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The Digitisation of Italian Schools and the Pandemic Trigger: Actors and Policies in an Evolving Organisational Field

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Abstract: This article analyses the ongoing processes in the organisational field of Italian schools in light of the innovations induced by digital education policies. Specifically, it focuses on the relationship between actors and digital policies concerning the experience of distance learning (DL) that characterised the period of the COVID-19 pandemic. The paper reflects on DL outcomes regarding the three expectations that have often characterised the rhetoric associated with the promotion of digital educational policies, namely: the raising of learning levels, the development of digital competences and the increase in school inclusion. Through an analysis of a series of empirical studies exploring the point of view of the paper, this paper highlights what progress has been made in the digital schooling in Italy and what are still its main limitations. The results of the study show both the limits of the effectiveness of educational policies constructed with a top-down approach and highlight the potential for policy recalibration offered by a reorganisation of the decision-making process through the active involvement of all the actors in the educational system.

Keywords: digital educational policies; distance learning; digital skills



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1. Introduction

When the lessons of schools of all levels were transferred to digital platforms in March 2020, inaugurating the so-called distance learning (DL) phase of the pandemic, the Italian school system could be defined, at least in terms of infrastructure, as sufficiently digitised, although unevenly, depending on the territories and the different schools, with situations characterised by ample technological equipment and others marked by a lack or absence of devices [1].

Educational policy showed an important focus on the issue of digitisation in the two decades before the COVID-19 pandemic. In fact, digitisation and school autonomy have been the main driver of the transformations that have taken place in the organisational field of education. This process took place within a dominant discourse initiated at the beginning of the 21st century within international bodies such as the European Union and the OECD, which considered the digitisation of education systems as an indispensable strategy for transforming Europe into the most dynamic and competitive knowledge society in the world. A clear political direction towards the digitisation of education systems was already present in the Lisbon Strategy (2000), which identified among its main objectives the development of a knowledge-based society to be achieved through massive investment in digital technologies for schools. Similarly, the European Parliament in 2006 included digital skills among the eight key competencies with which training and education should face the challenges of globalisation. In 2009, as part of the PISA surveys, the OECD introduced digital reading as an integral learning competence for secondary school students.

The digital education policies promoted at the European level can therefore be systematised into two categories: first-generation and second-generation policies. The first-generation digital education policies developed in the first decade of the 21st century

focused on infrastructure expansion and equipment. For this reason, they measured the progress of digitisation in schools based on the computer-to-student ratio and high-speed Internet access. The second-generation policies promoted over the last decade have focused on promoting students' digital skills and, from an operational perspective, have centred on teacher training. The results of some international studies had in fact highlighted how only 25–30% of teachers in the EU had undergone explicit Information and Communication Technologies (ICT) training [2] and how the lack of teacher training was the main risk factor in perpetuating the digital divide among students [3].

During the same period, under the pressure of European regulations and OECD recommendations, a series of digitally oriented educational policies were also developed in Italy. There have been numerous initiatives over the past two decades, among which the Digital School Plan (2007) and the National Digital School Plan (2015) are the structural policy documents with which the Ministry of Education laid the foundations for an overall strategy of innovation in Italian schools and for the new positioning of the education system in the digital era. The importance attributed to digitisation in education is also evidenced by the fact that the two plans have generated public investments of over one and a half billion euros, also thanks to resources from the European Union, in a historical phase characterised by a strong contraction in public spending.

The first plan, from 2007, belongs to the first generation of digital policies, although within it there are actions for the promotion of training activities for teachers. In fact, its first objective was to reduce the gap that had developed between Italy and other countries in the endowment of ICT to support learning processes. In 2011, for example, only around 30% of Italian eighth-grade students used ICT as a regular teaching tool in science lessons, compared to an average of 48% for OECD countries [2]. The strategic choice of this plan was to promote the widest possible dissemination of technological equipment in schools, such as, for example, connectivity to the Internet and the provision of multimedia interactive whiteboards in classrooms. The National Digital School Plan (2015) was part of the second generation of digital education policies. In this case, in addition to the promotion of technological dissemination through the diffusion of devices for personal use (laptops, tablets, etc.), the plan addressed the issue of the digital skills of school personnel through an intensive training programme for teachers that included the institutionalisation, within each school, of a team and a digital animator dedicated to the training of teaching staff; it also focused on the realisation of digital culture through the adoption of innovative solutions from the technological point of view.

There have also been numerous initiatives to support the implementation of the digital school within the two plans. These initiatives include LIM Action in 2008 with an allocation of around 94 million euros; Cl@ssi 2.0 Action in 2009 with an allocation of around 9 million euros; Scuol@ 2.0 Action in 2011 with an allocation of over 4 million euros; and Wi-fi Action in 2013 with an allocation of around 15 million euros.

It is important to emphasise that, at the same time as these digital education policies were developed, scientific reflection on this topic has also been enriched by important contributions that have highlighted the social, economic and organisational implications associated with the digitisation processes of schools. The resulting scientific debate can be summarised by referring to three levels of analysis.

At a macro level, reflection has focused on the role of digitisation within the broader process of reforming the education systems of European countries, which, albeit with differences related to national specificities, was largely inspired by the neo-liberal principles of New Public Management [4]. In the regulatory scenario related to these reform processes, digitisation would have played an important role in fostering processes of platformisation, datafication and soft privatisation of schools [5] as a consequence of the delegation by the state to private actors, and, in particular, to large IT multinationals, of the organisation, management and programming of digital learning environments. The primary role that these actors have today within the education system is particularly relevant in Italy [6]. For example, the Scuola in Chiaro platform—through which the Italian Ministry of Education

(MUR) provides access to the main information of all school institutes—was developed under a contract between the MUR and the multinational HP Enterprise [7].

At a meso level, the reflection on digitisation focused on the impact of this process on the organisation of the school system as a whole. In this case, the debate is polarised between those who consider that digitisation contributes to the improvement of organisational processes [8] and those who emphasise the contradictory effects on the working conditions of school staff and the resulting conflict dynamics that may arise [9].

However, it is at the micro level that the scientific literature has focused most attention, concentrating its analyses mainly on two issues:

- the degree to which teachers use and apply digital technologies;
- the relationship between digitisation and student learning.

Concerning the first issue, even the research conducted in Italy testifies to the limited use of digital equipment by teachers with respect to the equipment made available in schools, and above all has highlighted didactics that are still very focused on technical-operational digital competence—that is, linked to teaching “of” technology and not “with” technology or “for” the critical use of technology [10]. Recent studies on this issue have shown that underlying this outcome was a greater focus by schools and teachers on organisational and technical issues rather than pedagogical strategies [11,12]. This is a trend that Italy shares with many other European countries [13].

As for the second topic, the scientific literature on evaluating the impact of digitisation on student learning is very broad and involves numerous disciplinary fields. A summary, albeit partial, of the outcomes of this research is, therefore, beyond the scope of this article. However, considering the reconstruction carried out by Gui [1] on these studies, it emerges that many have found digital technology to have positive effects on students’ learning in cases where the introduction of technology concerned the use of tools and applications for specific teaching purposes (e.g., software for studying languages, algebra, etc.). In such cases, it was pointed out that a fundamental role was to be attributed to the presence, or not, of a relevant pedagogical model consistent with the technological tool adopted. When, on the contrary, the effects of the diffusion of generic digital technologies on the overall learning of the student population were assessed, the results were not as satisfactory. Studying the relationship between the degree of schools’ technological endowment and the outcomes of results in standardised learning tests (e.g., PISA or the national Italian tests carried out by INVALSI¹, etc.), numerous studies—with a few exceptions—agree that there is only a weak relationship between the level of technology and the increase in students’ skills [14], even as regards more specifically digital skills [15,16].

The lack of positive effect, especially in relation to the expectations generated by the rhetoric with which digital policies in education have been implemented, has generated a critical reflection on the approach that Italy, as well as throughout the rest of Europe, and this critical approach has been adopted in this field. Specifically, it has been emphasised that many of the policy decisions described above were taken on the basis of technological determinism [17], which would have led, on the one hand, to overestimating the effects of the introduction of digital equipment and, on the other, to following an implementation plan based on a top-down logic in which the direct experience of teachers and students with digital technologies was not appropriately considered.

This study therefore analyses some important outcomes of the digitisation process of the Italian education system, adopting a perspective that focuses on the direct experiences of students and teachers. It assesses whether and in what way the objectives pursued in the proclamations that accompanied the Italian digital school policies have or have not been effectively realised in the daily practices of the main actors in the school organisation field. This approach, which could be described as bottom-up, is helpful for evaluating what has been achieved and what needs to be improved, thus providing useful indications to policy makers for a possible recalibration of actions to enhance digital education policy.

2. Materials and Methods

The method adopted to achieve the objective of the work was characterised by two specific phases (see Figure 1).

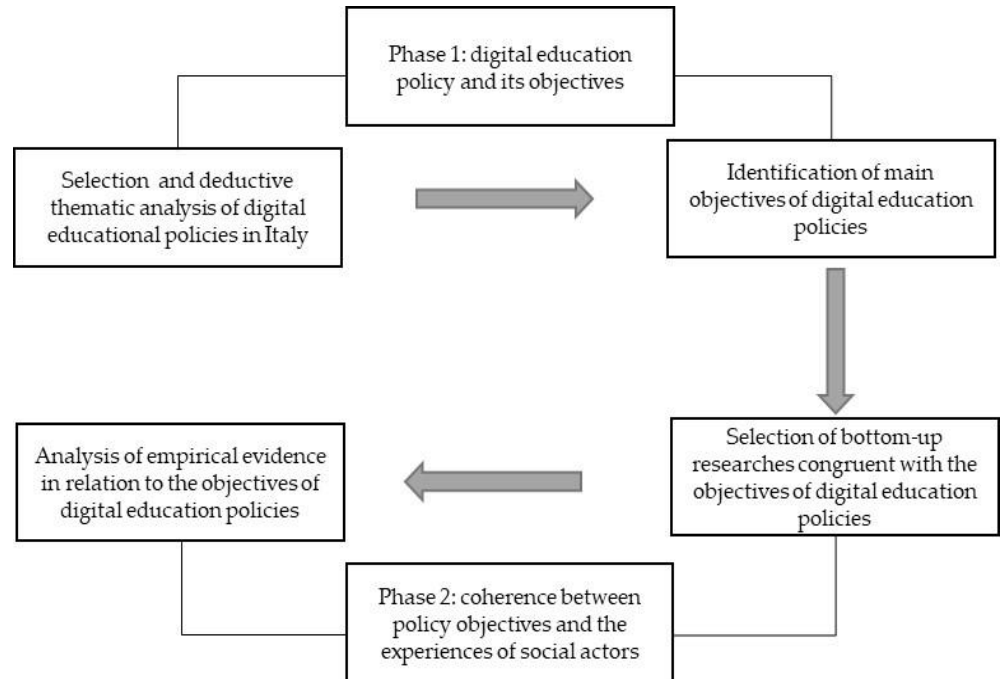


Figure 1. Block diagram of the method adopted.

The first phase sought to identify the main objectives explicitly stated in the policy planning documentation of the Italian digital school. The documents analysed, through a deductive thematic analysis, were:

- Digital School Plan (2007),
- Action Cl@ssi 2.0 (2009),
- Action Scuol@ 2.0 (2011),
- Wi-fi Action (2013),
- National Digital School Plan (2015).

The analysis allowed the identification of three main objectives and rhetoric associated with the promotion of digital educational policies, namely:

- the raising of students' learning levels,
- the development of their digital skills,
- the increase in school inclusion.

The second phase sought to verify whether and to what extent the objectives of digital policies had been implemented according to the experiences of the main social actors, and it was realised through a literature review based on empirical investigations that met two criteria:

- (1) directly engage students and/or teachers concerning their experiences with education practices in the digital environment and
- (2) explicitly investigate one or more issues related to the previously identified policy objectives.

The operational choice was to focus on studies carried out in the Italian territory during the COVID-19 pandemic when long periods of DL were experienced throughout the country. The practice of DL represented a unique opportunity to investigate this phenomenon. First, because, from the very first weeks in which teaching began to take place outside the classroom with the aid of technological devices, numerous research initiatives saw the direct involvement of students and teachers². Second, because, as highlighted in a large body of research (among others [18,19]) with DL there has been a

vast experimentation in the use of digital teaching tools, practices and procedures, which offers a very broad and articulated scenario of teachers' and students' experiences.

Through these studies, it is therefore possible to reconstruct the experiences of the main actors in the school system with respect to digitised education in detail.

Table 1 contains the list of empirical investigations that were selected on the basis of the two criteria mentioned above. The results of this study are based on the empirical data from these studies and, where present, also consider the relevant scientific publications interpreting the findings and other bibliographical references that are useful to further these results.

Table 1. List and main methodological features of selected studies.

Name of the Research	Method	Target Group	Sample	Method of Data Collection	Carried Out by
Survey of secondary school students 2021	Quantitative	Students	National (n = 41,000)	CAWI	ISTAT (National Statistical Institute) ³
SIRD national survey	Quantitative	Teachers	National (n = 16,131)	CAWI	SIRD (Italian Society for Educational Research) ⁴
Being a teacher in the time of COVID-19	Quantitative	Teachers	National (n = 2000)	CAWI	University of Eastern Piedmont, University of Turin and University of Urbino.
Adolescents at the time of the pandemic	Qualitative	Students	North Italy (n = 134)	Online focus-group	NIHMP (National Institute for Health, Migration and Poverty), University of Turin and University of Eastern Piedmont
Impact of the pandemic on the teaching and organisational practices of Italian schools	Quantitative	Teachers	National (n = 2416)	CAWI	INDIRE (National Institute for Documentation Innovation Educational Research)

3. Results

3.1. DL and School Inclusion

Let us now consider DL's ability to guarantee the student population's participation in educational activities during the lockdown period.

According to an ISTAT survey, conducted on a sample of over forty thousand secondary school students³, 80% of the student population was able to attend DL classes on a regular basis during school closure. Very similar results also emerge from two national surveys involving teachers. The survey carried out by the Italian Educational Research Society (SIRD) on a sample of over 16,000 teachers at all educational levels found that only about 7% of students had never participated in online lessons, and about 17% had participated partially [20]. Similarly, another survey of a sample of over 2000 teachers, interviewed using a CAWI method between May and June 2020 by a consortium of three Italian universities, estimated that nationally, 7.7% of students failed to participate in the DL, while 10.3% had irregular participation [21]. Together, these results seem to highlight how the wide dissemination of digital technology in Italian schools, implemented thanks to the educational policies of the past few years, ensured a high degree of adaptability in the Italian school system in response to the upheaval in social organisation associated with the COVID-19 pandemic. The Italian school system was one of the first to fully resume its activities by exploiting the potential of digital tools. Not only did this allow teachers to

continue their work and students to continue their schooling, but it also gave students the opportunity to emerge, at least in part, from the social isolation that characterised the early stages of the pandemic.

However, although the absolute majority of students and teachers continued to carry out their activities thanks to DL, one cannot ignore the fact that a part of the student population remained totally excluded from this possibility or encountered major difficulties in attending classes. This happened, above all, in coincidence with previous conditions of social disadvantage. The above-mentioned research has shown, in fact, how the greatest difficulties in including students occurred in those territorial areas and social contexts where technological equipment, both in the school and belonging to the students themselves, was scarcer and where, at the same time, there was a lack of available skills to tackle the educational path in a digital environment. More specifically, the greatest problems concerned the southern areas of Italy, where the level of technological infrastructure and broadband network diffusion are most lacking [22].

These infrastructural difficulties were compounded by difficulties related to students' possession of appropriate devices. Consider, for example, that full participation in DL concerned 72.1% of foreign students against 85.3% of Italians, but more than 16% of the former (against 7% of the latter) followed online lessons using only a smartphone [23],—that is, a tool with severe limitations for performing all possible educational functions in a digital environment. Similarly, smartphone use was proportionally higher among households with greater socio-economic disadvantage [23].

What emerges—and is also confirmed by a widely held opinion among teachers [21]—is that an unfavourable social and cultural background may have been a very important cause of the disadvantage of students (male and female) during DL. For example, the lack or low power of an Internet connection at home [24] and the lack of suitable home spaces, especially in the case of large families with several children who had to follow online lessons at the same time, weighed heavily in the DL process [25,26].

The combination of these critical issues, added to those that have highlighted the strong limitations of DL in guaranteeing the remote inclusion of vulnerable pupils [27] and pupils with disabilities [28], underline how the educational continuity guaranteed by digital technology during the COVID-19 emergency was unevenly distributed among the various social strata identified by a different socio-economic-cultural condition. In this sense, the DL experience has also coincided with an increase in the risk of early school leaving [29].

While the uneven distribution of educational continuity has been a fact in the Italian context as well as in other countries, another study [30] carried out by the University of Eastern Piedmont, the University of Turin and the National Institute for Health, Migration, and Poverty (NIHMP), which adopted qualitative method and involved 134 students aged between 16 and 17 from nine secondary schools in Northern Italy, shed a positive light on the issue of school inclusion during the DL period. During the focus groups, these students emphasised the twofold inclusive potential of the online school: on the one hand, the development of new relationships between peers and the consolidation of existing ones; on the other hand, the inclusion in the “class group” of those who had previously shown difficulties in fitting in and/or being part of the same group.

With respect to the theme of inclusion, DL has also had some important implications in terms of digital education policies. On the one hand, it is clear how the actions undertaken in the past few years, through the digital school plans have contributed to equipping the Italian school system with a technological infrastructure that has been, for the most part, capable of reacting promptly to the problems linked to the pandemic crisis, guaranteeing participation in educational activities to a very large majority of the student population. Some research conducted among students confirms, in fact, how DL was a response to the emergency that also allowed students to feel that they were not completely isolated and to maintain a fairly constant relationship with the class [31,32]. It also emerged that a large majority of teachers believed that DL could be a valuable tool in the future to deal

with situations in which students would find it difficult to attend classes regularly and in situations of overcrowded classes [33].

On the other hand, however, the experience of DL has highlighted how the spread of digital education can also be linked to processes of social disadvantage. A major limitation of the school system digitisation policies implemented to date can be found in the scant attention that has been paid to facilitating access to digital tools for students outside school facilities and, more generally, to improving network infrastructure, especially in the southern regions of Italy and the Islands (Sicily and Sardinia). These are therefore aspects that must be properly considered, because the ability of the digital school not to trigger processes of further cumulative disadvantage also depends on them [34].

Finally, it may be useful to briefly summarise the main elements that emerged from the literature analysed on the subject of DL and inclusion. Transversal to the studies on teachers and those on students is the ability of the Italian school to react promptly to the crisis of the traditional educational system caused by the pandemic, albeit with certain limitations. While students confirm the important role played by DL for escaping isolation, particularly in the opinion of teachers, DL has not been able to eliminate the infrastructural, social and cultural inequalities that have characterised the country for years, especially to the disadvantage of Southern Italy. According to teachers, the first type of inequality was revealed in the fact that some students were unable to follow the lessons remotely or the lessons were taken irregularly due to Internet connection problems. The second type of inequality was evident in the case of students whose families could not afford to buy laptops and/or in the case of those who do not live in homes with adequate space to allow several children to attend DL classes. These elements highlight two limits of the digitisation policies of the Italian school system: not providing students with devices to use at home and thus also levelling out socio-economic inequalities; and not sufficiently strengthening Internet infrastructure, especially in the South. It is thus useful to emphasise how DL can be seen as a sort of sounding board for inequalities in the country and how, at the same time, it risks setting in motion mechanisms that we have just defined as cumulative disadvantage.

3.2. DL and Learning Processes

The experience of DL has amplified another aspect of criticality in the process in implementing the digitisation of educational processes that specifically concerns teachers' competencies. As already widely highlighted in the literature, this is a problem related to the scarce diffusion among teachers of pedagogical skills capable of considering the specificities of learning processes in a digital environment and, consequently, of being able to fully exploit the potential offered by ICTs.

As already pointed out in the introductory part of this article, this problem structurally constitutes a weakness present in all digitisation education plans in Europe, and for this reason, it represents the central node of second-generation policies [13]. Data from the survey conducted by INDIRE with about 2500 teachers in spring 2020⁵ showed that more than 95% of the teaching activities carried out in Italian secondary schools during DL coincided with the implementation of traditional lessons via video conference.

It is also important to consider the fact that the majority of remote teaching activities took place through the use of "generic" communication platforms that were adapted to the teaching needs. Out of more than 20,000 Italian teachers interviewed during DL, 80% stated that they used only three platforms for their online teaching: Google Meet (48%), Zoom (23%), and Teams (7%) [33], thus attesting to the great penetration capacity of the large IT multinationals in the Italian digital education market. At least initially, the operational choice to involve these multinational IT companies may have been rooted in the emergency condition resulting from the pandemic situation, which did not allow for adequate planning of how to carry out teaching activities or the operational tools to be used. However, it is also necessary to recall the fact that the practice of using teaching technologies for pedagogical-educational purposes was already rather limited in Italian schools [1,22]. What has been said so far leads one to consider how distance teaching has

been carried out predominantly according to transmissive modes of knowledge [35] to the total detriment of the interactive modes that represent the added value of digital teaching. It is precisely based on this neglect of interactive modes that the main dissatisfactions among both teachers and students have been concentrated.

One of the negative aspects of DL recognised by many studies investigating the Italian students' experience was, in fact, the worsening, not to say "emptying", of the teacher-student relationship (among others [22,25]). This strong change may be due to two main reasons linked to the new teaching model: the first concerns the absence of direct contact with the teaching staff that occurs in a classroom or in the corridor of an educational institution [31]; the second derives from the new ways of transmitting and managing learning and its assessment [32]. In particular, a qualitative study of secondary school students in northern Italy [30] accurately described the evolution of testing methods, outlining a kind of pathway that followed the course of the pandemic curve and associated health measures. In the initial stages of the lockdown, many professors did not implement evaluation procedures in DL, thus leaving room to share the new pandemic experience and psychologically support students. With the passage of time and the forced adaptation to the new teaching methods, however, online evaluation tests began, and with them came the first problems related to the new remote context. The relevance of the relational dimension in distance assessment has been underlined by a widespread perception on the part of students of the lack of trust that teachers have in them, especially regarding their ability to take tests and oral examinations without the use of "external" aids (from open documents on computer monitors to the presence of notes on desks, etc.).

Several studies have also focused on this aspect and investigated the opinions of teachers, who testified that their main difficulty during DL precisely concerned the assessment of learning [33,36]. The issue of evaluation is relevant because it underlines how digitally mediated teaching has had an important impact on the functional aspects of the school and its main mission, which is precisely to ensure learning processes and evaluate their effectiveness. The emergence of this critical aspect is linked, as highlighted above, to the teachers' instrumental equipment and digital skills. It should, however, be understood considering, first of all, the very nature of educational assessment as intrinsically centred on the relational dimension that has certainly been modified during DL by the intermediation of digital means. Digital learning tools have therefore made assessment processes more complex to manage in a situation of physical distance [36].

Underlying this criticality in assessment procedures and the related tensions between teachers and students seems to be a disconnect in the adaptation of teaching methods to the digital environment. Continuing to conduct lessons and evaluations as if one were still present in person testifies both to the lack of a clear operational direction from the strategic leadership of the school system and to the inability to take full advantage of the opportunity to experiment with an innovative learning model that is capable of exploiting the flexibility offered by the use of multiple IT tools in synchronous and asynchronous mode. In the case of distance or blended learning, it would have been crucial to promote the development of students' self-regulation skills without neglecting the fact that evaluation should have been considered a two-way exchange process aimed at improving the teaching and learning process, in which the evaluator should also have been able to grasp the cues needed to remodel the teaching action. In this context, it is therefore not surprising to note that both teacher evaluations [37] and student evaluations agree above all in describing DL as an ineffective pedagogical tool [38].

From the perspective of learning processes, therefore, the experience of DL has further amplified the awareness that the physical transposition of old content into new technological containers [35] represents one of the main risks for digitised teaching. This risk will therefore be one of the central nodes that future educational policies will have to address and to promote more effective and adequate training of teaching staff.

Finally, it may be useful for the reader to recall the focal points that have emerged from studies on the direct experience of Italian school actors on the subject of learning

processes during DL. Teachers and students regarded DL as an ineffective pedagogical tool. Students claim that DL lessons impoverish the teacher-learner relationship, while also making assessment extremely complicated; teachers, although confirming the difficulties of online learning assessment, point out that online lessons are nothing more than “traditional lessons” carried out by videoconference through the use of communication platforms not specific to teaching. In this sense, the teaching methods used during school closures could be considered transmissive modes of knowledge lacking the interactive dimension that should instead be one of the strengths of DL. This confirms a misalignment in the adaptation of teaching methods to the digital environment that would be useful for managing the assessment of DL.

3.3. DL and Digital Competencies

The issue of digital competencies is one of the topics at the centre of the scientific and political debate regarding the expected effects of digitisation processes in education. In the Recommendations of the European Parliament and the Council of December 2006, the European legislative authorities specified how the skills that are supposed to be developed with digital competencies concern: “the ability to search, collect and process information and to use it critically and systematically, ascertaining its relevance and distinguishing the real from the virtual while recognising their interrelationships. Individuals should also be able to use tools to produce, present and understand complex information and be able to access, research and use Internet-based services. People should also be able to use ICT to support critical thinking, creativity and innovation”⁶.

Taking this definition of digital skills as a reference, it can be said that the way DL has been applied in Italy has contributed in part, but not totally, to the development of these skills. The transfer of teaching activities to online platforms has in fact ensured greater familiarity with ICT tools for the entire school population (teachers and students). For example, within a large national sample of teachers, it was found that the regular use of common software—such as word processing, spreadsheets and presentations—affected 80% of the respondents, compared to around 30% of those who used them commonly before DL. It was also found that the frequent use of specialised software for conducting exercises with students increased from 22% to 52% and that the daily practice of using e-mail to communicate with students increased from 29% to 93% [22]. INDIRE [24] also found that 80% of its sample of teachers had participated in online training activities primarily focused on the use of communication platforms and the technologies needed to use them, while attendance at specific courses on teaching methodologies in the digital environment was less widespread, especially with regard to the needs of students with special educational needs.

Other research involving students has shown that precisely this increase in skills at the technical-informatics level (i.e., medium-related) is among the positive aspects of DL, but not in skills concerning students’ understanding and evaluation of online content (i.e., content-related) [31]. Improvements in students’ technical skills occurred mainly in the presence of family backgrounds with high cultural capital of a technological nature [39]. According to these results, it can therefore be argued that the technological requirements associated with DL have prompted teachers and students to familiarise themselves with the use of digital tools, thus improving their digital literacy and technical skills and consequently increasing their competence in the use of digital tools, especially in relation to the management of communication platforms. However, the widespread adoption of a didactic model of the transmissive type typical of face-to-face teaching can be identified as one of the reasons for the lack of dissemination of other skills related to digital competences. In particular, the limited dissemination of interactive teaching practices, widely supported in the scientific literature on media education [40,41], appears neither to have facilitated the development in students of the relevant skills related to the ability to independently search for and evaluate information nor to have stimulated creativity and the development of critical thinking about the semantic content of digital media.

As far as digital skills are concerned, it therefore seems reasonable to assert that DL represented a unique opportunity to bring about a large-scale acceleration of computer literacy and the dissemination of technological skills among all actors in the school system. The development and dissemination of the more creative skills needed to understand, use and actively participate in the digital media society have shown some important limitations. The need for future educational policies to change course in this direction is also evident when one considers that digital media play an increasingly central role in our society, influencing the culture, opinions, choices and behaviour of individuals. The development of a critical ability that starts with teacher training and is transferred—using appropriate pedagogical tools—to student learning is therefore an essential educational task that should be emphasised much more widely than during the COVID-19 DL experience.

Finally, it is useful to recall the main elements that emerged from the analysis of the literature on DL and digital skills of Italian students and teachers in the pandemic period. First, it is evident how remote schooling affects the spread of digital skills, at least basic ones, among the school population. On the one hand, the regular use of e-mail, as well as common and specialised software for remote exercises with students has increased among teachers. On the other hand, there has been an increase in their training with respect to the management of communication platforms, but not with respect to methods for teaching in the digital environment. For students, however—especially those from families with high cultural capital of a technological nature—DL turned out to be an opportunity to increase technical-computer skills (i.e., medium-related) but not to strengthen skills in the area of evaluation and comprehension of online content (i.e., content-related), in part due to the low adoption of interactive teaching practices by teachers. Finally, the very issue of digital skills could be the subject of specific policies aimed at creating and consolidating the creative skills needed to better manage DL, as well as to actively participate in contemporary society characterised by a very strong presence of digital media.

In summary, we can list the main lights and shadows that characterised the experience of the Italian school system actors during the DL and thus allow us to assess of the strengths and weaknesses of the organisational process of the digital school in Italy.

The positive aspects include:

- the effectiveness of the school system's technological equipment in ensuring a rapid organisational response to the needs posed by the pandemic situation,
- the opportunities offered by DL in ensuring students' partial exit from social isolation and
- an opportunity for both students and teachers to gain more widespread basic knowledge and familiarisation with digital tools in daily interaction practices inside and outside the school environment.

The main opportunities for improvement, according to students and teachers, mainly concerned learning-related aspects. Specifically, DL was a non-positive experience with regard to:

- the pedagogical effectiveness of this type of digital teaching,
- the impoverishment of the relational dimension between teachers and students,
- the difficulties in adequately assessing learning and
- the risk of exacerbating educational inequalities in cases of socio-economic deprivation and the simultaneous inability of DL to act on the reduction in social inequalities.

4. Discussion

The relationship between digitisation processes and education systems has long been the focus of interest both within the broad scientific debate and among policymakers who, over the past two decades, have devoted considerable planning effort and a significant share of public investment to this issue. In this context, the DL experience under COVID-19 was an exceptional test case not only for the circumstances in which its implementation took place but also for the possibility of assessing the relationship between the planning and investment of financial resources. If the need for new planning of digital educational policies had already become evident even before the health emergency, the forced exper-

imentation generated further confirmation in this direction. DL functioned as a great amplifier of both the criticalities and the opportunities offered by the digitisation of the education system. Overcoming the former to enhance the latter should be the starting point for the re-calibration of educational policies.

An important element from which we believe reflection on this issue could start is to assign value to the experiences that the main actors (students and teachers) in the school system have gained during this pandemic-related DL phase. In particular, with regard to the younger generation, it has been emphasised in the literature how their involvement in policymaking opens up interesting considerations on the issue of assessing the adequacy and feasibility of policies in the field of school digitisation [42]. It would therefore be useful to use ex-ante and ex-post evaluations that adopt the point of view of students who, although minors, are called upon to participate fully in social life and policy implementation. Using practices of co-construction and listening that can simultaneously solicit their participation and accountability would allow young people in this case to be active, street-level participants [43].

The analysis we have presented in this article has contributed to this direction by highlighting how, for school actors, DL has been a valuable support in dealing with emergency situations and an opportunity to enhance technical skills in a digital environment. However, the studies we have considered in this reconstruction have highlighted how DL was also a time of great criticality and even tension in social relations, especially between teachers and students. This aspect invites us to reflect on the fact that adequate planning of educational policies cannot disregard the centrality and importance of the relational dimension in educational environments, on which not only a successful learning process depends but also the well-being of all those involved.

The lack of planning of technology-mediated teaching activities that occurred due to the emergency circumstances in which it was necessary to resort to DL—along with the low level of teachers' knowledge and skills on the specifics of this teaching model—resulted, to a large extent, in a digital transposition of the usual way of doing lessons in person. This option has been the main critical issue of the DL experience in Italy, and it is precisely on this aspect that policymakers must reflect appropriately while drawing on the expert support of those who, in various disciplines, place the experiences and opinions of students and teachers at the centre of their research. The assumption of a bottom-up perspective would also have the advantage of limiting the effects generated by the technological determinism that has largely driven Italian and European digital education policies [1], which have been based on the simple assumption that digital equipment is a sufficient condition to guarantee an improvement in learning levels in schools and the development of skills among students. The research conducted during the DL period, like that carried out previously, clearly showed all the limitations of this approach and highlighted the need for greater attention to how digital tools can adequately support the qualitative improvement of learning environments. This aspect prompts another important reflection concerning the subjects to whom the design and implementation of these environments will be entrusted. The choice so far followed in Italy has been that of extensive delegation, on the part of the state, to the large computer multinationals, which has generated, more than in other countries, a push towards soft privatisation processes of school [5]. An accurate scientific, as well as political, assessment of this governance strategy has, so far, been largely lacking. This evaluation, however, seems necessary given the role that digital environments have proven to have on learning processes and the acquisition of digital competencies. Critical digital studies have underlined what McLuhan [44] had already convincingly theorised, namely that the medium—digital in this case—cannot be considered neutral with respect to the content it conveys. If this is true, the choice of technological tools (digital platforms, but also software programmes, devices, etc.) to be disseminated and used within schools should be accompanied by a careful assessment of these implications.

Finally, the experience of DL has shown how digitisation processes overlap with social stratification processes, while also acting as amplifiers. In this sense, therefore, the need

for a close interconnection between digital education policies and social policies to reduce inequalities also appears fundamental.

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Notes

- ¹ INVALSI is the National Institute for the Evaluation of the Educational System with the mission to prepare and carry out periodic and systematic checks on the learning outcomes of Italian students, process the results, improve the evaluation activities of the school system and of individual schools, and ensure Italian participation in international surveys on the quality of school systems.
- ² The literature that has dealt with analysing the impact of the DL in recent years has been very broad and with a very high variety of investigative perspectives. For a detailed analysis of the way in which the Italian school system has dealt with this phase, see, among others, the monographic issue Early Access published in June 2020 by the Italian scientific journal Scuola Democratica and the more recent contribution by Colombo and colleagues in 2022 [28]. This is a note example.
- ³ The survey covered a representative random sample of secondary school students, interviewed between May and July 2021. The results of this study are available in Italian: https://www.istat.it/it/files//2022/05/REPORT_ALUNNI-SCUOLE-SECONDARIE_2021_2.pdf (accessed on 15 January 2024). For details please consult: <https://www.sird.it/ricerca-nazionale-sird-2020/> (accessed on 16 January 2024).
- ⁴ A partial exception in this trend is the Decree of 7 August 2020 by which the “Voucher Plan for Low-Income Families” was established, right in the middle of the DL period, to support the expenses for the purchase of personal computers and subscriptions for fast internet: <https://www.gazzettaufficiale.it/eli/id/2020/10/01/20A05280/sg> (accessed on 20 January 2024).
- ⁵ For details please consult: https://www.indire.it/wp-content/uploads/2022/02/Didattiche-Durante-il-Lockdown_10_01-1.pdf (accessed on 21 January 2024).
- ⁶ For details please consult: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:it:PDF> (p. 7) (accessed on 22 January 2024).

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