Re-organization of assessment during the educational emergency in primary and secondary teaching: an Italian case

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Abstract
The educational crisis caused by the pandemic created an unprecedented need to reorganize teaching and learning processes, and the educational assessment became one of the thorniest issues in this rapid change; assessment re-organization entails layered complexities on micro, meso and macro levels. This research is contextualized in a larger digital ethnographic study of three different Italian teacher online communities, uncovering the experience from mixed-methods research. Following this research, a survey instrument was developed and launched. Current paper reports on the survey aiming to uncover the change in assessment practices during the educational emergency while reflecting on teachers' beliefs on the assessment, the use of remote assessment methods before and during the pandemic, and its re-organization. Findings suggest a significant reorganization of assessment during the COVID-19 educational emergency in all school orders. Through all school orders, teachers perceived a reduction in the importance of assessment during the pandemic and, consequently, used most assessment techniques significantly less than before. However, different methods changed differently, with oral examinations diminishing dramatically and increased use of closed-question quizzes.
Keywords: assessment; COVID-19; primary school; secondary school; distance learning; emergency remote teaching

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1. Introduction

The COVID-19 pandemic has changed the educational landscape in the short, mid and long term. The problem of the access to education has caused what we call an educational emergency (Eradze *et al.*, 2021) which has become the first challenge, needing an immediate response. Such a response was the introduction of large-scale distance learning, or better, its temporary form - Emergency Remote Teaching (Hodges *et al.*, 2020). While the experiences have been very challenging for the teachers, as well as for learners causing problems such as so-called "zoom fatigue", sudden workload increase and stress, it has also introduced some opportunities, that have yet to be analysed and reflected on.

The challenge that the educational institutions have faced in the pandemic, was of an organisational nature – they had to respond to the challenge and quickly re-organize teaching and learning processes; one of the most challenging topics in the transition process has been the assessment. As some of the assessment practices, such as *assessment for learning* (Wiliam, 2011) and *assessment of learning* (Harlen, 2007) are often related to the assessment of the achieved outcomes and aligned with state curriculum, and in the disrupted context of the COVID-19 emergency, this factored in the difficulty of the assessment re-organization management. Furthermore, while other types of learning activities are more flexible to re-organisation, in the assessment processes, there are several issues that must be considered when reorganising: such as academic integrity and trust (Gamage *et al.*, 2020) further complicated by use of technology-enhanced assessment – its tools and practices existed before the pandemic, but they have been adopted very quickly, without much planning ahead.

To understand the impact of this transition from different perspectives, some researchers have documented these experiences all over the world *(Bozkurt et al.*, 2020) capturing experiences with ERT (Albó *et al.*, 2020). Many have investigated questions such as teachers' attitudes (Giovannella *et al.*, 2021), change in motivation and digital skills in the context of the forced transition (Beardsley *et al*., 2021), while also tried to identify potential teacher professional development opportunities in them (Albó *et al*., 2020; Luik & Lepp, 2020). It is worth noting that the pandemic self-initiated professional learning networks through social media have been successfully used to support the teachers in the transition to ERT in different countries (i.e.,(Beardsley *et al*., 2021; Eradze *et al*., 2021; Johnson, 2020; Johnson *et al*., 2022; Luik & Lepp, 2020). In the context of the current educational emergency, "teacher advice seeking on Twitter seemed to shift from serving immediate instructional needs

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to focussing on professional development and the creation of their own digital content" (Beardsley *et al*., 2021).

Some authors have conceptualized the COVID-19 educational crisis in three phases: disruption, transition and re-imagining, seeing opportunities of reorganization in the current emergency (Fullan *et al*., 2020). We consider the COVID-19 related disruptions and educational re-organisation processes worth exploring, especially in the light of the use of technologies (Eradze *et al*., 2021; Rapanta et al., 2021), we have examined the issue of assessment from the Italian perspective, starting from the ethnographic study of Italian teacher online communities (Eradze *et al*., 2021), which revealed significant assessment *re-organization uncertainties* and related *re-organization opportunities* emerging in the teacher peer-learning communities. As a result, we have created a survey to explore possible changes in the assessment practices in the context of the COVID-19 disruptions and shed light on some of the issues such as teachers' beliefs about the importance of assessment before and after the pandemic, the use of remote assessment before the pandemic, and assessment reorganization following the pandemic. This article reports on the results of the survey.

2. Context and the background

The evaluation act at school is an integral part of pedagogical planning. It accompanies and regulates the pedagogic action and supports the learning processes of the student. The initial or diagnostic evaluation, carried out at the beginning of a new teaching-learning process, serves to verify the starting level of the students, ascertaining the possession of the prerequisites and possibly preparing individualized reinforcement and remediation activities. The formative or intermediate assessment, understood as assessment for learning, is the one that takes place during the entire teaching-learning process. The goal is the improvement of the pedagogic action through a comparison between the perception that one has of a knowledge or competence and their effective verification; it can be carried out both by the teacher and by the student himself as a self-assessment process (Guasti, 2013).The final or summative assessment, considered assessment of learning, is carried out at the end of a teaching-learning process and serves to provide a conclusive balance, concerning both the results and progress of the student and the effectiveness of the didactic action (Guasti, 2013).

Evaluation has always represented a crucial and delicate moment in the life of the teacher, the student and the families; this moment has been made even more problematic by the situation by Covid-19 educational emergency.

On February 11, 2020, the World Health Organization (WHO) announced the Covid-19 disease (Corona Virus Disease). Italy was the first European country to sanction the national lockdown and in the Italian territory schools were closed from 5 March 2020 until the end of the school year; this decision involved the replacement of face-to-face teaching with distance learning. The term "distance learning" is detected in the institutional documentation since the decree of the President of the Council of Ministers of 25 February 2020, further implementing provisions of the decree-law 23 February 2020, n. 6, containing urgent measures on the containment and management of the epidemiological emergency from Covid-19.

The suspension of all face-to-face teaching activities was ordered with the Prime Ministerial Decree of 4 March 2020, whose art. 1, paragraph 1 letter d) reiterated the suspension until 15 March 2020 of educational services for children and educational activities in schools of all levels, and letter g), imposed on school leaders to activate distance learning for the entire period of suspension of teaching activity in schools, also taking into account the specific needs of students with disabilities (Official Gazette, 2020). On March 6, 2020, the Ministry of Education, with Note 278 that recalled the DL of February 23, 2020, specified the need to promote distance learning as an emergency not only in the "red zones" in Northern Italy where schools are closed, but throughout the national territory and reported the MIUR website dedicated to distance learning (https://www.istruzione.it/coronavirus/didattica-a-distanza.html) and the creation of a task force to support school requests (Ministry of Education, 2020a).

The mandatory nature of distance learning was also confirmed by the Prime Ministerial Decree of 8 March 2020 and prime ministerial decree of 9 March 2020 and was then reiterated by Legislative Decree no. 19 of 25 March 2020 (converted into Law no. 35 of 22 May 2020), which resumed the provisions of Legislative Decree no. 6/2020, or the right to order new extensions to the suspension of face-to-face teaching activities, based on art. 1, letter p), with the possibility of carrying them out in remote mode for all schools of all levels (Official Gazette, 2020).

With the note prot. 388 of 17 March 2020, the MIUR provided the first indications on the operating methods for distance learning, which must:
- Provide for an interaction between teachers and students, in synchronous and asynchronous mode, and not be limited to the assignment of tasks or only to the transmission of materials without there being a preparation by the teachers and a return by the students.
- Seek a balance between teaching activities and moments of pause, in relation to the age of the students, redesigning traditional teaching in distance learning.

- Promote student autonomy to minimize the support of their families.
- Continue the process of inclusion of pupils with disabilities.
- Respect the personalized didactic plan of the students with DSA or BES, who are generally favored in the use of technologies because they already use electronic instrumentation.
- Encourage interrelationship, collaboration between teachers, to support the work of less experienced teachers.

The subsequent Prime Ministerial Decree of 26 April 2020 (Official Gazette, 2020), recalling legislative decree no. 6 of 23 February 2020, further extended the suspension of face-to-face teaching activities for schools of all levels (article 1, paragraph k), reiterating once again that school leaders must activate teaching activities in distance mode, even for students with disabilities, who have specific needs (art. 1, paragraph m).

As far as evaluation is concerned, the process must consider the situation in which it operates, the organizational difficulties, the situation of families, the needs of students to be supported in a time of uncertainty and insecurity. Thus, evaluating at a distance is an even more difficult action than normal. The complexity of this issue increases, if we consider, that even though there is an established field of technology-enhanced assessment, the assessment methods have not been previously used in primary and secondary education as much. Especially, in Italian scenario. For this reason, also, the essential starting point of distance assessment is represented by the regulatory dimension. The most important pre-Covid-19 references were:

- Presidential degree n. 122 del 22/06/2009 (p. 2), which states that the object of the evaluation concerns the learning process, the behaviour and the overall academic performance of the pupils. In addition, the evaluation has a formative purpose and contributes to the processes of self-assessment of the students themselves, to the improvement of knowledge levels and to the educational success.
- Legislative Decree no. 62 of 13/04/2017 (p.71), which reaffirms the formative and educational purpose of the evaluation and identifies the training process as the main object of the evaluation act.
- Note no. 388 of 17/03/2020 (p.7), issued during the Covid-19 pandemic, states that «It is equally necessary that constant evaluation activities be carried out, according to the principles of timeliness and transparency which, pursuant to current legislation, but even more than common sense of teaching, must inform any evaluation activity [...]. If the student is not immediately informed that he has made a mistake, what he has done wrong and why he has done wrong, the evaluation turns into a sanctioning rite, which has nothing to do with teaching, whatever the form in which it is exercised. But evaluation always has a role of enhancement, of indication to

proceed with insights, with recoveries, consolidations, research, with a view to personalization that empowers the students, even more so in a situation like this».

The pre-Covid-19 regulatory framework has therefore demonstrated its value also in distance learning situations, as the focus in ministerial documents is and has always been formative evaluation; a type of evaluation consistent also with the pedagogy mediated by technologies. This article focuses on investigating the assessment practices in Italy during the Covid-19 Educational emergency and what we can learn from this experience. The article uses survey research to answer its main research questions.

3. Research methodology and survey structure

To understand the assessment practices and the potential changes in it, we have created a survey as a part of a large scale, multi-phase, mixed methods research (Eradze *et al*., 2021). This survey was developed following the phase 1 ethnographic study in teacher online communities (three Facebook groups) and points of interests. As already mentioned in the introduction, this study revealed that teacher peer communities have explored uncertainties and opportunities related to the re-organization of the assessment during the COVID-19 educational emergency.

The survey included a total of 39 items, including questions on demographic information, previous experience with digital tools, digital pedagogy competencies, as well as questions concerning participants' judgements and beliefs on help received by normative documents, schools, or online communities. The survey included further questions specifically concerning assessment. This set of items used the standard 1-5 Likert scale format. The online survey was launched for 3 weeks, from 23.12.20 to 15.01.21, and distributed directly in the three online communities, after asking a permission to place the survey in the groups.

A total of 4314 teachers answered the survey. 92,7% of all participants (n=3998) were women, 6% were men (n=36) and 0,5% did not specify (n=21). 43.3% of respondents were between 35 and 50 years old, 44.9% between 50 and 64, whereas 10.5% were under 35 years old. Only 0.9% were 65 or older. Teachers' distribution by school order was as follows: 6,4% worked in kindergarten; 42.6% in primary school; 20.7% in lower secondary school; 20.7% in upper secondary school (Tab. 1). Since we focused on compulsory education, we excluded kindergarten teachers from the analysis; therefore, our sample consisted of 4036 unique entries.

Tab. 1 - Distribution of survey respondents by school order. Absolute numbers (N) and relative percentage on the total of respondents (%) are shown

School	N	%
Kindergarten	278	6,4%
Primary School	1836	42,6%
Lower Secondary School	891	20,7%
Upper Secondary School	1290	29,9%
Missing	19	0,4%
Total	4314	100%

Statistical analysis was performed with SPSS27.0 software (IBM). Between-groups and pairwise comparisons were performed using parametric tests. All assumptions of equal variance were respected. Differences in nominal answer distribution were investigated using contingency tables with Pearson Chi-square test. Correlation analysis used parametric Pearson correlation (rho) test. All the results discussed, unless specified, were statistically significant at a 95% confidence interval (p<0.05). Mean values are presented ± standard deviation.

4. Results

4.1 Teachers' beliefs about the importance of assessment before and after the pandemic

Two different items asked teachers to rate how much they consider assessment important when teaching in presence and how much they considered it important during the pandemic. In general. Teachers consider assessment when teaching in presence to be important, with a statistically significant difference between school orders (Tab. 2, One-way ANOVA, F=9.345, p<0.001). Upper secondary school teachers considered assessment more important, on average (M=3,97±0,889), than lower secondary (M=3,89±0,907) and primary school teachers (M=3,82±0,982). When asked to rate the importance of assessment during the pandemic, there was still a significant difference between groups (One-way ANOVA, F=116,688, p<0.001). Upper secondary school teachers still valued assessment more (M=3,43±1,015) than their colleagues in lower secondary school (M=3,12±1,049) and primary school (M=2,83±1,152). All groups rated the importance of assessment significantly less during the pandemic (Tab. 2) compared to assessment in presence.

Tab. 2 - Teachers' beliefs about importance of assessment before and during the pandemic

Importance of assessment:	School order	N	Mean	Std. Dev.	Test (F)	p-value
In presence	Primary	1824	3,82	0,982	9,345	<0,001**
	Lower Secondary	881	3,89	0,907		
	Upper Secondary	1286	3,97	0,889		
During pandemic	Primary	1819	2,83	1,152	116,688	<0,001**
	Lower Secondary	886	3,12	1,049		
	Upper Secondary	1276	3,43	1,015		

	School order	N	Mean difference	Std. Dev	Test (t)	p-value
Difference before/during pandemic	Primary	1808	-0,989	1,098	-38,316	<0,001**
	Lower Secondary	876	-0,767	0,980	-23,166	<0,001**
	Upper Secondary	1273	-0,530	0,950	-19,905	<0,001**

4.2 Use of assessment techniques before the pandemic

We asked teachers to judge their use of seven assessment techniques before the pandemic using 1-5 Likert scales. Primary school teachers privileged, in order from most-used to less-used methods, individual oral examinations (M=3,14±1,269), closed-ended questions (M=3,13±1,108), problem solving (M=3,04±1,084), group oral examinations (M=3,02±1,271), open-ended questions (M=2,99±1,079), and, less prevalently, product-based (M=2,48±1,244) and semi-structured (M=2,38±1,156) tests. Lower secondary school teachers similarly favoured, in descending order, individual oral examinations (M=3,50±1,195), open-ended questions (M=3,34±1,049), closed-ended questions (M=3,31±1,070), products (M=3,09±1,250), problem solving (M=2,93±1,164), semi-structured (M=2,91±1,242), and group oral examinations (M=2,85±1,286). Upper secondary school teachers used, in descending order, individual oral examination (M=3,67±1,179), followed by

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open-ended questions (M=3,40±1,061), closed-ended questions (M=3,19±1,119), products (M=3,03±1,239), problem solving (M=3,02±1,194), semi-structured tests (M=3,01±1,233), and, less prevalently, group oral examinations (M=2,66±1,301).

When comparing pre-pandemic assessment habits of primary and secondary school teachers (Tab. 2), we found significant differences in the use of open-ended questions (One-way ANOVA, F=65,891, p<0.001), semi-structured tests (One-way ANOVA, F=101,060, p<0.001), closed-ended questions (One-way ANOVA, F=7,388, p=0.001), products (One-way ANOVA, F=88,645, p<0.001), individual oral examinations (One-way ANOVA, F=70,610, p<0.001), and group oral examinations (One-way ANOVA, F=26,808, p<0.001). In all but the latter case, average usage was higher for secondary school teachers (both upper and lower) than primary school teachers.

Tab. 4 - Assessment techniques before the pandemic

Assessment method	School order	N	Mean	Std. Dev.	Test (F)	p-value
Problem Solving	Primary	1528	3,04	1,084	2,527	0,80
	Lower Secondary	746	2,93	1,164		
	Upper Secondary	1055	3,02	1,194		
Closed-ended questions	Primary	1681	3,13	1,108	7,388	0,001*
	Lower Secondary	817	3,31	1,070		
	Upper Secondary	1149	3,19	1,119		
Open-ended questions	Primary	1567	2,99	1,079	65,891	<0,001*
	Lower Secondary	799	3,34	1,049		
	Upper Secondary	1157	3,40	1,061		
Semi-structured	Primary	1491	2,38	1,156	101,060	<0,001*
	Lower Secondary	767	2,91	1,242		
	Upper Secondary	1136	3,01	1,233		
Products	Primary	1514	2,48	1,244	88,645	<0,001*
	Lower Secondary	792	3,09	1,250		

	Upper Secondary	1148	3,03	1,239		
Individual Examination	Primary	1667	3,14	1,269	70,610	<0,001*
	Lower Secondary	838	3,50	1,195		
	Upper Secondary	1225	3,67	1,179		
Group Examination	Primary	1602	3,02	1,271	26,808	<0,001*
	Lower Secondary	789	2,85	1,286		
	Upper Secondary	1141	2,66	1,301		

4.3 Reorganisation of assessment during the pandemic

We asked teachers to rate their use of the same seven assessment tools during the pandemic and compared these results with the pre-pandemic averages (Tab. 5). Across all school orders, teachers significantly decreased the use of individual oral examinations, open-ended questions, problem solving and semi-structured tests across all school orders. The use of group oral examinations significantly decreased in primary and lower secondary school but did not change in upper secondary school. Use of product-based tests did not change significantly during the pandemic. The use of closed-ended questions did not change significantly in primary schools but was the only assessment tool that showed a significant increase in lower and upper secondary schools.

Tab. 5 - Change in assessment practices during COVID / before COVID

Assessment method	School order	N	Before Covid Mean (SD)	During Covid Mean (SD)	Paired samples test (t)	Sig. (2-tailed)
Problem Solving	Primary	1333	3,07(1,058)	2,69(1,118)	-15,536	,000**
	Lower Secondary	672	2,97(1,149)	2,79(1,166)	-5,177	,000**
	Upper Secondary	966	3,07(1,118)	2,86(1,170)	-8,278	,000**
Closed-ended questions	Primary	1530	3,16(1,086)	3,14(1,162)	-1,007	,314
	Lower Secondary	772	3,33(1,073)	3,40(1,127)	2,063	,039*

	Upper Secondary	1085	3,21(1,112)	3,28(1,186)	1084	,018*
Open-ended questions	Primary	1391	3,03(1,059)	2,77(1,121)	-10,113	,000**
	Lower Secondary	737	3,36(1,038)	3,19(1,099)	-5,219	,000**
	Upper Secondary	1071	3,43(1,039)	3,26(1,111)	-6,115	,000**
Semi structured	Primary	1321	2,40(1,149)	2,24(1,148)	-5,880	,000**
	Lower Secondary	705	2,93(1,226)	2,83(1,233)	-2,519	,012*
	Upper Secondary	1060	3,02(1,232)	2,94(1,226)	1059	,006*
Products	Primary	1366	2,51(1,238)	2,48(1,245)	-1,091	,276
	Lower Secondary	740	3,10(1,247)	3,13(1,272)	0,940	,348
	Upper Secondary	1064	3,04(1,237)	3,09(1,246)	1,884	,060
Individual Examination	Primary	1483	3,18 (1,252)	2,88(1,315)	-10,265	,000**
	Lower Secondary	783	3,51(1,191)	3,22(1,265)	-7,386	,000**
	Upper Secondary	1152	3,68(1,170)	3,57(1,203)	-4,135	,000**
Group Examination	Primary	1417	3,05(1,269)	2,83(1,345)	-7,484	,000**
	Lower Secondary	718	2,89(1,263)	2,61(1,344)	-6,806	,000**
	Upper Secondary	1039	2,67(1,285)	2,64(1,338)	-,973	,331

4.4 Remote-only assessment methods

Finally, we asked teachers to assess their use of remote-specific assessment tools (Tab. 6). On average, teachers used video calls quite often as a method of assessment, without significant differences across school orders (primary school M=3,29±1,411; lower secondary school M=3,36±1,442; upper secondary school M=3,32±1,510; One-way ANOVA, F=0,641, p<0.527). Online exercises were also often utilized, albeit with significant differences between groups (primary school M=3,17±1,280; lower secondary school M=3,38±1,215; upper secondary school M=3,25±1,263; One-way ANOVA, F=7,209, p<0.001). Finally, we asked teachers if they used assessment tools not included in the survey. The mean of the answer was very low (primary school M=1,36±0,911; lower secondary school M=1,36±0,876; upper secondary school M=1,25±0,762; One-way ANOVA, F=2,076, p=0.126) thus indicating that our survey included the most common assessment methods used by teachers.

Tab. 6 - Distance learning-specific assessment methods

Assessment method	School order	N	Mean	Std. Dev.	Test (F)	p-value
Online exercises	Primary	1530	3,17	1,280	7,209	,001*
	Lower Secondary	779	3,38	1,215		
	Upper Secondary	1096	3,25	1,263		
Video calls	Primary	1478	3,29	1,411	0,641	,527
	Lower Secondary	759	3,36	1,442		
	Upper Secondary	1086	3,32	1,510		
None of the above	Primary	406	1,36	,911	2,076	,126
	Lower Secondary	247	1,36	,876		
	Upper Secondary	356	1,25	,762		

4. Conclusions

Before the pandemic, teachers in all school orders examined considered, on average, assessment as very important; in particular, the higher the school order, the higher teachers tend to value assessment higher. Our data also suggest that there existed significant differences in the assessment habits in different school orders even before the pandemic. Individual examinations were the most common assessment technique across all school orders, and its use was higher in secondary and, especially, upper secondary school. Conversely, group examinations were most common in primary school and progressively less employed in secondary school, possibly indicating a progressive passage from group to individual interrogation as the learners grow up. Quizzes employing open and closed questions were more prevalent in secondary school than in primary, as is the case for semi-structured tests and product-based tests. The only assessment method that didn't show an upward or downward trend with different school orders was problem-based tests.

The Covid pandemic didn't subvert the existing differences concerning the importance attributed to assessment in different school orders (if anything, it seem to have exacerbated existing differences, see Tab. 2). What is striking, however, is that the importance that teachers at all school orders give to assessment has drastically diminished during the pandemic. The effect is particularly dramatic in primary school (Tab. 2). When observed in this perspective, it is unsurprising that most methods of assessment examined were reportedly less employed during the emergency (Tab. 5). Still, our analysis highlights important differences in the way teachers rearranged their modes of assessment. Individual examinations were the most common assessment techniques across all school orders before COVID (Tab. 4). Its usage diminished drastically during the pandemic, and in primary school it was surpassed by closed questions quizzes as the most prevalent method of assessment. Group examinations were used less frequently during the pandemic in primary and lower secondary schools. Taken together, these data suggest a reduction in the use of examination as assessment method during the pandemic. Furthermore, tests that used problem solving as the main method of assessment, as well as open-ended question tests and semi-structured tests, diminished significantly in all school orders during the pandemic. (Tab. 5). The two assessment methods that differed from this trend were product-based assessment and closed question quizzes. The first, which was rather scarcely used in primary school and had an average use in secondary school, didn't change significantly in used during the pandemic. This might be since product-based tasks can be realized asynchronously, a mode of work that is common in distance learning. Furthermore, the use of closed question quizzes didn't

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change significantly in primary school, and instead were the only assessment method that saw a significant increase during the pandemic, in both lower and upper secondary school (Tab. 5). Finally, during the pandemic teachers resorted significantly on online exercises and video-calls (Tab. 6). Overall, our study shows that, at least in the Italian case that we investigated, a significant reorganization of assessment happened during the COVID pandemic emergency. In all school orders, teachers perceived a reduction in the importance of assessment during the pandemic and used traditional assessment techniques significantly less than when teaching in presence. However, the change was not the same for different school orders and different assessment methods, with oral examinations diminishing dramatically and an increased use of closed-question quizzes.

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