

# Teaching Practices in the Covid-19 Emergency The Italian Teachers' Perspective

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## Abstract

Due to the global pandemic, schools around the world were forced to adopt Distance Teaching (DT) as an emergency solution to give continuity to the teaching-learning process, permitting learners to go on being taught during the lockdown.

The forced closure of schools caused an organizational, personal and professional shock in all the actors involved. The digital issue represents only the tip of the iceberg of a much deeper challenge that spans across all the components of the educational spectrum which pertain more to the value and cultural sphere than to the technical one.

The paper shows results of a multitarget pilot research, carried out during the Italian lockdown, aiming at animating the debate around schools from a multi-actor perspective and at supporting policies.

Here, we focus in particular on the implications of DT for Italian teachers, paying specific attention to their professional and emotional experience and the teaching practices they applied during the emergency. The main research questions addressed are: a) what were the main critical issues and solutions adopted by teachers during the first lockdown? b) what teaching model has the experience of DT allowed to emerge?

This analysis is confronted with a double challenge: a) to interpret what emerged from the teacher's questionnaire, in relation to the theme of the digitization of teaching and the professionalization of teachers; b) look at the strengths and criticalities of the experience, with the aim to learn in an organizational, educational and didactic perspective, how to conduct organizational and social learning processes in the post-pandemic school.

## Keywords

distance teaching, teaching practices, Italian school, covid-19

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## 1 Introduction

The arrival of the COVID-19 pandemic in Italy, as in most countries of the world, caused lockdown, with the related introduction of the Distance Teaching (DT) for schools and higher education. The country's schools were plunged into a series of changes which radically redesigned all their previous internal and external organisational processes.

During the last two years, DT was the main response of the Italian educational system to the problems created by the evolution of the pandemic and by health security measures, particularly for the upper secondary school. UNESCO data about the number of weeks of school closure in the EU shows that Italy is a sad example. Among European countries, Italy adopted one of the most lasting closure strategies, from March to August 2020 (UNESCO, 2020).

Furthermore, the introduction of DT has highlighted the teaching practices and organizational models implemented in schools even before the pandemic. Among these emerge in particular:

- a) traditional teaching based on frontal lessons, homework and tests, without a rethinking of time, activities and tools based on the new digital setting (Fondazione Agnelli, 2021; Indire, 2020; Landri et al., 2021; OECD, 2019b, 2020; Capogna et al., 2017; 2020);
- b) a low participation in professional development activities related to the use of digital technologies in teaching associated with a decrease in the need for such participation (Palmerio & Caponera, 2020).

Starting from these previous studies on the topic, our main research questions addressed are “what were the main critical issues and solutions adopted by teachers during the first lockdown?” What teaching model has the experience of DT allowed to emerge? How should organizational and social learning processes be accompanied in the post-pandemic school?

Our pilot research explores the transitional process of teachers transferring from a traditional, frontal and synchronous work in the classroom, to an online mode of work, characterized by numerous unexpected difficulties and operated under emergency conditions.

The teacher survey collects data regarding their professional and emotional experiences and explores the teaching practices they applied during the emergency. With this dual purpose in mind, the concrete solutions devised to ensure didactic continuity, the training needs emerging as a result of the digitalisation of teaching, and the strengths and weaknesses of the experience were investigated.

The paper is organized as follows: Section 2 discusses the methodological approach highlighting both the literature used to elaborate the investigative tool and the statistical model chosen to address the research question. Section 3 presents the solutions the interviewees adopted during the pandemic. Section 4 shows the results of an explorative factor analysis in order to reflect, ultimately, upon the state of the art in digital innovation in teaching practices in Italy. The conclusion and discussion are addressed in Section 5.

## 2 Methodological Approach and Sampling

The phenomenon under examination is a multi-perspective issue involving many stakeholders with different roles: school principals, teachers, students and parents. For this reason, we developed four separate questionnaires, with target specific items and some parallel items. Here the discussion regards the results of the teachers' web survey.<sup>2</sup>

The research plan was built stressing the impact of distance learning upon teaching and organizational processes. In other words, which factors permitted the teachers to test their "resilience" against the "capability of a system to maintain its function and structure in the face of internal and external changes and to degrade gracefully when it must" (Weick et al., 2005). The main questions posed by the survey were:

- What were the main criticalities identified, and the relevant strategies adopted by teachers during the emergency?
- What were the key issues experienced by the teachers during the pandemic?

The questionnaire was divided into five sections. The first section of the questionnaire sought to outline the respondents' profiles and glean professional information. The second section investigated the aspects of organisation (Barnard, 1968; Mintzberg, 1983) and design activated to respond to the challenges imposed by remote teaching during the emergency. The third explored the digital divide (Hargittai, 2010; Jackson et al., 2008; Thompson, 2004), considered a major topic which foregrounds a deep, though renewed, type of cultural and social inequality. The fourth section examined the overall satisfaction of the various actors involved in the process, paying particular attention to internal organisational processes, in a logic of self-evaluation based on a SWOT analysis. The last section of the questionnaire consisted of a series of answers to open questions used to analyse more deeply the transformations taking place, in particular their repercussions upon teaching practices and on relationships between teachers, students and families.

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2 For an in-depth analysis about the overall results emerging from all four parallel surveys, see Capogna et al. (2021).

The following paragraphs analyse the main data collected concerning the DT experience which involved school teachers (preschool, primary, lower/upper secondary) during the first wave of the pandemic.

Even though the self-selected sample does not allow for an inference process to be activated or render the sample representative of Italian teaching staff, the information collected and the high number of complete cases analysed (2,015) allows us to formulate ideas and useful indications for further reflection and in-depth study.

Of the respondents, 85.6% were women, with the remaining 14.4% men. This confirmed that the gender distribution of teachers at national level in Italy is only three points higher than the official national figure for 2019 of 82.7% for women, 17% for men (MIUR, 2019).

Thirty-one-point two percent (31.2%) of the sample were aged between 41 and 50, with 53.9% over 50. This distribution based on age confirmed OECD data, according to which more than half of Italy's primary- and secondary-school teachers are over 50, against a European average of around 36%, confirming Italy's teaching staff as the oldest among the OECD countries (OECD, 2019a).

Twenty-five percent (25%) of the sample came from Central Italy, 38% from Northern Italy and the remaining 37% from the South and the Islands. These figures diverge only slightly from the 2019 ministerial report which sees the Centre with 20.4%, Northern Italy with 40.9% and the South and Islands with 38.8% (MIUR, 2019).

The regions represented most by our sample were Lazio (17.3%), followed by Lombardy (13.8%), the region affected most by the pandemic, Campania (13.3%) and Sicily (7.1%), accounting for half of the sample interviewed. This bias is linked to the self-selected nature of the sample and the greater coverage of Central Italy by the researchers involved in the survey.

Almost 50% of preschool teachers came from Southern Italy and the Islands (49.7%), where there was also a consistent response from teachers of working in the lower secondary school (42.1%); the 42.6% of the upper secondary school teachers were from Northern Italy.

The ninety-eight-point five (98.5%) percent of those who compiled the questionnaire came from state schools, the remaining 1.5% from approved private schools. Sixty-one percent (61%) of the sample were employed in lower and upper secondary schools, the remaining 30.4% worked in primary schools, the rest were in preschool (8.6%), reflecting data for the teaching population provided in 2019 by the Ministry for Education (MIUR, 2019). Of the teachers who responded, 63.4% taught Literature, History and Geography; 30.7% were teachers of Mathematics and Sciences; 12.8% taught Art and 13.3% were special-needs teachers.

### 3 The Resulting Questionnaire: Teaching Practices during the Covid Emergency

The response of the schools to the emergency was immediate. Only 10.3% of teachers declared that their schools activated DT later than two weeks after the beginning of the emergency. Seventy-one percent (71%) of the teachers said that their schools responded in a very short time, ranging from a few days to a week.

As was to be expected, when it came to the entire school system, preschools and primary schools needed more time to activate DT at organizational and educational levels. Respectively, 41.7% and 35.7% of the teachers of these two levels reported activation times ranging from two weeks to more than two weeks. The implementation of DT, as 85.5% of the teachers contacted stated, involved all subjects. Only 5.3% declared being unaware of this information.

The manner the institutes used to direct their teaching staff towards online teaching was deemed fair to completely clear by 85.7% of the teachers. This fact denotes a resilient system, adaptable to changing situations, capable of restructuring itself in a short time, and guaranteeing didactic continuity.

The contribution of families towards the initiation of videoconferences, as is easy to imagine, was prevalent in the case of the lower school cycles, as was the support required for pupils at this level, so that they might make use of distance learning environments such as Classroom (G-Suite), Moodle, or Edmodo.

The interviewees organised their DT by availing themselves of videoconferences with their learners (81%), by transmitting didactic materials uploaded to digital platforms (82.3%), and by using all the communicative functions and teaching support provided by the digital class roll book (66.7%). Primary school teachers more than those teaching at other levels preferred to record and send video lessons to students (40.4%).

In the lower and upper secondary schools, on the other hand, real-time lessons were the mode preferred by most teachers who used available platforms for videoconferencing, the transmission of teaching material via digital platforms and the use of the electronic roll book.

However, between the lower and upper secondary school, there was a significant gap when it came to the engagement of students in group work and project tasks. Of the teachers who claimed to have used this methodology, 52.8% came from the upper secondary school, with only 27.2% from the lower secondary school.

The gender and age of teachers, as well as the subjects taught, did not significantly affect the choice of the activities carried out during DT. These data give us a rather homoge-

neous sample of the practices implemented during the lockdown, where no relevant differences emerge, except those strictly related to the order of the school where the teachers were employed (Figure 1).

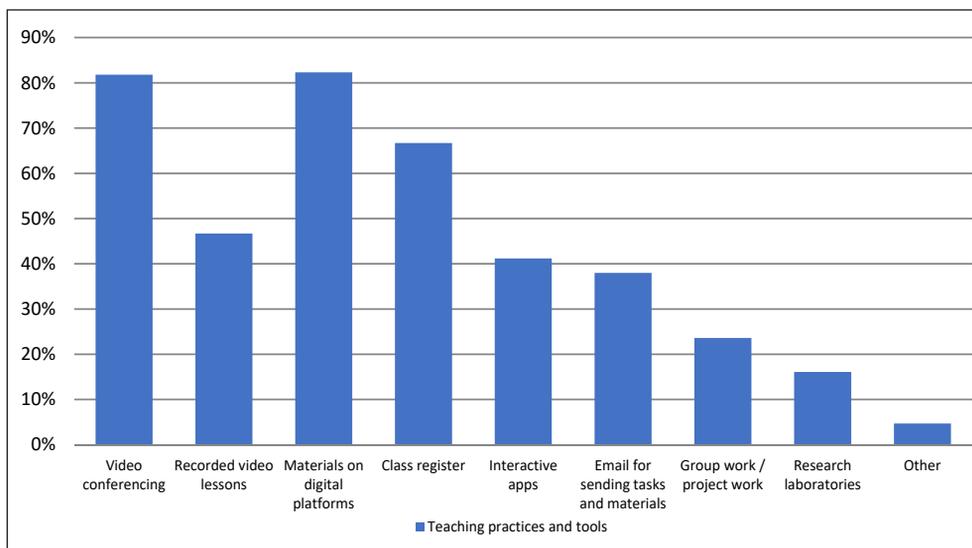


Figure 1: Teaching practices and tools during the pandemic

Observing these data, one can reasonably assert that what was implemented was an emergency form of teaching where the traditional teacher-led, in-class lesson, albeit mediated by digital technology, prevailed (60%) over constructivist and workshop teaching styles, which scored less than 40%.

Although the findings are the expression of what is deemed an emergency teaching method, the research data do not differ from what was described in other studies conducted a few months before the Covid-19 pandemic regarding the use of digital technology in teaching (Capogna et al., 2017, 2020).

This still assumes a predominantly transmissive character, which bends digital technology to limited and instrumental use, not grasping its potential for methodological innovation in the teaching-learning process (Cortoni & Lo Presti, 2018; Pitzalis et al., 2016; Gui, 2019).

The spread of innovative teaching methodologies, supported by the use of digital technology, is still a patchy reality in Italy and the pandemic has simply brought to the fore consolidated practices and processes, together with the strengths and areas requiring attention, already characterised within the school system before the pandemic.

More than half of our sample expressed a critical attitude towards the true worth of DT if we consider the degree of attention paid by the students, their levels of participation and the amount of work required of teachers.

Fifty-nine-point three percent (59.3%) of the teachers believed that the students' attention threshold during online lessons was no higher than during traditional lessons; while 52.3% of them strongly disagreed with the statement that student involvement and participation might be facilitated by DT.

Seventy percent (70%) of the sample noted how much DT increased teachers' workload. The virtual classroom requires greater commitment to the preparation of materials to be shared, the preparation of online spaces for shared and collaborative work and the preparation of adequate tools for assessment.

The absence of physical proximity also required a greater effort on the part of teachers to engage their learners in the teaching/learning process. This was exacerbated further by the digital divide, which, in some cases, made it difficult, if not impossible, for students to access online teaching.

Although the highest percentage of the teachers reported having transmitted lessons remotely and not fully exploiting the methodological possibilities provided by the digital system, 42% said that distance learning changed their didactics, with comments ranging between a lot and completely, while only 15% declared that DT had changed their mode of teaching little or not at all. As was to be expected, this change in modes of teaching was acknowledged particularly by teachers working in preschools (58.3%) and primary schools (49.3%).

This gap between the activities implemented and the perception of change in approaches to teaching may be due, understandably, to a significant bias between the pervasive use of IT tools in teaching, and teachers' actual expertise in the use of educational technology.

This gap between what was achieved and individual's perception of their teaching experience underlines the need to document practices and experiences systematically through self-assessment and peer comparison to feed a meta-reflective circuit that, in the long run, enhances the system, impacting positively even on contexts most resistant to change.

Almost half of our self-selected sample (43.7%) declared being rather satisfied with the long-distance relationship established with their students. On the contrary, 32.8% stated not being really satisfied or not satisfied at all. Only a little over 2 out of 10 teachers (23.5%) declared being very or completely satisfied with the relationship mediated by DT.

On the basis of the data collected, the areas that suffered most as far as the teacher-student relationship is concerned were music, the social sciences, physical education and the teaching resources and teaching of those with special educational needs.

In particular, the condition of dissatisfaction expressed by the special-needs teachers is also reflected in the experiences of the families. This vulnerability is widely represented by the teachers themselves when questioned on the critical points of the DT experience.

The report of the Italian statistics agency (ISTAT) on the educational inclusion of pupils with disabilities confirms this, as well as the concern expressed by the teachers and families for the coming months (ISTAT, 2020). The activation of DT has made a sensitive process like school inclusion more complex and has highlighted the structural deficiencies of the system in terms of a lack of specialised teachers and assistants trained to facilitate the autonomy and communicative ability of their special-needs pupils, foster their face-to-face relationships with their peers, organise the adequate provision of spaces and the use of specific digital technology, which are all mandatory if truly inclusive teaching is to be guaranteed.

### ***3.1 Innovation and Emerging Training Needs***

The attitude of teachers regarding innovation is rather positive, in particular when acknowledging the need to ensure adequate future training for students and teachers to promote their digital skills. Forty-eight percent declared that they strongly desired integrating their face-to-face teaching with online teaching and believe that schools should encourage the use of online learning platforms in addition to lectures.

The teachers who seemed most favourable to the introduction of mixed teaching were those who were also able to combine available technology with innovative teaching methods. These, therefore, are those who, in addition to the use of Apps for videoconferencing and the exploitation of all the functions of the digital class roll book, also used interactive apps for teaching, promoted group work and workshops. They are innovative teachers who are proactive, and continue to be so online.

The areas of expertise that teachers believe they need to develop more in the future and which have been structured according to the DigCompEdu taxonomy (European Commission, 2017) are the teaching-learning areas, specifically the implementation of devices and digital resources in teaching, student support and fostering collaborative learning (58%) (Figure 2).

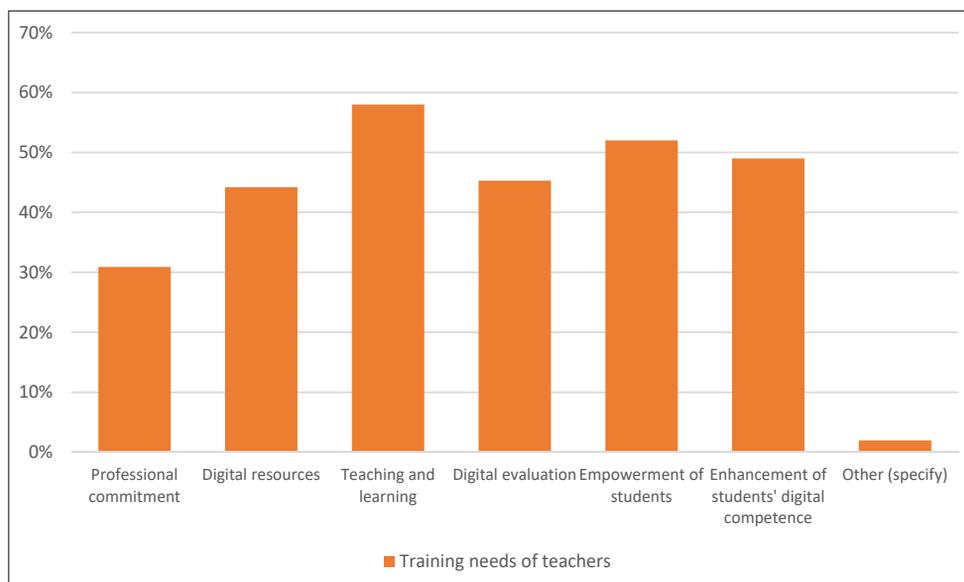


Figure 2: Teaching practices and tools during the pandemic

While we notice the interest shown by almost half of the sample regarding all the areas of competence we proposed, the area of professional commitment remains the most marginal. This is the area which concerns, specifically, the reinforcement of organisational communication and professional collaboration (30.9%) and special-needs teachers, in particular, who urgently need specific training (36.3%).

The emergency concentrated more on the efforts made by teachers to provide online teaching than on aspects related to collaboration with colleagues, deemed marginal with regard to future professional training, and, as we shall see, when it comes to improvements to be implemented in the light of lived experience.

This contingency highlighted the need for methodological training aimed at permitting teachers to use available technology effectively and exploit the potential it offers to teaching practices.

This emerges also through the answers regarding the question on the DT activities designed and provided by the teachers during the emergency. These proved to be mainly of a transmission type, in most cases a recorded online lecture. Teachers seemed to be aware of this limitation. This emerges when they identified the methodological area of teaching-learning as the main area on which to focus when organising future training.

### 3.2 *Strengths, Criticalities, Future Challenges*

Although, on the whole, the teachers contacted were very satisfied with distance learning in response to the emergency (52.5%), they were less inclined to say that they were generally satisfied with their distance relationships with students and colleagues.

Dissatisfaction with their distance relationship with students emerged more among pre-school teachers; an understandable perception given the age of the pupils, and the teaching strategies usually adopted at this particular educational level (manipulation, play, exploration, etc.). The teachers who declared being less satisfied with relationships with their colleagues during DT were those employed in lower and upper secondary schools.

Generally, the teachers were very critical of the scheduling and work methods activated during the emergency. Almost 80% of the teachers surveyed agreed that the frequent use of digital devices made them feel tired. On the other hand, 40% of them maintained that network problems were difficult to handle, and 60% of them believed that the online education platforms should be standardised to avoid fragmentation and dispersion when managing didactic materials.

The teachers were then asked to express their feelings concerning polarised semantic variables (e. g., distance/proximity; difficulty/ease, etc.) arranged on a seven-modality scale. We know how positive and negative feelings influence learning and can reinforce past attitudes, or create conditions that feed negative or positive inclinations towards future learning. This applies to students as well as teachers in their professional practice (Illeris, 2003).

This survey revealed that more than half of the teachers (53.6%) felt that their teaching was penalised by distance lessons. This widespread feeling among teachers speaks of a shared difficulty associated with the remote transmission of didactic content, in terms of effectiveness and performance of the educational act.

However, this perception does not seem to have had a direct impact upon the serenity of teachers during lesson preparation, which aroused anxiety in only 27.7% of the respondents. It did not apply to remote lessons when it came to the use of technology as such in 21.9% of the cases considered, nor to the indifference towards digital technologies of a minority of teachers (24.4%). The difficulty, therefore, seems not to lie, according to the teachers, in the use of digital devices, but in the way these technologies seem to condition teaching practices, specifically teacher-learner relationships/interactions.

The female teachers of our self-selected sample suffered most from the relationship mediated by digital technology, about which they were less enthusiastic than their male colleagues. Being isolated from their pupils/students was perceived mostly by preschool school teachers and those operating in Northern Italy, for whom the continuation of

teaching activity added to the spread of the pandemic, with all the difficulties this caused to teaching.

Teachers aged over 60 complained by 7% more than teachers aged between 41 and 50 years when responding to the questions about the perception of isolation. Older teachers suffered most from the change, often feeling insufficiently supported by the administration and colleagues. Furthermore, among other considerations, teachers over 60 were those who in the semantic continuum were not at ease with ICT and experienced greater difficulty with digital devices, 19% as against 5.5% of teachers aged between 31 to 40, and 11.2% aged 41–50.

Among the strengths of the reorganisation of the teaching experience during the emergency, more than 60% of the teachers consulted emphasised their experimentation with innovative organisational and teaching models (67.2%). These data, however, need to be read in the light of the actual activities carried out during the lockdown.

Of those who indicated experimentation with innovative organisational and teaching models as strengths, only 25.8% and 17.3%, respectively, involved students in group and project work, in experimental laboratories and in-depth research, though 85% of these same teachers organised video conferences and transmitted teaching materials through digital platforms. Therefore, an idea of innovation centred on the use of digital devices rather than on ways that characterise their use emerges, indicating, as already highlighted in the previous paragraphs, the prevalence of transmissive teaching focused on content.

The teachers noted, in particular, two types of problems relating to the lived experience. Among the difficulties encountered during the reorganisation of teaching during this emergency were the considerable increase in their working hours (79.4%), followed by an increase in stress and physical fatigue (65.5%), experienced in particular by primary and lower secondary school teachers (Fig. 3).

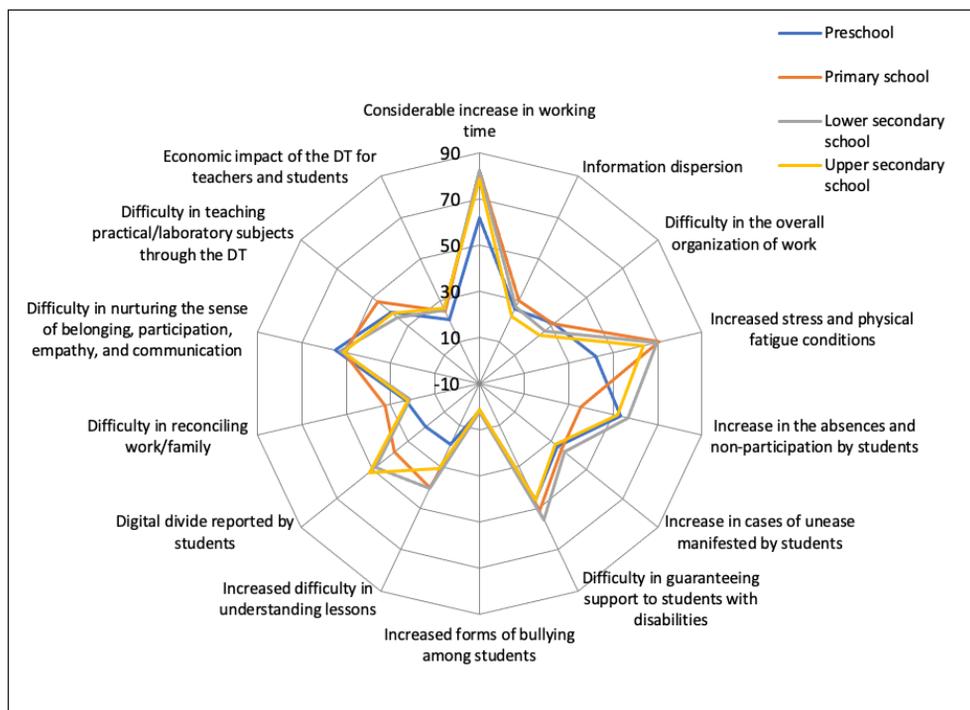


Figure 3: The criticalities which emerged according to school level

Next in rank were the difficulties encountered when trying to use DT to convey a sense of belonging, participation, empathy, and effective communication with students (51.8%) and when seeking to guarantee assistance and educational support to students with disabilities (49, 9%). Next came of the figure for absences and non-participation by students (48.1%).

When assessing the improvements teachers believed might favour processes of integration of digital technology capable of redesigning teaching, they emphasised most the need for an adequate share of resources in support of teaching-learning quality with the help of digital resources (53.7%), followed by a perceived need to organise internal training courses for the development of specific skills related to the exercise of the role of teaching within new digital environments (46.6%).

Almost half of the sample also believed it important to organise and collect assessments by students and families of the DT experience during the emergency (42.5%), and advocated a conscious redesign of the teaching and learning processes. Only 20% of the sample believed that a self-evaluation pathway shared by teachers might prove of use to reflect on the experience, and share socially what had been experienced with colleagues. This is

reflected also in the amount of time dedicated to discussions with colleagues which, for 50% of the teachers consulted, did not exceed two hours a week, a datum which probably fuelled the sense of isolation and self-referentiality when appraising the teaching emergency.

Very few teachers considered their colleagues' experience a value to be shared in order to assess their experiences together. This perception coincided with the low score of those who identified this point as an opportunity to identify objectives for the future (14.9 %).

All told, DT seems to have been experienced as a temporary parenthesis and not as a challenge to address in the long term; a perception ignored, unfortunately, as the pandemic continues.

#### **4 The analysis of Latent Dimensions**

The variables pinpointed by the survey need to be considered as indicators of latent constructs extracted by means of multivariate statistical techniques like exploratory factor analysis (De Lillo, 2007).<sup>3</sup> This statistical methodology makes it possible to simplify the amount of information collected when extracting factors regarding latent structures emerging from within the data gathered, with a minimum loss of information or variability. The approach used is that of an exploratory factor analysis aimed at identifying the underlying dimensions, and not at confirming theoretical constructs. However, before proceeding to a reduction of the data, an evaluation of the internal coherence of the scale (the series of questionnaire items) using the Cronbach Alpha method was deemed useful (Cronbach, 1951). This is a simple but widely used measure, applied in social studies to indicate degrees of agreement, namely, consistency, existing between several measures of the same theoretical concept obtained during the same administration and using the same detection method.<sup>4</sup>

This analysis was applied to the data relating to the degree of agreement or disagreement of teachers measured by a Likert scale (at 5 levels, where 1 represented total disagreement and 5 total agreement) on the following items:

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3 For further methodological information on the technique and application of the technique, see De Lillo (2007).

4 According to the literature (Nunnally & Bernstein, 1994), statistical values of between 0.8 and 0.9 are considered adequate (the scale does not need to be reviewed); values lower than 0.8 suggest that the scale is incomplete (the item series needs to be integrated); values above 0.9 indicate redundancy (the number of questions in the questionnaire needs to be reduced). This analysis, conducted using Minitab, also permits one to verify how to adapt the consistency of the scale to the exclusion of one of the indicators deemed inconsistent.

- Students were prepared/competent to deal with distance learning.
- The content of the lessons was easy for the students to use and understand.
- The teaching material was easily available to students.
- Distance learning facilitated student involvement and participation.
- Distance teaching increased the teacher's workload.
- The online lessons were compatible with one's schedule.
- The attention threshold of students during online lessons was higher than in traditional lessons.
- There was good coordination between teachers.

The internal consistency of the items, measured using Cronbach's alpha, reveals a poor consistency (0.6826) that can be slightly improved (target value 0.7214), excluding from the questions the item "Distance teaching increases the teacher's workload". Therefore, considering only the items that achieve a fair degree of coherence, the latent dimensions of the variations in the methodological approach adopted by the teachers during the emergency were sought by application of exploratory factor analysis.

Based on the variability replicated by the factors as well as by the *scree-plot* (Figure 3), three factors were extracted; factors which cumulatively accounted for approximately 67% of the total variability, beyond which the eigenvalues were significantly lower than one while the curve tended to change its gradient.

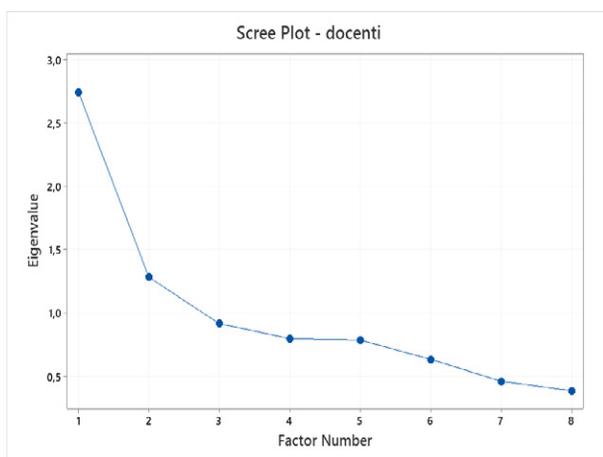


Figure 3: Scree-plot for the identification of latent factors to be extracted – teachers

The first factor explained 39% of the entire variability, when the second was added it explained from 54%, to 67% of the variability when the third factor was extracted. For interpretative purposes, the three factors were extracted and rotated orthogonally. The results are provided in Table 1 which shows the weight on the rotated factor of each variable of the dataset.

Table 1: Statistical output of the factor analysis, factor loadings of the extracted factors – teachers

Variable	Factor1	Factor2	Factor3	Com.
The teaching material was readily available to students	<b>0.752</b>	-0.088	0.152	0.597
The content of the lessons was easy for students to use and understand	<b>0.706</b>	-0.223	0.287	0.631
There was good coordination between the teachers	<b>0.229</b>	-0.194	0.062	0.094
The threshold of students' attention during the online lessons was greater than traditional lessons	0.093	<b>-0.761</b>	0.133	0.606
Distance learning facilitated student involvement and participation	0.217	<b>-0.563</b>	0.418	0.539
The online lessons were compatible with my schedule	0.150	<b>-0.323</b>	0.154	0.151
The students were prepared/competent to deal with distance learning	0.283	-0.265	<b>0.513</b>	0.414
Variance	1.2754	1.1665	0.5896	3.0315
% Var	0.182	0.167	0.084	0.433

The results of the factor analysis suggest that the main thrusts for teachers in terms of variations in the methodological approach were related to the *management of digital educational content* (factor 1), the *management of the dynamics of the virtual classroom* (factor 2) and the *digital maturity of the students* (factor 3) (Table 2).

Table 2: Organisational response factors

Factors	Variance	Items
<b>Factor 1</b> <b>Organisation of the digital educational content</b>	39%	Positively correlated with: – The teaching material was easily available to students – The content of the lessons was easy for students to access and understand. – There was good coordination among teachers.
<b>Factor 2</b> <b>Difficulty in managing the dynamics of the virtual classroom.</b>	54%	Negatively correlated with: – The threshold of students' attention during on-line lessons was greater than traditional lessons – Distance learning facilitated student involvement and participation – The online lessons were compatible with my schedule.
<b>Factor 3</b> <b>Digital Maturity</b>	67%	Positively correlated with: – The students were prepared/competent to deal with distance learning

These factors were a useful basis when seeking to define teacher profiles through hierarchical cluster analysis. The exploratory analysis conducted with the help of the dendrogram and information about the level of similarity permitted the identification of 3 clusters (Table 3).

Table 3: Statistical output – centres of final groups and number of teacher groups

Variable	Cluster1 (n=644)	Cluster2 (n=594)	Cluster3 (n=777)
<i>Organisation of digital educational content</i>	-0.97	0.54	0.39
<i>Difficulty in managing the dynamics of the virtual classroom.</i>	0.15	0.66	-0.63
<i>Digital Maturity</i>	-0.23	-0.17	0.33

The groups can be interpreted by observing Table 3, which shows the average values of the centres.

- The first group consisted of 644 teachers with a below-average ability to organise digital teaching content, and a slightly above-average difficulty in managing classroom dynamics. This group of teachers perceived their students as endowed with below-average digital maturity. We defined this group *unprepared for the digital challenge*.

- The second group (594 teachers) which contained teachers with an above-average capacity to organise digital content in the face of difficulties when managing classroom dynamics, perceived their students as digitally less mature than average. We named this group as *contents centred*.
- In both these groups, the teachers appear to have been incapable of acting as mediators between digital culture and society. This way they risked amplifying the initial inequalities characterising students who live in difficult conditions and, therefore, unable to develop their digital maturity in different contexts.
- The third group of 777 teachers were quite well organised when required to prepare digital educational contents. They experienced a lower-than-average level of difficulty when seeking to manage classroom dynamics and perceive their students as digitally mature enough to deal with DT. We labelled this group of teachers as *mediators*, because they were able to mediate between technology, contents, the primacy of relationships, classroom management and the digital maturity of their students. The breadth of the spectrum of action of this teacher group seems to bear witness to a certain degree of digital mastery. It would be interesting to investigate the type of relationship that arises between the digital maturity of the teacher and that of the students. And where and how such digital maturity is formed in today's school.

The pandemic highlighted the strategic role that teachers play as mediators in learning (Pitzalis et al., 2016), decoding and understanding when it comes to contents, technology, norms, values and emotions. The mediator might be compared to an oarsperson rowing from one state/condition to another. The image of a bridge also conveys this idea of mediation which may also be compared to a filter or a game that proceeds along a pathway of empowerment capable of accompanying the players towards autonomy. To carry out this complex and sensitive function, however, the mediator must have bridged the gap before the others, have experienced the different states/conditions involved and have mastered all the nuances with respect to which he/her proposes himself/herself as intermediary.

The analysis suggests that the teacher's digital maturity and his/her ability to redesign the teaching/learning process within the digital environment favours the active participation of students, their inclusion and their digital maturity. Once again, the communicative dimension, this time regarding the management of interpersonal dynamics and the classroom group, presents itself in all its strength, placing the need for teachers to supervise this competence at the core of things.

## 5 Concluding Remarks

In conclusion, with the intention of finalizing the research work illustrated, it is considered useful to focus on some of the most significant results that emerged.

The analyses carried out show a very rich and complex snapshot of the Italian school system. It allows us to look at the educational action, to grasp its dynamism with respect to the regulatory effort, the direct change, the practices and processes of innovation and contamination in the daily working environment of the education system.

In 2020, the lockdown imposed by the global pandemic led the education system to a transformational event that completely redesigns its general order. When digital technology enters the Italian school, it does not simply pose a problem of adapting the skills of all its operators (technicians, staff and teachers). It also imposes the overall redesign of the entire structure, through the logic of the five Rs suggested by Thompson (1967): restructuring, redesigning, reinventing, realigning, rethinking; through the exercise of a reflective rationality (Schön, 1991), aimed at exploring, problematizing, contextualizing and responding, with creative and innovative solutions, to the introduction of digital technology in the setting and in the specific educational context. In fact, there is no technical rationality (technology or codified knowledge) capable of giving determined, generalizable and standardisable answers to the variability and uniqueness of the educational relationship, and to the varied service functions that each school offers to its community.

Regarding teachers, despite the great effort and difficulties in reaching all students, there is no significant change in teaching practices. The distance teaching highlighted the teaching and organisational models operational in Italian schools even before the pandemic.

Many teachers claim to have experienced DT as an emergency teaching tool, which persists in the time and space defined by the pandemic situation, but which cannot be considered the normality of the educational relationship. The relevance of the socializing dimension has come to light and what students and teachers have suffered most, in fact, is the discomfort linked to the lack of spaces for relating. Spaces where practical knowledge is generated which, through habits and daily experience, feeds perceptive mental schemes, reference values and principles of judgment.

The experience of DT probably made the community re-evaluate all this essential social and socializing function that precedes and goes beyond the transmissive mission itself. If we tried with Brint (1998) to answer the question “What kind of socialization made possible the de-territorialized and de-materialized space of the virtualized school?” we would deal with:

- a) the absence of the behavioral dimension determined by the *non-materiality* of the online relationship. An environment which cancels the physicality of the encounter, the

experience of the other and of learning, leaves the subject alone in front of the recognition and care of oneself. A situation which creates loneliness, further fueled by the tendency and/or need to participate in educational activities with the webcam turned off;

- b) the danger of self-referentiality due to the absence of a territory of comparison that relegates everyone, parents and children, teachers and students, and society as a whole, to their own personal bubble where there is no place for meeting, for the *other*, for discovery, feeding the risk of incommunicability and fear of the *other*, of the different and of the unknown;
- c) and, finally, the impossibility of providing new generations with the necessary cultural framework to move easily in the *infosphere* (Floridi, 2015) determined by the digital revolution. It also dramatically reveals the digital skills gap already highlighted by all the international research in recent years (OECD, 2018, 2019a, 2019b, 2020; CC.EE, 2020).

The teachers reach this conclusion even in the face of an increase in the workload that does not correspond to the actual resources deployed by the Italian school system, the main element that also emerges when asked about the areas for improvement concerning the lived experience. The theme of recognizing the teachers and their work therefore returns, to which it is necessary to correspond with policies (recruitment, for continuing education, remuneration) that respond to this request.

However, it clearly emerges that greater awareness and ability in the use of digital technology for teaching purposes by teachers favours their active participation with students and the acquisition of new technological skills.

The research also shows a desire by teachers to re-read the parenthesis of DT in the light of the experience of students and families (42.5%). This need intercepted by the survey is an element that invites the school itself to become a promoter, and in turn, a beneficiary of the culture of data, in the didactic planning and management of the institute. But at the same time, the teachers' answers do not reveal this same sensitivity towards peer evaluation and self-evaluation related to the experience of DT, still preferring a predominantly hetero-evaluative model of a cognitive type. The data collected render us with a teaching staff that seems to be, in some ways, still rather self-referential, in which the opportunities for internal and external collaboration at the institute itself remain episodic and spread patchily throughout the national territory. Teachers declare a lack of motivation to communicate their own DT experience with colleagues, accompanied by 41.1% by the feeling of isolation from their peers. On the other hand, however, there is a need for internal training courses that allow teachers to develop the appropriate skills to exercise their role remotely.

Starting from this explorative data, we believe it is important to make a critical reflection to propose new developments. These should call into question the status quo, through the promotion of a culture of a professional network, of exchange between peers and of self-evaluation, favored by the school management itself.

A culture of self-reflection is important both in the teaching-learning process and in the decision-making and organizational processes that affect the school (Hoy & Miskel, 2001). Several studies have highlighted the positive relationship between teachers' self-assessment and their professional growth (Festinger, 1954; Peterson, 2000; Connelly & Clandinin, 1988). A reflexive meta culture has a dual purpose:

- 1) to intervene directly in the organizational climate and culture to build positive social relations between the members of the organization, and in this way respond to internal and external demands for change (Fullan, 1993);
- 2) to support subjects in the acquisition of methodologies and skills adequate to respond to the challenge of contemporaneity (Kyriakides et al., 2002; Muijs & Reynolds, 2001), to increase educational effectiveness (Scheerens & Bosker, 1997).

In particular, with respect to the experience of distance learning, the use of self-assessment tools integrated with other personal and group supervision strategies can help teachers and staff to: (a) increase awareness of the sense of the effectiveness of their own formative and organisational action; (b) help teachers and administrative staff to build pathways of improvement and define the actions necessary to deal with the criticalities and challenges of change; (c) facilitate communication between peers and nurture a sense of belonging and collaboration; (d) stimulate constructive strategies capable of solving the problems that DT inevitably produces at organisational and teaching level, undermining, in some cases, a sense of self-efficacy in teachers themselves obliged to re-interpret their role and reconsider their skills.

On the basis of this analysis, it seems possible also to recognise, with Capogna (2016), that three major areas of competence emerge in the exercise of the teaching profession, which are combined in different ways and degrees of complexity according to the school level (preschool, primary, lower/upper secondary) and which must be developed in the near future:

- 1) the socio-emotional skills that affect the entire relational sphere at different levels of professional action that, when it comes to professionalism, is played out in multiple spaces concerning interaction with students, colleagues and the organisation of affiliation and the broader community of reference;
- 2) the methodological skills, namely, the variegated range of skills that refer to the entire cycle of the educational process from an analysis of student's needs and their historical-biographical specificity to activities of assessment, evaluation and restitution;

- 3) and the enlargement of communication skills capable of expressing maturity and mastery of media and digital literacy and competencies.

Hence, rethinking the post-pandemic school means looking with hope at a series of actions that can transform the crisis into possibility:

- 1) to move from the directive/top-down logic to the empowering logic which aims to enhance and empower people with regard to their choices;
- 2) to pass from the self-referential structure to that of a supply chain that enhances inter-system relations;
- 3) to move from the logic of competition to that of cooperation to educate for the common good;
- 4) to move from the paradigm of transmissivity to the socio-constructionist one to educate the subject to be an active protagonist in building paths of personal and collective knowledge;
- 5) to move from the emphasis on performance, centered on the execution of the performance that objectifies the subject, to the idea of per-forming (in its original Latin meaning) which refers to “giving shape”, recovering the relational dimension of the outcomes of learning;
- 6) to move from the dichotomy between theory and practice to reflective action that is always situated and specific;
- 7) to overcome the concept of competence to recover that of *virtue*, already reconquered by the whole strand of positive psychology (Seligman & Csikszentmihalyi, 2000; Seligman et al., 2005; Capogna, 2019), which gives us a holistic vision of the person;
- 8) to move from the emphasis on evaluation to the centrality of motivation, the only real boost to personal and professional growth;
- 9) to pass from executive thinking, typical of the educational model operated in the modern era, to the *critical thinking* necessary to live in the complex and global society of our times;
- 10) to move from training to what and how, aimed at training the workers of the first, second and third industrial revolution, to the awareness of *who* and *for whom*, necessary to inform an action oriented towards global ethics in a digital society (Millennium Group, 2017).

With the persistence of this pandemic and the resulting economic and social crisis, much remains to be done to bring schools back to the centre of individual and social develop-

ment policies, and to do this “a great reset” is necessary. A change of perspective is necessary, one aimed at putting the value of the *person, care and sharing* back at centre stage, starting from communities.

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