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**Title**

**Teachers navigating distance learning during COVID-19 without feeling emotionally exhausted: the protective role of self-efficacy.**

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### **Abstract**

In the context of the COVID-19 outbreak, teachers faced unprecedented challenges and threats while implementing distance learning. Consequently, teachers may have experienced emotional exhaustion. The aim of our study was threefold: to explore teachers' threat appraisals, to investigate the relation between teachers' threat appraisals and their emotional exhaustion, and to examine processes protecting teachers from emotional exhaustion. Self-efficacy belief, especially, may have driven teachers' perceptions of distance learning as an opportunity (i.e., distance learning strengths), rather than an impediment (i.e., distance learning weakness) to teaching. During the first wave of COVID-19, Italian teachers ( $N = 1036$ ) filled in an online survey. A mixed-method design was used to address our three research aims. Findings indicated that, above and beyond other COVID-19 threats, one third of teachers reported worries, fears, and concerns related to their job (i.e., job-related threats). Furthermore, those who mentioned job-related threats experienced greater emotional exhaustion. Finally, teachers' self-efficacy was related to lower emotional exhaustion both directly and indirectly via teachers' perceptions of distance learning. Indeed, distance learning weaknesses (but not distance learning strengths) mediated the negative relationship between self-efficacy and emotional exhaustion. Altogether, our findings encourage reflection on possible interventions to reduce teachers' job-related threats and help them navigate distance learning effectively.

Keywords: COVID-19, threats appraisal, teachers' self-efficacy, distance learning, emotional exhaustion

### **Public Significance Statement**

Due to the widespread implementation of distance learning, teachers have widely borne the brunt of COVID-19 outbreak. This paper explores teacher-specific threats experienced during school closure, also explaining how self-efficacy can effectively help teachers to navigate distance learning without feeling emotionally exhausted. Targeted training, resources, and assistance should be set up to support teachers psychologically and practically, thereby transforming distance learning into an opportunity and reducing emotional exhaustion.

## **Introduction**

The COVID-19 outbreak has affected people worldwide in ways that would have seemed unimaginable at the beginning of 2020. In many cases, entire countries were set into temporary lockdown, leaving individuals, families, and communities in turmoil as they indefinitely adjusted to this new way of life. Containment measures, such as quarantine, physical distancing, and the interruption of services and necessary facilities, represented an “unprecedented threat” to individuals and societies (ECDC, 2020), resulting in a generalized increase of psychological strains, such as distress, anxiety, and negative emotions (Gruber et al., 2020; Vindegaard & Benros, 2020; Xiong et al., 2020).

Because many schools had to close on short notice, and educational programs were put on hold, the COVID-19 outbreak altered the education system (UNESCO, 2020a). One of the main changes concerned the widespread implementation of distance learning, considered the only sustainable means to provide students with instruction while staying at home and complying with containment measures. Teachers’ work environment and activities have been considerably affected by these changes, and thus, many of them were unprepared to ensure learning continuity and adapt to the new teaching practices (United Nations, 2020). However, little is known about whether the first wave of the COVID-19 outbreak challenged teachers’ experience with distance learning (for an exception see Kim & Asbury, 2020).

To fill this gap, we carried out a study with a large sample of Italian primary, middle, and secondary school teachers engaged in distance learning. In this respect, we framed distance learning as a plethora of teaching activities, such as online lessons, group discussions, explanation and transmission of teaching materials preceded by a description of the content, direct and indirect interactions between teachers and students to stimulate learning (Italian Government remark, 17<sup>th</sup> March 2020). The main aim of our study was threefold: to explore teachers’ threat appraisals during COVID-19 outbreak, to investigate the relation between teachers’ threat appraisals and their emotional exhaustion, and to examine which processes protect teachers from emotional exhaustion.

To conclude, we recommend interventions to reduce teachers' job-related threats and help them navigate distance learning without feeling emotionally exhausted.

### **Teachers' Threat Appraisals and Emotional Exhaustion**

By defining threat as the psychological appraisal of external or internal stressors, Politi and colleagues (2021) argued that the COVID-19 outbreak threatened several spheres of people's life, ranging from personal fears of getting the virus to collective concerns about society. We believed that the COVID-19 outbreak provoked an acute work stress increase too, because containment measures forced people to adjust to new working conditions (Rudolph et al., 2020), thereby threatening their professional life. Previous research on infectious diseases only focused on threats experienced by frontline healthcare professionals and humanitarian workers (Brooks et al., 2018; Cardozo et al., 2012). Most likely, however, the COVID-19 outbreak has triggered threats related to new job challenges (i.e., job-related threats) among professionals not directly involved in the frontline (Sinclair et al., 2020), such as teachers who have been dealing with the massive use of distance learning (UNESCO, 2020a).

Consequently, job-related threats appraised during the COVID-19 outbreak may have triggered emotional exhaustion. Indeed, emotional exhaustion, the first and foremost symptom of the burnout syndrome (Maslach et al., 1996; Maslach, 2003), is a common negative outcome due to an acute work stress increase (Maslach & Jackson, 1981), characterized by chronic fatigue and depletion (Skaalvik & Skaalvik, 2016). Converging evidence has shown that teachers' emotional exhaustion is related to several work stressors, such as increasing workload (Garcia-Arroyo, 2019; McCarthy et al., 2009), lack of administrative support and value conflicts (see Betoret, 2006; Skaalvik & Skaalvik, 2016), negative relationship with students (Corbin et al., 2019), and time pressure (Maas et al., 2021). As a result, sudden changes in teaching practices due to the COVID-19 outbreak may have triggered job-related threats and thus, increased teachers' emotional exhaustion.

### **Teachers' Self-efficacy and Distance Learning Perceptions**

Although the COVID-19 outbreak may have resulted in an increase of emotional exhaustion, teachers may have navigated the situation differently depending on their psychological resources, such as self-efficacy. Generally, self-efficacy has been conceptualized as a psychological resource that helps people to overcome new and demanding challenges (Xanthopoulou et al., 2007), and buffers against negative effects of work stressors (e.g., Bakker et al., 2005).

Along the same lines, research has shown that teachers' self-efficacy —namely the belief of being able to plan, organize, carry out and adapt teaching and instructions and to cope with changes and new educational challenges (Skaalvik & Skaalvik, 2007)—reduce emotional exhaustion (Skaalvik & Skaalvik, 2016) and burnout (Aloe et al., 2014; Skaalvik & Skaalvik, 2010; Shoji et al., 2016). Therefore, self-efficacy may have helped teachers to master challenging changes (i.e., school closure and distance learning), thereby preventing possible negative effects (i.e., emotional exhaustion). Accordingly, teachers with high self-efficacy should have experienced less emotional exhaustion, while teachers with low self-efficacy should have experienced more emotional exhaustion during the COVID-19 outbreak.

Furthermore, self-efficacy determines how environmental opportunities and impediments are perceived and interpreted (Bandura, 2006), influencing in turn how people think, behave and cope with environmental demands (Bandura, 2000). Being distance learning an uncommon way of teaching, teachers may have differently perceived distance learning as an opportunity (i.e., distance learning strengths) or impediment (i.e., distance learning strengths), as a function of their self-efficacy. On the one hand, high self-efficacy may have led teachers to frame distance learning as favoring innovative teaching methods and as a tool to provide pupils with individualized support. On the other hand, low self-efficacy may have led teachers to frame distance learning as an impediment to realizing cooperative group activities and a barrier to learning and participation. Accordingly, teachers with high self-efficacy should have perceived more distance learning strengths, while teachers with low self-efficacy should have perceived more distance learning weaknesses.

Effective interventions can be implemented to sustain and increase self-efficacy beliefs, making the study of teachers' self-efficacy particularly relevant (for a similar point, Tschannen-Moran & Woolfolk Hoy, 2007). By tackling specific antecedents of teachers' self-efficacy (i.e., mastery experience, vicarious experiences, verbal persuasion, physiological arousal, see Bandura, 1997), effective interventions in the past managed to increase teachers' beliefs in their skills (see Palmer, 2011, Tschannen-Moran & McMaster, 2009), therefore impacting students' performance and educational achievements (e.g., Althausen, 2015). Accordingly, support-oriented programs may be implemented to boost teachers' self-efficacy in the current context of distance learning during the COVID-19 outbreak.

### **The present study**

Through a convergent parallel mixed-method design (Creswell & Plano Clarke, 2011), we analyzed both qualitative and quantitative data collected via an online survey with three underlying aims. First, we explored teachers' threat appraisals qualitatively, to identify COVID-19 related threats experienced by teachers, a category of workers who faced a rapid and unexpected change in their job activities and related working environment. We expected participants to report threats related to work environment and job features, besides other threats related to the COVID-19 outbreak. Consequently, our second aim was to investigate whether a difference in emotional exhaustion could be observed between teachers who may have expressed threats related to work environment and job features (i.e., job-related threats) and teachers who may have not expressed those threats. We aggregated qualitative and quantitative data through the quantitising method (Collingridge, 2013), expecting greater emotional exhaustion among teachers who mentioned job-related threats (H1). Third, we investigated processes protecting teachers from emotional exhaustion quantitatively, to understand whether self-efficacy beliefs were associated with more distance learning perceived strengths and less perceived weaknesses. We expected self-efficacy to reduce emotional exhaustion directly (H2), and indirectly via different distance learning perceptions (i.e., distance learning strengths and weaknesses) (H3). We expected these different perceptions to



act as mediators. Therefore, the higher self-efficacy teachers reported, the more they should have perceived distance learning as a strength, resulting in lower emotional exhaustion. Conversely, the lower self-efficacy teachers reported, the more they should have perceived distance learning as a weakness, resulting in greater emotional exhaustion.

We carried out the study in Italy where the negative consequences on the educational system were particularly severe in the early phases of the COVID-19 outbreak. Italy was the first western country affected by a rapid and widespread increase of cases. The Italian Government enforced school closure rapidly (i.e., Decree-Law 23<sup>rd</sup> February 2020, Decree-Law 4<sup>th</sup> March 2020), before COVID-19 was officially declared a pandemic by the World Health Organization. School closure was approved the day before becoming effective, leaving teachers and school principals unable to plan distance learning in advance. After three weeks of uncertainty, and in an unclear situation, teaching activities were resumed remotely (Italian Government remark, 17<sup>th</sup> March 2020). Furthermore, the Italian educational system was unprepared to switch to remote learning practices since national campaigns addressed at creating digital learning environments were minimally effective in the past (Avvisati et al., 2013; Messina & De Rossi, 2015). Most likely, the lack of structural resources combined with the unprecedented situation exacerbated teachers' emotional exhaustion, thereby making this research particularly timely in the Italian context.

## **Method**

### **Sampling Procedure and Participants**

Data collection took place between May and the last day of the school year (beginning of June). At that time, teachers had been implementing distant learning for two months. Thus, they had the opportunity to explore distance learning weaknesses and strengths. Before starting the data collection, we obtained the research's approval by the first author's University Ethical Board (protocol 2870, date 29/05/2020). Data were collected as a part of a larger survey on teachers' well-being during COVID-19. Participants received the invitation to fill in an online questionnaire by

schools' formal mailing list. They freely decided whether to participate in the survey after reading and agreeing with the consent form provided at the beginning of the questionnaire.

A total of 1100 teachers filled in the online questionnaire administered in Italian. Participants came from twenty-four municipalities divided into the three Italian regions. Most of the participants ( $n = 648$ , 65.71%) lived in the northern region of Emilia Romagna. The 23.71% ( $n = 234$ ) lived in the central region of Marche, while the 10.58% lived in Sardegna, a region in the southern part of Italy. Among them, we excluded 64 participants who had never implemented distance learning activities, as defined above (Italian Government remark, 17<sup>th</sup> March 2020). So, the final sample comprised 1036 teachers ( $M_{age} = 49.67$ ,  $SD = 9.28$ , range 21-67, 85.91% female), employed in primary ( $n = 359$ , 34.72%), middle ( $n = 168$ , 16.21%) and secondary ( $n = 509$ , 49.07%) schools. Participants held either a master's degree ( $n = 638$ , 61.62%), a high school diploma ( $n = 194$ , 18.72%), or a doctoral degree ( $n = 197$ , 19.08%). Most of them were employed with permanent work contracts ( $n = 812$ , 78.52%), with an average length of teaching of 18.81 years ( $SD = 11.22$ ). Two third of participants reduced the average hours per week of teaching ( $n = 687$ , 66.3%) while implementing distance learning, and they reported having received technological support from the school ( $n = 677$ , 65.32%). Only a minority of participants reported having difficulties with technology ( $n = 301$ , 29.10%).

## Measures

Teachers' threat appraisals were assessed qualitatively, using an open-ended question ("*Thinking about the COVID-19 outbreak, what are the concerns, fears, and worries that come to your mind?*"), a method already employed to explore COVID-19-related threats (Anderson et al., 2021). Participants were asked to list up to 5 responses. As for the quantitative measures, participants completed an *ad hoc* measure assessing distance learning strengths and weaknesses, and two validated scales assessing self-efficacy and emotional exhaustion.

**Distance learning strengths and weaknesses.** This measure, created *ad hoc* for this study, comprised two subscales in which positive and negative distance learning features were listed.

Items reflected key characteristics of distance learning, framed either as advantages for teaching (i.e., strengths) and disadvantages for teaching (i.e., weaknesses). Strength aspects included flexibility (of place and time), customized learning tools and pedagogical innovation, whereas weakness aspects included absence of peer-to-peer exchange, digital divide, feedback difficulties and lack of an effective evaluation system for distance learning (Choudhury & Pattnaik, 2020). The *strengths subscale* included 4 items (e.g., "*Through distance learning it is possible to implement innovative teaching methods*"); The *weaknesses subscale* included 7 items (e.g., "*In distance learning there are problems related to the relationship with students*"). Items were created and presented in Italian, and participants expressed their agreement levels on a Likert scale ranging from 1 ("*Not at all*") to 5 ("*Totally*"). Cronbach's alphas were good ( $\alpha = .84$ ,  $\alpha = .82$ , respectively). Since the scale was developed and administered for the first time, we first ran a principal component analysis (PCA)<sup>1</sup> and then a confirmatory factor analysis (CFA). The model fit was good,  $\chi^2(80) = 233.44$ ,  $p < .001$ ; CFI = 0.96; RMSA = 0.06, 90% CI [0.05; 0.07],  $p = .08$ ; SRMR = 0.04, and better than the unidimensional model, whereby strengths and weaknesses were merged together,  $\Delta\chi^2(2) = - 223.55$ ,  $p < .001$ ;  $\Delta\text{CFI} = 0.14$ ;  $\Delta\text{BIC} = - 466$ .

**Teachers' self-efficacy.** The Italian validated version (Avanzi et al., 2013) of the Norwegian Teachers Self-Efficacy Scale- NTSES (Skaalvik & Skaalvik, 2007) was used to measure teacher' self-efficacy on a Likert scale ranging from 1 ("*Not at all*") to 7 ("*Totally*"). Differently from the original scale, the *Keeping discipline* sub-dimension was omitted from the questionnaire because not suitable for distance learning (e.g., "*To what extent do you feel effective in maintaining discipline in any school class or group of students?*"). The final scale comprised 20 items divided into five subdimensions: Instructions (e.g., "*To what extent do you feel effective in answering students' questions so that they understand difficult problems?*"); Adapting Education to Individual

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<sup>1</sup> A principal component analysis with Varimax orthogonal rotation was used. The KMO test was good, .794, and the analysis extracted the expected two factors. The first factor comprised the weaknesses items and explained 36.03% of the total variance. Factor loadings ranged from .65 to .81. The second factor comprised the strengths items and explained 20.37% of the remaining variance (total variance explained 56.40%). Factor loadings ranged from .71 to .86.

Students' Needs (e.g., *"To what extent do you feel effective in providing realistic challenges for all students even in mixed ability classes?"*); Cooperate with Colleagues and Parents (e.g., *"To what extent do you feel effective in cooperating well with parents?"*); Motivate Students (e.g., *"To what extent do you feel effective in getting all students in the class to work hard with their schoolwork?"*); Cope with Changes (e.g., *"To what extent do you feel effective in successfully using any instructional method that the school decides to use?"*). The model fit was good,  $\chi^2(322) = 913.41, p < .001$ ; CFI = 0.94; RMSA = 0.06, 90% CI [0.05; 0.06],  $p = .08$ ; SRMR = 0.03, and better than the more parsimonious model whereby the hierarchical structure was not accounted for,  $\Delta\chi^2(10) = -100.89, p < .001$ ;  $\Delta$ CFI = 0.01;  $\Delta$  BIC = - 195. The subscales' Cronbach's alphas were good and ranged from .82 to .92.

**Work-related emotional exhaustion.** The Italian validated version (Sirigatti et al., 1988) of the Maslach Burnout Inventory- MBI (Maslach & Jackson, 1981) was used to measure teachers' emotional exhaustion levels on a Likert scale ranging from 0 (*"Never"*) to 6 (*"Every day"*). The scale comprised 5 items loading on a unique dimension (e.g., *"I feel exhausted at the end of the working day"*). Model fit was excellent,  $\chi^2(10) = 19.42, p = .03$ ; CFI = 0.99; RMSA = 0.04, 90% CI [0.02; 0.07],  $p = .66$ ; SRMR = 0.01. The Cronbach's alpha was good,  $\alpha = .87$ .

Additional items, used as controls, measured difficulties with technology reported by participants and the digital support received from the school. The exact wording of each scale can be found in the Supplementary Online Material (Tables S1).

## Data Analysis

We implemented the data transformation variant of a convergent parallel mixed-method design (Creswell & Plano Clark, 2011). In this specific type of mixed-method design, qualitative and quantitative data are collected in the same phase of the research (i.e., the single open-ended question and the psychometric scales), analyzed separately and discussed together. The main goal of this mixed-method design is to "obtain complementary data on the same topic to best understand the research problem" (Creswell & Plano Clark, 2011, p. 77). In the data transformation variant

qualitative and quantitative data are merged through a procedure aimed at quantifying the qualitative data.

In line with the schema reported by Creswell and Plano Clark (2011, p. 79), we followed a stepwise procedure. In a first step, we analyzed the qualitative responses using thematic analysis, which has been extensively used to analyze open-ended responses questionnaires (Joffe, 2012). Thematic analysis is a cluster of approaches to organize and describe qualitative information, and it is best suited to identify patterns in the data (Braun & Clarke, 2020). We implemented the “Codebook” thematic analysis technique, characterized by the flexible use of structured coding scheme whereby “new themes can be developed through inductive data engagement and the analytic process” (Braun & Clarke, 2020, p. 6). Our coding scheme was informed by recent investigations of COVID-19 threats conducted by (Anderson et al., 2021). To account for coding reliability, we used multiple coders and measured inter-rater reliability.

In a second step, we embedded qualitative into quantitative data through a dichotomizing strategy, a particular variant of quantitising methods (Collingridge, 2013). This strategy is based on “assigning a binary value to variables with mutually exclusive and exhaustive categories” (Collingridge, 2013 p. 82). In other words, the sample was split between participants who mentioned job-related threats in the open-ended question and those who did not. Then, mean differences in emotional exhaustion between participants who mentioned job-related threats in the open-ended question and those who did not were estimated quantitatively. This method leads to a deeper insight into the complexity of social behavioral phenomena (Tufte, 2006), in this study the relationship between teachers’ job-related threats and emotional exhaustion. Despite this, caution is advised when using the quantitising method. First, qualitative data are not normally distributed, and results may be difficult to interpret and generalize (Maxwell, 2010). While reducing the complexity behind qualitative data, moreover, the quantitising method may also impoverish the quality of findings (Doyle et al., 2016). For these reasons, thematic analysis and quantitising method were used complementarily.

In a third step, we estimated direct, and indirect effects of self-efficacy on emotional exhaustion using multi-group structural equation modelling (Kline, 2015). To take the first and second steps of analysis into account, measurement and structural invariance were assessed between participants who mentioned job-related threats in the open-ended question and those who did not (Vandenberg, 2002).

## Results

### Qualitative Results: Individual, Collective, and Job-related Threats

In the open-ended question, teachers were asked to list up to five concerns, fears, and worries related to the COVID-19 outbreak. Responses consisted of single words, concise sentences, or long sentences. Each response was considered as a separate textual unit and analyzed using the thematic analysis (Braun & Clarke, 2006). A total of 2772 responses were collected. According to the “Codebook” thematic analysis technique (Braun & Clarke, 2020), two independent researchers coded the responses following the coding scheme provided by Anderson and colleagues (2021) in a flexible way. After this first round of separate and independent coding, the coding scheme was discussed, refined, and completed. From the 2772 responses, the two researchers identified a total of 2782 threats, clustered in 26 codes. Inter-rater reliability revealed an excellent inter-coder accuracy ( $\kappa = .90, p < .001$ ). The final coding scheme is available in the Supplementary Online Material (Table S2). The two researchers excluded 35 responses (1.26%) from the analysis, because they were too general or ambiguous (e.g., “Modality”, “Instability”).

In line with previous studies on epidemics and infectious diseases, and the COVID-19 outbreak in particular (Politi et al., 2021), teachers reported similar individual (i.e., concerns, fears, and worries for themselves and close others), and collective threats (i.e., concerns, fears, and worries for the broader society). An overview of these threats is presented in Table 1. Differently from the original coding scheme, however, we found one new individual threat, called *General future uncertainty*, and one new collective threat, called *Environmental damage*. Conversely, one original code (i.e., *Experience of racism*) was deleted because no one reported this individual threat.

Above and beyond these individual and collective threats, a third of the teachers ( $n = 327$ ) reported one or more job-related threats, explicitly referring to concerns, fears or worries connected to the work environment and job features. Accordingly, 446 threats out of 2782 (16.03%) were coded into a new and specific category, comprising a large array of job-related threats. To better describe this category, we refined our coding system and identified five inductive codes representing various teaching aspects considered as threatening. *Value aspects of teaching* (137 out of 446, 30%) included worries about the loss of the teacher's role and the fear of continuing the distance learning in the future (e.g., "Fear of not being able to resume in-presence teaching in September", "Losing the main function of teaching"); *Practical aspects of teaching* (83 out of 446, 19%) included teachers' threats about increased working hours and workload, and difficulties to implement several teaching methods (e.g., "Fear that the workload will increase even more, as has happened in the last month", "How to carry out practical lessons"); *Health-related aspects of teaching* (64 out of 446, 19%) included teachers' threats about school health protocols and the risk of being infected at school (e.g., "Higher risk of contagion by returning in presence at school", "Working in small and not well-sanitized classrooms"); *Social aspects of teaching* (36 out of 446, 8%) included teachers' threats about disrupted relationships between students, parents and colleagues (e.g., "I am worried that pupils will become more individualistic", "Lack of relationships with students"); and *General aspects of teaching* ( $n = 126$ , 28%) included a larger array of responses (e.g., "Negative impact of the pandemic on the school system", "Students' insecurity and worries", "Difficulty in reaching out all the students").

(Table 1 about here)

**Table 1.** Threats analyzed and clustered via the thematic analysis

## **Embedded Qualitative and Quantitative Results: Job-related Threats and Teachers'**

### **Emotional Exhaustion**

We expected differences in teachers' emotional exhaustion depending on whether they mentioned job-related threats or not (H1). To test this first hypothesis, we conducted a series of

multivariate analyses of variance with Bonferroni correction for multiple comparisons. The categorical variable obtained via thematic analysis was modelled as a fixed factor, whereas the observed indicators of perceived self-efficacy, perceptions of distance learning strengths and weaknesses, and emotional exhaustion were modelled as dependent variables. Participants' age, gender, school grade, difficulties with technology and digital support received from school were used as controls. No multivariate effects were observed on perceived self-efficacy, Wilks'  $\lambda = .98$ ,  $F(30, 1015) = 0.96$ ,  $p = .51$ , or distance learning strengths and weaknesses, Wilks'  $\lambda = .98$ ,  $F(11, 987) = 1.56$ ,  $p = .11$ . Confirming Hypothesis 1, instead, results showed a multivariate effect of job-related threats on emotional exhaustion, Wilks'  $\lambda = .99$   $F(5, 1030) = 2.49$ ,  $p = .03$ . More precisely, three out of five items of emotional exhaustion differed between participants who mentioned job-related threats in the open-ended question and those who did not. As compared to those who did not mention job-related threats, participants who mentioned job-related threats felt more worn out,  $\Delta M = .31$ ,  $F(1, 1034) = 4.98$ ,  $p = .02$ ,  $\eta_p^2 = .005$ , exhausted  $\Delta M = .32$ ,  $F(1, 1034) = 7.60$ ,  $p = .006$ ,  $\eta_p^2 = .007$ , and burned out,  $\Delta M = .39$ ,  $F(1, 1034) = 8.11$ ,  $p = .004$ ,  $\eta_p^2 = .008$ . However, when controls (i.e., age, sex, school grade, difficulties with technology and digital support received) were included the effect of job-related threats on emotional exhaustion was no longer significant.<sup>2</sup>

### **Quantitative Results: Direct and Indirect Effects of Self-efficacy on Emotional Exhaustion**

We expected self-efficacy to reduce emotional exhaustion directly (H2), and indirectly via distance learning increased strengths and decreased weaknesses (H3). To test this set of hypotheses, we estimated total, direct, and indirect effects of self-efficacy using a multigroup structural equation modeling (Figure 1).<sup>3</sup> Age, gender, school grade, difficulties with technology and digital support

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<sup>2</sup> To explain if the presence of job-related threats depended on these controls, we ran a logistic regression. Results showed that school grade significantly predicted job-related threats. Primary school teachers reported significantly more job-related threats than secondary school teachers. No other effects were significant. More detailed information is shown in Table S3 in the Supplementary Online Materials.

<sup>3</sup> Because multivariate normality was not met, Doornik-Hansen = 1409.95 ( $df = 88$ ),  $p < .001$ , maximum likelihood estimation with robust standard errors and a Satorra-Bentler scaled test statistic (MLM) was used. School grade, age, gender, difficulties with technology, and digital support received were used as control variables. As robustness check, measurement and structural invariance were tested between participants who mentioned job-related threats and those who did not mention job-related threats.



were used as control variables. Model fit was good,  $\chi^2(1686) = 3250.37.50, p < .001$ ; CFI = 0.92; RMSA = 0.04, 90% CI [0.04; 0.05],  $p > .99$ ; SRMR = 0.06. Confirming H2, the total effect of self-efficacy on emotional exhaustion was significant, meaning that the more participants felt effective in their teaching activity, the less emotional exhaustion they reported. Confirming H3, the effect of self-efficacy on emotional exhaustion was partially mediated by perceptions about distance learning. Indeed, self-efficacy was positively related to distance learning strengths and negatively related to distance learning weaknesses. In turn, distance learning weaknesses were positively related to emotional exhaustion. When distance learning weaknesses were controlled for, instead, distance learning strengths no longer predicted emotional exhaustion. Accordingly, a test of indirect effects showed that perceived self-efficacy reduced emotional exhaustion via reduced distance learning weaknesses,  $\beta = -.13, z = -5.54, p < .001$ , but not by increased distance learning strengths,  $\beta = -.02, z = -0.98, p = .33$ .

(Figure 1 about here)

**Figure 1** Total, direct, and indirect effects of self-efficacy on emotional exhaustion via distance learning strengths and weaknesses, estimated with structural equation model.

*Note Figure 1:* Standardized estimates between latent variables were extracted from a multigroup structural equation modelling using the R package Lavaan. Because, Lavaan does not have profile likelihood-based Confidence Intervals implemented in its routine, Confidence Intervals could not be estimated (Pek & Wu, 2015). Full information on measurement models and group invariance is not shown here but provided in the Online Supplementary Material (Figure S1, Table S4, Table S5). The total variance explained is reported above each endogenous variable. Controls: Age, gender, school grade, difficulties with technology, and informatic support. Model fit:  $\chi^2(1686) = 3250.37.50, p < .001$ ; CFI = 0.92; RMSA = 0.04, 90% CI [0.04; 0.05],  $p > .99$ ; SRMR = 0.06. N.S.  $p > .10$ , \*\*\* $p \leq .001$ .

## Discussion

This study examined how teachers perceived the COVID-19 outbreak during the school closure and adjusted to new teaching routines and activities due to distance learning. Using a survey administered to Italian teachers during the first wave of COVID-19, we implemented a convergent parallel mixed-method design, whereby qualitative and quantitative data contributed equally to explain our research questions (Creswell & Plano Clarke, 2011). We first explored teachers' threat

appraisal qualitatively. Then, we merged qualitative and quantitative data to corroborate qualitative findings. Finally, we employed multi-group structural equation modeling techniques to analyze the direct and indirect effects of teachers' self-efficacy on work-related emotional exhaustion through perceptions of distance learning strengths and weaknesses.

Above and beyond individual and collective threats already evidenced in previous studies (Brooks et al., 2020; Politi et al., 2021), thematic analysis revealed that one third of teachers were concerned about school and teaching-related aspects. These results echoed Kim and Asbury (2020)'s findings on English teachers engaged in distance learning. For instance, Italian teachers mentioned threats related to value aspects of teaching, which is like feeling of losing the core value of teaching expressed by English teachers. Furthermore, Italian teachers mentioned threats related to social aspects of teaching, which is similar to the disruption of teacher-students relationships feared by English teachers. Finally, among other general aspects of teaching, Italian teachers listed threats related to vulnerable pupils and feelings of uncertainty, both aspects that were also mentioned by English teachers.

Differently from English teachers, however, Italian teachers expressed several threats related to practical aspects of teaching, such as increased workload and difficulties in carrying out teaching practical activities. Furthermore, Italian teachers expressed worries related to health aspect of teaching, fearing for instance to teach next year in poorly sanitized schools and classrooms. These discrepancies between the two studies may be due to the different focuses and time frames. While Kim and Asbury (2020) focused on stressors and coping strategies implemented by teachers during the first weeks of the lockdown, we focused on worries, fears, and concerns experienced by teachers at the end of the school year. Our results are corroborated by converging evidence showing that being infected at the workplace is a common fear already found among other workers (e.g., Rudolph et al., 2020).

By quantitising qualitative data, we moved beyond a purely descriptive analysis of job-related threats, evidencing that teachers who mentioned job-related threats reported higher levels of

emotional exhaustion than those who did not. This finding suggests that perceiving job changes due to the school closure as threatening brings in additional stressors related to distance learning. These mean differences should be cautiously interpreted. Indeed, our analyses could not disentangle personal (i.e., trait anxiety) or contextual (i.e., school characteristics) determinants of these threats. Yet, they call upon protective factors helping teachers to navigate distance learning without feeling emotionally exhausted.

In this regard, structural equation modelling showed that teachers' self-efficacy was negatively related to emotional exhaustion directly, and indirectly via different perceptions of distance learning. Indeed, the higher self-efficacy teachers reported, the more they perceived distance learning as a strength. Conversely, the lower self-efficacy teachers reported, the more they perceived distance learning as a weakness. In turn, perceiving distance learning as an impediment for teaching (i.e., distance learning weaknesses) was related to greater emotional exhaustion. Contrary to our hypotheses, perceiving distance learning as an opportunity for teaching (i.e., distance learning strengths) was unrelated to emotional exhaustion.

These results confirmed the negative direct relation between self-efficacy and emotional exhaustion already found in other studies (e.g., Skaalvik & Skaalvik, 2016). They also shed light on the mediation effect of distance learning weaknesses perceptions. Overall, these findings corroborated the idea that self-efficacy acts as a personal resource that helps people navigate stressful and challenging situations (Bandura, 2000; 2006). In line with Demerouti and colleagues (2001), psychological resources (i.e., self-efficacy) combined with job-related features (i.e., distance learning perceptions) prevented people from developing adverse consequences during such stressful and challenging situation.

### **Limitations and Future Research**

This study has some significant limitations. The first limit concerns our sample that was not entirely representative of the Italian population. Future research should employ a broader and more

representative sample of teachers, equally divided into regions and school grades, or sampled to represent areas affected differently by the COVID-19 outbreak.

The second limit concerns our instruments. As for the qualitative measure, we used a single open-ended question, asking the participants to list up to five worries, fears, and concerns. Therefore, we could not deeply explore participants' COVID-19 discourses on threats and their own strategies to cope with them. In-depth interviews may better grasp how teachers navigate distance learning individually and collectively. As for the quantitative measures, better distance learning strengths and weaknesses scales should be developed and validated, adding a more extensive and nuanced set of perceived positive and negative aspects. Better psychometric measures and theoretical refinements would reflect a more comprehensive and ecologically valid description of these perceptions. Finally, the Norwegian Teachers Self-Efficacy Scale employed was not explicitly designed for a digital learning environment. Thus, further studies should better capture digital teaching and e-learning related features using ad-hoc scales and measurements.

The third limit concerns our results. As for the job-related threats construct, this study could not clearly differentiate this construct from other, such as trait anxiety. Therefore, further studies are needed to better clarify and define this new construct, teasing apart its contextual and dispositional components.

As for our conceptual model, we considered self-efficacy as an exogenous variable helping people to face environmental demands (Bandura, 2006). However, some researchers considered self-efficacy as an endogenous variable influenced by environmental factors (see Skaalvick & Skaalvick, 2016), while others as mediator or moderator in the relation between job-related features and outcomes (see Xanthopoulou et al., 2007). Relatedly, the causality between self-efficacy and emotional exhaustion has been recently rediscussed (Kim & Búric, 2020). Because of the correlational nature of our data, reverse causality between exogenous and endogenous variables or feedback loops could not be ruled out. Therefore, further studies are needed to tackle causality issues, and to embed self-efficacy into a more comprehensive socioecological system.

## **Implications for Practice**

Our findings shed light on teachers' emotional exhaustion during the COVID-19 outbreak while implementing distance learning and its related-protective factors (i.e., self-efficacy and distance learning perceptions). Implications for practice directly follow from these findings. Because a hybrid remote / in-person learning approach is now essential to cope with intermittent physical distancing requirements, teachers' technology support seems crucial to prepare for potential virus resurgence or future pandemics (UNESCO, 2020b). Because perceiving distance learning as a weakness was related to higher emotional exhaustion level, a viable path to mitigate or prevent emotional exhaustion would be decreasing demand barriers and providing selected resources, such as administrative and technical support (Sokal et al., 2020; Zadok-Gurman et al., 2021). Training and assistance to implement distance learning would enable teachers to take advantage of technology opportunities and innovative teaching methods (Kopp et al., 2012; Matteucci et al., 2008), and it would also preserve teachers' psychological and socio-emotional well-being. Importantly, new interpretations of distance learning should not be limited to single individuals, but also comprise collective (contextual) beliefs that are shared amongst the school staff.

Our results highlighted that self-efficacy is pivotal as it directly protects teachers from emotional exhaustion. Self-efficacy is a psychological resource which can be increased with specific trainings. For instance, interventions focused on sources of efficacy beliefs (i.e., successful experience of producing a desired effect, vicarious experience, social persuasion and affective states, Bandura, 1997) may be effectively implemented. Although only few studies focused on the sources of self-efficacy measurements (Klassen et al., 2014), empirical contributions have explored the impact of professional development and training activities in boosting teacher self-efficacy (Althausen, 2015; Tschannen-Moran & McMaster, 2009). In this vein, helping teachers experience mastery and success in producing the outcomes they need, or involving vicarious experience and/or social persuasion may increase teachers' self-efficacy beliefs (Gibbs & Miller, 2014). In addition,

since self-efficacy has a positive motivational influence and enhances performance rather than simply be predicted by past performance (Matteucci et al., 2017; Sitzmann & Yeo, 2013; Talsma et al., 2018), these interventions can also give rise to a virtuous circle, thereby transforming distance learning in an opportunity for professional growth.

Finally, adequate support for teachers requires knowing what their worries, fears, and concerns are (such as increasing workloads, difficulties in the use of new technologies, fear of getting sick, worry about continuing the distance learning in the future) and to help them cope with their experienced difficulties. Our findings can inform interventions for teachers as they yield a first overview of teachers' threats and concerns perceived during the lockdown. Accordingly, support programs should focus on practical aspects, such as reducing workloads and improving health protocols, but they should also focus on relational and symbolic aspects, such as maintaining relationships and promoting meaning making.

In this framework, we believe that school psychologists are the most qualified professionals to support educational authorities and schools in implementing support programs, interventions, and training for teachers (National Association of School Psychologists- NASP, n.d.). In partnership with other educational practitioners, for instance, school psychologists can assist school administrators in developing and providing teachers with technical and pedagogical skills to integrate digital devices in education. School psychologists can also offer psychological support and individual (or group) based consultations, namely "a voluntary, nonhierarchical relationship between two professionals (e.g., school psychologists--teachers) for the purpose of solving a work-related problem" (Hatzichristou, 2003, p. 343).

By focusing on teachers, school psychologists will also impact students' well-being through an indirect service delivery approach (Gutkin & Conoley, 1990) and, generally, school psychology practices should be refocused into a greater emphasis on an indirect model, to cope more effectively with the pandemic's new challenges. This approach is particularly crucial in countries, like Italy, where school psychologists are especially deployed to counsel adolescents and, to a lesser extent,

offer consultation to teachers or parents. The “test and place” role of psychologists, so common in many countries around the world (e.g., US, UK) is non-existent in Italy because of the longstanding fully inclusive Italian education system, which entitles children with disabilities to attend mainstream schools and classes at all educational levels (Matteucci & Farrell, 2019). Furthermore, in recent years, we are observing an increased emphasis on school psychology conceived as a discipline with a primary focus on developing health-promoting school systems with models of psychological service delivery, primarily indirect, adult-focused, and aimed at a systems-level change in the schools (Conoley et al., 2020).

Our suggestions target therefore school psychologists directly, while indirectly speaking at educational authorities in charge of funding allocation and policies. In line with this, we hope this research will inform school psychologists’ own practices and spark evidence-based policy advocacy.

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**Table 1.** Threats analyzed and clustered through the thematic analysis

| Threats   | N   | %     |
|---|-----|-------|
| <b>Individual threats:</b> Fears and concerns specifically related to personal aspects of one's own life and of significant others.               |     |       |
| Physical and mental health  | 783 | 28.15 |
| Disrupted relationships and sociality   | 240 | 8.63  |
| Uncertainty related to the pandemic (e.g., duration, vaccination)   | 158 | 5.68  |
| Personal economic and financial issues  | 129 | 4.64  |
| Existential worries (e.g., loneliness)  | 61  | 2.19  |
| Lifestyle changes   | 60  | 2.16  |
| Parenting and familiar-related problems   | 58  | 2.08  |
| Being a source of infection for other people  | 52  | 1.8   |
| Fear of being in a crowded place  | 15  | 0.54  |
| General future uncertainty  | 12  | 0.43  |
| Lack of basic and emergency supplies  | 8   | 0.29  |
| <b>Collective threats:</b> Societal and contextual-related concerns, specifically referred to the society, social institutions and social groups. |     |       |
| Global/national economy and recession risk  | 171 | 6.15  |
| Negative social consequences (e.g., social unrest)  | 134 | 4.81  |
| Fundamental freedoms and rights loss  | 88  | 3.16  |
| Mistrust of authority   | 82  | 2.95  |
| Managing transition to another phase of the outbreak  | 71  | 2.55  |
| Other peoples' irresponsible behaviors  | 49  | 1.76  |
| Vulnerable groups   | 49  | 1.76  |
| National Health System collapse   | 45  | 1.62  |

|                          |    |      |
|--------------------------|----|------|
| Risk of fake news rising | 27 | 0.97 |
| Environmental damage     | 9  | 0.32 |

**Job-related threats:** School and teaching-related concerns, referring explicitly to the school context or to the teachers' role and activities.

|                                    |     |      |
|------------------------------------|-----|------|
| Value aspects of teaching          | 137 | 4.92 |
| General aspects of teaching        | 126 | 4.53 |
| Practical aspects of teaching      | 83  | 2.98 |
| Health-related aspects of teaching | 64  | 2.30 |
| Social aspects of teaching         | 36  | 1.29 |

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Note. Total responses = 2772. Total threats clustered = 2782 divided in 26 codes. Threats are reported in descending order. A total of 35 (1.26%) threats were coded as "UNCODED" because too general. The percentage are calculated on the total of the threats clustered. Readers are referred to the Online Supplementary Material to retrieve examples pertaining each category (see Table S2). Differently from the coding scheme provided by BLINDED, in this coding scheme three codes were added in the Individual and Collective threats categories, namely General future uncertainty, Environmental damage, and Fundamental freedom and right loss. Job-related threats category and the related codes were also added. One original code was deleted (i.e., Experience racism) because not occurred.