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Multinational perspectives on Covid-19 challenges: Faculty responses to distance education in Italy and the USA

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Abstract

In this study focusing on distance teaching during the Covid-19 pandemic, 47 higher education faculty in Italy and the USA responded to a survey circulated internationally between July and November 2021. In both contexts, perceptions of the institutional support and professional training for distance education (DE) were found to be similar in many ways, although the experiences with DE's opportunities and challenges proved quite different. Respondents in the USA reported being more at ease with DE, while Italian faculty reported greater recognition of the barriers to DE. HE faculty in both contexts equally recognized the importance of professional development for DE. Possible reasons for these similarities and differences are discussed.

Keywords: Distance Education, Higher Education, Covid-19 Challenges, International.

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Introduction and theoretical framework

Compared with other pandemics in the last century (e.g., SARS 2004), Covid-19 affected almost every aspect of our lives (Pew Research Center, 2020; WHO, 2021). Just a few months into the pandemic, up to April 2020, 85% of higher education (HE) institutions worldwide switched to online teaching (Marinoni, van't, & Jensen, 2020). In the face of vague and ever-changing policies, K-12 to universities all attempted to mitigate learning losses through ICT-based emergency remote teaching (ERT – Farnell et al., 2021). The sudden surge in demand has left both educators and learners feeling the impact of the transition to ERT even though most universities in Europe have offered e-learning options since 2013 (Gaebel et al., 2014). In addition, in the fall of 2012, one-third of higher education students were enrolled in online courses (Allen & Seaman, 2013). However, there was still a perception of complete disruption to teaching in higher education when all courses were forced to go online during the pandemic.

During the pandemic, it has been revealed that methodological and technological innovation struggle to align, requiring a redefinition of the educational framework for distance education (Hodges et al., 2020; Lowenthal et al., 2020; Zucc;hermaglio et al., 2021). Many critics argue that ERT as it is currently implemented fails the test of quality online pedagogy (Cecchinato & González-Martínez, 2021; Kara, 2021; Zuccheramglio et al., 2021). We may have an opportunity to rethink our approaches to HE teaching and learning for the post-Covid era, as well as develop new ideas about how HE can meet societal needs (Farnell et al., 2021). To do so, as argued by Voogt and Knezek (2021), action needs to be taken on three levels: micro, meso and macro. At a macro-level, the broader educational system has to overcome challenges related to the availability of infrastructure, resources and support, ensuring the quality of online education (La Velle et al., 2020; Mishra et al., 2020; Oyedotun, 2020). At a meso-level, i.e., related to course delivery and assessment, new strategies are needed to overcome the mismatch between curriculum requirements and the potential of online teaching and learning. Finally, the micro-level

considers the interactions between teachers and students, where challenges related to the pervasiveness of worktime into personal time, and teachers' attitudes towards and readiness to online teaching (La Velle et al., 2020; Oyedotun, 2020; Voogt & Knezek, 2021).

In order to capitalize on the unexpected opportunities for online teaching in times of ERT, educators must possess specific skillsets gained through rapid and fit-for-purpose training pathways (Hodges et al., 2020; Lowenthal et al., 2020; Mishra et al., 2020), considering the standards for high-quality online teaching and learning (Means et al., 2014). Several factors must be taken into consideration, from the infrastructure and support provided by the employing institution to professional development programs, to the widespread of a pedagogical approach that focuses on learning, beyond merely transmitting information (Safi et al., 2020).

This paper is a part of a study conducted by two HE institutions in Italy and the US to examine how faculty are dealing with distance education (DE) a year into the pandemic emergency.

Present study

Selected second round findings from a survey administered to HE institutions worldwide are presented in this paper. An earlier version of the *Higher Education Technology Survey* was circulated worldwide in the spring of 2020 (Trevisan et al, 2020; Trevisan et al., 2021), while a second administration circulated between July and November 2021. This paper focuses on the second administration of the survey, addressing the following research questions: One year into distance education (DE) caused by the Covid-19 pandemic, how do faculty:
1. Perceive institutional support and professional training offered for DE;
2. Experience potentialities and challenges of DE;
3. Use technologies in their DE practices for learning; and
4. Understand professional intentions for future uses of DE?

This study aims to help understand how HE faculty are coping with the abrupt change in teaching caused by the pandemic, from the

perspective of one year into the pandemic. This understanding can inform institutional strategies to best support effective and efficient DE for learning at higher education level.

Instrumentation

The *Higher Education Technology Survey* (Trevisan et al., 2020; Trevisan et al., 2021; Trevisan et al., 2022) was developed to measure university faculty's perceptions about the changes in teaching that resulted from Covid-19. The survey includes ten demographic items with binary, open-ended, or 4-point Likert scale questions. Respondents were also asked to respond to their habits to keep up with technology for teaching (4-point Likert); recent professional training for DE – within pandemic times (4-point Likert); and their experiences with DE before the pandemic (4-point Likert).

More to the core of the investigation, forty-one items on a Likert scale investigate different constructs spanning from the perceived institutional support in distance education (DE); positive and negative perceptions of DE use; and resolutions to implement the DE in the future.

The *Higher Education Technology Survey* proved reliable through multiple administrations (Cronbach's alpha for the 41 Likert items was .84), and revealed six stable constructs:

– Factor 1: *Enthusiasm for DE* (6 items, 6-point Likert, Cronbach's α = .90);
– Factor 2: *Resolutions for the future* (5 items, 6-point Likert, Cronbach's α = .89);
– Factor 3: *Perceived institutional support for DE* (3 items, 6-point Likert, Cronbach's α = .76);
– Factor 4: *Difficulties in DE* (7 items, 6-point Likert, Cronbach's α = .70);
– Factor 5: *Attitudes for professional development* (*Isakson Survey of Academic Reading Attitudes* – ISARA scale, R.L. Isakson et al., 2016 – 7 items, 6-point Likert, Cronbach's α = .83);

– Factor 6: *Technological affordances selected in DE* (*Interactive Constructive Active Passive* – ICAP scale, Chi & Wylie, 2014 – 13 items, 4-point Likert, Cronbach's α = .85) (see Trevisan et al., 2020; Trevisan et al., 2022).

This paper focuses on the analysis of data from the second administration of the survey, investigating during-the-pandemic teaching practices, as well as reported possible ways of future DE applications, through the six factors. Particular focus will be given to the similarities and dissimilarities between the two contexts, namely Italy and the US.

Participants

Higher education faculty in Italy and the US engaging in teacher education and other educational professions were the target population of this study. Responses from Italy (N = 27) and the US (N = 20), for a total of 47 HE faculty participants who responded between July and November 2021. A snowball logic was used in sampling, to include as many diverse participants as possible.

The demographics of the selected respondents included a large number of females (IT: 30% male, 70% female; US: 50% male, 50% female). As for their teaching seniority, a large group of experienced faculties responded to the survey. The Italian respondents on average reported 11 to 15 years of teaching, while Americans reported an average of 16-20 years, although 55% of them had over 20 years of teaching experience.

An independent *t*-test was carried out on the experience measure (years of teaching), confirming a significant difference (t_{45} = 2.02, p = .0049, Cohen's d = .6) in favor the US teachers having been in teaching longer. As shown in Table 1, the survey also requested information concerning: (a) respondents' habits of keeping up with educational technologies; (b) respondents' recent training in DE – within the pandemic period; and (c) respondents' past experience with DE – prior to 2020.

Table 1. Participants' background variables (second administration, $IT_{n = 27}$ – $US_{n = 20}$)

Items (Likert scale 1-4)		Mean (st.d.)	Median	% Never	% Occasionally	% Frequently	% Always
Habit to keep up with educational ICT $p < 0.05$, $d = 1.16$	IT	2.63 (.79)	2.00	0	56	26	18
	US	3.50 (.69)	4.00	0	10	30	60
Recent training $p < 0.05$, $d = .94$	IT	1.44 (.70)	1.00	67	22	11	0
	US	2.15 (.81)	2.00	20	50	25	5
Distance education (DE) experience before the pandemic $p < 0.05$, $d = 1.01$	IT	2.22 (.85)	2.00	15	59	15	11
	US	3.00 (.65)	3.00	0	20	60	20

Regarding the first issue, HE faculty in both contexts reported engagement with educational technologies, at least occasionally (Table 1). Most Italian participants reported that they kept up with educational technologies *occasionally* (56%), while the majority of US faculty *always* did, in the pandemic times (60% – Table 1). Institutionally provided training for DE in pandemic times proved to be inconsistent. More than half of the participants in Italy (67%) indicated having *never* attended formal training sessions in DE in the last two years, i.e., during the pandemic, although up to 22% reported *occasionally* completing any training. To the contrary, 50% of the American faculty *occasionally* received training related to DE, while 20 to 25% respectively *never* or *frequently* reported being involved in such professional development.

The US and Italian faculty were also not aligned in their reported previous practices of DE engagement with 60% of the surveyed population in the US reporting *frequently*, and approximately the same percentage of Italian faculty stated having only *occasionally* experi-

enced DE before the pandemic (59%). Independent sample *t-tests* conducted on the scale scores for each of these dimensions confirmed statistically significant (*p < 0.05*) differences of large magnitudes (Cohen, 1988) existed between the two sampling groups, in relation to (a) the habit to keep up with educational technologies; (b) recent training; and (c) previous experiences with DE (Table 1).

Findings

Results emerging from the second administration of the *Higher Education Technology Survey* will be presented in this section. For more details about the survey's structure and properties (see Trevisan et al., 2020; et al., 2022). Findings will highlight the faculty's perception of DE in the Italian and US contexts, as emerging from the six stable constructs underpinning the entire survey: *enthusiasm, difficulties, IS-ARA, ICAP, support, and resolutions for the future*.

Challenges and successes in DE teaching

Participants described their experiences with DE in terms of perceived ease and opportunities (Factor 1 – F1 *Enthusiasm*) as well as in terms of challenges and difficulties (Factor 4 – F4 *Difficulties*).

Table 2 contains descriptive statistics for the overall ratings of the two national contexts (i.e., $IT_{n=27}$ and $US_{n=20}$) on F1 and F4, as well as descriptive statistics for individual items.

The participants' ratings for *Enthusiasm* for DE were mild to quite positive across the two contexts (Table 2). For Italian faculty the mean was 3.11 while for US participants the mean was 4.10 on a 6-point Likert scale. For these two groups, DE's ease and opportunities proved to be significantly different based on an independent sample t-test (Table 2). Looking at the individual items within F1, US faculty found it significantly easier to practice DE, which was perceived to increase their productivity more than for Italian faculty (Table 2). Moreover, DE was perceived to change the evaluation processes of

US faculty significantly more than of their Italian counterparts ($t_{44.05} =$ 2.52, $p = 0.01$, $d = .73$).

Both groups found that DE comes with some challenges (F4 – Table 2); for Italian faculty the mean was 4.00 while for US participants the mean was 3.71 on a 6-point Likert scale. An independent samples *t-test* revealed significant differences between US and Italian faculty on specific items within F4, regarding the type of difficulty most experienced in DE. Infrastructure was a bigger impediment for the Italian respondents, with more highly perceived negative effects on student-teacher communication (Table 2).

Table 2. Challenges and victories in DE, main factors and composing items (second administration, $IT_{n=27} - US_{n=20}$). 6 point Likert

	IT faculty (n = 27)		US faculty (n = 20)		t-test	d
F1. Enthusiasm	**Mean = 3.11, st.d. 1.26**		**Mean = 4.10, st.d. 1.20**		0.01	.8
	Mean	St.d.	Mean	St.d.		
Ease in DE.	3.26	1.56	4.60	1.35	0.03	.91
DE improves teaching.	3.11	1.39	3.90	1.33	NS	
DE makes teaching more interesting.	3.15	1.61	3.95	1.67	NS	
DE increases productivity.	2.93	1.61	3.95	1.43	NS	
DE changes evaluation processes.	3.04	1.63	4.15	1.39	0.03,	.66
DE is fun.	3.19	1.57	4.05	1.79	0.015	.73
F4. Difficulties in DE	**Mean = 4.00, st.d. 0.86**		**Mean = 3.71, st.d. 1.05**		NS	
Difficulties with DE.	4.41	1.15	4.10	1.29	NS	
Diff. due to infrastructure.	4.85	1.32	3.60	1.54	0.06	.88
Diff. of interaction due to infrastructure.	4.70	1.17	3.45	1.39	0.02	.99
Diff. of interaction due to student demotivation.	4.08	1.44	3.75	1.37	NS	
Diff. to complete program course.	2.48	1.65	3.25	1.74	NS	

Diff. to create materials.	3.30	1.77	3.20	1.73	NS
Diff. due to DE being pervasive of personal time.	4.12	1.79	4.60	1.35	NS

Technology uses from Emergency Remote Teaching (ERT) to Distance Education (DE)

Participants described their experiences with DE in terms of choices of technology affordances in teaching (Factor 6 – *ICAP* and subscales). They were also asked to respond regarding their intentions for future uses of DE and technologies in normalized times (Factor 2 – F2 *Resolutions* – Table 3).

Table 3 shows the overall ratings of the two contexts (i.e., IT and US) on F2 and F6, detailing means and st.d. for the single items composing F2 and F6.

Overall, the two contexts show use of technologies mostly oriented on either a *passive* engagement of their students, e.g., through listening/watching tasks (F6.1 – IT_{mean} = 2.26; US_{mean} = 2.67 – 4-point Likert), or an *interactive* engagement, e.g., through online debate/collaboration tasks (F6.4 – IT_{mean} = 2.42; US_{mean} = 2.59 – 4-point Likert), choosing them *occasionally* or more *often* (4-point Likert scale). Settling roughly on a rating of *never* being the faculty's choice in either context is the use of technologies for *active* student engagement, e.g., multiple-choice/summary tasks (F6.2 – IT_{mean} = 1.62; US_{mean} = 1.65), while a *constructive* student engagement through technologies split the sample (F6.3 – Table 3).

An independent sample *t-test* revealed that US faculty were significantly more likely to choose a *passive* student engagement through technologies, especially when it came to asking students to read digital materials (Table 3). US respondents were also more inclined than their Italian counterparts to choose *constructive* student engagement through technologies, especially when it came to asking students to *take digital notes* or compare *online content* (Table 3). Finally, US faculty were significantly more frequent in asking their students to *elaborate answers building on someone else's contributions, online* (Table 3).

Respondents' ratings in both contexts were on the higher end of the 6-point Likert scale (F2 – IT$_{mean}$ = 4.01; US$_{mean}$ = 5.05) for *resolutions for the future* in DE (F2 – Table 3). Nevertheless, this is the factor with the highest effect size difference between the two groups of respondents (Table 3). Italian faculty were less optimistic about future implementations of DE strategies. Almost all the items in F2 aligned with the overall difference between the two HE faculty groups (Table 3), with the US displaying significantly more positive:

– Appreciation of *colleague's encouragement* in DE;
– Intentions to structure their future practices as *blended learning*;
– Resolutions to *integrate DE practices in face-to-face teaching settings*; and
– Intentions to *integrate technologies in face-to-face teaching settings*.

Table 3. Technology uses from ERT to DE (second administration)

F6. ICAP – Uses of technologies. 4-point Likert F6.1 ICAP – Passive uses	IT faculty (n = 27)		US faculty (n = 20)		t-test	d
	Mean = 2.26, st.d. 0.55		**Mean = 2.67, st.d. 0.61**		0.02	.71
	Mean	St.d.	Mean	St.d.		
Listening to lessons without taking notes.	1.67	0.96	2.00	0.79	NS	
Reading digital material.	2.89	0.64	3.30	0.57	0.03	.67
Watching videos without taking notes.	2.22	0.80	2.70	0.92	NS	
F6.2 ICAP – Active uses	**Mean = 1.62, st.d. 0.63**		**Mean = 1.65, st.d. 0.61**		NS	
Underlining/highlighting digital text.	1.33	0.68	1.55	0.76	NS	
Summarizing digital content by copy-and-delete.	1.41	0.69	1.45	0.89	NS	
Answering online multiple-choice questions.	2.11	0.89	1.95	1.00	NS	
F6.3 ICAP – Constructive uses	**Mean = 1.85, st.d. 0.77**		**Mean = 2.47, st.d. 0.66**		< 0.01	.85
Drawing concept maps digitally.	1.85	0.95	1.95	0.69	NS	

Taking digital notes in their own words.	1.74	0.90	2.80	0.84	*< 0.001*	1.21
Critical comparison of different online contents.	1.96	0.98	2.65	0.87	*0.015*	.73
F6.4 ICAP – Interactive uses	**Mean = 2.42, st.d. 0.93**		**Mean = 2.59, st.d. 0.65**		**NS**	
Online debating in pairs/groups.	2.63	1.15	2.15	0.87	NS	
Online collaboration to produce digital artifacts.	2.44	1.25	3.05	0.69	NS	
Elaborating answers building on someone else's contributions, online.	1.93	0.96	2.60	0.82	*0.013*	.75
Using the internet to work collaboratively on a small research question.	2.67	1.04	2.55	0.89	NS	
F2. Resolutions for the future. 6-point Likert	**Mean = 4.01, st.d. 1.20**		**Mean = 5.05, st.d. 0.68**		**< 0.01**	**1.02**
Encouraging colleagues.	3.00	1.47	4.25	1.21	*0.003*	.92
DE as useful experience.	4.78	1.09	5.25	0.91	NS	
Intention to structure teaching as a blended activity.	3.59	1.69	4.80	1.06	*0.007*	.83
Intention to integrate DE in F2F teaching.	4.30	1.51	5.50	0.69	*0.002*	.97
Intention to integrate ICT in F2F teaching.	4.41	1.50	5.45	0.89	*0.008*	.82

Support and training for quality DE

Participants described their perception of institutional support in carrying out DE (Factor 3 – F3 *Support* and subscales). They also answered items about their attitudes toward professional training (Factor 5 – F5 *ISARA* scale).

Table 4 accounts for the overall ratings of the two contexts on F3 and F5, detailing means and st.d. for the single items composing F1 and F4. Both groups of participants were similar on the perceived support, as well as their attitudes, on an independent sample *t-test*

($p < 0.05$). Overall, they were quite appreciative of the institutional support they received in times of the pandemic (Table 4, F3 – IT_{mean} = 4.49; US_{mean} = 4.73 – 6-point Likert) and attributed high importance to professional development (F5 – IT_{mean} = 4.59; US_{mean} = 4.85 – 6-point Likert).

Table 4. Perception of institutional support and attitudes to professional training in DE (second administration). 6 point Likert

	IT faculty (n = 27)		US faculty (n = 20)	
F3. Perceived support in DE	**Mean = 4.49, st.d. 1.14**		**Mean = 4.73, st.d. 1.21**	
	Mean	**St.d.**	**Mean**	**St.d.**
Ease of use of institutional platform for DE.	5.11	1.09	4.55	1.79
Supportive institutional organization for DE.	4.22	1.40	4.75	1.33
Institutional access to help with DE.	4.15	1.59	4.90	1.21
F5. Professional training (ISARA scale)	**Mean = 4.59, st.d. 0.93**		**Mean = 4.85, st.d. 0.71**	
Importance to read (digital) materials on disciplinary content.	5.00	1.11	5.05	1.00
Use of (digital) professional literature to solve content related teaching problems.	4.52	1.12	4.75	1.02
Ease in reading (digital) scientific articles about teaching.	4.67	1.36	5.20	0.89
Habit to engage in professional development by following educational scientists on social media.	3.37	1.62	4.15	1.50
Importance to read scientific articles about teaching.	4.78	1.34	5.25	0.91
Importance to (online) reading about teaching as professional development.	5.26	1.06	5.10	0.85
Interest in books and articles about disciplinary teaching.	4.56	1.19	4.45	1.15

Discussion, limitations, and conclusions

Several similarities and some differences were found between higher education faculty in Italy and the US in this study. Italian faculty generally were more than 10 years into the profession, although not very familiar with DE before the pandemic. This aligns with findings by other researchers, for example Ligorio et al. (2020), who reported that while up to 50% of HE faculty had used some strategies of digital education, for almost 80% of university students ERT was their first truly online learning experience. Moreover, the surveyed Italian faculty attended institutionally-issued DE training only occasionally, in line with other national data (Zuccermaglio et al., 2021). The surveyed US HE faculty had higher teaching experience, with a majority being more than 20 years into the profession, and frequently engaged in DE even prior to the pandemic. They reported having a strong commitment to keeping up with educational technology, but even so, their attendance at recent institutionally issued training for DE was occasional.

It might seem that Italian HE faculty were not fully prepared to teach online during ERT times; they were less prepared than the US faculty. Familiarity and frequent training could indeed impact the perception of ease in DE, which was higher in the US HE faculty than the Italian group. However, Italian participants were more aware of the challenges of DE, especially at a macro-level of infrastructure and access, in line with other studies (La Velle et al., 2020; Oyedotun, 2020; Voogt & Knezek, 2021).

In turn, perceived opportunities and challenges in DE might have affected the choices when using technological tools in online teaching. Both Italian and US groups displayed a sort of polarized approach to technologies in DE. The surveyed HE faculty most frequently realized digital tasks that would either engage students only passively through access to asynchronous materials; or tasks that would require complex co-construction of knowledge with peers. The first choice aligns unfortunately with the most used DE strategies worldwide (Cecchinato & González-Martínez, 2021). However, the latter speaks to the consideration of technological affordances for meaningful learning

reported two decades ago by Dede (2000), although rarely main-streamed (Voogt & Knezek, 2021).

Several factors could have contributed to the polarized stance of Italian and US HE faculty on the matter. These factors range from macro-level issues of educational culture, training, infrastructure and access; to meso-level ones of curriculum requirements, pedagogical autonomy and assessment; to micro-level factors like individual teachers' inclinations and student response (*ibid.*).

An encouraging finding from this study is that HE faculty in both contexts equally recognized the importance for professional development (for DE). Moreover, both Italian and US participants perceived good support by their institutions in carrying out DE, a finding that somehow conflicts with their casual attendance at institutionally-issued DE training. The data in this study could suggest that while HE faculty perceived the overall encouragement by their institution, and were open to professional development, oftentimes they do not find a good match of their training needs in the institutionally provided offerings. This is an impetus for reflection and redefinition of professional development strategies, which should be tailored to faculty's needs (Van Dorresteijn et al., 2020).

Finally, a look to the future is in order. Respondents in both contexts were positive about using DE strategies in the future, although the US HE faculty were significantly and widely more optimistic. This finding could account for a variety of context-based factors, since the implementation of technologies in education is dependent on the local collaboration between macro-, meso-, and micro-level stakeholders (Voogt & Knezek, 2021). We have seen how Italian respondents were overall were less familiar in/trained for DE, and experienced high infrastructural challenges that might hinder their resolution to use DE in the future. Cecchinato and González-Martínez (2021) argue that this results in the association of distance teaching and learning with "failures to be forgotten with a view to returning to 'normality' as soon as possible" (p. 6), which could explain a more pessimistic approach in the Italian context. Nevertheless, in Italy a technology-infused, blended/distance HE is already a reality, since the Ministerial Decree of 2020 that calls for "simultaneous and

mixed teaching" involving students face-to-face and at a distance (DPCM of August 7, 2020).

One limitation of this study is that the average experience (years of teaching) of the US respondents was higher than the average experience of the Italian respondents, and therefore this might have influenced the generalizability of the findings. Specifically, it is possible that US respondents were more enamored with future distance learning prospects simply because they tended to be more familiar with it. Additional studies are needed to determine whether the similarities and differences reported in this paper between Italy and the US will become greater or smaller over time.

Notes

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