DIGITAL LEARNING FOR STUDENTS WITH DISABILITIES IN PRIMARY SCHOOL: FROM THE MANAGEMENT OF THE PANDEMIC EMERGENCY SITUATION TOWARDS A NEW NORMALITY

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Abstract

When the COVID-19 pandemic forced most European countries to impose restrictions during the winter/spring of 2020, schools were forced to close and implement systems of remote teaching. Whilst the results of these events are yet to be fully comprehended, the consequences on students that require additional supports in their educational process – especially students with disabilities – are clear and serious, due to the inadequacy of pedagogical models of distance learning for the characteristics of this population, and the lack of preparation of school staff.

This paper is about the actions that teachers from Italy and Portugal implemented to face the emergency. Italian and Portuguese educational systems follow a similarly inclusive approach to the education of students with disabilities that require additional support. This approach stipulates the regular class as the most appropriate place to teach all students, independently of their level of functioning, with the special education/support teacher as a resource for the classroom teacher and all the students.

The research questions of this paper are:

1. What was the impact of technologies in the reinforcement of the cooperation among teachers, and parents/caregivers?
2. In what way did the technologies impact the educational interaction between teachers and students with additional support needs – specifically students with disabilities?

Structured interviews were applied to 5 teachers from each country and the transcripts subject to content analysis. The main dimensions of the structured interview were:

1. What technologies were adopted and how satisfied were the teachers in its use?
2. The role of parents and caregivers in the remote educational process.
3. The adaptations they implemented in the individualized plans and in their educational practice.

Interviews were conducted partly face to face and partly via an online survey with open questions. The latter was based on 2 statistical questions and 10 questions focused on the research dimensions. Questions related to the first dimension inquired about the adopted tools (learning and communication platforms) and the experience they had during their interaction with the students. The questions about caregivers' involvement analysed the importance of their participation in online activities. Key aspects were the description of their involvement in the online learning process, and of the collaborative work they developed with the teachers. One question addressed the communication process and the access to the materials. With regard to the third dimension, the survey questioned the adaptations implemented by the teachers through three questions that kept the general principles of Universal Design for Learning in the background. These questions focused on the modification of learning goals, due to the change to remote teaching, on the adaptation of materials and activities, to support students with additional support needs in their participation and involvement in class activities, and lastly on the strategies implemented to evaluate performance and development.

This qualitative research collected answers from 10 special/support teachers working in Italian and Portuguese primary schools. The results are used to draft pedagogical guidelines to be used when there is the need for a class or a student to be taught remotely.

Keywords: ICT for special education, students with disabilities, pandemic and special education.

1 INTRODUCTION

During March of 2020, most European countries were forced to close their schools and to impose a system of emergency remote teaching [1], due to the pandemic situation caused by the virus SARS-CoV-2. In this case, the educational systems from these countries had to move from educational models based on face-to-face interactions to different alternatives, mostly based on digital resources. The emergency facet of this shift, nevertheless, was hindered by the lack of ICT skills for teachers, the inaccessibility to appropriate learning contents [2] and, also, the uneven access to digital equipment (laptops, tablets, internet connections) both of the student population and the teachers.

This change has been particularly difficult for students with disabilities [2]. Studies that document these difficulties are beginning to appear. For instance, Ayda et al. [3] interviewed 10 special education teachers, in Cyprus, about their practices in distance learning during the pandemic, and concluded that most special education students were not able to benefit from distance education, due to the lack of (or the lack of access to) digital resources and to the dependency on the support of parents to continue the educational practices, who didn't have the necessary preparation for that role. A study conducted in Italy [4] reached similar conclusions. The answers to a survey provided by 785 teachers underlined that the success of inclusive educational practices depends on appropriate technologies, relationships with families, collaboration among teachers and online teaching strategies, based on synchronous and asynchronous interactive activities, conducted individually or in small groups.

The shift to a system or remote teaching has to be considered in accordance with the educational model implemented in different countries. The 2008 Dataset Cross-Country Report of the European Agency Statistics on Inclusive Education shows that the percentage of enrolled students that spend at least 80% of the time ranges from 80,72% (Belgium/Flanders) and 99,95% (Italy). Systems like the Italian and the Portuguese require that pupils with special support needs are enrolled in regular classes and supported by classroom teachers and special education teachers, working in close cooperation [4, 5].

Our goal with this research was to further analyse the practices developed in Italy and Portugal, by Special Education teachers, during the second part of the school year 2019/2020, when the schools were closed and remote emergency teaching was imposed. Specifically, we intended to understand:

1) What was the impact of technologies in the reinforcement of the cooperation among teachers, and parents/caregivers?

2) In what way did the technologies impact the educational interaction between teachers and students with additional support needs – specifically students with disabilities?

2 METHODOLOGY

This research was based on structured interviews done with active teachers whose role is supporting students with disabilities at primary schools. The approach is an explorative one: the main purpose is to investigate teachers' particular experiences to find out initial tentative hypotheses to answer the research questions. The investigation was a qualitative one based on a small number of interviews, either oral and written.

The choice of a qualitative approach was due to the national approach to special education in the involved countries as well as for the novelty of the topic. In both countries children's specific problems are put into account charging an individual teacher for each student: it means that each experience is hardly generalizable. Next to this objective situation, the pandemic emergency impact has been so deep that each teacher had to create his/her method. At this stage of the research, it was decided to focus on the exploratory aspect of this study to help in gathering different experiences together preserving their specificity.

Involved participants were 5 teachers from Italy and 5 from Portugal. All of them are experienced teachers who have been teaching at primary school for more than 6 years. Six of them have been working in the special education sector for more than 16 years, one is the reference teacher for all his school in the field of special education and one other is the one charged for the online education related to the Covid emergency in his school. They can be considered a sample of experienced teachers' opinions.

The interviews were structured in 10 open and closed questions formulated to explore three main dimensions:

a. What kind of technologies were adopted and how much teachers were satisfied with their use (questions 1-2-3);
b. The role of parents and caregivers in the remote educational process (questions 4-5-6-7);
c. The adaptations they implemented in the individualized plans and their educational practice (questions 8-9-10).

Dimensions a and c were directly related to the impact of technology in the educational interaction between teachers and students. The open question 3 explicitly cited the relational aspect saying: "Can you say 2 positive and 2 negative points from your experience with these technologies during your

interaction with the student you had to support?" Question 10 too focused on involvement, a key concept in all relational processes: "What strategies did you follow to keep students with special needs involved in the educational process and to access and evaluate their performance and development?"

Dimension b explored the role of parents and caregivers stressing the fact that the relation teacher-student had to include them in a more explicit way being their cooperation potentially essential in the new online environment. All four questions focused clearly on this aspect: question 4, for example, was a closed one and asked for "How would you score the importance of the participation of caregivers in online activities?"

Answers were collected via online surveys (Google Module) sharing the link with selected teachers who previously collaborated in other researches or work with children clinically followed by the Rehabilitation Center Casa Santa Rosa specialists outside the school period. Three interviews were collected orally using online video conference tools like Google Meeting. These latter were transcribed and their content adapted to the general results grid that will be described below to allow a general analysis of all collected answers.

3 RESULTS

In the research, we collected a total of 10 interviews: 5 from Portugal and 5 from Italy. 7 of them have been teaching for more than 16 years and the other three in a period between 6 and 15 years. One of them was the school responsible for the special education program. The answers were inserted in the result grid to allow the final analysis. The grid was based on 3 sections, one for each dimension, where all the answers for each dimension were put together. The original result grid is available through this link:
https://docs.google.com/spreadsheets/d/1KUB7JqoV0eh5XYdRJu45wt3W4uM0tG2BeA4ea7ByECc/edit?usp=sharing

In the three subsections below there will be a summary of the results for each dimension with a partial comment.

3.1 Dimension a: What technologies were adopted and how satisfied were the teachers in its use?

The answers from this section did not show a real difference between Italian and Portuguese teachers. Most of them showed to understand the difference between platforms and tools for video communication though some of them confused the terms. Indeed, looking at the other answers, it seems to be clear all teachers did not use the platforms for their intended function (exchange files in an organized way). It is important to stress here that smartphones as well as cross-platform messaging applications were considered by some of the teachers as tools for virtual communication as well as components of an efficient platform.

Question three was the most important for this dimension because it asked clearly to indicate two positive aspects of adopting technology in this context and two negative ones. Half of the teachers declared the main positive point was that parents were more involved in the activity they usually did with their children. P1 declared, for example, *I have exponentially increased the direct interaction with parents and guardians to enable them to accompany their students at home*. Two teachers also cited this positive aspect pointing out the fact that they had daily meetings with the parents due to this new situation. Another positive point was, as said by I3, "*the greater use of technologies in teaching with consequent training in their use*". This answer was somehow connected to the following point that was about "*immediacy and clarity of multimedia materials*" that meant, for example, "e*asy access and the fact we could see all users*", as suggested by P8. Italian teachers also cited the cooperative aspect with the other teachers. Finally, online learning was seen as a good way to maintain a connection with the children despite the lockdown situation.

The negative aspects focused mainly on the lack of sociability of the medium and the distance between all school actors. For example, I4 signalled *the difficulty in involving the child behind the screen from a distance*. Behind this unsolvable aspect deeply related to online education, there were several other negative aspects: the infrastructure aspect (internet connection quality or the lack of good hardware), as well as the technical unpreparedness of parents, were signaled as sensitive points. Important enough are the answers about pedagogical aspects that underlined the difficulty of finding already existing interesting resources that forced teachers to spend a "*huge amount of work to make the activity usable and effective*" (I4).

In conclusion, we can say that the technological aspects of online learning were not completely understood from the beginning as the following two points show:

1) Some teachers did not know the difference between platform and tools;

2) Most of them used the smartphone as the main media adopted with its related messaging and Voice over IP service.

In general, the sudden transfer of all classes to a virtual environment had positive and negative aspects: on one side teachers admitted they enjoyed a greater collaboration with the caregivers thanks to the universal use of tools that, with surprise, they found out easy to use and helpful. On the other side, the jump from a face to face relation to one via screen was considered negatively by a big majority of them. Two interesting points that emerged were:

1) the need for a more trained counterpart at home to support physically the student helping teacher's activities;

2) the need for more material ready-to-use or easy-to-find to avoid the time spending issue.

3.2   Dimension b: the role of parents and caregivers in the remote educational process

All teachers considered of the utmost importance the involvement of parents and caregivers in the remote educational process, with only one of them not scoring it with a 5 (most important), but with a 4.

Teachers and parents and caregivers established, in most cases, a daily contact to "*empower them and give guidance*" (P1), to "*adjusting the timetable according to the adults who accompanied the students*" (I5), to transmit "*specific methodologies used in the classroom and at the same receiving advice and suggestions from parents regarding the proposed activities*" (I1). Some teachers explained that they developed a weekly schedule of activities, that was distributed to the parents and that allowed them to organize their work: "*student, caregiver and special education teacher developed structured activities, previously prepared - weekly*" (P3), and this was particularly useful "*for students without computer support tasks were distributed weekly*" (I3). There are also situations where teachers used several means of communication to establish and reinforce collaboration with parents and caregivers: "*daily contact via email, telephone, video call*" (P1), "*I focused on the full collaboration of the parents using all the communication channels available*" (I1), "*by email and by mail*" (P2).

One teacher explicitly talked about training the parents, transforming them into formal actors in the educational process: "*The first step was, therefore, to share with the parents a very special methodology that concerned calculation, writing, the basic contents of grammar*" (I1).

To ensure that students had access to all the materials and activities, teachers insisted in close collaboration with parents "*daily comparison with the family and return of the activity that took place either online, in sync, or were sent to me on the electronic register*" (I2), and in the adaptation of materials and activities to the needs of the students "*diversification of subjects and applications that would appeal to students*" (I3), "*the student was motivated to carry out the activities [...] promoted and specifically built for him*" (P3), "*I showed him, through support materials, how he could build certain materials*" (P5). In one case, the school organized packages of materials and resources for the family to pick up: "*the guardian was told to go to school to collect[...] materials and take them home for the student to work*" (P5).

As stated above, the collaboration established between teachers and parents or caregivers, was fundamental to the success of the educational process. Teachers were aware of the availability of some of the parents and caregivers: "*The guardians were attending classes online and were assigned the tasks at that time, hence they were involved and involved the students*" (P4). Therefore, it was possible, in some situations, to achieve "*constant collaboration, with practically daily contacts and maximum flexibility in structuring the activities proposed during the week*" (I2). The communication, and this is fundamental, worked in both directions, "*The daily connection via WhatsApp [...] made it possible to reassure families, lower anxiety levels and promote success*" (P3), "*listening to their concerns*" (I3). In the case where collaboration was not possible, success was clearly limited: "*many times, I even think that it was the grandmother who did the work for the student, so that he would be well regarded*" (P5).

Based on the answers collected from Italian and Portuguese teachers, we may conclude that they tried to involve parents and caregivers in the educational process. The key element of this collaboration was permanent (daily, if possible) communication, using the most appropriate communication system available (any video conferencing system, or even a regular phone call). Teachers assumed that parents and caregivers would assist the students in the realization of the educational tasks, communicated that expectation to the parents and caregivers, and trained them to provide an adequate level of support. The teachers organized a weekly schedule of activities that they sent to the parents, based on tasks tailor-made to the students, which could be implemented flexibly, according to the availability of the parents and caregivers.

3.3   Dimension c: the adaptations they implemented in the individualized plans and their educational practice

The third dimension under analysis focused on the definition or adaptation of educational goals, the learning activities, the assessment and evaluation procedures.

The specific educational goals, defined at the beginning of the school year, had to be reconfigured in most situations. In most cases, this task involved a reduction or elimination of goals in some areas: "*Obviously there has been a revision of the objectives and a downsizing*" (I1), "*some topics and areas that I had initially foreseen were not covered*" (P1), "*it was difficult to continue the development of the objectives set*" (P2), "*distance learning prevented some global objectives and learning defined in the IEP of each student, from being worked with greater proximity, adequate time and the adequate feedback of the parties involved in this teaching-learning process*" (P3). There was just one teacher saying that "*thanks to the collaboration of the family, we still managed to achieve the expected objectives*" (I2).

Most teachers, both from Italy and Portugal, underlined the work done to adapt materials and activities: "*I made videos, tutorials, I recreated the material we used at school because then I was stuck with all the material in school, we couldn't even go and get it*" (I1). The adaptations, in most cases, involved transforming the contents into more interesting and motivating formats, taking into consideration the characteristics of each student - "*I reshaped the activities to make them more interesting*" (I3) - using multiple digital formats: "*introduction of symbols, visual clues, simple statements [...] activities through different means (paper, video, music, sensory…) according to the needs and interests of the child*" (P2), "*I directed videos using the PowerPoint as a resource, specially created online games, watching short videos and proposals for practical activities*" (I3), "*I sent a lot of links with digital games, adapted stories, music, quizzes and digitization of files*" (P4), "*The materials and activities I proposed were all defined according to the difficulties of each student: some resorted more to the image, others to the sound, others tended to be supported by planning the tasks*" (P1).

It is fundamental in inclusive classrooms to organize the teaching process addressing the needs and profiles of all students. Several special education teachers explained that their work was developed in a team setting, looking for ways to increase the participation of the students with additional support needs in the classroom activities: "*there was a full collaboration with the class teachers to seek out activities that could involve children with special needs and also through adaptations and facilities to make the activities proposed in the class within the reach of interested children*" (I2), "*I and the other elements of the class council made adaptation in the means, strategies and forms of representation*"

(P2), "*the child and I share with the class a topic touched upon in the class [...] and we face it through augmentative communication sharing it with the class on the IWB [Interactive White Board]*" (I1).

The adaptations in the assessment and evaluation of the student progress were based on two aspects: close and frequent contacts with parents and caregivers and extended collection of evidence of the student learning. Nevertheless, it is clear that the assessment and evaluation were compromised in many situations: "*Evaluation was affected as well as programming*" (I2), "*We did not do evaluation activities during the lockdown period*" (I5), "*the feedback I received from the grandmother, many times, gave me the idea that it was she who did the activities, and not the student*" (P5).

The role of parents and caregivers in the evaluation of the students was widely mentioned, as well as the need for close and frequent contact: "*the parents and a communication assistant met two hours a week. In these meetings I did some tests that I created on purpose*" (I1), "*family/caregiver involvement was very important [...] the connection via daily WhatsApp was essential for together, teacher, student and caregiver, to be able to perform the activities*" (P3), "*The class council to evaluate the learning proceeded to collect information through the interview with the caregiver, required to fill out a student evaluation table and their evaluation of the process*" (P2).

This close contact is complemented with the frequent collection of evidence of the success of the students, through several instruments: "*For example, through word-image linking activities, or quantity numbers, or more [...] tests that gave useful information*" (I1), "*Diverse and interactive activities. I used education platforms [...] and involved students in digital contests*" (P1), "*by sending the work performed (evidence) that we requested*" (P2), "*This assessment was recorded and shared weekly with the other teachers [...] with the special education teachers [...] through a weekly summary*" (P3).

In general, we may conclude that the educational process was highly adapted, in terms of revision of goals and objectives - unfortunately, in many cases, with a reduction in scope - the adaptation of activities, materials, assessment and evaluation procedures. The adaptation of activities and materials required a high involvement of the teachers, learning how to develop materials in digital instruments they didn't usually use before the lockdown. The implementation of these materials required, nevertheless, the participation of parents or caregivers. In this case, a teacher mentioned a specific period of training the parents in the co-implementation of these activities. The close contact between parents and teachers allowed the continuous collection of evidence of the work of the students, in many cases the only assessment procedure implemented.

Some teachers underlined the participation of the students with additional support needs in the classroom activities, which is fundamental in the development and construction of an inclusive educational system. Nevertheless, in most cases, the results obtained were far from what teachers expected at the beginning of the school year. The exceptions were marked by a strong engagement of parents, caregivers, and teachers, and the existence of appropriate technological resources.

4 CONCLUSIONS

We started this research focused on two questions:

1) What was the impact of technologies in the reinforcement of the cooperation among teachers, and parents/caregivers?

2) In what way did the technologies impact the educational interaction between teachers and students with additional support needs – specifically students with disabilities?

The answers provided by teachers clearly demonstrate that the remote teaching of students with additional support needs requires the close and permanent collaboration of parents or caregivers. It was clearly stated by the teachers that this was the key element in all successful cases. On the other hand, if the collaboration is absent, then it is almost impossible to engage students in the intended activities. Nevertheless, the collaboration between teachers and parents or caregivers requires several elements: availability of the parents or caregivers, the existence of technological resources that allow the communication and exchange of materials and activities, and some type of preparation or training of parents and caregivers, to perform tasks usually attributed to the teachers or support staff at school. These findings are in line with what other authors have found [6] and what some school systems have successfully implemented [7].

Technology, on the other hand, was the other fundamental aspect of successful interventions. It was due to technological resources that students with additional support needs were able to participate in classroom activities, together with their colleagues, thus fulfilling the ideal of inclusive education. Nevertheless, despite the efforts of many teachers, they still need support in transforming their procedures in many ways, specifically in the formulation of appropriate goals, the adjustment of activities and materials, as well as in the implementation of a structured assessment and evaluation system. Therefore, further research and innovative projects should be developed to systematize and deliver to the teachers a structured set of guidelines and models that allow the implementation of remote teaching to students with additional support needs. Similar assistance should be also provided to parents and caregivers to allow them to better scaffold their children's activities from a technological point of view as well as from a pedagogical one.

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