EDUCATION AT SECOND CHANCE SCHOOLS DURING THE FIRST WAVE OF THE COVID-19 PANDEMIC IN SLOVAKIA – TOOLS, METHODS, EFFECTIVENESS

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Abstract: The effectiveness of second chance education (SCE) analysis during the first wave of the COVID-19 pandemic in Slovakia was carried out by the research indicators: 1) organisation, 2) technology, 3) communication, 4) attitudes – emotions – assessment; on two levels of interaction: 1) teacher – student, 2) teacher – teacher (school), using an online questionnaire (135 participants – teachers), in location: 1) developed districts (DD), 2) underdeveloped districts (UDD). The effectiveness of education was significantly higher at schools in DD in comparison to UDD.

Keywords: Second chance education, vocational education, effectiveness of education, distance learning, education in a crisis, online education.

1 Introducion

The year 2020 has placed education systems worldwide in front of an unprecedented situation induced by the coronavirus pandemic, affecting all levels and types of schools which had to promptly respond to the suspension of face-to-face education. Schools, predominantly, responded to the new situation by transferring to distance forms of education, especially utilising online tools and information technologies (online learning). The transfer to the distance form of education brought about a whole series of issues, mainly connected to the technological equipment of education, digital competences of teachers and students, students' internet access and information and communication technology (ICT) equipment in the household, as well as the quality of education and possibilities of assessing the process and results of teaching (Alcazar et al., 2020). The question arose *whether present-day national education systems are able to guarantee a reduction of inequalities in education in the changed conditions, or whether these are likely to deepen* (Stanistreet, 2020; Andrew et al., 2020). According to a number of studies (Dietrich et al., 2020; Bonal, Gonzáles, 2020), closing schools has a potential to deepen social inequality regarding access to education. "Ensuring digital equity is crucial in this tough time" (Dhawan, 2020, p. 16). Issues regarding insufficient infrastructure emerged in less developed countries, as well as underdeveloped regions with a higher level of poverty (Di Pietro et al., 2020).

Vocational education is among the most affected types, as it combines theoretical studies with practical training, oftentimes in the environment of manufacturing companies. Vocational education and training (VET) is, on a long-term basis, considered a less attractive type of education, as evidenced by a 2017 CEDEFOP survey, according to which VET's image, albeit generally assessed in a positive way, is, in comparison to general secondary education, less favourable (Billett, 2014; Lovsin, 2014). In Slovakia, vocational education and training of adults at secondary vocational schools has not been specifically studied and even less is known about the ways in which studies were carried out in the distance form once face-to-face education was suspended. Digital skills of adults (especially senior citizens) are generally less developed; these people often have to manage their parental and work-related duties with their studies while the socio-economic background of those adults who are trying to get their first certificate also often plays a significant role. Adults entering second chance schools often come from lower-income environments with poorer technology, in many cases, they do not own a computer or have internet access. Slovakia is one of those countries where internet access varies greatly depending on the income and education of the parents (Di Pietro et al., 2020). In OECD countries, more than one in five adults has low skills (OECD, 2019a) and 56% of the adult population have no ICT skills (OECD, 2016). That was why we were interested in how schools and teachers coped with the education of this specific group of adult students, who, oftentimes, do not have sufficient digital skills that would allow them to easily transfer to a distance form of education.

2 Vocational education in the first wave of the COVID-19 pandemic – findings and initiatives so far

Several papers analysing the manifestations and impact of the coronavirus pandemic on education in general have been published; others focus on compulsory education, higher education, or university education (such as Di Pietro et al., 2020; Lassoued et al., 2020; Dhawan, 2020; George, 2020; Adedoyin, Soykan, 2020; Tria, 2020). Papers studying the attitudes of teachers towards the effectiveness of online education have also been issued (Todd, 2020; Yang, 2020; Song et al., 2020; Tzivinikou et al. 2020), however, there are much fewer papers specifically focused on VET (e.g Ndahi, 2020; Özer, 2020; Mulyanti et al., 2020). Due to the pandemic, several VET-related initiatives have been launched, whose progress and impact have been observed by the *European Commission* by means of an online questionnaire. It has been found out that the number of online courses and teaching modules has gradually reached a colossal number; however, a majority of them were not related to vocational education and training (European Commission, 2020).

Negative consequences of suspending lessons in vocational education have been pointed out in the area of educational outcomes, student motivation, increased risk of early termination of studies, etc. Whether one continues in their vocational studies depends, to a large extent, on their digital skills (as well as those of their teachers), their ability to react to the changed, crisis-induced, conditions, the reconstruction of the communication space, etc. (UNESCO, 202). One of the few studies presenting the current impact of the pandemic on VET indicates that, in Caribbean countries, as many 53% of students in vocational studies failed to join any form of online education, while the remaining 47% were involved in a limited extent (Ndahi, 2020).

Basic information regarding the ways individual European countries coped with the suspension of face-to-face teaching in vocational education were provided on the CEDEFOP website, where individual countries published their reports regarding the COVID-19 pandemic situation and presented the main measures they gradually implemented to guarantee continued vocational education and training (CEDEFOP, 2020b). OECD (2020a) provides more detailed information regarding various measures and tools that were to compensate for suspended face-to-face education. In the Netherlands, for instance, in was possible to maintain face-to-face education for small groups of students who did not have access to digital resources and technologies; in France, free online three-month VET courses were available; several countries implemented financial support for employers involved in work-based learning (Austria, Germany, Switzerland, and others), while some countries recognised the important role of VET in the crisis and post-crisis period and started to finance the sector in question on a much larger scale (Sweden, USA) (OECD, 2020a). From the information provided by CEDEFOP (2020a) regarding the situation of disadvantaged students of vocational education and training it follows that, under the influence of the crisis, the situation worsens even further and a higher level of dropouts can be expected (Cedefop, 2020a).

According to an OECD report (2020a), the most common problems of vocational education during the first wave of the pandemic were connected to the suspension of face-to-face

education as well as practical training (be it at school or in enterprises). Within some programmes, it is possible to teach theory online; however, it is impossible to effectively teach practical subjects due to insufficient access to tools, materials, and equipment. An OECD paper (2020b) focuses on adults and the potential of online forms of education during the pandemic and points to the need to address the issue of inclusion in a more thorough way so that all adults benefit from online education, including those with a lower level of digital skills and limited access to a computer and the internet, as well as adults with a lower level of self-motivation.

The use of ICT by teachers is a key factor in online education. Bergdahl and Nouri (2020) studied the readiness of teachers and schools for distance education, plans to deliver it, as well as teachers' experience when making this transition. Mynaříková and Novotný (2020) studied the barriers Czech secondary school teachers experienced when using ICT in teaching and found out that ICT was only used occasionally in teaching, which confirms the results Daniel et al. (2020) arrived at, i.e. that Czech teachers are not prepared to adequately teach their students in the distance form of education. According to the result of a 2018 TALIS survey, instructional computer technology was part of the initial preparation of just under 60% of teachers (OECD, 2019b). Teachers with a higher level of self-efficacy in the area of ICT who use the support of a supervisor tend to have a more positive approach to distance education (Košir et al., 2020).

3 Distinctive features of adult vocational education in Slovakia – developed districts (DD) and under-developed districts (UDD)

Based on the methodology of *Labour Force Survey*, only 3.6% of the adult population aged 25 to 64 were involved in education in the last four weeks of 2019 (Eurostat, 2019) and only 1% of the adult population is taking part in formal education in Slovakia. In 2019, Slovakia was among the six countries with the lowest level of adults participating in adult education across all EU member countries. Among the registered unemployed, applicants with incomplete primary education account for 5.1%, while applicants with primary education make up 23.3% (*Ústredie práce, sociálnych vecí a rodiny*, 2020). Among EU countries, Slovakia has the highest rate of unemployment people with a low level of education (29%), while the EU average is 14% (Hellebrandt et al., 2020, p. 9). This group of adults most usually lives in the least developed districts of Slovakia, while a significant portion of these live in marginalised Roma communities. The geographical distribution of the Roma population in Slovakia and the map of underdeveloped districts significantly overlap (cf. Hrabovská, 2020; Matlovičová et al., 2012). Consequently, insufficient inclusion in education is reflected in significant differences in a person establishing themselves in the labour market.

In Slovakia, there is no organised way of providing people with a low level of or no completed education with information and support towards their participation in vocational or general secondary education. Completing secondary vocational or general education in Slovakia is only possible in the network of secondary schools which offer simultaneous completion of primary education. Adults in secondary vocational schools in Slovakia can get education in both full-time and part-time form, the latter being most frequent, carried out by means of *evening, remote,* or *distance* form. 5,156 students completed part-time secondary education (ISCED 2C, 3C) in 2020. Based on the 2019 data, more than 66% of these had, at best, completed primary school education. As many as 48% of them completed study programmes with no vocational certificate (so called F-type programmes with specially adapted curriculum) in such areas where employment is hard to find (CVTI SR, 2020). These are, most frequently, adults from vulnerable groups.

The highest numbers of people lacking formal education, or with completed primary education, live in the Košice, Prešov, and Banská Bystrica regions (Vančíková, 2019), where the least developed districts are concentrated. The main criterion dictating whether a district is classified as underdeveloped is a rate of unemployment in at least nine consecutive quarters that is higher than 1.6 times the official average national unemployment rate for the same period (*Zákon č. 336/2015 Z. z. o podpore najmenej rozvinutých okresov*). At present, there are 20 (out of a total of 79) such districts which are, geographically, mainly concentrated in the south and east of Slovakia.

Tab.1: Indicators of the level of district development

INDICATOR	DD	UDD
Unemployment rate	low, average	above average
Level of poverty and social dependency	low	high
Job opportunities	sufficient	insufficient
Concentration of people without formal education or with completed primary education	low	extremely high
Concentration of marginalised Roma communities	low	extremely high
Student performance in international assessment (PISA)	average	below average

Source: Author´s own work.

4 Education during the pandemic in Slovak schools – research questions and framework

In Slovakia, data were collected from primary and secondary schools to find out how they coped with the transfer to the distance form of teaching (Ostertágová, Čokyna, 2020). The results of the survey pointed to several unfavourable matters. 7.2% of primary and secondary school students were not involved in distance education and 18.5% of the student population were not involved in online education. In online teaching, the asynchronous form, i.e. sending assignments by email, dominated. Online lessons were primarily used by only 20% of teachers (Ostertágová, Čokyna, 2020, pp. 1-2). At schools with high numbers of students from a socially disadvantaged environment, the ratio of students who were not involved in online education was several times higher in comparison to other schools. Among secondary schools with the highest number of students from socially disadvantaged environments, 13.9% were not involved in distance education, in comparison to 2.9% at secondary schools with the lowest numbers of such students. The highest ratios of students who did not participate in online education were recorded in the Prešov, Košice, and Banská Bystrica regions, where the number of the underdeveloped districts is the highest, together with the highest long-term unemployment rates, concentration of poverty, and socially excluded communities. At such schools, teachers claimed they perceived the identified problems in a more intense way, problems with distance education occurred more frequently, and they expressed the need for specific support more often. Teachers' responses in the questionnaire referred to the overall education process and did not differentiate between the full-time and part-time form of education. Based on the available data, it is, thus, impossible to derive information regarding the state of affairs within the distance form of adult education. The present research can, therefore, provide unique information regarding adult education at secondary vocational schools during the pandemic taking regard for the differences between developed and underdeveloped regions.

During the state of emergency declared on March 16th, 2020, face-to-face education was suspended throughout the whole country at all types of schools – from kindergartens to universities. From one day to another, schools, thus, made a shift to the distance form and face-to-face education was, at all schools (with the exception of universities), resumed in June 2020. The specific form of distance education was selected by each school and adapted to the school's (students' and teachers') capabilities and limitations. What was recommended by the Ministry of Education was online education (asynchronous – www.edupage.sk and synchronous), telephone and postal communication, or other forms of sending assignments to and receiving them from students. Schools were obliged to provide all students access to education according to their possibilities, respecting anti-epidemic measures.

The content of education at secondary schools was reduced to general-education subjects (languages, mathematics, Civics) and vocational subjects of the study programme in question. Since those subjects that could not be carried out in a distance form (such as laboratory work, practical subjects) were not to be assessed, the final evaluation only concerned general and vocational theoretical subjects. Teachers were to apply combined assessment (graded classification and written evaluation) mainly focused on projects, topic-based assignments, and individual practical work. The Ministry recommended that, when awarding grades at the completion of a study programme, secondary schools were to finalise the grades in an administrative way, i.e. calculate the average of the students' results in practical training.

The present research plan was inspired by a great number of questions connected to the specifics of education in a crisis: How was the part-time form of vocational education of adults carried out at cooperating schools during the first wave of the COVID-19 pandemic in Slovakia? What tools, techniques, and methods were used? In what way were (theoretical and practical) lessons carried out and to what effect? What were the specifics of teacher – student, teachers – teacher, and teacher – school communication? What are the characteristics of key instruments of education with regard to information technologies and their effectivity? How do teachers rate the effectiveness of education in the changed conditions? Did the new situation bring about any positives? What were the negatives? How is effectiveness of education measured in the changed conditions?

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4.1 Research objective, hypothesis

To find out the level of effectiveness of SCE in the first wave of the COVID-19 pandemic in Slovakia.

It is hypothesised that the effectiveness of SCE in the first wave of the COVID-19 pandemic in Slovakia regarding its organisation, technological support, communication, and attitudes-emotions-assessment varies depending on the locality (district) factor.

4.2 Participants

The participants of the present research were teachers at secondary vocational schools who, apart from students in the full-time form, also taught adult students in the part-time form. Teachers took standard training at Faculties of Education where they were trained to teach general-education or specialist/technical subjects, or they entered education as professionals who had studied a non-teaching programme and had to take a course in pedagogy in the form of a supplementary teaching programme. In Slovakia, no specific model of teacher training is in practice developing teachers' specific competences for groups of non-traditional adult students of various ages, life and work experience, motivation and expectations, oftentimes coming from a socially-disadvantaged environment (Pirohová, 2019; Temiaková, 2020), which could be the main source of mutual misunderstanding that could, according to Walker (1987, in: Ross, Gray, 2005), be minimised through the implementation of intercultural articulation.

In 2019, adults studied in the part-time form at 111 secondary vocational schools. By means of an online questionnaire, 29 selected secondary vocational schools were contacted that met the observed criteria – they were teaching adult students with no completed education or completed primary education in the part-time form. Out of these, 44.8% were situated in underdeveloped regions.

The online questionnaire was filled in by 135 teachers in cooperating schools, out of whom 44.19% were working at schools in UDD and 55.81% at schools in DD in Slovakia. To describe the target group, two identification features were used – gender and the length of their teaching experience. A dominant majority of the participants were female teachers (88.64%), with more (52.63%) working in DD than UDD (47.37%). The percentage of male teachers was significantly lower (11.63%); out of these 80% were working in DD and 20% in UDD. From these data, it follows that the teaching profession is more significantly feminised in UDD than in DD.

Most teachers in UDD (84.21%) stated they had been teaching for 10 or more years, while there were a lot fewer teachers (15.79%) who had been teaching longer than one but shorter than five years; none of the participants from UDD stated they had been teaching between six and 10 years (0.00%). A higher percentage of teachers from DD in the range of one to five years of teaching experience participated in the research (20.83%) than in UDD (15.79%), while there were fewer teachers with 10 years or more of teaching experience (75.00%) than in UDD (81.21%); 4.17% teachers from DD stated they had been teaching between six and 10 years (UDD – 0.00%). In total, most participants of the research were teachers with 10 or more years of experience (79.07%), while the number of those who had been teaching longer than one but shorter than five years was considerably lower (18.60%) and the lowest percentage of participants (2.33%) stated teaching experience of six to 10 years. According to the above data, with regard to teaching experience, the composition of participants from DD was slightly more balanced than that of UDD participants. As many as 100.00% of male teachers stated they had been teaching 10 or more years, which means that all the other categories based on the length of teaching experience were represented by female teachers only.

4.3 Data collection

To study the selected aspects of processes, techniques, and the effectiveness of SCE during the first wave of the COVID-19 lockdown, information acquired directly from cooperating schools was necessary. To collect empirical data, an online questionnaire, distributed by email, was used, with a return rate of 80%. The structure of the questionnaire followed research objectives in four dimensions, defined by indicators of education effectiveness: 1) organisation, 2) technological support, 3) communication, and 4) emotions-attitudes-assessment. Research within these dimensions had two levels, taking the nature of interaction into regard: 1) teacher – student, 2) teacher – teacher (school). The key differentiating factor was distinguishing between the districts based on their level of development: 1) underdeveloped districts (UDD), and 2) developed districts (DD). For further, more detailed, classification, the following identification characteristics were used – gender, and the length of teaching experience, as well as relevant variables within the set sub-dimensions.

Single-item (closed and open) and multi-item questions, tested by means of a set of items (Crombach's $\alpha = 0.72 – 0.90$) were used to measure the level of effectiveness of education and ranking the positives, or negatives, in teachers and students according to a 5-point scale: 1 – definitely effective (affirmative), 5 – definitely ineffective (dissenting).

To process the empirical data and a quantitative analysis, methods of descriptive statistics were used, as well as bi-variation analysis for discrete variables, reliability tests, and analysis of variance (ONEWAY) in order to test relevant

differences of continuous variables and tendencies in the influence of differentiating factors.

4.4 Results

The results of the statistical processing of empirical data point to many significant findings and allow for quantitative analysis of the effectiveness level of education with regard to the research framework, defined by indicators and the main differentiating factor.

The summary mean for the effectiveness of education in the teachers' evaluation is M=1.85. It signifies a evaluation of effectiveness in positive spectrum of the 5-point scale and points to the fact that, even in the conditions changed by lockdown measures, there was a great effort to take a responsible approach to necessary solutions and keep the education process as functional as possible. Taking a look at the results for individual dimensions, sub-dimensions, and levels allows for deeper understanding and defining a great number of specific features of their general effectiveness.

Tab. 2: Effectiveness of SCE during the first wave of the COVID-19 pandemic within defined dimensions and summary differences between districts, ONEWAY

DIMENSIONS	LEVELS	SUB-DIMENSIONS	F	P	M	
					UDD	DD
O*	Teacher – student	Effectiveness of working with students	19.73	0.00*	2.54	2.08
	Teacher – teacher (school)	Effectiveness of cooperation among teachers (with school)	0.04	0.85	1.42	1.44
ORG. SUMMARY			9.87	0.00*	1.98	1.76
TS*	Teacher – student	Effectiveness of teachers' (self-assessment) and students' digital skills and technological equipment	28.30	0.00*	2.59	2.17
	Teacher – teacher (school)	Effectiveness of other teachers' digital skills and technological equipment (school)	1.16	0.69	1.47	1.44
TECH. SUMMARY			13.09	0.00*	2.03	1.80
C*	Teacher – student	Effectiveness of communication with students	9.58	0.00*	2.53	2.23
	Teacher – teacher (school)	Effectiveness of communication among teachers (with school)	11.38	0.00*	1.16	1.35
COM SUMMARY			10.00	0.00*	1.16	1.35
AEA*	Teacher – student	Assessment of students' positives	10.21	0.00*	3.42	3.03
		Assessment of students' negatives	0.84	0.36	2.98	2.84
	Teacher – teacher (school)	Assessment of teachers' positives	0.12	0.73	1.77	1.74
		Assessment of teachers' negatives	23.65	0.00*	2.28	2.87
AEA POSITIVE SUMMARY			6.56	0.01*	2.60	2.38
AEA NEGATIVE SUMMARY			3.91	0.05*	2.63	2.85
EFFECTIVITY ORG + TECH + COM +AEA SUMMARY			9.33	0.00*	1.95	1.73

Sign: p≤0.05*
Organization* Technological support* Communication* Attitudes – emotions – assessment*
Source: Author´s own work.

4.4.1 Organizational dimension

The analysis of the character and effectiveness of SCE with regard to organisation is based on statistical processing of empirical data relating to the core information on the course, forms, techniques, and organisation of education in a crisis and data showing the effectiveness of organisation by teachers in relation to students and other teachers, or school. We were interested in whether, in the changed conditions, education continued, it what way, how the key instruments for its realisation were provided, especially the influence of the locality factor when this tendency was accompanied by some significant specific features in the internal mode of cooperating schools.

According to the obtained data, all participants, both in UDD and DD, transferred to the distance form. In total, 67.44% claimed that the content of the curriculum was not reduced, while 62.79% did not reduce the extent (lessons) of education either. Reduction was mainly pursued in carrying out practical subjects. Differences between UDD and DD point to the fact that reductions were more significant in schools in UDD, and the extent of education being reduced to a lesser degree (47.37%) than its content (42.11%). In contrast, as many as 75.00% of schools in DD avoided content reduction and 70.83% refrained from reducing the extent; put differently, only 25.00% reduced the content while 29.17% reduced the extent of the curriculum. Reduction mainly concerned the teaching of practical subjects, 41.46% of the entire research sample stated practical education was completely suspended while 31.71% continued to teach practical subjects in a reduced way. Only 7.32% of teachers claimed the practical part of education was carried out in an unchanged form. Out of the schools that continued practical education in an unchanged way, a great majority (66.67%) is located in DD, a minority (33.33%) in UDD. However, when looking at the options chosen by UDD and DD schools, it can be stated that complete suspension of practical education was more frequent in DD schools (43.48%), than in UDD schools (38.89%), the latter group striving, in spite of worse conditions, to maintain the teaching of practical subjects. In general, the number of schools who chose the least preferred variant – 'practical education in an unchanged form' – was slightly higher in DD (8.70%) than in UDD (5.56%). The practical education mode concerned the way in which the education of practical subjects was carried out, as well as the methods, techniques, and tools implemented. Out of all participating teachers, the largest group stated practical skills were acquired in the students' home environment (30.77%), this variant being primarily chosen by DD schools (50.00%), which makes it the dominant approach. The relatively low percentage (22.22%) of schools from UDD who chose this variant was also caused by the fact that, in comparison to DD schools, they also implemented such techniques that DD schools did not use at all – delivery by post (22.22%) and telephone consultations with a subsequent handing-in of the finished product (11.11%). Other methods, used by both UDD and DD schools, concerned individual assignments and projects as well as demonstrations of working procedures (such as videos) – in total, 23.08% – were implemented to a slightly higher extent at DD schools (25.00% equally for both techniques) than at UDD schools (22.22% equally for both techniques), suggesting minimal locality difference.

The obtained data in the ways and tools of alternative education of all taught subjects point to the fact that, in total, the most preferred combination was 'online teaching – email – telephone communication' (23.26%), followed by 'online teaching – email' (20.93%), while the combination 'email – delivery by post' was used least frequently (2.33%). Regarding the differences in the preferred available tools of alternative teaching by UDD and DD schools, it can be stated that, similarly to the data on the ways of practical teaching, delivery by post was exclusively used by UDD schools. This was, in combination with telephone communication, the most frequently used way of alternative teaching (31.58%), while it was used slightly less often in combination with email communication (15.79%). Online teaching was only exclusively used by 10.53% participants of the entire research sample. At DD schools, online education was the preferred instrument (in total, 71.83% schools), usually in combination with email communication (37.50%) and combination: online education - email - telephone communication (33.33%).

The selection of techniques for continuous and final assessment of the students in the final year of their studies was also part of the organisation of education. The forms of continuous assessment were selected according to the nature of the taught subject, while taking the study programme into consideration. In

total (regardless inter-district differences), the most preferred forms of continuous assessment were individual assignments (53.49%), followed by individual assignments in combination with online tests (32.56%). Online tests as the only form, or in combination with other forms, were used by as many as 54.17% of teachers from DD, while only 26.31% of teachers from UDD did so due to students' insufficient technological equipment, making individual assignments the preferred form in UDD (73.68%). The least frequently used form of continuous assessment was oral examination (DD – 5.23%, UDD – 4.17%), and even that only in combination with online tests or individual assignments. The forms of final exams were observed separately for theoretical and practical subjects. In both cases, the final grade calculated as the average of up-to-date evaluations and results dominated (theoretical subjects – 84.62%, practical subjects – 83.78% of the entire research sample). At UDD schools, this was the sole form of final evaluation. Schools in DD also occasionally used online exams (practical subjects – 10.00%, theoretical subjects – 14.29%) and face-to-face exams (practical subjects – 15.00%, theoretical subjects – 14.29%).

According to the summary score (without differentiation between the observed sub-dimensions), the ratings of the effectiveness organising education significantly differed with regard to the defined levels, where the total M for the 'teacher – student' level equalled 2.27 and M for the 'teacher – teacher (school)' level equalled 1.44. This means that, if there were any less effective aspects of organisation, they concerned especially of the sub-dimension 'effectiveness of working with students', where the overall differences between UDD and DD appeared to be much more considerable (F=19.73, p=0.00), working with students being rated as more effective in DD (M=2.08) than UDD (M=2.54). At the 'teacher – teacher (school)' level, the rating of effectiveness in the sub-dimension 'effectiveness of teacher – school cooperation', no statistically significant differences between UDD and DD were founded (F=0.04, p=0.85, M for NRO=1.42, M for RO=1.44). Therefore, if there are any summary statistically significant district-based differences in the rating of the effectiveness of organising education (F=9.87, p=0.00), they almost exclusively concerned cooperation with students and, according to the mean score, the organisation of education as slightly less effective in DD (M=1.76) than UDD (M=1.98), where the students' conditions were much less favourable.

The sub-dimension 'effectiveness of working with students' in the operationalisation was measured by six items: the frequency of working with students, implementation of teaching methods and techniques, forms of student assessment (choice of methods and tools), flexibility within the organisation of education, carrying out theoretical education, carrying out practical education. The most significant differences between UDD and DD were founded in carrying out theoretical education (F=25.24, p=0.00), when the mean scores point to greater effectiveness in DD (M=1.58) than UDD (M=2.21) where, among other things, the main problem was students' technological equipment. The participating teachers rated carrying out practical education as least effective, again, more considerably in UDD (M=3.58) than DD (M=3.04). Statistically significant differences (F=8.17, p=0.00) were also founded in the area of tools and techniques implemented in practical education. Apart from the effectiveness of teaching practical subjects, the teachers' ratings ranged from 1.83 (flexibility of education organisation) to 2.04 (frequency of working with students), while the teaching of theoretical subjects was rated as most effective (M=1.58). In the group of UDD teachers, the mean scores are higher in all items, from 2.22 (forms of student assessment) to 2.53 (frequency of working with students), while the teaching of theoretical subjects was, equally to DD, more effective (M=2.21). All tested differences are highly statistically significant.

The ratings of the effectiveness in the sub-dimension 'teacher – school cooperation' rather differed; this sub-dimension having been measured by items of: coordination of teaching activities among teachers, continuity of the taught activities, the level of free will in the used techniques of teaching, work from home, work from school, combining work from home and school, where only the differences in 'work from home' (F=4.20, p=0.04) were statistically significant. Other items of this sub-dimension do not manifest more significant differences between UDD and DD, suggesting a lower mean score (which means the effectiveness is higher) than in the sub-dimension 'rating working with students'. Work from home was rated as markedly most effective by UDD teachers (M=1.16), while work from school was considered least effective (M=1.58). The participating teachers from DD also considered work from home most effective (M=1.33), although to a lesser extent than in the case of the teachers from UDD; the continuity of teaching activities was rated as the least effective M=1.67). Still, the ratings are clearly placed in the positive spectrum of the 5-point scale.

With regard to the above results measuring organisation, it could be stated that the founded summary data comply with the assumption expressed in the research hypothesis, as certain differences were recorded between individual sub-dimensions and the findings only correspond with the assumption in the 'rating working with students' sub-dimension.

4.4.2 Technological dimension

Rating the effectiveness of education with regard to the technological equipment was observed within the levels: teacher – student, and teacher – teacher (school), which is, in the cross-section, further broken down to rating the quality of technological skills (teachers' and students' digital skills) and the level of technological equipment (teachers' and students' technological capabilities and limitations). Generally speaking, the technological side of education was rated as close to the average, summary M equalling 2.34; however, the internal structure of the findings points to some interesting specifics. The summary differences between UDD and DD are statistically significant (F=13.09, p=0.00), with the effectiveness (as expressed by the participants) slightly higher in DD (M=1.80) than in UDD (M=2.03). According to the data within the sub-dimension 'rating the skills and technological equipment of the participants and students', the least technologically effective is the students' space (for the entire research sample without differences: technological capabilities and equipment M=3.15, digital skills M=2.70), while the same parameters had better, albeit not the best, rating (for the entire research sample without differences: technological capabilities and equipment M=1.77, digital skills M=1.73). While no statistically significant differences were founded among the participating teachers in either the rating of their own digital skills or the rating of their technological equipment, highly significant differences were observed in the students, the UDD data pointing to lower than average effectiveness. Somewhat greater were the differences founded in the effectiveness of the digital skills of students (F=36.37, p=0.00, M for UDD =3.21, M for DD=2.33); smaller, but still highly significant, differences were observed in the technological capabilities and equipment of students (F=18.84, M for NRO=3.53, M for RO=2.92). According to the mean score, in the students, both observed parameters are problematic; it is; however, more considerable in the area of technological equipment than their actual skills. This is most significant in UDD students where the summary effectiveness of the IT environment (skills + technology) is only M=3.34 (M for RO=2.63).

The sub-dimension 'technology: teachers - school', measured by items of: teachers' digital skills, teachers' technological capabilities and equipment, school's IT equipment, school's readiness to provide necessary IT equipment, achieved an summary mean score M=1.45, which is quite a positive rating; no statistically significant differences between UDD and DD were founded. The only item where statistically significant differences between UDD and DD were observed was 'school's readiness to provide necessary equipment' (F=7.22, p=0.01), which is also an item rated, equally by teachers from UDD and DD, most positively among all the observed items. According to the mean score, the ratings of teachers from DD were superlative

(M=1.13), while the ratings of teachers from UDD were also positive, albeit slightly less so (M=1.37).

The above-mentioned observed results regarding the technological dimension comply with the assumption expressed in the research hypothesis summarily, as well as in individual sub-dimensions.

4.4.3 Communication dimension

Among the observed items was the extent of communication with students, where the most preferred choice throughout the entire research sample was 'any time necessary' (62.22%). As few as 4.44% of teachers only communicated with students during lessons, 8.89% provided consultations outside lessons.

The summary effectiveness of communication was founded at M=1.81, which is in the positive spectrum of the 5-point scale (albeit not markedly), while the differences between UDD and DD have a reverse tendency in contrast to the organisational and technological dimension and also in the rating of communication in UDD (M=1.85 compared to M=2.04 in DD); the differences being statistically significant (F=10.21, p=0.00). This summary result was mostly contributed to by the ratings of effectiveness in the sub-dimension 'effectiveness of teacher– teacher (school) communication'. This tendency is prominent in the mean score (M for UDD=1.16, M for DD=1.35, F=11.38, p=0.00), as well as all measured items: readiness to solve arising situations, mutual tolerance and respect, mutual support and understanding, ability to agree on the chosen techniques, willingness to look for adequate strategies. The only item where a slightly inverted tendency was founded is a lower level of effectiveness in UDD in 'availability of communication' (M for UDD=1.32, M for DD=1.21). Here, the mean for UDD was significantly higher in comparison to the other areas (M=between 1.11 and 1.16), while, in DD, the mean scores ranged from 1.29 to 1.50. All the differences between UDD and DD are statistically significant.

While the communication characteristics of teachers can be perceived as highly positively rated and effective, the results relating to the sub-dimension 'effectivity of communication with students' differ, which is also suggested by the summary score for this sub-dimension (M=2.36), in comparison to 'effectiveness of teacher – teacher (school) communication', with the mean score M=1.26. The tendency of differences between UDD and DD in communication with students also differed; unlike in communication among teachers, lower effectiveness was founded in UDD (the summery result for the sub-dimension being F=9.58, p=0.00, M for UDD=2.53, M for DD=2.23). The effectiveness of communication with students was measured by items of: the ability of students to work in the changed mode in the selected form, mediating relevant subject matter to students, understanding of the taught subject matter by students, activity of students during lessons, coordination of work with students, feedback from students, and the teacher's feedback to students. In almost all of the above items, statistically significant differences were found between UDD and DD while the tendency, according to the mean scores, seems to be identical – the rating of effectiveness of communication was lower in UDD than DD. The only exception was the rating of the effectiveness of teachers' feedback to students where no significant differences between UDD and DD were founded while, at the same time, the lowest mean scores were founded in the summary of dimension (M for NRO=1.84, M for RO=1.79). The most significant differences were founded in understanding the taught subject matter by students (F=18.42, p=0.00), where teachers rated the effectiveness of communication as significantly lower in UDD (M=2.79), compared to DD (M=2.29).

The results of the statistical processing of the obtained empirical data in the communication dimension comply with the assumption expressed in the research hypothesis in general as well as in individual sub-dimensions.

4.4.4 Attitudes – emotions – assessment´ dimension

The 'attitudes – emotions – assessment' dimension has a specific position in studying the nature of education in a crisis. Here, it was not the level of effectiveness that was measured, but rather the level of agreement with the presented positive and negative attributes in students, as evaluated by teachers, and in teachers themselves (self-reflection). Without the influence of a differentiating factor, it can be stated that, in general, a great difference was founded between assessing the positives in teachers (M=1.73) and students (M=3.18). The level of agreement with negative attributes was higher in (the self-reflection of) teachers (M=2.62) than in the evaluation of students (M=2.91); within the sub-dimension in question, the greatest differences between teachers from UDD and DD (F=23.65, p=0.00) were founded and a significantly greater level of agreement with the negative attributes was also observed in teachers from UDD (M=2.28), in comparison to DD (M=2.87), even though the score is close to the average values.

From among the following observed items within the 'assessment of negatives in teachers' sub-dimension: inappropriateness of the changed mode of education, problems with technical operation, a lack of a set daily routine, increased demands on the teacher's work, less free time, uncertainty regarding the used methods and outcomes, concerns regarding managing the new situation – the 'increased demands on the teacher's work' were rated as the most negative (F=4.03, p=0.05), more so by teachers from UDD (M=1.89), than DD (M=1.67). In contrast, 'concerns regarding managing the new situation' were rated as the least negative (F=12.72, p=0.00), which was more significant in UDD (M=3.50) than in DD (M=2.74).

The 'evaluating teacher's positives' sub-dimension, measured by items of: the opportunity to try and learn something new, the opportunity to try home office, the opportunity to organise one's work time, more free time, the opportunity to broaden one's knowledge in new ways, and the opportunity to implement one's creative potential, does not manifest summarily statistically significant differences between UDD and DD; among the individual items, only the differences in 'the opportunity to try and learn something new' (F=4.66, p=0.00) were significant, rated more positively by teachers from DD (M=1.17) than DD (M=1.37), which is, at the same time, the greatest positive in both groups of teachers. 'More free time' (M for UDD=3.21, M for DD=3.25) was rated as least positive.

'Assessment of negatives in students' by teachers was measured by items of: incommunicativeness, attempts to cheat and benefit from the situation, negligent and careless approach, lack of interest in education, concerns about managing the technology of education, decreased motivation, and lack of independence. The sub-dimension in question does not manifest any significant differences between UDD and DD, the average levels of agreement of teachers with negative attributes ranged between M=2.74 and M=3.21, while a majority of items in DD had a negative tendency. It was interesting to find out that the only significant differences occurred in 'attempts to cheat and benefit from the situation' (F=4.36, p=0.04, M for UDD=3.21, M for RO=2.75) and 'negligent and careless approach' (F=5.51, p=0.02, M for UDD=2.95, M for DD=2.50), as these negatives were much more pronounced in students from DD than in those from UDD.

The 'assessing positives in students' sub-dimension was measured by items of: increased interest in education, increased activity, more intense communication, joy, enthusiasm, more accommodating relationship towards the teacher, and more frequent initiative and creativity. Significant summery differences between UDD and DD (F=10.21, p=0.00) point to a considerably decreased intensity of positives, in comparison to negatives, which was more obvious in students from UDD (M=3.42) than in those from DD (M=3.03). Differences between UDD and DD are significant in all items and have a similar tendency – fewer positives in students from UDD. The greatest

differences were observed in 'more accommodating relationship towards the teacher' (F=16.00, p=0.00, M for UDD=3.32, M for DD=2.71) where, at the same time, the highest (in UDD) and lowest (in DD) average values for the research sample were founded in comparison to the other measured items.

The above results point to significant differences founded in the 'assessing negatives in teachers' and 'assessing positives in students' sub-dimensions, which complies with the research hypothesis. It does not, however, apply to the 'assessing positives in teachers' and 'assessing negatives in students' sub-dimensions.

5 Discussion and conclusion

The research into the nature of SCE in a crisis provides an opportunity to explore the specific conditions of a so-far uncharted environment, which is why the efforts to compare and contrast the findings of other research studies are marked by less identifiable intersections and similarities. The main line of the present research plan was determined by the selection of the differentiating factor – locality – and the findings point to significant differences. The nature of differences between DD and UDD across the selected dimensions and sub-dimensions and the observed levels suggests a higher level of effectiveness of education at schools in DD in comparison to UDD. This means that the conditions in the crisis made the topic of weaker and stronger links in education much more pronounced and pointed to the need for a specific system of techniques to be implemented in education in order to prevent inequalities regarding the opportunity to acquire education and find one's place in the labour market deepening any further.

According to the above results of the analysis, effectiveness of education in the crisis was rated mostly in positive spectrum on a 5-point scale, in some areas nearing the average. Great effort and thoughtful and responsible work on the part of teachers who, in these extraordinary and unexpected conditions, mobilised their potential to preserve the continuity of education in spite of multiple obstacles was the main contributor to the results. These findings conform to a study carried out by Song et al. (2020), where a majority of school directors and teachers manifested a high level of psychological and mental flexibility and quickly adapted their way of thinking to proactively face the new challenges. This is in line with Todd's study (2020) in which people assessed many problems related to the transfer of education to the online environment serious; however, they quickly found such solutions as spreading the lessons over several shorter blocks. More than a half of the teachers participating in the present research stated that they reduced neither the content, nor the extent of the curriculum, and if they did, this mostly concerned practical subjects that are near impossible to carry out outside the appropriate environment and without necessary teaching supplies. At the same time, the curriculum at second chance schools is usually less extensive and organised differently to regular schools (Meo, Tarabini, 2020). Teachers from UDD especially manifest a significant level of mutual professional assistance, support, and cooperation aimed at shared goals. The present findings point to considerably more demanding conditions for teachers from UDD who, more so than those from DD, experienced the negative aspects of working in changed circumstances, even though they rated the opportunity 'to learn something new' in a highly positive way, which corresponds to Yang's findings (2020). The available tools to carry out education were of paramount importance and determined the level of its effectiveness. They were, to a decisive extent, based on work in a digital environment, which means that anywhere that such tools, for various reasons (such as a low digital literacy and insufficient technological equipment), lacked necessary functionality, the effectiveness of education was considerably lower in all the observed dimensions and sub-dimensions. Similarly, Kulal and Nayak (2020) consider technical issues as the major problem for the effectiveness of online classes. Equally in DD and UDD, teachers rated technological equipment more positively than digital skills, which is why any relevant initiatives to increase their level of digital skills are more than appropriate and, possibly, effective, which is something teachers themselves agree with (Ostertágová, Čokyna, 2020). It is not surprising there is a strong correlation between the teachers' attitudes towards ICT and the frequency with which they use it (Li & Ni, 2010). The most frequently used online tool was the official asynchronous platform Edupage (DD – 38.46%, UDD – only 14.29%). Online conferences were used by 30.77% of teachers from DD, while not at all by teachers from UDD. None of the teachers from either observed area claimed they had used an interactive form of online teaching (such as Q&A) while these were the interactive tools most frequently used by teachers in China in Song et al.'s research (2020). These differences might evidence a dissimilar level of digital competences of teachers in various countries concerning teachers' training for online education.

In UDD, other available means were also used to preserve the quality of education, such as delivery by post or telephone communication, while teachers participating in a Slovak national survey (Ostertágová, Čokyna, 2020) considered this form of offline teaching the least effective. Based on this, it could be stated that the level of quality and availability of digital equipment affected the effectiveness of education most significantly. It not only concerns the facilitation of the subject matter by teachers and feedback from students for the purposes of assessment but also the necessary support in direct communication and sufficient space to motivate students, building mutual understanding in live interactions and the possibility of flexible corrections at the operational as well as human level. Even when online education took place, the level to which the students understood the subject matter was much lower (more significantly in UDD than DD). In Todd's research (2020), teachers labelled evaluating students, feedback and appropriately stimulating activities as ongoing problems of online education. This is a significant indicator of the digital age bringing about many improvements, creating new possibilities and opportunities; however, it is in these conditions that require most support in order to mitigate inequalities that lead to the most powerful effect of those factors that determine the formation of a marginalised space, as the potential of technologies to decrease social inequalities and sustain development is only possible if everyone has access to them (United Nations, 2020). The target groups who need a helping hand most face even deeper unfavourable conditions than before, both in their personal lives and society-wide context. This is also confirmed by several other studies that observed a decline in learning due to the summer break (Downey et al., 2018; Alexander et al., 2007; Ready, 2010; Bonal, Gonzáles, 2020).

Research findings unambiguously confirm concerns regarding deepening social inequalities (Dhawan 2020) due to the inability of the education system to guarantee a reduction of inequalities in education in the changed conditions (Stanistreet, 2020; Bonal, Gonzáles, 2020), especially with regard to such (practical) subjects, which cannot be taught online (Cedefop 2020a). The quality and effectiveness of those subjects that can be taught online is significantly influenced by the level of digital skills, especially in students from UDD, in combination with insufficient infrastructure and worse equipment in the area of digital technologies (Alcazar et al. 2020). In this way, the crisis mode helped reveal the key risks of ever-strengthening trends of digitalisation in all areas of human life and the related priorities of the labour market towards further deepening of inequalities. What is, at present, categorised as 'risk' will manifest in the future as an ill-conceived strategy with its own consequences (UNESCO 2020). To what extent the risks will become active depends on those involved (Cournoyer, Fournier, Masdonati, 2017) when, in the Slovak Republic, the greatest significance is to be born by the approach of individual schools, mainly teachers. The results of the present analysis point to the key role of individual teachers who are to guarantee the continuation of education (or prevent its suspension), including the effort to sustain the necessary quality and effectiveness, even though closing schools caused (also in teachers) a higher level of stress connected with greater pressure on their flexibility, initiative, and blurring the borders between work and family life (Košir et

al., 2020). It seems the case that, with the goal of preventing deepening social differences between better and worse digitally and economically endowed adult students, it will be necessary to introduce several measures at the level of schools, self-governing regions, as well as the Ministry of Education, regarding improved technological school infrastructure, digital skills of teachers, as well as searching for and testing suitable alternatives to practical education, or measures directed at increasing digital skills of adult students and their technological facilities at home.

A more complex image of the effectiveness of the distance form of education would be gained from data regarding its course and effectiveness provided by adult students themselves, as well as from comparative research into other forms of education, or other specific features of education in a crisis. The present analysis provided a great number of answers to topical questions and also created space for further, more in-depth, areas, especially related to the status of students in SCE. Within the project *Teaching at second chance schools from the perspective of a teacher and adult learner*, other findings will be presented and placed into a broader context, including a proposal of systemic measures to increase the effectiveness of education.

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Primary Paper Section: A

Secondary Paper Section: AM