A New World Is Open? Distance Teaching In Italian Universities During The Covid-19 Emergency

Distance teaching in Italian universities during the Covid-19 emergency

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1. Investigating an unexpected emergency

On March 8, 2020 a decree by Italy's Prime Minister suspended classes in all Italian universities, but gave them the "*possibility* of providing remote education". Less than a week later, almost three quarters of the country's lecturers had already shifted to virtual classrooms and so-called "distance teaching" (DT), or in other words, lessons offered via online platforms. For the overwhelming majority of these faculty members, this was the first experience of the kind in their professional careers. For an institution like the university, still regarded as an "ivory tower" far removed from everyday reality and having little concern for the outside world, this demonstrated an extraordinary ability to respond quickly and efficiently.

But what was distance teaching like for the faculty members on the front lines of education? Did everything in fact go well? And above all, once the emergency ends, what will remain from what this experience has taught us?

To answer these questions, a national survey on distance teaching during the Covid-19 emergency was carried out in June 2020. The survey was based on an extensive sample of 3,398 members of the teaching faculty at Italy's state universities who completed a wide-ranging online questionnaire. The survey was a panel study, as the same 15,000 academics who took part in a 2016 survey on the university's third mission were contacted (Perulli et al. 2018)[1]. The survey was conducted immediately after the end of the lockdown in the first stage of the pandemic and was—to the best of our knowledge—the first of its kind in Italy. The analysis in the following pages is descriptive in nature, and will present the conditions under which distance teaching took place, the organizational and individual responses to the situation, university faculty members' perceptions of the situation, and their assessment of the distance teaching experience. In addition, this initial report will highlight several issues that merit further thought and discussion.

The chapter centers on two main themes. The first is that of the emergency sparked by the pandemic and its spread. The questionnaires made it possible to collect information about the universities' reaction to the emergency (Section 2), the infrastructures deployed to deal with it, and how they were used (Section 3). Faculty members' assessment of their experience was positive on the whole (Section 4), though its negative and stressful aspects were clearly apparent from the survey

[1] Further details are provided in the Appendix.

(Section 5). The second theme concerns university teaching methods. The survey made it possible to compare pre- and post-emergency teaching methods (Section 6) as well as to tap respondents' opinions about the forms teaching will take in the future (Section 7). The conclusions (Section 8) will discuss several positive and negative features of Italian universities that the pandemic crisis brought to light, emphasizing how the crisis has led universities and faculties to call their teaching and its aims and methods into question, along with the use of digital technologies in higher education.

Two points should be borne in mind while reading this chapter. First, the survey took place at a difficult moment, at the end of the first semester of the emergency, when the first student examinations were being held and there was considerable uncertainty about whether some form of hybrid instruction could be offered during the next semester and what the universities' "new normal" would be like. Second, the survey provides a snapshot of distance learning based on faculty members' experience and opinions, and does not take students' experience and opinions of the universities' official statements into account. In this connection, it should be pointed out that between May and June 2020, the market research firm IPSOS together with Federica Web Learning—the Università di Napoli Federico II multimedia learning center—carried out a survey of 1200 university students throughout Italy, asking them about their relationship with e-learning during the pandemic (IPSOS – Federica Web Learning, 2020). In March 2020, the Conference of Italian University Rectors conducted two surveys of the progress that Italy's universities had made in transitioning to online teaching, monitoring the number of exams, the number of graduates, and the percentage of courses held online versus those planned for the semester (CRUI, 2020). When possible, we will refer to some of the findings of these surveys carried out in the same period as our own.

2. An unexpected response capacity

The unforeseen consequences of the Covid-19 health emergency caught Italian universities by surprise. In a very short time—and surrounded by enormous uncertainty—they had to find alternatives to in-person teaching if they were to continue to fulfill their educational mission even during lockdown. The emergency thus put the spotlight on e-learning, as faculty and students found themselves having to experiment (willingly or less so, and with widely varying levels of familiarity) with Internet-based remote learning methods accessed via digital platforms.

How did it go? We will start by saying that, in fact, it seems that "everything turned out fine". Delays in starting lessons were limited. A full 72% of faculty members were able to start remote teaching by March 13. Only in the southern Italian universities did the transition to online teaching take place later for over 40% of respondents.

Table 1. When did you start distance teaching? (%)

In the week of:	ITALY	Northwest	Northeast	Center	South
February 24-28	4.2	5.8	8.7	2.8	1.4
March 2-6	21.9	35.2	33.2	18.1	9.4
March 9-13	46.3	39.7	42.1	54.7	46.3
Later	27.6	19.3	16.1	24.4	42.5
Number of respondents	2838	600	573	741	924

Lecture hours did not depart much from those envisaged for normal years. In the three-year degree programs, 86% of faculty members held classes for the same number of hours as usual, while 7% even did more. In the five-year degree programs, 89% of faculty members delivered all of the envisaged number of hours.

The master's degree and doctoral programs came close to completing the entire number of hours, as the overwhelming majority of respondents were able to cover the entire teaching program. Thus, 80% finished the program and only 11% shortened it, while 9% increased the program by providing students with more online material.

The majority of faculty members *adapted* their teaching strategies to distance methods. 67% modified both the content and the structure of their courses to some extent. By contrast, 24% made no changes, while 9% took advantage of the opportunity to rethink their teaching

Streamed lectures predominated, as 66% of respondents broadcast their lessons live. This percentage reached 82% in the universities in the south (Table 2). 15% held both live-streamed and pre-recorded classes. In addition, 52% posted educational materials online (lecture notes, slides, etc.), with or without audio commentary. Only 7%, however, provided such material exclusively online or engaged in other activities *without* delivering live-streamed or recorded lectures. This percentage was highest in the northwestern universities.

Table 2. What form did your distance teaching take? (%)

	ITALY	Northwest	Northeast	Center	South
I gave live-streamed lectures	66.3	53.0	55.6	65.0	82.4
I gave live-streamed and pre-recorded lectures	14.6	17.7	20.0	14.8	9.2
I gave pre-recorded lectures	12.1	18.5	19.2	13.3	2.5
I posted educational material online WITHOUT giving lectures	7.0	10.8	5.2	6.9	5.9
Total	100	100	100	100	100
Number of respondents	3397	713	685	878	1121

The number of students in attendance did not drop. For 53% of respondents, the number of students attending lectures was unchanged. The number even increased for 22%, and dropped for 20%, while differences between the various areas of the country were quite limited.

Examinations proceeded as usual. At the time of the interview, 92% of the faculty members had held at least one online exam session. Oral exams predominated, either on their own or accompanied by a written assignment and/or other form of final assessment (exercises, reports, projects, etc.). 36% of respondents relied entirely on oral exams, while 51% held oral exams plus a written assignment and/or other form of final assessment. By contrast, written exams were scaled back significantly, and were reduced by half nationwide. Before in-person teaching was interrupted because of the health emergency, 62% of respondents had held written exams, while the percentage dropped to 27% after distance teaching was introduced. In any case, 61% of respondents believe that they were able to assess their students' progress even with remote exams.

On the whole, these initial data indicate that:

a) Italian universities demonstrated that they were able to respond well to the emergency and maintain their organization[2];
b) Faculty members managed to overcome the challenge of distance teaching quite successfully.

To some extent, these findings are surprising, given that relatively few respondents were familiar with online teaching before the pandemic. Only 9% of the interviewees had had prior experience with distance teaching; 17% had had some experience with e-learning, but it had for the most part been limited to posting educational materials online.

3. Technological infrastructure and emergency governance

Faculty members chiefly taught from home, with enough technological infrastructure to ensure that classes could be held. 68% of respondents delivered lectures at home, and 17% from other places set up as personal offices. In all geographical areas, 88% of respondents reported that their Internet connection and IT tools were sufficient to enable them to opt for the teaching approaches they felt were most appropriate (Table 3). In addition, the technological solutions available to them at home improved over time. In the passage between the first stage of the emergency (the first two

[2] According to the "dashboard" set up by the Conference of Italian University Rectors, as of March 24, 2020, 88% of the courses offered by the 82 surveyed Italian universities were already being held remotely (CRUI, 2020). As the IPSOS-Federica Web Learning survey reported, "while nearly half of the students had had no experience of digital learning at home before the pandemic, 88% now report that they have followed up to 5 online courses in the last three months" (IPSOS-Federica Web Learning, 2020).

weeks of class) to the second (the remainder of the semester), the percentage of respondents whose infrastructure was adequate rose by approximately 4 percentage points.

Table 3. Were the Internet connection and IT tools available to you during the emergency good enough to enable you to choose the teaching approaches you felt were most appropriate? (%; stage II)

	ITALY	Northwest	Northeast	Center	South
Internet connection					
No, not at all/Quite poor	12.0	11.9	10.4	13.7	11.8
Yes, fairly good/Very good	88.0	88.1	89.6	86.3	88.2
Total	100	100	100	100	100
IT tools					
No, not at all/Quite poor	12.5	12.2	10.6	13.0	13.6
Yes, fairly good/Very good	87.5	87.8	89.4	87.0	86.4
Total	100	100	100	100	100
Number of respondents	2760	579	559	718	904

"Technological impediments" vary according to place of residence. The percentage of respondents who report having an unsatisfactory connection rises from 12 % for those living in a large city to 23% for residents of towns with fewer than two thousand inhabitants. The latter percentage reaches 27% in the northwest and 37% in the northeast, where large proportions of the population live in small mountain towns where coverage is problematic.

Though lectures were delivered in private homes, the overwhelming majority of respondents (89%) received support from their universities in order to make the transition to distance teaching. Support was chiefly provided at the university level, and was mostly in the form of emails, written information and video tutorials (Table 4). Assistance and information was also provided by the decentralized entities (departments, degree programs, schools, etc.) that acted as proximity networks to amplify the effectiveness of communication and coordinate the general strategies with the many specific disciplines.

Table 4. What kind of training and support did you receive, and from whom? (%)

	University	Departments*
Written information on the website or intranet	55.0	23.9
Information e-mails	60.8	35.2
Video tutorials on using platforms	48.2	17.3
Training meetings	24.7	14.0
Tech support/help desk	44.6	24.5

Number of respondents	3398	3398

*Departments and degree programs, schools or faculties

The following organizations and support networks were especially important from the technical standpoint.

1. The *institutional networks*—in other words, faculty members' relationships with the university, school and department offices and personnel in charge of degree programs provided technical assistance to 53% of respondents and teaching support to 22%.
2. The *professional networks*—relationships with associates and colleagues—provided provided technical assistance to 33% of respondents and teaching support to 23%.
3. The *non-professional networks*—relationships with friends, family, members of other professions—were more marginal, providing technical assistance to 12% of respondents and teaching support to 5%.

All in all, 62% of respondents received technical assistance and 34% received teaching support that they regarded as "enough or a lot" through at least one of the channels considered in the survey[3].

Italy's universities reacted to the emergency with a variety of approaches. Consequently, the amount of freedom of choice they left to faculty members also varied (Table 5). A minority—15%—reported that they chose the form of distance teaching they adopted independently, with no restrictions or constraints of any kind. The percentage was higher in the northwestern universities and the smaller institutions (21.4%). By contrast, almost one-third of respondents reported that they felt they had entirely lost their independence as teachers during the emergency. This perception was especially strong in the southern universities, where over half of all respondents put themselves in this category. Nationwide, however, the majority of respondents stated that they could choose among multiple options made available by their university's teaching facilities.

Table 5. Were you able to choose what kind of distance teaching you used? (%)

	ITALY	Northwest	Northeast	Center	South
Yes, I was able to choose in complete independence, without restrictions.	15.3	19.2	14.1	16.3	12.7

[3] University offices and personnel, school/department personnel, personnel in charge of degree programs, associates and assistants (e.g., graduate students, fellowship holders, etc.), colleagues, non-professional networks (friends, family members, etc.), paid consultants and companies.

Yes, I was able to choose from a number of options offered by my university/department.	53.5	66.9	57.5	66.1	32.3
No, I was not able to choose, I had to follow the instructions given by my university/department	31.2	13.9	28.5	17.6	55.0
Total	100	100	100	100	100
Number of respondents	2818	598	569	731	920

Thus, Italian universities responded to the emergency with three types of conduct[4].

1. Some had a decidedly *controlling* style: on average, 69% of respondents had no leeway in choosing how to do their distance teaching.
2. Others took an opposite and decidedly *liberal* approach, allowing their faculty members to be highly independent. In these universities, the percentage of respondents reporting that they were unable to choose teaching methods dropped drastically, averaging 14%.
3. There was then an intermediate class, where the percentage of respondents who were given no choice averaged 43%.

In general, the controlling style was associated with two characteristics: a) more institutional support for transitioning online, and b) greater centralization of support networks (for teaching as well as technical assistance) at the university level (Table 6). In other words, the controlling universities issued very precise and binding instructions about how distance teaching was to be done. In addition, they rolled out a consider number of services to support faculty members, especially at the university-level facilities.

This, however, led to something of a paradox: a trade-off between institutional support and individual learning. On the one hand, it was in the *controlling universities* that academic management garnered the highest scores for how it dealt with the emergency. In the *liberal universities,* on the other hand, a higher number of respondents reported that they increased their professional skills during the emergency, thanks to the experience gained from distance teaching (Figure 1).

Table 6. Levels of support by institutional response style (Support received by faculty members through institutional networks: average scores on a 1-10 scale**)**

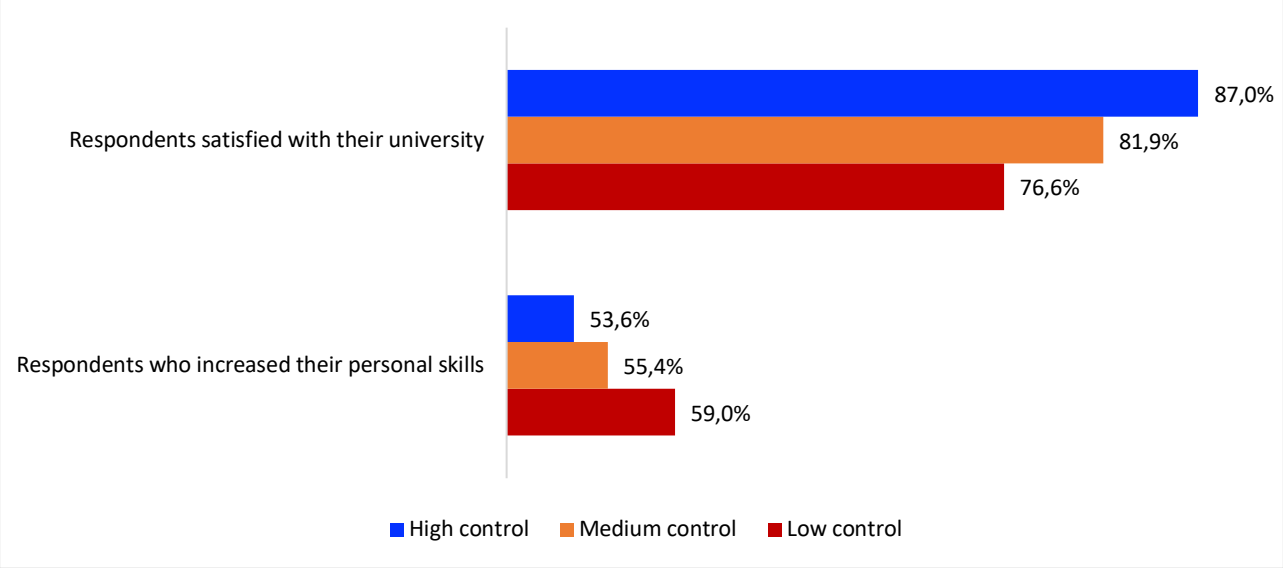
Level of university control	Low	Medium	High
Technical assistance			
University	5.0	5.0	6.0

[4] Universities were divided into three classes on the basis of the percentage of faculty members reporting that they were given no choice, as they had to follow instructions from their university or department.

Departments*	4.4	4.7	5.1
Teaching support			
University	2.6	2.5	3.3
Departments*	2.8	2.6	3.1
Total support (teaching+technical)			
University	3.7	3.7	4.6
Departments*	3.4	3.5	4.0

*Departments and degree programs, schools or faculties

Figure 1. Respondents' ratings of how the emergency was managed



This "paradox" suggests that in the universities where faculty members received fewer binding instructions and had to make decisions on their own about how to approach distance teaching, individual learning was more widespread and reached higher levels. In this connection, however, two factors should be borne in mind.

The first is that of *personal proactivity* in activating support networks. Clearly, the more respondents were able to deploy their social capital, or in other words the networks whereby they received resources and support for solving teaching problems, the more they were able to benefit from the remote teaching experience. They thus took advantage of the pandemic emergency to increase their professional skills. Not surprisingly, the mean scores for this question are highest among respondents who were most active in drawing on their institutional, professional and personal networks, and reached a maximum among those who activated all the networks available to them (Table 7).

Table 7. Perception of the distance learning experience as an opportunity for increasing professional skills, by support from networks (average values; scores from 1 to 10)

Support from institutional networks

Little	5.4
Enough + A lot	6.4
Support from professional networks	
Little	5.4
Enough + A lot	6.4
Support from personal networks	
Little	5.6
Enough + A lot	6.6
Enough or a lot of support from institutional networks plus:	
a) professional networks	6.8
b) personal networks	6.9
c) professional and personal networks	7.0
Number of respondents	2948

The second factor involved both the amount of support provided by the universities, and the architecture of the institutional support networks. In some universities, the support services and activities are highly centralized in order to achieve "economies of scale and of scope". In other universities, the approaches sought to leverage "network economies" by decentralizing services and activities among individual departments, schools and faculties.

Here, we can distinguish between four different types of emergency governance. The first and least significant relied on faculty member's professional and personal networks, providing little support through institutional networks. In the second, support activities were highly decentralized. The third type, an approach we could call coordinated decentralization, provides considerable support at both the central and peripheral levels. In the third type, support is highly centralized.

When asked to assess how their university dealt with the emergency and how it affected their personal experience, respondents had the most favorable perceptions of governance based on coordinated decentralization of support (Table 8). The highest ratings were assigned when coordinated decentralization was accompanied by a liberal approach to choosing teaching methods. In this case, faculty members could make their choices independently knowing that they could rely on strong support from the university network and from the departments, which are more familiar with the specific teaching issues involved in each degree program.

Table 8. Institutional support and respondents' ratings of emergency governance (average values; scores from 1 to 10)

Type of institutional support	Low	Decentral-ized	Coordinated decentralization	Centralized	Tot
This experience enabled me to increase my professional skills	4.9	5.7	6.3	5.9	5.7

Satisfaction with my distance teaching experience	6.4	6.7	7.2	6.9	6.8
Satisfaction with my university's ability to respond to the emergency and ensure that teaching could continue	6.3	7.1	8.3	7.8	7.5

	Coordinated decentralization		Centralized		
Type of university	Liberal	Controlling	Liberal	Controlling	Tot
This experience enabled me to increase my professional skills	6.7	6.0	6.2	5.7	5.7
Satisfaction with my distance teaching experience	7.2	7.1	6.9	6.9	6.8
Satisfaction with my university's ability to respond to the emergency and ensure that teaching could continue	8.1	8.6	7.5	8.2	7.5

In conclusion, both the "quantity" and the "variety" of the IT and support resources available through institutional and personal resources had a positive impact on the response to the emergency and on respondents' experience during the lockdown. These "learning networks"—typical of the learning organizations discussed in the organizational literature (Arundel et al., 2007; Dee and Leišyte, 2016)—are an essential part of organizational resilience. We will return to this point in the conclusions.

4. Overall, a very positive judgement

In the light of what we have seen so far, it is not surprising that 80% of the surveyed academics had a positive opinion of how their universities and departments dealt with the emergency, ensuring that teaching could continue[5]. This percentage was quite similar in both small and large universities. The differences between universities in the north, central and southern parts of the country were also quite limited (Table 9).

[5] According to the IPSOS – Federica Web Learning survey, "More than three months after the universities closed and it was necessary to shift almost entirely to distance teaching, two out of three students gave the experience passing marks, with some reservations" and the students "took, on the whole, a positive view of their university: over 70% rated response capacity and the timeliness, clarity and effectiveness of communication as sufficient" (IPSOS – Federica Web Learning, 2020).

Table 9. Ratings of the experience during the emergency (% Very + Fairly)

How satisfied were you on the whole with the following?	ITALY	Northwest	Northeast	Center	South
Your experience with distance teaching	75.2	77.6	74.0	74.5	74.8
Your university's ability to respond to the emergency and ensure that teaching could continue	80.4	78.3	81.1	76.9	84.0
Your department's ability to respond to the emergency and ensure that teaching could continue	76.7	70.8	79.0	73.8	81.4
Thinking of distance teaching, how much do you agree with the following statements?					
This experience enabled me to increase my professional skills	56.8	62.2	62.2	54.6	51.5
This experience made me want to have more training in teaching methods and techniques (in-person and distance).	50.9	52.2	54.8	47.5	50.3
Number of respondents	2678	571	543	698	866

In addition, 75% of respondents reported that they were satisfied with their own experience of distance teaching, and 57% felt that they had increased their professional skills. Among positive aspects of the experience, 51% of respondents cited a greater awareness of the need for more training in the methods and technique of in-person and distance teaching.

This overall satisfaction explains why many respondents in all parts of the country would like to retain something of this experience after the emergency ends (Table 10). 54% would like at least some teaching to take "hybrid" form, combining face-to-face classes with online activities. However, only 2% believe that distance teaching can *entirely replace* in-person teaching. There are, however, opposite attitudes: 44% of respondents would like to return to the way things were before the emergency, retaining nothing of the experience with remote teaching[6].

[6] According to the IPSOS – Federica Web Learning survey, "Although a majority (four-fifths) of the sample feel that distance teaching can never match the classroom experience, over three-quarters of the students are convinced that teaching's digital transformation is irreversible. For the coming year, only 30% of undergraduates hope for a return to the pre-emergency situation, while the other two-thirds hope for a mixture of in-person and digital lectures, with greater opportunities for hybridizing the curriculum through open teaching" (IPSOS – Federica Web Learning, 2020).

Table 10. What would you like to keep from this distance teaching experience once the Covid-19 emergency is over? (%)

	ITALY	Northwest	Northeast	Center	South
Nothing, I would like to go back to in-person teaching	43.7	41.8	46.0	44.3	43.3
I would like teaching to be entirely online	1.7	2.1	0.9	2.2	1.6
I would like at least some teaching to take hybrid form (combining in-person classes with online activities)	54.5	56.1	53.1	53.5	55.1
Total	100	100	100	100	100
Number of respondents	3172	668	635	822	1047

5. The problematic sides of distance teaching

The reasons for wanting to go back to "the way things were" are by no means baseless. They spring from a number of negative and stressful aspects of the emergency that our survey brought to light.

We will start with the unprecedented workload and organizational stress caused by the emergency. Distance teaching called for enormous effort for universities and individuals alike. From one day to the next, university management and technical and administrative staff found themselves having to try out completely untested approaches to training and providing technical and teaching support to faculty members who for the most part had never even imagined that they would end up lecturing online. As a result, the people in charge of teaching management were under considerable organizational stress. During the Covid semester, 24% of our interviewees had coordinating roles, e.g., as pro-rectors, department heads or degree program directors. Of these respondents, 70% were heavily involved in meetings for organizing the response to the emergency, 60% were engaged in coordinating teaching faculty, and 65% were active in communicating with students.

Faculty members were also under significant stress, as distance education proved to be very time-consuming. 70% of respondents reported that the time needed to prepare a class increased, while 73% had to extend the period devoted to holding exams. 66% stated that remote assessment of students' progress involved a major organizational effort.

It goes almost without saying that a large percentage of respondents complained that they had very little time to adapt their courses for distance teaching (Table 11). More surprisingly, three-quarters of respondents stated that one of the critical problems with distance teaching was that there were fewer opportunities to interact with students and/or, for 52%, that practical exercises, workshops, labs and the like were

difficult[7]. This was unexpected, given that the international debate often regards the use of new digital technologies in teaching as a chance to increase interaction between students and teachers in a variety of ways. We will return to this point later.

Table 11. In your experience with distance teaching, how problematic were the following aspects? (Very + Fairly; %)

The little time available for adapting my course to online teaching	43.9
My familiarity with the necessary technologies and apps	26.5
The lack of a suitable space in the place where I held my remote classes	22.2
The difficulty in balancing the time needed for teaching with my family responsibilities	26.5
Having to help students with technical problems	16.5
Fewer opportunities for interacting with students	74.8
The difficulty in accessing educational resources (special-purpose software, library resources, etc.)	28.6
My teaching material is not readily adapted to online delivery	27.1
The difficulty in carrying out practical exercises (workshops, labs, etc.)	52.5
Increased control over my work by the academic authorities	6.7
Privacy and protecting students' and faculty members' data	20.0
The risks associated with improper use and dissemination of material created for teaching purposes	38.1
Number of respondents	3398

The problems encountered during the emergency can be grouped into 4 categories[8].

1. **Technological problems** associated with the quality of the Internet connection or IT tools. *Such problems affected only 14% of respondents*.
2. **Technical-logistical problems** associated with the lack of suitable spaces at home, the difficulty of reconciling teaching and home or family responsibilities, and the need to help students with technical issues. *Such problems affected 31% of respondents.*
3. **Privacy problems** associated with the fear that material created for teaching purposes might be improperly used and disseminated, that data protection could be jeopardized, and that the academic authorities can exert more control

[7] According to the IPSOS – Federica Web Learning survey, "Nine out of ten students reported hitches in following online classes. Connection problems still affected one third of the interviewees, but most of the reported problems involved streamed lectures. Over half of the interviewed students mentioned difficulties arising from the instructors lack of experience with the particular register used in virtual communication (32%) and managing live-streamed material (26%)" (IPSOS – Federica Web Learning, 2020).

[8] The four categories were determined from a factor analysis which is available on request.

and reduce faculty members' independence in teaching. *Such problems affected 31% of respondents.*

4. **Teaching problems** associated with the little available time, lack of familiarity with remote teaching platforms, difficulties in interacting with students, reduced access to teaching resources (libraries, etc.), difficulties in adapting course material to online teaching, and the problems involved with practical exercises. *One or another of these problems was reported by 70% of respondents.*

6. Teaching methods before and during the emergency: a comparison

Up to now, we have discussed the difficulties and problems reported by faculty members themselves. However, the information collected with the questionnaire also enabled us to perform another type of analysis: a comparison between the teaching methods used before the emergency and those introduced during the Covid-19 semester (Table 12).

What was pre-emergency teaching like?

It is an often-repeated misconception that what educationalist call a *transmissive teaching model* (Bonaiuti 2014), where the student's role is essentially passive, reigned supreme in university lecture halls. This teaching strategy is exemplified by the traditional professorial lecture, a teacher-centered approach where the student is relegated to being a mere listener.
Today, this stereotype is very far from the kind of teaching that actually takes place in universities. Our survey, in fact, found that three distinct teaching strategies were employed in Italian universities in the period preceding the emergency[9].

1. A **"transmissive/dialog-based" strategy.** This strategy is the closest to the traditional stereotype, but with a significant variation. Though it chiefly features classroom lectures, it is often enriched by discussions between students and the instructor. *Approximately 23% of respondents adopted this strategy*.
2. A **"transmissive-interactive" strategy** in which the dialog-based model described above is enhanced through active student involvement in exercises,

[9] The typology is the result of a factor analysis of in-person teaching methods prior to the lockdown which is available on request.

workshops, group work, etc. *Approximately 33% of respondents adopted this strategy.*

3. A **"collaborative-innovative" strategy** where instruction is accompanied by the students' contribution not only in interpreting and processing the information they receive, but also in transforming it into personal competences. This type of teaching is based on interaction between the instructor and the students, and among the students. In addition to group work, this strategy often involves peer discussion and assessment to build transversal competences and work designed to stimulate students' creativity and problem-solving abilities. *Approximately 45% of respondents adopted this strategy*

Table 12. Please indicate your teaching activities prior to the Covid-19 emergency and your distance teaching activities (for your main courses) (%; multiple responses possible)

	In-person	Remote
Classroom lectures	78.9	65.9
Discussions with students	70.6	50.0
Group work (reports, studies, etc.)	42.9	24.6
Exercises and other activities based on collaboration between students	52.5	23.7
Peer-to-peer discussion and/or assessment groups	22.1	11.1
Activities designed specifically to assess and improve student competences	26.8	13.1
Meetings with invited guests	42.3	18.7
Activities designed to stimulate students' creativity and problem-solving abilities	31.6	16.5
Workshops	38.0	12.9
Other (specify)	7.6	5.5
Number of respondents	3398	3398

As the survey shows, university teaching is less static and traditional than is generally believed. Another noteworthy point is that the collaborative-innovative strategy, though employed in all disciplines, is most frequency used by instructors in the social sciences (59%), an area that includes political science, sociology, education sciences, and psychological sciences, all disciplines that by definition address the normative and relational aspects of social phenomena as well as their socio-cognitive aspects.

What happened to teaching in the Covid-19 semester?

The more innovative activities were sharply curtailed. Teaching was simplified, retreating to the traditional transmissive model, albeit with some room for student discussion.

- Use of the first, or transmissive/dialog-based, strategy doubled. *With distance teaching, it was employed by 47% of respondents*.
- Use of the second, or transmissive-interactive, strategy remaining virtually unchanged. *It was employed by 31% of respondents*.
- Use of the third, or collaborative-innovative, strategy was more than halved. *It was employed by 22% of respondents*.

The same process of simplification was seen in examinations. While in-person teaching afforded many more opportunities for assessing learning outcomes, assessment methods were significantly simpler with remote teaching.
With in-person teaching:

- 19% of respondents assessed learning outcomes entirely by means of an oral test;
- 55% of respondents used two distinct forms of assessment (generally a written test and an oral test, or either a written or oral test combined with assessing exercises, reports and projects);
- 26% of respondents used three different assessment methods, viz., a written test, an oral test, and assessment of exercises, reports and projects.

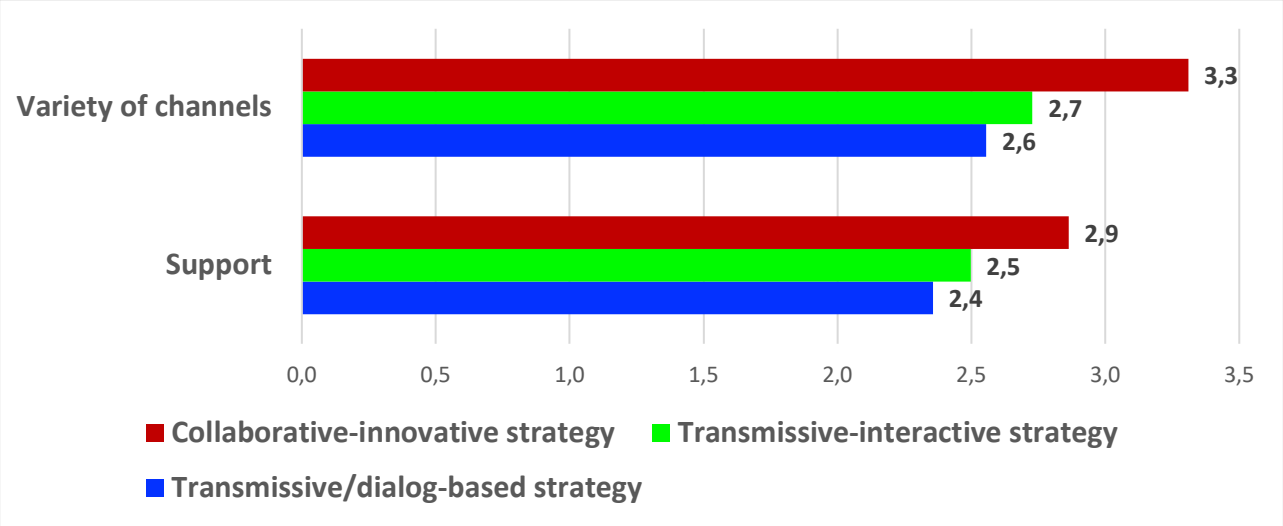
With remote teaching:

- 37% gave only an oral test;
- 50% used two assessment methods;
- 14% used three assessment methods.

In evaluating this “impoverishment”, it should obviously be borne in mind that it resulted from the fact that faculty members were faced with an emergency (often for the first time in their professional careers).
It should also be added that this “problem” did not have the same negative impact on all respondents. Some, in fact, were able to maintain a “more complex teaching strategy” even during remote teaching. As is clear from Figure 2, these are faculty members who responded proactively to the emergency, leveraging their own social capital. Respondents who continued to use a “collaborative-innovative” strategy are distinguished from the others, first for their ability to draw on larger amounts of technical assistance and teaching support, and second because they used a wider variety of channels (support networks).
These findings confirm what the network analysis literature tells us about innovation, viz., that relational networks provide social actors with the essential means for achieving their goals (Burt 1992; Granovetter 2004; Ramella 2016). First, because they

affect the quantity and quality of available resources (both tangible and intangible), and second, because they produce specific "information asymmetry advantages" through faster access to reliable information.
These studies suggest that in order to perform well in unconventional activities under extremely uncertain conditions such as those that gave rise to remote teaching, it is necessary to leave the usual routines behind and combine previously unconnected resources. This is precisely what academics with "mixed support networks" (i.e., those who were supported via a plurality of channels) were able to do. These mixed networks create connections between actors belonging to different spheres in academia and elsewhere, thus activating circuits for exchanging information and collaborating that had been separate. This enables the actors to obtain a greater variety of resources, skills and information that improve the overall effectiveness of their actions.

Figure 2. The teaching strategies employed for online classes, by level of support and variety of channels used by respondents in the transition to distance teaching (1-10 scale for support; 1-7 scale for channels)



7. Views of the future

Italian academics' opinions of how the emergency was handled were thus decidedly positive, allowing for the difficulties involved and the uncertainty surrounding the decisions that had to be made. But when they think about the future, what are their views on the use of distance teaching or of hybrid methods combining in-person classes with online activities?
First, let's put one question to rest. As we have seen, almost all respondents believe that distance teaching *cannot and should not* replace face-to-face classes. Only a tiny

minority—2%—would like to move permanently to distance teaching. At the opposite extreme, 44% do not want to retain anything of the forms of teaching used during the emergency. At the same time, 54% are well disposed towards hybrid methods.
Thus, over half of the respondents believe that hybrid methods can improve learning performance in individual disciplines by making it possible to post more educational materials of different kinds online, and/or by permitting different ways of interacting with the instructor (Table 13). Smaller but still significant percentages believe that these teaching methods would make it possible to experiment with new educational strategies: a) by eliminating the more routine parts of in-person classes and leaving more room for discussion and exploration, b) facilitating activities designed to build competences and integrated interdisciplinary education, c) encouraging independent learning and greater collaboration between students.

Table 13. How much do you think hybrid teaching, which combines in-person classes with online activities, can contribute positively to the following goals? (A lot + Some; %)

Improving learning performance in individual disciplines (by providing more online material of different kinds, permitting different ways of interacting with the instructor, etc.)	54.5
Employing different forms of teaching (project work, competence building, interdisciplinary education, etc.)	47.3
Experimenting with learning methods based on student collaboration (through dedicated apps, discussion groups, etc.)	44.9
Eliminating the more routine parts of in-person classes to make more room for discussion and exploration.	39.6
Developing students' critical thinking skills	27.5
Developing students' creativity	30.5
Increasing the ability to address and solve complex problems	30.1
Stimulate students' independence and active learning	40.4
Number of respondents	3398

Moreover, many respondents believe that distance teaching would be good for certain categories of student by enlarging the pool of potential beneficiaries of higher education and making it more inclusive (Table 14). Around three-fourths think it would help working students and increase lifelong education. Approximately two-thirds believe it would make educational "mobility" easier and provide more opportunities for people who live in rural areas, other Italian regions or other countries.

Table 14. How much do you think distance teaching can help enlarge the pool of potential students in the following categories? (A lot + Some; %)

Working students	76.8

Post-university age adults who want to continue their education	73.3
People living in rural areas	69.1
People living in other regions	69.4
People living in other countries	62.8
Number of respondents	3398

Over 60% believe distance teaching would help students with specific learning disabilities (Table 15). Lastly, almost half of the respondents believe it would help students at a socioeconomic disadvantage. That said, it should be noted that there is a certain polarization of views. The percentage of respondents who express concerns about continuing with distance teaching after the health emergency is far from negligible. 40% believe that extending distance teaching would make recruiting new staff more difficult, 57% that it would significantly increase their workload and stress, and 58% that it would increase Big Tech's interference in university teaching.

Table 15. How much do you agree with the following statements? (A lot + Some; %)	
Distance teaching can help students at a socioeconomic disadvantage	47.6
Distance teaching can help students with disabilities	64.0
Continuing with distance teaching after the health emergency will make it more difficult to recruit new staff	39.8
Continuing with distance teaching after the health emergency will increase my workload and stress	56.6
Continuing with distance teaching after the health emergency will gradually increase Big Tech's (e.g., Google, Facebook, Apple, etc.) interference in university teaching	57.8
Number of respondents	3398

But who are the academics who take a more favorable view of hybrid teaching methods? How do they differ from the others who would rather return to in-person teaching, just as it was before the emergency? We will start by looking at the "context factors", or in other words the influences exerted by the environment in which the respondents did their distance teaching: size and geographical location of their university, size of the city they live in and how far their home is from the university. No particularly important (or statistically significant) differences were found in this connection. There was only a slight preference for distance teaching on the part of respondents who do not live in the same province as the university, and thus have to do a certain amount of commuting. Sociodemographic factors were also found to make little difference: attitudes do not vary according to age and gender. Passing to the respondents' scientific and academic profile, the highest levels of interest in hybrid teaching were found: among full professors, who have management responsibilities and coordinate teaching, in certain disciplines (health sciences as well

as agricultural and veterinary sciences), and among those who work in departments where online activities were already more common.

These variables, which mostly tap individual attributes, show rather small departures from the mean and, with only two exceptions, are not statistically significant. They thus have limited explanatory power.

Several relational and attitudinal variables were found to be more important, including having held higher-level courses or used more innovative teaching methods prior to the emergency (Table 16). What makes the real difference, however, is the amount of support received in the transition to working online and the experience gained with distance teaching during the lockdown (Table 17). The factors that count are the intensity of the aid that respondents received and the variety of relationships through which it was provided, and, above all, having a positive view of distance teaching's effects on professional skills and the level of satisfaction with the experience accrued in the emergency semester.

Table 16. Preferences regarding post-emergency teaching according to the type of in-person teaching strategy (% per line)

Preferences	In-person teaching	Distance teaching	Hybrid teaching	Total	Respondents
Courses					
Teaches in master's degree programs**	29.1	3.3	67.6	100	275
Teaches in workshops**	35.5	2.7	61.8	100	602
Had prior experience with distance teaching**	26.7	3.3	70.0	100	303
*In-person teaching strategies***					
Transmissive/dialog-based	51.2	4.3	44.5	100	598
Transmissive-interactive	41.8	1.0	57.2	100	866
Collaborative-innovative	39.9	1.3	58.8	100	1161
Total	43.7	1.7	54.5	100	3173

***p < 0.001; only teaching types that were found to be statistically significant are shown*

Table 17. Preferences regarding post-emergency teaching according to experience during the emergency (% per line)

Preferences	In-person teaching	Distance teaching	Hybrid teaching	Total	Respondents
*Aid received during the emergency**					
Average or below average	45.9	2.0	52.1	100	1724
Above average	41.2	1.4	57.3	100	1449
*Number of support channels used**					
Average or below average	45.7	2.1	52.2	100	2021

Above average	40.3	1.1	58.5	100	1153
*Distance teaching enabled me to increase my professional skills** (Phi = 0.311)*					
Somewhat disagree or strongly disagree	60.4	1.4	38.2	100	1116
Somewhat agree or strongly agree	29.3	2.3	68.3	100	1459
*Distance teaching made me want to have more training in teaching methods and techniques** (Phi = 0335)*					
Somewhat disagree or strongly disagree	59.6	1.8	38.6	100	1260
Somewhat agree or strongly agree	26.6	2.1	71.2	100	1307
*I was satisfied with my distance teaching experience** (Phi = 0.312)*					
Somewhat disagree or strongly disagree	69.9	0.8	29.3	100	648
Somewhat agree or strongly agree	34.1	2.3	63.5	100	1967
Total	43.7	1.7	54.5	100	3173

**p < 0.05*
*** p <0.001*

8. Concluding remarks

The time has come to summarize some of our survey's main findings. Over and above the costs and negative aspects it has entailed for Italy's universities, the health emergency served an important function in making the crucial importance of teaching—one of the missions that is too often taken for granted and neglected in many Italian universities—clear for all to see. Specifically, the lockdown showed that there is no substitute for in-person teaching. Almost all of our respondents agree that this is true. No technology, no form of platform-mediated teaching can replace the educational interaction that takes place when students and instructor are physically present in the classroom.

The crisis also demonstrated an "unsuspected" ability to respond quickly and efficiently on the part of Italian universities. In the space of a few short weeks, faculty members were able to ensure that teaching activities could be continued online. Classes and programs were completed in full. Exams and graduate theses proceeded regularly. The number of students attending courses did not drop. Given the context and the conditions, the satisfaction that respondents expressed—not only with their

own personal experience, but also with the efforts made by the university and their departments—is thus more than justified.

The crisis highlighted how far the real university is from the imaginary university portrayed in the public debate, often stuck in outdated stereotypes originating decades ago. This is especially true of "academic teaching". The teaching that takes place in university classrooms involves much more dialog, interaction and collaboration than is generally believed. Significant percentages of instructors use "innovative" forms of teaching. Often, however, these are isolated experiments by individuals, attracting little interest and pedagogically ill-grounded. And this brings us to the fragilities and problems that the crisis brought to the surface.

First, the enormous stress and overwork resulting from the emergency added to the burdens of a short-handed technical-administrative staff and teaching faculty that were already struggling to cope with the innumerable bureaucratic chores introduced in recent years.

Second, many difficulties arose as a result of faculty members' lack of training in teaching methods in general and in the new digital platforms.

Third, and as a consequence of the first two points, there was a drastic "impoverishment" in teaching methods despite faculty members' best intentions and the major efforts made by the universities.

That said, the survey's respondents also offered a more positive view of the new digital platforms' potential for addressing the specific problems of certain categories of student (those from other areas, those with disabilities, working students, etc.). In addition, a majority of respondents (54%) express *a certain willingness to try hybrid forms of teaching once the emergency is over*, combining in-person classes with online activities.

The factor that *had the greatest positive influence on this willingness was the experience with remote teaching*, on both the personal and institutional levels. While the particular academic discipline involved had some influence, much depended on how open the respondent's attitude was during the emergency and, more generally, on whether respondents tended to be proactive. The respondents who had the most positive experience of remote teaching were those who in their in-person classes had already been more oriented toward collaborative and innovative forms of teaching, and who took an exploratory approach to the emergency, drawing on their social capital and turning the crisis into an opportunity for reflecting on their teaching methods. The institutional dimension, however, also made a difference.

Throughout Italy, the support provided by the universities played a crucial role in the transition to online teaching. As regards governance of the emergency, though, the most effective universities where those that:

a. Employed “coordinated decentralization” in which the schools and departments were more heavily involved in providing support to faculty members, and
b. Allowed faculty members greater independence in deciding their approach to distance education.

It was thanks to their stock of social capital that many faculty members were able to turn the “challenge” of distance teaching into a learning opportunity. In a variety of ways, the universities provided training resources and opportunities, which respondents integrated with their own personal and professional resources to mount an effective response to the crisis.

These “individual” responses, supported by the institutional networks, enable organizations to learn and innovate, increasing their requisite variety and resilience (Powley, 2009; Dee and Leišyte, 2016). In organizations, resilience is the ability to respond to challenges by demonstrating that they are: *a) solid*, or in other words able to cope with critical and unexpected events; *b) cohesive*, i.e., capable of maintaining a high degree of internal integration by motivating their members; and *c) agile*, or able to face emergencies promptly and arrive at effective answers to the problems (Mousa et al. 2020).

There are, however, two ways of responding to a crisis. The first kind of response is in the short-term, when the organization is under stress, to provide an immediate solution through first-order problem solving. The second is a long-term response which puts what was learned from the emergency to good use in modifying the organization’s structures and routines to prevent the crisis from reoccurring and/or improve performance. This is referred to as second-order problem solving. The first kind of response is based on single-loop learning, or simple, local and occasional learning dynamics. The second kind calls for double-loop learning, a more complex process which is less contingent and has lasting structural implications (Argyris and Schön 1978; Tucker, Edmondson 2003). This brings us to the final point we will address here.

Crises are often opportunities, because they stimulate creative responses and trigger generative mechanisms that enable organizations to change course, moving away from old habits. For the first time in many years, the approaches that had to be used during the Covid-19 semester made Italy’s universities and instructors question their teaching and its aims and methods. By contrast with the country’s secondary schools, where a technological innovation policy has been implemented for nearly a decade, the universities were caught largely unprepared by this challenge. Few had made significant investments in distance teaching and e-learning.

As is often the case, however, being latecomers can be an advantage. It made it possible to avoid many of the misunderstandings and illusions that beset secondary schools (Gui 2019), such as the idea that new technologies can by themselves transform teaching and even solve many of the problems encountered in recruiting students. We believe that a number of simple lessons supporting an evidence-based policy for *teaching innovation* can be learned from the experience gained in the Covid-19 semester:

1. In-person teaching is irreplaceable.
2. By themselves, the new digital platforms cannot renew and enrich teaching methods. On the contrary: unless faculty members are appropriately trained in their use, the new platforms created to encourage e-learning tend to impoverish teaching. They are entirely unproductive without mature reflection on educational architectures and teaching strategies that also bears the distinctive features of each learning environment in mind (distance teaching is one thing, hybrid teaching is another, and e-learning is yet another).
3. The universities' responses must be both national and local. In other words, there must be a national plan as well as university-level digital and e-learning projects. This calls on the one hand for an infrastructure investment program, and on the other for specific attention to supporting faculty members' teaching skills.
4. The new technologies can help build on the "good practices" for teaching innovation that are already at work in university classrooms. Many of these technologies, rather than replacing in-person teaching, can enrich it by facilitating more interactive and collaborative forms of teaching. Provided they are not used alone, but are supported by personnel measures, they can also help expand the pool of potential students and offer new approaches to lifelong education.

As we have seen, Italian faculty members' views of the post-emergency scene are highly polarized. Apart from that, it seems that the basic attitude that the survey brought to light is not dead set against the new teaching methods and technologies. Many respondents believe that they can help in achieving a number of goals associated with the four priorities laid down in ET 2020, the strategic framework for European cooperation in education and training:

1. Make lifelong learning and mobility a reality
2. Improve the quality and efficiency of education and training
3. Promote equity, social cohesion, and active citizenship

4. Enhance creativity and innovation, including entrepreneurship, at all levels of education and training.

In the last few decades, digital technologies have brought profound changes in our daily lives, and in how we work, do business, and interact with others. And they are also changing how we learn and teach. The pandemic and the resulting lockdown have undoubtedly heightened the widespread perception that digital technologies are becoming essential. In this respect, there is a significant gap between Europe and the more technologically advanced countries. A few years ago, the European Investment Bank estimated that the European Union's investments in education, research and infrastructures trailed behind the United States' by 190 billion euros per year (EIB 2016; EU 2020b).

Italy is lagging even further behind the rest of Europe in this connection, as can be seen from a glance at the European Commission's Digital Economy and Society Index, which ranks member states by level of digital performance (EU 2020a). In 2020, Italy ranked 25th overall, 26th in citizens' use of internet services and online transactions, and was *in last place as regards human capital* (number of ICT graduates and ICT specialists, percentage of people with basic and advanced digital skills). These figures speak for themselves. Italian society and the Italian economy risk remaining on the analog sidelines while the other European partners are seizing the new digital opportunities. The education system can make an essential contribution to narrowing this gap. *The university must not shirk this challenge.*

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Appendix

Methodological note

The nationwide survey of distance teaching during the Covid-19 emergency was carried out in June 2020 by contacting the same 15,000 academics at Italian state universities who had taken part in a 2016 survey on higher education's third mission (Perulli et al. 2018). These academics were asked to complete a questionnaire consisting of seven sections: the Covid-19 emergency and the suspension of in-person classes; distance teaching; preparing for distance teaching; the resources available for distance teaching; comparison with in-person teaching and assessment of the distance teaching experience; risks and opportunities for the future; respondents' personal and professional data.

The survey was coordinated by Francesco Ramella (Università di Torino) and Michele Rostan (Università di Pavia), while participants included Alessandro Caliandro, Flavio Ceravolo, Massimiliano Vaira (Università di Pavia) and Valentina Goglio, together with Anna Padoin and Antonella Rizzello (Università di Torino). Questionnaires were administered by the survey firm QuestLab using the CAWI technique. Three invitations/reminders were sent, one of which was made possible by the cooperation of the heads of department at the 62 participating universities. A total of 3,398 valid questionnaires were collected, with a response rate of 23%. The differences between the theoretical and actual sample were quite limited. To take the different levels of coverage into account, weights ranging from a minimum of 0.67 and a maximum of 2.32 were applied.