at home due to the school closures. At the same time, the consequences arguably differed significantly for students from varying socio-economic backgrounds, in part because of their home environment and in part because of the divergent services provided by their schools. In what follows, we outline the differences in these two areas and then identify some potential difficulties based on the literature.

2.1.1 Home environment

In international comparison, in terms of having at least one computer at home (93.6 per cent) and internet access (96.2 per cent), the situation of 15-year-old Hungarian students can be said to be good, and nor do students with varying family backgrounds exhibit striking differences (OECD, 2015). One study conducted among families with children likewise found a high level of internet use (98 per cent) and widespread ownership of computers at home (91 per cent) (Ipsos, 2020). However, it is important to point out that the quality of devices and internet access can also influence the success of digital learning.

These generally favourable data also demonstrate that a proportion of students do not have the infrastructure required for digital learning. Based on an analysis of the 2017 data from Hungary's National Assessment of Basic Competencies, Hermann (2020) found that 12, 10, and 7 per cent of students in the sixth, eighth and tenth grades, respectively, could not be reached at all due to the lack of internet or a computer. A further 8, 6, and 5 per cent, respectively, could only be communicated with difficulty, since a single computer needed to be shared among three students. These figures total 20, 17, and 12 per cent of the grades under examination. These numbers conceal significant social differences: in the sixth and eighth grades, more than half of the children of mothers who have completed primary school at most cannot connect to online learning, or can, but only partly. In a non-representative study that addressed 425 teachers, a significant proportion of respondents (44 per cent) indicated that the lack of ICT devices and internet was among the main reasons for students being excluded from digital learning (Kende et al., 2021).

A further difficulty for disadvantaged students lies in the fact that digital learning requires major parental help. International comparative studies show that a total of 50 per cent of the Hungarian population is in possession of basic digital skills, a figure which falls behind the European Union average (60 per cent). Among the Visegrád Four (the Czech Republic, Hungary, Poland, and Slovakia), with their many similarities, Hungary only exceeds Poland in this respect (46 per cent) (DESI, 2019). Seventy-five per cent of teachers of mostly disadvantaged students partly or fully agreed with the statement that learning was impossible without significant help from parents in the given situation; they also saw that students were unable to understand learning tasks and learning material independently as the greatest difficulty (with 68 per cent of them agreeing with this statement) (Kende et al., 2021). The survey noted above reinforced the necessity of parental help among parents of school-age children: 78 per cent of the latter said that their child required some degree of parental help with regard to digital learning (Fodor et al., 2020). In all likelihood, parents with low educational attainment, for whom helping their children with their studies otherwise poses a problem, found themselves facing further obstacles due to their lack of experience with information and communication technologies (ICT).

Lack of an appropriate learning space at home is a general feature of families living in poverty. In Kende et al.'s (2021) survey, the absence of a suitable learning space was reported in the largest proportions (71 per cent) by teachers of segregated school classes among the obstacles to digital learning. Stress is generally experienced to a higher degree among low-income families, which is considered a central factor that negatively influences children's cognitive and social-affective development (e.g., Bradley & Corwyn, 2002). Limited leisure-time options outside of the home reinforced the sense of crowdedness, and thus increased stress as well. Added to this was the frequent contributing factor for such families of narrowing job opportunities due to coronavirus, and growing stress caused by a loss of income. It is a known fact that the coronavirus affected less skilled workers more intensely (e.g., Fana et al., 2020; Fodor et al., 2020).

2.1.2 Teachers

The Hungarian education system is extremely selective, with students from divergent family backgrounds separated from one another, typically attending school with peers from similar socioeconomic backgrounds. Schools with varied student compositions offer education of significantly divergent quality. In schools in which the proportion of disadvantaged students is high due to an accumulation of learning problems, pre-existing family disadvantages are heightened due to ever scarcer educational resources, the adverse selection of teachers, more restricted financial capacity, and the development of unfavourable motivational processes (Csapó et al., 2019; Kertesi & Kézdi, 2016). According to Kende et al.'s (2021) research, an average of 16 per cent of students could not connect to digital learning, but in institutions with majority disadvantaged students the share was 31 per cent. In the case of small communities, 70 per cent of respondents said that paper-based teaching materials were common or present in their school. These figures suggest that teachers in institutions with a high proportion of disadvantaged students are considerably overburdened during periods of digital learning as well. After all, in addition to online instruction, further solutions for maintaining contact were called for among a significant proportion of students. The existence of overburdened teachers and paper-based learning tasks, designed to be completed without the help of teachers, both suggest a drop in educational quality.

2.1.3 Additional barriers

Home learning through digital education demands greater autonomy and self-discipline among students. At the same time, motivation and skills (e.g., reading comprehension and digital literacy) are typically less developed among low-SES students (e.g., Fejes, 2012; Heckman et al., 2011; OECD, 2018).

According to the results of the PISA assessment of digital reading comprehension (among other skills), Hungarian students' achievement is among the weakest in Europe. In addition to this weak average achievement, it is also significant that the link between achievement in this area and socio-economic status is particularly strong in the case of Hungary – the second strongest among the 30 countries (and economies) participating in the assessment. The difference in digital literacy was especially large between those who had the opportunity to use a computer at home and those who did not (OECD, 2015). In other words, for the majority of disadvantaged students in Hungary, weak digital reading comprehension may be a fundamental barrier to digital learning.

Summer setback, or summer learning loss, is a well-known phenomenon among low-SES students. The shift to digital learning is comparable to this phenomenon, which is arguably reinforced by the fact that home learning coincided with the summer break. Although this phenomenon was not only identified with reading skills, disadvantaged students fell behind significantly in their reading performance, since the performance of students from higher-SES families typically improves during the summer break (Cooper et al., 1996). One reason for the increase in the difference can arguably be found in the difference in leisure-time reading habits. This weaker achievement driven by unequal leisure-time reading may have become apparent during the school year among disadvantaged students.

2.2 First experiences based on the international literature

In this section, we review the consequences of the switch to digital learning based on data taken from international literature with a focus on socio-economic status.

Grewenig et al. (2020) surveyed parents (n=1099) to collect time-use information on low-achieving and high-achieving primary and secondary school students in Germany. The authors found that low achievers reduced their daily learning time by about half, and replaced it with activities that were less beneficial for their development such as watching TV or playing computer games. Although there was no difference in the reduction in learning time for children from parents with low educational attainment, due to the association between parents' level of education and students' success at school, the results suggest that prevailing educational inequalities have intensified. Andrew et al. (2020) also surveyed parents (n=5582) to explore the consequences of school closures in England. They found differences in the changes of the use of time between children from poorer and better-off families, although these differences were only revealed among primary school students. Furthermore, results suggest differences not only in the availability of ICT devices and internet access at home between families of different socio-economic status, but also in the availability of resources provided by schools. Poorer families were offered less learning support (such as online classes) by schools, but more passive solutions (such as assigned learning tasks without help).

Some studies have categorized households into income groups based on place of residence and examined the differences in the former's learning-related online activity during school closures (e.g., Bacher-Hicks et al., 2020; Chetty et al., 2020). Not surprisingly, results show

greater online activity in higher income households, which suggests that these households were more successful at adapting to online learning.

McNulty and Baird (2020) analysed the literacy performance of 1.6 million students from grades 2–12 in the United States. They used real-time data from an annual literacy test, which enabled them to compare students' results before and after school closures with the expected growth. The authors predicted an 18 per cent increase in the achievement gap between students from low- and high-income schools for those low-income students who were not actively learning during the school closures. According to their analysis, struggling readers (those scoring below the 25th percentile in reading) were less active at online learning, and the performance gap between struggling and advanced readers (those scoring above the 25th percentile) may grow by an additional 6 per cent due to the school closures.

2.3 'Tanoda' – Hungary's ASP for disadvantaged students

The first *tanoda* programmes for disadvantaged students in Hungary appeared in the mid-1990s. They were primarily maintained through private donations. In the early 2000s, European-Union-funded grants were announced every one to three years to finance them, which were tied to an increasingly larger financial envelope. As a result of the availability of grant money, the number of programmes run by civil society and faith-based organisations grew steadily, and Hungary's ASP movement began. ASPs have been funded through the Hungarian state budget since 2018, with approximately 180 programmes operating through this source and a further 20 civil society organisations maintaining programmes from other sources (Szűcs & Fejes, 2021).

The assumption that conventional schools fail to accommodate to the particular needs of disadvantaged and Roma students and that the activities of an institution with a divergent perspective is thus required to offset this has played a fundamental role in the formation of the ASPs.

In addition to compulsory schoolwork, ASPs also operate in the afternoon and/or weekends with the voluntary participation of their mentees. A mode of operation that flexibly adapts to the features of the target group and a complex teaching approach that makes it possible to exploit numerous opportunities can be seen as significant features of ASP activities which differ from those of formal schooling and are impossible or far more difficult to implement within the framework of formal education. Examples include leisure-time and community-building events, the use of innovative teaching methods, activities that reinforce the identity of the Roma students, teacher-student relationships that diverge from the norm, and a large proportion of volunteer helpers (Fejes et al., 2016). In sum, with regard to the duties undertaken by ASPs, it is clear that they provide the kinds of services to disadvantaged students that their middle-class peers routinely receive from their families and schools.

A state-funded ASP must meet statutory requirements (Ministry for Human Resources decree on the professional tasks involved in social mobility services for children and the conditions for their operation, 2018), including attending to every mentee in the ASP for no fewer than four hours a week, in addition to keeping its doors open no fewer than four days a week. The headcount in an ASP varies between 20 and 30. In 2019, a total of 5296 students (1689 lower-school students, 3063 upper-school students, and 544 high school students) participated in state-funded ASPs (KSH, 2019). The law that regulates the running of these programmes (Ministry for Human Resources decree on the professional tasks involved in social mobility services for children and the conditions for their operation, 2018) contains criteria for assess-

ing the needs of those receiving support, so that funding is used in line with its aims. It sets out that 70 per cent of the participating children must be beneficiaries of regular child protection benefit (the basis for which is monthly income per family member[1]) and that 50 per cent of those students must be classified as having a disadvantaged or multiply disadvantaged status (the basis for which is parents' low educational attainment, unemployment, and the living environment).

An additional significant feature of ASPs from the perspective of the current study is that they maintain contact with families more actively than schools do. State-funded ASPs must pay visits to the families of their mentees twice a year, set out the details of their cooperation in a contract, and organise an event at the ASP that families may also join at least four times a year.

3. Aims and research questions

The aim of our explanatory research was to survey the results of Hungary's school closures due to the coronavirus on children from low-SES families based on the experience of ASP staff, and to collect and develop recommendations for any, primarily educational, challenges that arise. We believe our results could be of use in the event of future school closures, as well as in terms of facilitating digital learning among disadvantaged students. Our research questions were as follows:

- What challenges have ASP teachers identified in relation to the transition to digital learning during their work of supporting disadvantaged students and their families?
- What potential solutions have they come up with to tackle or mitigate these challenges?

Since the target group for the ASPs consists of disadvantaged children, the data collected from those programmes is not suitable for painting a general picture of digital learning. At the same time, the former can be expressly helpful for illustrating the situation of those children from the poorest families, and for assisting in the development of recommendations for those who are arguably most disadvantaged by digital learning. A further benefit of using the experience of ASP staff is that, owing to the complex approach used by these programmes, they have insight into a number of areas that influence the effectiveness of digital learning, including the functioning of the families and the assigning of learning tasks.

We consider that exploring the perceptions of ASP teachers is especially valuable in relation to describing the teaching practices of schools during the school closures. One of the priorities of ASP teachers is to support their mentees in their efforts to meet the expectations of their schools. Thus, ASP teachers are in regular contact with students, and often with parents and school teachers as well, hence they have accurate information about the educational practices at their mentees' schools. Moreover, due to their qualifications and experience, ASP teachers are well aware of the circumstances at schools. Looking at digital learning from the perspective of any of the interested parties naturally provides us with a distorted picture – however, for the reasons mentioned above, we consider understanding the perspective of ASP teachers to be of crucial importance.

Based on the literature, we predict that the transition to digital learning was especially unfavourable for low-SES students. We assumed there would be problems in the following areas tied to school learning: availability of ICT devices and internet access; reading comprehension and

---

1 The threshold value at the time of the study was equal to 110 euros.

digital competencies among students and their parents; and contact maintained between student and school (communication, help with learning, and assigning learning tasks). We also collected information tied to the ASPs in these areas – first, to obtain a more detailed understanding of the situation of ASP mentees, and second, to provide points of reference concerning the operation of the schools. In addition, we asked about assistance requested of ASP teachers by families, adaptation to the changed situation, and potential solutions to challenges that arose.

4. Data collection and analysis

The source of the data we analysed was an online questionnaire,[2] which teachers in ASPs that constitute the TanodaPlatform network[3] received by email. The questionnaire was completed by 48 ASP staff members, with the questionnaire being completed in the second half of April 2020; that is, with the respondents having had experience with the shift to digital learning.

The questionnaire consisted mainly of closed-ended (62) and some open-ended (11) questions. The majority of the former were Likert-type questions. The questions can be grouped into the following topic areas: features of the ASPs at which the respondents teach; their perceptions of the contact maintained between ASP mentees and the school (communication, help with learning and assigning learning tasks); contact maintained between ASP mentees and their ASP (communication, help with learning and assigning learning tasks); barriers to digital learning and potential solutions; and families' needs as regards the ASP and the operation of the ASP during the digital learning period. Responses to open-ended questions were thematized. This categorization was carried out by two encoders. In the first phase of data analysis, one of the encoders reviewed 30 per cent of the responses, and suggested categories with examples. Then, both encoders reviewed all the responses, and encoded them in accordance with the protocol. When there was a mismatch in the categorization of a response between the encoders, they discussed it and agreed on a category for it.

We discussed recommendations based on an analysis of the questionnaire in two online workshops with ten ASP representatives in the last week of the school year in June 2020. We asked the five teachers at each of the approximately one-and-a-half-hour workshops to validate the problems that had been identified based on the questionnaire and to outline potential solutions. Five of the ten ASP representatives had not completed the questionnaire previously. The workshops were audio recorded, then transcribed. During the text analysis, we identified the common challenges and the actual practices that were followed by the various ASPs to tackle these challenges. We have integrated the results from the workshops into the Conclusion and recommendations section below.

5. Specific features of respondents' ASPs

The online questionnaire was completed by representatives from 48 ASPs, which represented about one-quarter of the ASPs that were operating at the time of data collection in Hungary (see KSH, 2019; Szűcs & Fejes, 2021). Every respondent reported the number of children in

---

2   The questionnaire was discussed by staff at the Motivation Educational Association, the Rosa Parks Foundation, and the Partners Hungary Foundation. The main focus of all these three non-governmental organizations is to support disadvantaged students and their families as regards education.

3   Coordinated by the Motivation Association, TanodaPlatform is a professional community that has been in operation since 2013 and organises innovative ASPs into a network, asserts their interests, and develops methodology (see Fejes et al., 2016).

their ASP. Based on their responses, the programmes of the teachers surveyed served 1177 children. Of these ASPs, 41 are currently state-funded, in which case, as noted above, it is a statutory requirement to verify family need. The majority of these terms also presumably apply to ASPs that are not funded by the state. In other words, the majority of the children on the respondents' radars are certainly low-SES.

A significant number of the children who are served are of Roma descent; nearly half of the respondents (48 per cent) reported that the proportion of Roma mentees in their ASPs ranges between 76 and 100 per cent, while a further third (29 per cent) of respondents provided an estimate of between 50 and 75 per cent. As for age groups, the latter reported serving mostly primary school students, mostly in the upper grades (fifth to eighth grades). The number of secondary school students served by the participating ASPs was low. Eleven ASPs did not have any secondary school mentees, 11 ASPs reported that the proportion of secondary school mentees was no more than 20 per cent, and only one ASP reported to serving mostly secondary school students.

As regards type of locality, the sample can be seen as heterogeneous, with staff responding to our survey from four ASPs in Budapest, 25 from other cities and towns, and 19 from villages. Thirty-nine of the 48 responding ASPs specified the exact name of the location where they were operating. The geographical distribution of respondents is shown in Figure 1. It is important to note that the geographical distribution of ASPs is not balanced in Hungary – their share is greater in those regions of the country where the proportion of the Roma minority is larger. This geographical representation is represented in our sample as well, but the South Transdanubian region was underrepresented (see Pénzes et al., 2019).

Thirty-one of the responding ASPs are maintained by independent civil society organisations, seven by church-affiliated and two by school-affiliated ones, while six of them are maintained by a church and a further two by other entities. As regards duration of operation, the responding ASPs can be seen as heterogeneous (mean=7.1 year; SD=4.9; min.= 1; max.=27).
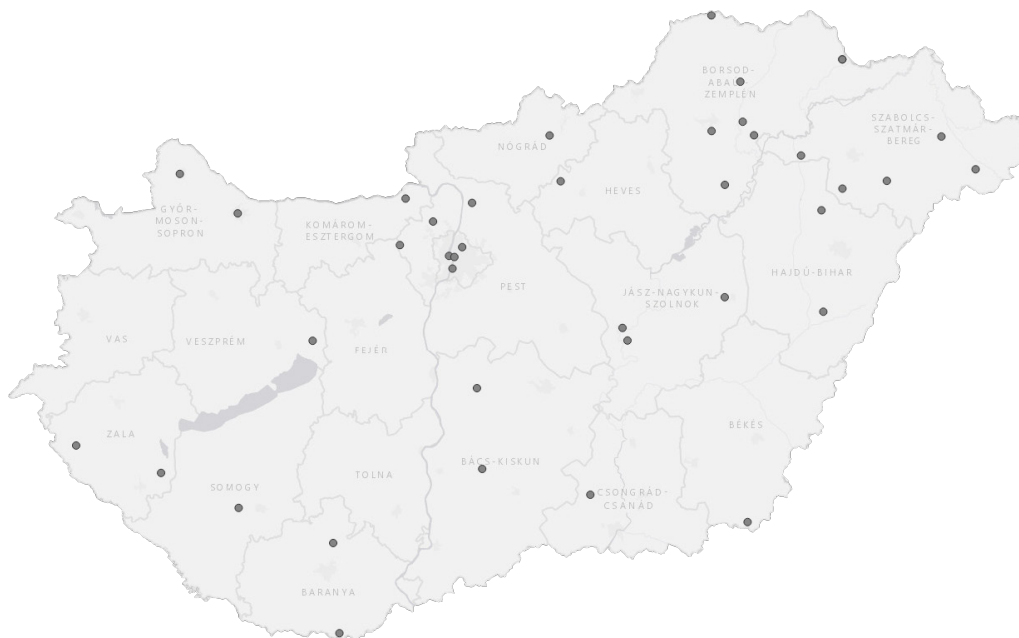

Figure 1: *The geographical distribution of the responding ASPs*

6. Results

6.1 Maintaining contact with the school and the ASP

Respondents estimated that 66 per cent of their mentees were able to join in digital learning organised by their school. They reported that 87 per cent of their mentees had access to the digital activities set up by their ASPs.

The participants evaluated the frequency of contact between mentees and their school and between mentees and the participants' own ASP as taking place through the following channels: telephone, email, and chat platforms. They also had the choice of 'Don't know' as regards school practice in this regard. Respondents were naturally only able to share their general perceptions about their local school. That is, the data on the ASPs were more reliable. At the same time, absent other sources of information, it is perhaps these ASP teachers who can paint the most objective picture of how the school's teachers reached disadvantaged students, and with what success. Further, we wish to point out that a total of only one or two ASP teachers reported that they were unfamiliar with the school's practice as regards use of a particular channel of contact.

The frequency of use of the various channels varies between the schools and ASPs (see Figure 2 for a clear illustration of these divergent practices). According to our data, the schools primarily reach students on chat platforms rather than by email or telephone. Chat platforms are also the primary channel of contact among the ASPs, but far more significantly than among schools. ASP staff use email less frequently, but phone their students more often than school' teachers do.

A further question inquired into whether individual assistance was available by telephone or online at the school and at the ASP should the need arise. The only difference in the responses in this regard was that the ASP teachers had the option of responding with 'Don't know' in respect of the school. Ten per cent of the respondents chose this option, a fact which we did not take into consideration in our analysis so that we could compare the practices of the two institutions (see Figure 3). According to the perceptions of half of the ASP teachers,
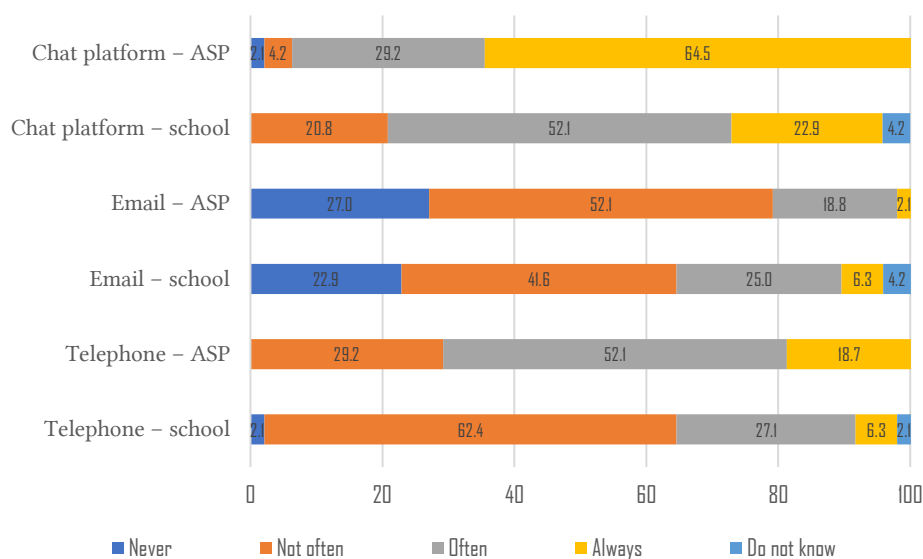

Figure 2: *Channels of contact at school and the ASP based on ASP staff responses (%)*

assistance by telephone or online from the school was virtually unavailable to students, while the majority of respondents (83 per cent) reported that such aid was common or very common for the ASP.
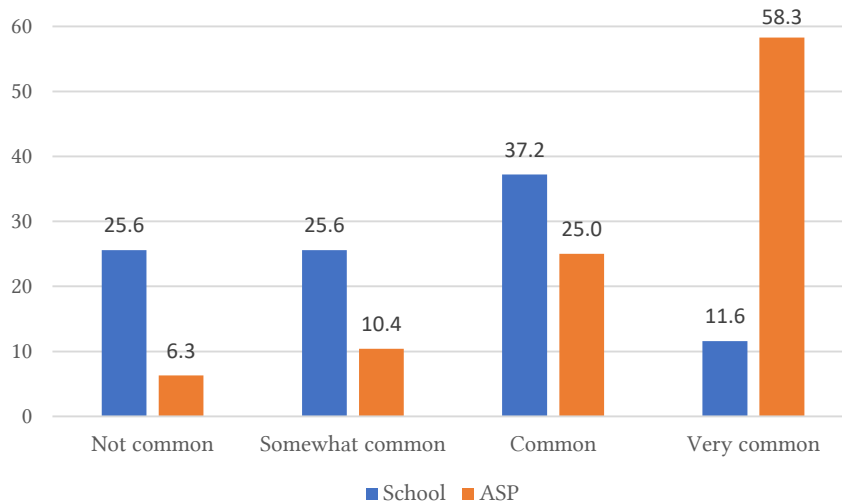

Figure 3: *Availability of individual help by telephone or online upon request at school and at the ASP (%)*

One open-ended question each focused on how the relationship between the ASP teachers and the students and parents had changed since the shift to digital learning ('Please share in a few sentences how your relationship has changed with students/parents due to digital learning'). Forty-six out of the 48 surveyed responded to both questions (see selected responses below). Some ASPs reported that there were mentees that they could not reach because they did not respond, but the majority of ASPs maintained even closer and more regular contact with students and their families than before, typically every day. They noted that the primary channel of contact was Messenger. The need for ASP assistance on the part of both the students and their parents had clearly grown as regards alleviating the psychological burden and helping with school assignments.

'It [our relationship] with both the parents and children has become closer. They depend on us more. They need our help more than before.'

'We spend more time with them than at the ASP. They (can) reach us from morning to evening. We talk about all kinds of things. We get a glimpse into their everyday life, where they do their homework, what they eat and drink, and the way they talk in the family.'

'We maintain contact more intensively with a lot of parents, mainly in families where the social situation has grown much worse due to the coronavirus.'

Even though the majority of the students enjoy maintaining contact online, it was also reported that it was often difficult to get students to do other tasks after an entire day of school learning in front of the computer screen. Aside from device availability, one barrier that was often mentioned was the lack of personal contact, which was of fundamental importance in maintaining learning motivation, according to the ASP teachers' opinions. Some teach-

ers reported that it was also more difficult to bring in volunteers due to the lack of personal contact, while teachers at other ASPs actually reported the opposite, via the use of online mentoring.

> 'The most important strength of this mode of operation is pushed into the background: personal contact and the strength of the community. That makes work more difficult and produces a greater mental and psychological burden for the children.'

> 'Our students have a particular need for personal contact. It's especially difficult to compensate for the lack of personal interaction. We try to start as many discussions as possible with those we can somehow reach online, not just as regards learning, but also their general well-being and daily activities. We 'go crazy' then too, and send funny images or emoticons and gifs.'

Another closed-ended question, for which we received 45 responses, covered changes in contact with teachers ('Please share in a few sentences how your relationship with the teachers at the school has changed due to digital learning'). An extraordinarily heterogeneous picture was formed in this regard. Some of the ASP teachers reported that the situation had made the school-ASP relationship worse, since consultations primarily occurred in person as they had not managed to move this activity online, or the teachers at the school had become overloaded. However, another common experience was that they had managed to shift the communication with the school teachers online and via the telephone. A number of ASPs reported that the relationship with the schools had improved, with the situation forcing the teachers at the school and the ASP to join forces.

> 'The relationship has been greatly reduced. After all, contact was built on in-person meetings, which can't be replaced online. The two institutions currently operate in parallel.'

> 'Cooperation has greatly increased in this situation. I would say we're in contact weekly, almost daily. After all, we're far more dependent on one another.'

6.2 Learning and learning support

In the view of the ASP teachers, the schools' practice of conveying the learning material is extraordinarily varied in terms of frequency. A third (35 per cent) of the respondents reported that schools assign learning tasks one to two times a week, a fifth of them (21 per cent) said this occurred three to four times a week, and the majority of them (38 per cent) said it occurred daily.

As regards the learning tasks assigned by the school and the platforms used, the ASP teachers communicated similar views, while they had the chance to report on their own practices in another block of questions focused on the same aspects. The only difference between the two questions was that the ASP teachers had the option of responding 'Don't know'. We did not display responses from respondents who chose this option so that we could compare the ASPs' and schools' practices of assigning learning tasks more easily (see Table 1). Two to eight per cent of the respondents selected this option for particular statements.

According to the ASP teachers' responses, innovative learning tasks (e.g., internet quizzes, questions for solving on the internet, and videos about particular topics) were used at both types of institution. With regard to the schools, few said this was very common. At the same

time, the views of the ASP teachers paint a varied picture, with around the same proportions, approximately one-third of participants, each saying it was not common, somewhat common, and common. The picture is also heterogeneous in the case of the ASPs. At the same time, they believe that innovative learning tasks are more common among these programmes.

Conventional learning tasks are assigned on digital platforms (e.g., downloadable worksheets and texts with tasks available on the internet) in a similar way in the two types of institutions, although, according to the ASP teachers, this practice is more common in schools. Taking all the different options into account, this is one of the most frequent ways of assigning learning tasks: 75 per cent of the respondents indicated this as being common or very common.

Nearly half of the teachers that were surveyed said that marking learning tasks in course books and workbooks is not common at their ASP. However, this occurred at varying frequency with the other half of the ASPs. In contrast, this practice is significant among schools, with 80 per cent of respondents indicating that they think this is common or very common in school.

Paper-based learning tasks (e.g., photocopies) are virtually never assigned in half of the ASPs, while this practice occurs in both types of institution, but is far more frequent in schools.

Table 1. *Types of learning tasks in school and the ASP based on ASP teachers' perceptions (%)*

Modality of learning task	Institution	Options			
		Not common	Less common	Common	Very common
Innovative learning tasks sent via a digital platform (e.g., internet quiz, tasks to be completed on the internet and videos on a particular topic)	School	29.5	29.5	36.4	4.5
	ASP	6.3	25.0	35.4	33.3
Conventional learning tasks sent via a digital platform (e.g., downloadable worksheets and texts available on the internet supplemented with tasks by the teacher)	School	10.9	13.0	54.3	21.7
	ASP	16.7	31.3	41.7	10.4
Course book or workbook tasks, which the teacher assigns through various channels (e.g., telephone, email and Messenger)	School	8.9	13.3	40.0	37.8
	ASP	45.8	18.8	16.7	18.8
Learning tasks sent to students on separate sheets or photocopies or fetched from school by students	School	12.8	48.9	23.4	14.9
	ASP	43.8	29.2	8.3	18.8

6.3 Difficulties associated with digital education

We asked questions about what had caused the greatest difficulty for the ASPs in shifting to digital learning. Beyond evaluating the weight of five likely problems (device availability, internet access, digital competency, learning methodology, and use of space), we encouraged respondents to comment on their responses and name other problems as well (see Figure 4 for the frequency of the problems listed).

Learners not having an appropriate learning space proved to be the most widespread problem. Half of the respondents said this was very common among their mentees, and a further 21 per cent found it common. Barely one-eighth of them (13 per cent) saw this as posing no significant difficulty for students.
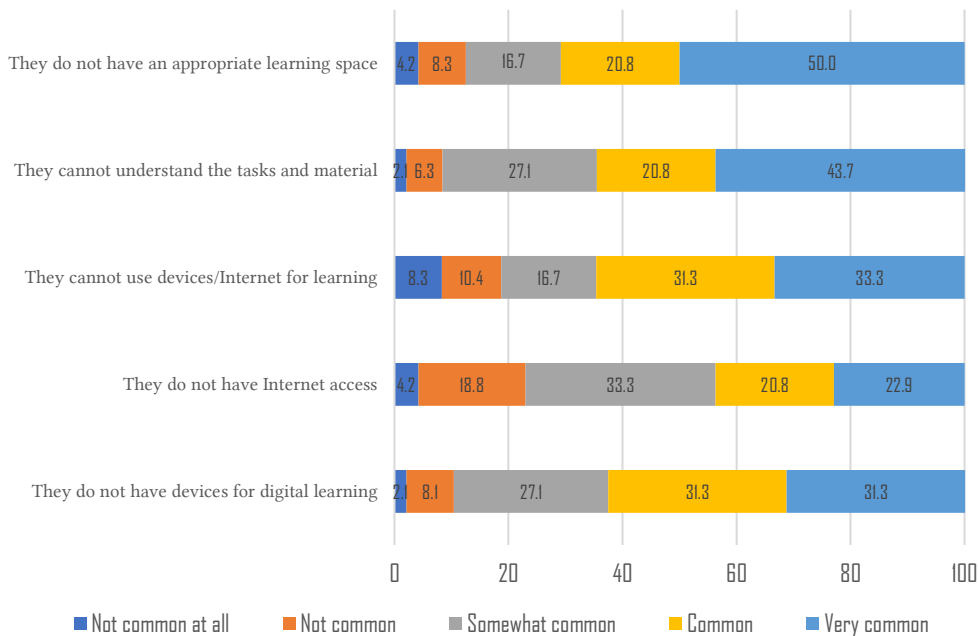
Figure 4: *Difficulties with the shift to digital learning based on APS teachers' opinions (%)*

'One of the most common reasons for this is lack of space. [Students] don't have a spot away from the rest of the family … and [they suffer from] psychological overload from social and family crisis situations due to the coronavirus.'

'The children are not generally alone during their activities. The parents or other family members are in the same room.'

It is not only the absence of an independent space to study. A significant proportion of ASP students lack the knowhow as well. According to two-thirds of respondents, it is common (21 per cent) or very common (44 per cent) for ASP students not to understand learning tasks and material independently. Fewer than one-tenth of them report that they are essentially unaffected by this difficulty.

According to the respondents, it is common (31 per cent) or very common (31 per cent) for two-thirds of the families not to have appropriate devices for participating in digital learning. However, the problem is not significant for a total of one-tenth of them. In addition to the lack of devices, the lack or insufficiency of internet access also proved to be a serious setback, although ASP teachers judged the weight of this problem to be smaller. Forty-four per cent believed that the lack of internet was common or very common among ASP mentees' families, while 23 per cent said they have internet access.

'There's not even one device available. There are no laptops, … desktop computers. A lot of tasks can't be completed on a smartphone. If a child has a phone, there's no internet. There's Wi-Fi at school only (for which the child has a password), but they can't go there.'

'A significant proportion of the families have restricted access to the internet, which is mostly through the parents' telephone. It's not available to the children in a lot of cases, even in the current

situation. We know families where the father has the net on his phone, but he doesn't give it to his children.... internet access is not available for the majority.'

A quarter of respondents noted the lack of digital competencies as being among the most important challenges. The topic was raised in part in relation to the children and in part in relation to their parents, but in some cases the ASP teachers spoke self-critically of their own deficiencies in that area. In that regard, maintaining contact digitally was completely new for a portion of the ASP teachers, while it had been part of others' daily routines – although they had mainly used such platforms for communication prior to the pandemic restrictions, not for learning support.

'It takes a great deal of effort to facilitate an online activity. It won't work without printed materials because the students can't use their device. Without any help, they can't find their way around a particular website. If they can open the link, they don't know what to do next. Often understanding the task causes a problem. So how would they be able to complete it?'

A significant proportion (one-fifth) of the ASPs reported to suffering notably from the lack of personal contact: 'personal contact, the essence of an ASP, doesn't occur.' Combining this with the problem of student motivation, we are faced with difficulties that are as significant as in the areas noted above.

'We can't get them motivated. We even announced an award if they completed the learning tasks we sent them, but it didn't work out. There were only a few kids who cooperated. Keeping up is the biggest problem, as well as motivation.'

School and parental support, environmental difficulties and methodological deficiencies were also noted, although less frequently than the main problems discussed above. As regards school learning, many mentioned students being overloaded and school teacher insensitivity.

'The school is incapable of compromise. Neither families nor teachers are prepared for digital learning, and the children with the weakest skills fall behind peers who both have a device and are capable of progressing independently.'

'Unfortunately, we find the amount of learning material assigned to the students a bit too much. The kids usually can't get through it alone. There are a lot of learning tasks even in the skills subjects that are not in line with the available resources – e.g., a lack of supplies, lack of time, and the amount of work.'

Our exploration of the problems of digital learning was rounded out by another open-ended question ('Are there other barriers connected to digital learning among disadvantaged and/or Roma students?'), which 37 ASP teachers answered. A number of them highlighted that learning time had significantly increased due to the lack of personal contact and that, not independent of this, it was much more difficult to maintain motivation online. These factors are similarly tied to the fact that students with low self-confidence feel that the assigned learning tasks are endless and that they have no chance of completing them by the deadlines. This further reinforces their lack of motivation; indeed, some students experience anxiety as well.

Another frequently noted factor is the lack of regularity and time management skills, which problems are strengthened by the cessation of daily routines. In addition, many ASP teachers noted the lack of an appropriate learning space in their responses, which in this situation the ASP cannot counterbalance. The family's livelihood problems not only surface as stress factors, but the fact that some young people contribute to the family income reduces the energy that can be put into learning.

> 'With the end of the daily rhythm, children tend to fall apart. They are up till dawn and sleep till noon. Others feel stressed that they can't hand in their homework for this or that reason.'

> 'Typically, there are many living in one household. It's difficult, if it's possible at all, to create a space necessary for learning. Children typically don't have their own "area" and desk. Lower-school children are in particularly big trouble; they are barely able to learn anything during this period without help from their teacher.'

> 'When there are a lot of small children in the family, you can't expect them to be quiet for hours just because the big ones are doing their homework.'

> 'They take advantage of the situation to augment their family's income, and, if they can, they go find work on a daily basis.'

6.4 ASP teachers' recommendations for increasing the success of digital education

At the end of the questionnaire, we asked the ASP representatives what recommendations they have to make digital learning successful among disadvantaged and/or Roma children. Naturally, most of the ASP staff mentioned dealing with the most obvious gaps – that is, providing appropriate digital devices and internet access. One-third of the respondents also noted the need to develop digital competencies as a condition of the shift to digital learning. However, opinions differed significantly about the target group for development (e.g., students, mentees, parents, or ASP staff), those responsible (e.g., the school or the ASP), and the ways of implementing it (e.g., mentoring, training, or regular lessons).

> 'Every student should have their own smart device with internet access. Training should be provided for teachers at the local school, and the school should shift to using a type of secure platform so that students won't have to register on a million surfaces and send their learning tasks in a different format to every teacher. The school should organise one or two additional small-group activities for children who have trouble making individual progress.'

A portion of the respondents called for a deepening of parental responsibility and readiness, while that is precisely what others objected to: the school shifting the responsibility of providing support for the forms of learning used in this extraordinary situation to the family – as one can predict that parents with low educational attainment will not be able to cope with such tasks. There were those who pointed out that it was a wrong-headed approach to focus exclusively on learning in this extraordinary situation, since the problems of impoverishment and, in some cases, hunger, intensified the general insecurity for ASP students' families.

'It's more important that the families involved should survive the months ahead, that they should receive groceries and that they shouldn't lose their housing until they can find work again. Hunger and fear for their very livelihoods represent an even more important problem for the families than the success of digital learning.'

7. Conclusion and recommendations

As we expected, ASP staff viewed the lack of ICT devices and internet access as the fundamental problem among disadvantaged families as regards the shift to digital learning, and the families also asked the ASPs for help in large proportions in this regard. We know from the online workshops that a portion of the ASPs actively sought solutions to the problem of providing ICT devices to students. For example, some joined a fundraising campaign, several ASPs organised their own fundraising efforts, and they attempted to remedy the problem with local institutions in some cases.

It is clear based on the online workshops that a significant proportion of the ASPs managed to supply a majority of their mentees with the devices required for digital learning within one to two weeks – although the condition of these varied. Some of the ASPs distributed their own devices. Two kinds of practice took shape. One solution was to donate to the families exclusively lower-quality ICT devices which were still appropriate for use in learning. The ASP thus wished to ensure that they would also have appropriate devices to teach their mentees after the return to conventional learning, and thus avert the problem of those computers becoming unusable in the meantime. The other solution was to lend out devices, the main argument for which was that the families would not be able to use them in the long term anyway due to their low level of digital competency, and that the devices would require maintenance. The risk was that a portion of the better-quality devices would perhaps become unusable for ASP teaching, and thus put the students involved at a disadvantage in the long term after all.

On the positive side, the pandemic has also created a situation in which a small fraction of disadvantaged students have been supplied with ICT devices and the ICT competencies of some of them have been developed. At the same time, the lack of ICT devices and internet access has certainly not been resolved among the majority of disadvantaged students. The initiatives noted above have arguably not satisfied every need. After all, the ASPs only reach a small proportion of children in need.

In the experience of the ASP teachers, the lack of appropriate learning spaces is also a basic obstacle to digital learning, so children in low-SES families may also need to be provided a desk and headset for effective digital learning. Due to the frequent lack of desks, it is worth supplying families in need with laptops or tablets instead of conventional desktop computers.

The ASPs have clearly reached families living in extreme poverty more effectively than schools have, and families have also requested their help. Based on the high proportion of students that the ASPs managed to reach, it is recommended that the use of chat platforms and telephone communication be strengthened at schools to reach students in extreme poverty. The differing patterns of maintaining contact can also be explained by the divergent nature of the two types of institutions, including the differences in the numbers of students. The schools have arguably targeted their strategies for maintaining contact mainly at the middle class, while the ASPs have focused on low-SES families. In addition, we wish to point out that the responses from the ASP teachers are arguably skewed towards framing their own work in a more positive light. At the same time, a comparison of the practices among ASPs and

schools may help with understanding how schools can reach students in similar situations more effectively.

It is abundantly clear that schools use digital content and channels for assigning learning tasks and communicating much like ASPs do. Due to the low digital literacy of students and parents, it may be particularly important to employ carefully selected, well-coordinated and uniformly used digital platforms in assigning learning tasks. It is an important message for both ASPs and schools alike that self-regulation among disadvantaged students, including time management, is weaker than average (for a review, see Palacios-Barrions & Hanson, 2019), which will be a factor of key importance to take into account in a similar situation for maintaining motivation when assigning learning tasks. It is recommended, first, that teachers focus on this area as they help their students (e.g., with daily schedules and lists of things to do, as well as mutually planning time management) and, second, that they avoid an accumulation of learning tasks in their planning. It is worth assigning learning tasks that require less time, more often (which, based on experience, can be steadily increased), regularly checking that learning tasks have been completed, making obligations transparent, and striving to deliver a consistent workload to students. This last point calls for strong cooperation among the teachers of the various subjects.

The lack of skills required for independent learning (e.g., reading comprehension, learning methodology, and digital literacy) represents a fundamental barrier to the success of digital learning, which is applicable to the extreme among disadvantaged students, since there is less likelihood that they will find help in their immediate social environment. Adequate reading skills are of crucial importance both for students and parents. After noting the absence of an appropriate learning space, ASP representatives listed difficulties in understanding the learning materials, and properly using ICT devices and the internet as the most significant obstacles to digital learning. These results coincide with the results of Kende et al. (2021): teachers of mostly disadvantaged students noted the above-mentioned obstacles in the same order. Difficulties with reading and using ICT technologies and the internet for learning purposes are probably connected. The link between reading achievement and socio-economic status is well-established, and the strength of this relationship is especially strong in Hungary (OECD, 2019a; 2019b). Thus, the pandemic situation has made it clear that it is of key importance to strengthen the skills required for independent learning, the development of which must be a priority goal in future. This is because, first, they represent the foundation for effective independent learning, and, second, because such a strategy should halt the further growth in differences (cf. Cooper et al., 1996). The time that has been lost in learning may lead to large differences within individual school classes in students' readiness, so it is particularly important to use teaching methods adjusted to students' individual characteristics. The new knowledge acquired by teachers during digital learning may well form the basis for the application of individually tailored methods. Intervention programmes aimed at mitigating summer setback may serve as examples for ASPs undertaking to improve reading comprehension (e.g., Beach et al., 2018; Kim & Guryan, 2010). In addition, it is recommended that both schools and ASPs regularly use computer-based reading intervention programmes (e.g., Horne, 2017; Jamshidi-farsani et al., 2019), as these programmes also support students' digital literacy development.

According to our online workshops with ASP representatives, the majority of ASP teachers found during their own online workshops with mentees that most students and their parents lacked experience in communicating via online platforms. Therefore, ASP teachers decided to use a chat platform, which had its limitations as an educational tool, but was well-known by mentees, and the only difference compared to their normal use was switching on

the camera. A further obstacle at the start of the pandemic situation was that a considerable number of mentees and parents did not have email accounts, which greatly restricted the availability of online platforms that could be used for learning, group work, or leisure-time activities. In addition, a significant number of mentees did not have their own rooms at home, thus they were easily distracted by family members during online sessions. In such cases, ASP teachers were not sure whether mentees would re-join the on-going sessions. Quite often, other family members joined the online sessions as well. Therefore, some ASPs introduced certain rules and protocols to be followed by mentees during online workshops.

Disadvantaged students being confined to their homes not only places their participation in education at risk, but the latter arguably also have to struggle with a psychological burden that is heavier than the average due to the situation of their families' livelihood, a crowded living space, and general uncertainty. This may naturally influence the efficacy of teaching. A family's livelihood-related problems may not only represent stress factors, but the energy for learning is also curtailed by the fact that some of these young people join in the effort to earn an income. According to the online workshops, domestic violence often occurs among the ASP mentees' families. Prevention calls for increased attention as well as points to the necessity of focusing on the family in its entirety in similar crisis situations in an effort to safeguard students' mental health. For example, supplying families with developmental games, board games, and sports equipment as well as with online options that may aid in managing stress, creating a community experience, and providing enjoyable leisure-time activities may ease the psychological burden. A great example of this is the cooking club introduced by one of the ASPs during the pandemic, which involved parents as well. All participants followed the same recipe in preparing a meal, and then shared the images of the food they cooked with each other. Another example was a five-week challenge for mentees to help manage their emotions. Mentees were given tasks that were related to recognizing emotions and coping with stress.

This research is not representative, and was launched at an early stage of the transition to digital learning. Thus, favourable changes may have taken place as regards technological conditions, ICT competencies, and educational practice following our period of data collection. In addition, the questionnaire was supposedly completed by mainly those ASP teachers that were better prepared and more motivated to engage in digital education, thus the results may paint a more favourable picture of the work of ASP teachers than the reality, further limiting the generalizability of our findings.

Acknowledgements

References

Andrew, A., Cattan, S., Costa-Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., Phimister A., & Sevilla, A. (2020) Inequalities in children's experiences of home learning during the COVID-19 lockdown in England. *Fiscal Studies, 41*(3), 653–683. https://doi.org/10.1111/1475-5890.12240

Bacher-Hicks, A., Goodman, J. & Mulhern, C. (2021) Inequality in household adaptation to schooling shocks: Covid-induced online learning engagement in real time. *Journal of Public Economics, 193*, Article 104345. https://doi.org/10.1016/j.jpubeco.2020.104345

Bradley, R. H. & Corwyn, R. F. (2002) Socioeconomic status and child development. *Annual Review of Psychology, 53*(1), 371–399. https://doi.org/10.1146/annurev.psych.53.100901.135233

Center for College and Career Readiness & Successful Practices Network (2020) *Research Brief: The impact of school closures on student learning. An analysis of real-time data for 1.6 million students using Achieve3000 literacy.* Achieve3000, Inc. https://www.achieve3000.com/media/resources/ImpactofSchoolClosuresonStudentLearning_qJzoDjx.pdf

Chetty, R., Friedman, J. N., Hendren, N., Stepner, M. & Opportunity Insights Team (2020) *The economic impacts of COVID-19: Evidence from a new public database built using private sector data.* Opportunity Insights. https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf

Cooper, H., Nye, B., Charlton, K., Lindsay, J. & Greathouse, S. (1996) The effects of summer vacation on achievement test scores: A narrative and meta-analytic review. *Review of Educational Research, 66*(3), 227–268. https://doi.org/10.3102/00346543066003227

Csapó, B., Fejes, J. B., Kinyó, L. & Tóth, E. (2019) Educational achievement in social and international contexts. In T. Kolosi & I. G. Tóth (Eds.), *Social Report 2019* (pp. 217–236). TÁRKI.

Központi Statisztikai Hivatal (KSH) (Central Statistical Office, Hungary) (2019) *Gyermekjóléti alapellátások (2008–) (Child welfare benefits, 2008–).*http://www.ksh.hu/docs/hun/xstadat/xstadat_eves/i_fsg008c.html

European Commission (2019) *Digital Economy and Society Index (DESI) 2019, Country Report Hungary.* https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=59898

Fana, M., Torrejón Pérez, S. & Fernández-Macías, E. (2020) Employment impact of the Covid-19 crisis: From short-term effects to long-term prospects. *Journal of Industrial and Business Economics, 47*(3), 391–410. https://doi.org/10.1007/s40812-020-00168-5

Fejes, J. B. (2012) Learning motivation of disadvantaged students. In N. M. Seel (Ed.), *Encyclopedia of the Sciences of Learning* (pp. 1935–1937). Springer. https://doi.org/10.1007/978-1-4419-1428-6_680

Fejes, J. B., Lencse, M. & Szűcs, N. (Eds.) (2016) *Mire jó a tanoda? A TanodaPlatform keretében összegyűjtött innovációk, kutatások, történetek (What is an after-school programme good for? Innovations, research and stories).* Motiváció Oktatási Egyesület.

Fodor, É., Gregor, A., Koltai, J. & Kováts, E. (2020) *Az egyenlőtlenségek alakulása a koronajárvány idején Magyarországon (The evolution of inequalities in Hungary during the coronavirus pandemic).* Friedrich-Ebert-Stiftung. http://library.fes.de/pdf-files/bueros/budapest/16606.pdf

Grewenig, E., Lergetporer, P., Werner, K., Woessmann, L. & Zierow, L. (2020) Covid-19 and educational inequality: How school closures affect low- and high-achieving students. *European Economic Review, 140,* Article 103920. https://doi.org/10.1016/j.euroecorev.2021.103920

Heckman, J. J., Humphries, J. E., Urzua, S. & Veramendi, G. (2011) *The effects of educational choices on labor market, health, and social outcomes* [Working Paper No. 2011-002]. Hu-

man Capital and Economic Opportunity: A Global Working Group. Working Paper Series. http://humcap.uchicago.edu/RePEc/hka/wpaper/HHUV_2010_effect-edu-choice.pdf

Hermann, Z. (2020) *Hány diákhoz nem jut el az online távoktatás? (How many students have no access to online distance learning?).* Közgazdaság- és Regionális Tudományi Kutatóközpont, Közgazdaság-tudományi Intézet. https://www.mtakti.hu/koronavirus/hany-diakhoz-nem-jut-el-az-online-tavoktatas/12769/

Horne, J. K. (2017) Reading comprehension: A computerized intervention with primary-age poor readers. *Dyslexia, 23*(2), 119–140. https://doi.org/10.1002/dys.1552

Ipsos (2020) *A digitális oktatás infrastrukturális háttere és megvalósíthatósága Magyarországon [Digital education in Hungary: Infrastructure and feasibility]* [White paper]. https://www.ipsos.com/hu-hu/digitalis-oktatas-infrastrukturalis-hattere-es-megvalosithatosaga-magyarorszagon

Jamshidifarsani, H., Garbaya, S., Lim, T., Blazevic, P. & Ritchie, J. M. (2019) Technology-based reading intervention programs for elementary grades: An analytical review. *Computers & Education, 128*, 427–451. https://doi.org/10.1016/j.compedu.2018.10.003

Kende, Á., Messing, V. & Fejes, J. B. (2021) Hátrányos helyzetű tanulók digitális oktatása a koronavírus okozta iskolabezárás idején (Digital learning of disadvantaged students during the school closure due to COVID-19). *Iskolakultúra, 31*(1), 76–97. https://doi.org/10.14232/ISKKULT.2021.02.76

Kertesi, G. & Kézdi, G. (2016) On the test score gap between Roma and non-Roma students in Hungary and its potential causes. *Economics of Transition, 24*(1), 135–162. https://doi.org/10.1111/ecot.12076

Kim, J. S. & Guryan, J. (2010) The efficacy of a voluntary summer book reading intervention for low-income Latino children from language minority families. *Journal of Educational Psychology, 102*(1), 20–31. https://doi.org/doi/10.1037/a0017270

OECD (2015) *Students, computers and learning: Making the connection.* OECD Publishing.

OECD (2018) *Equity in education: Breaking down barriers to social mobility.* OECD Publishing.

OECD (2019a) *PISA 2018 results (Volume I): What students know and can do.* OECD Publishing.

OECD (2019b) *Skills matter: Additional results from the survey of adult skills.* OECD Publishing.

Palacios-Barrios, E. E. & Hanson, J. L. (2019) Poverty and self-regulation: Connecting psychosocial processes, neurobiology, and the risk for psychopathology. *Comprehensive Psychiatry, 90*, 52–64. https://doi.org/10.1016/j.comppsych.2018.12.012

Pénzes, J., Pásztor, I. Z., Tátrai, P. & Kóti, T. (2019) Roma population in Hungary – spatial distribution and its temporal changes. *Deturope, 11*(3), 138–159.

Szűcs, N. & Fejes, J. B. (2021) Csodafegyver vagy pótcselekvés? A tanodamozgalom története és legitimációs kérdései (The secret weapon or just a substitute for action? The history and legitimacy of Hungarian after-school programmes for disadvantaged students). *Iskolakultúra, 31*(1), 45–67. https://doi.org/10.14232/ISKKULT.2021.01.45

40/2018. (XII. 4.) EMMI rendelet a gyermekek esélynövelő szolgáltatásainak szakmai feladatairól és működésük feltételeiről (Ministry of Human Resources decree on the professional tasks involved in social mobility services for children and the conditions for their operation). https://net.jogtar.hu/jogszabaly?docid=A1800040.EMM

1102/2020. (III. 14.) Korm. határozat a koronavírus miatt a köznevelési és szakképzési intézményekben új munkarend bevezetéséről (Government decree on the new working procedures in public and vocational education institutions). https://net.jogtar.hu/jogszabaly?docid=A20H1102.KOR