

The rise of online teaching and digital learning during the health emergency from Covid-19 and teachers' working self-efficacy: an Italian perspective.

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Abstract

The teachers' working self-efficacy corresponds to teachers' beliefs in their ability to effectively handle challenges related to their professional activity and how they consider themselves capable of solving them. To date, this sense of self-efficacy has been strained by the COVID-19 health emergency, which has led to social distancing with the rise of online teaching and use of digital learning systems. The present study investigates how teachers perceived their self-efficacy and the impact of the emergency on their digital and distance relationships. 21 female teachers (professional seniority $M = 20.45$ years, $DS = 11.47$ years; kindergarten = 5, primary school = 11, middle school = 5) filled in a survey, on a 5-points Likert scale and an open-ended question the perception of efficacy. Results revealed a positive association between working self-efficacy with the perception of the influence of online teaching and learning in the management of relationships with students and a negative association with colleagues, while it is almost absent related to families. The qualitative analysis revealed three core domains: personal (e.g., creativity), interpersonal (e.g., interactions) and digital (e.g., use of online platforms). Despite the small sample, that prevents us from a generalization of the results, the challenges produced by unpredictable situations and the use of digital devices motivate and encourage teachers to search for adaptive strategies. This should orientate to specific education practices in relationships management for in-service teachers.

Keywords 1

online teaching, digital learning, self-efficacy, relational context, covid-19

1. Introduction

Several evidences suggested that teachers with high level of self-efficacy experience higher level of satisfaction, lower job-related stress, and less difficulties in relationships and interactions with students [1, 2]. The construct of self-efficacy, defined as beliefs in own ability to successfully cope with task and challenges [3], has gained an important role in school psychology research due to its implications for teaching effectiveness, practices, and motivation [4, 5]. Particularly, job-demands seems to influence the psychological well-being and work engagement [6]. Based on this, it becomes of great significance to understand what impacts teacher's beliefs in the ability to cope with new challenges and demands obligations related to the professional responsibility [5, 7]. The COVID-19 health emergency changed the teaching method with all the challenges teachers faced. The transition to online teaching included to learn new virtual teaching methods and platforms, still providing instruction

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through engaging lessons and relationships with students, families and interacting with colleagues [8]. Consider the level of self-efficacy as a key element for understanding the investment in the use of digital devices and teaching online could help us in working for teachers' well-being and learning improvement, particularly facing a new teaching environment and different instructional approaches.

Research on online teaching and learning was limited, likely because digital education was not often used in primary and secondary schools and there was a lack of adequate professional training and inexperience with digital platforms [9, 10]. Although investigation on technological education is emerging, in the last year several studies explored the effect of the COVID-19 pandemic on teachers [11, 12, 13]. Findings revealed that online teaching transition during school lockdown elicited challenges for teachers and schools across the globe. Particularly, teachers required support ranging from information technology and educational resources to home-school cooperation [13] and new approaches to planning and teamwork [14]. In addition to technology issues, teachers struggled with student engagement and relationship during virtual instruction period [8] and strived to balance their skills while teaching from home, leading to higher stress levels [15]. Moreover, teachers who were teaching virtually had the lowest instructional efficacy scores compared to teachers teaching in a hybrid or all in-person model [16]. Despite the instructional challenges, teacher's self-efficacy could be also stressed by relational and community factors. Considering student-teacher relationship, it has been shown the sensitivity to reciprocal behaviors and conducts [17, 18]. Research examining the role of beliefs of personal and interpersonal effectiveness of teachers showed that educators with a high sense of school self-efficacy focus more on teaching activities and support students with difficulties or behavioral problems by providing them with feedback positives and rewards [19, 2]. Conversely, teachers with a low sense of effectiveness encounter problems in the relationship with the students and in the management of the classroom [20, 7]. In the wider community context, the perception that colleagues and students' families may have about teachers' work and ability [7, 21] to reach educational purpose affects teachers' efficacy skills. Teachers' self-efficacy is a predictor of a stronger relationships with students [18], even it is influenced by the professional network (e.g., colleagues) [22]. Moreover, families require intense sharing and collaboration with teachers together with emotional support [23,24, 25]. Uncertainty in technological management and online relationships during COVID-19 emergency could influence teachers' perception of their self-efficacy on the changed relational environment.

Based on this previous literature on teaching during COVID-19 the present study aims to investigate how effective teachers perceived themselves and how much they perceived the effect of the online teaching on their relationships. We hypothesize that new teaching demands and changes would impact teacher self-efficacy. Specifically, there would be an association in how teachers perceived their self-efficacy and the impact of the emergency on their digital relationships. Added to the hypothesis on the association between self-efficacy and teaching online is a qualitative study on effective professional action in the moment of uncertainty and changes. It was predicted that the technological self-efficacy would be a new challenging perception.

2. Method

2.1. Participants and procedures

This exploratory study was conducted within a research-intervention program which aims to work on teachers' emotional competence and relationships. Teachers attending the training course within the program (suspended due to COVID-19), belonging to different scholastic Institutions in Central Italy, were contacted to propose a research involvement during the

month of May 2020. Written informed consent was asked and after that an online survey was proposed and completed. Participants at the present study were 21 female teachers (professional seniority $M = 20.45$ years, $DS = 11.47$ years; kindergarten = 5, primary school = 11, middle school = 5).

2.2. Measures

Teacher Self Efficacy. Self-efficacy was measured with six items from Caprara and colleagues [26] scale that were adapted to assesses self-efficacy in the workplace (e.g. «*I am able to dominate the emergencies and the inevitable unexpected events of my work*»). The scale was on a 5-points Likert scale from 1 (not at all characteristics of me) to 5 (very characteristic of me). Cronbach's coefficient was acceptable $\alpha = .68$.

Relationship changes with online teaching. In order to explore the experience of online teaching three ad hoc questions, on a 5-points Likert scale, were administered. The questions were adapted to investigate the perception of change in relationships (pupils, colleagues and families) during the digital learning:

- How much do you think the experience of teaching online may have influenced the relationship with your students?
- How much do you think the experience of teaching online may have influenced the relationship with your colleagues?
- How much do you think that the experience of teaching online may have influenced the relationship with the families of your students?

Within the survey, we asked through an open-ended question the perception of efficacy during online teaching:

- “What aspects of your professional action have you been able to observe as effective? Which were a confirmation for you and which ones were a surprise?”.

2.3. Data Analysis

Initially, the study variables were inspected. We calculated the Mean, Standard Deviation, Skewness, and Kurtosis of the two variables of the study (scores ranging between -2.00 and $+2.00$ indicates a normal distribution). Then, to verify the direction and strength of the relations existing between variables we calculated Pearson's correlations. In the end, to explore how teachers perceive their ability to cope with teaching online an inductive conceptual analysis was performed [27; 28] with the QCA-Map software [29]. The software analyzes all the textual materials of the answers, coding and then categorizing in mutually exclusive categories. The quotation frequencies of each coding were calculated, and frequencies are presented in hierarchical tree maps [30]. Whenever a subject expressed the same concept more than once, when answering the question, that concept was counted just one time.

3. Results

3.1.1. Quantitative results

Descriptive statistics of study variables along with results of Pearson's correlations were reported in Table 1.

Table 1

Zero-order correlations (r) of the study variables

	M	SD	Skew	Kurtosis	Self-Efficacy	Changes with students	Changes with Colleagues	Changes with families
Self-Efficacy	3.53	.47	.64	.37	1	.21(.50*)	-.27(-.58**)	-.02(.21)
Changes with students	4.05	.92	-.53	-.67	-	1	.68***	.69***
Changes with colleagues	3.67	1.06	-.90	.67	-	-	1	.80**
Changes with families	3.81	1.03	-1.10	1.57	-	-	-	1

Note: (pr) = partial correlation controlling for the others relational variables, * p < .05 ** p < .01 *** p < .001

Zero-order correlation analyses did not reveal significant associations. Partial correlation analyses, controlling for the variables of perceived change due to rise of online teaching for the three relational areas, highlighted a positive association between perceived work self-efficacy and the changes related to the online teaching in relationships with students ($r = .50, p < .05$) and a negative association with changes in relationships with colleagues ($r = -.58, p < .01$). The association between perceived work self-efficacy and the change in relations with families is not significant ($r = -.21$).

3.1.2. Qualitative results

Results of the QCAmap content analyses were reported in the Figure 1.

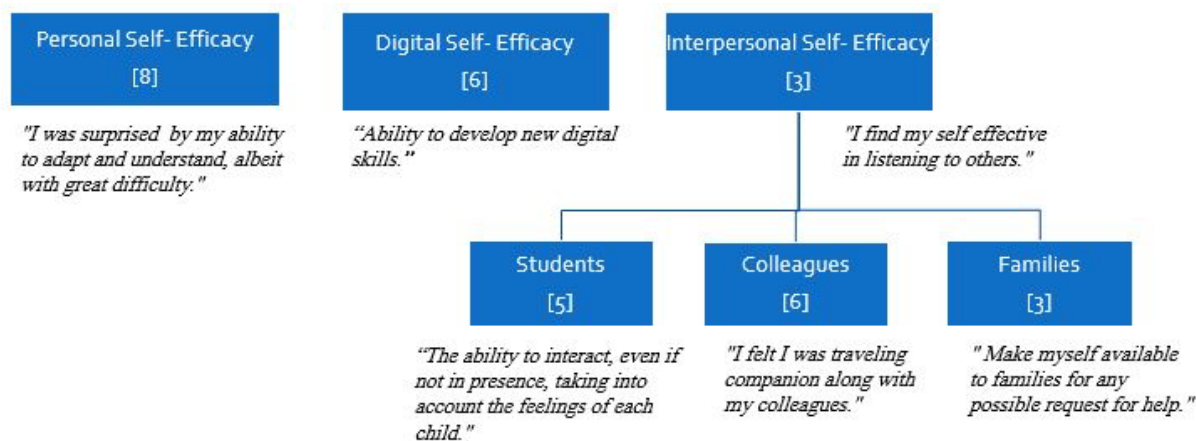


Figure 1: Tree map of the answers to the open-ended question of the questionnaire using the QCAmap software.

The conceptual analysis of the answers to the open-ended question was carried out through the QCA-map. The analyses highlighted three domains of teachers' self-efficacy: the *personal self-efficacy* (e.g., creativity, reflexivity; 26%), the *interpersonal self-efficacy* (e.g., interaction, empathy; 55%) and the *digital self-efficacy* (e.g., use of online platforms; 19%). Furthermore, about the *interpersonal domain*, three sub-categories emerged referring to three different partners: colleagues, pupils and families. Results suggested that teachers found time to focus

on different aspects of their self and their work relationships due to online teaching. A teacher said:

“I was able to carry out interesting lessons thanks to the use of technology and it was a confirmation. I was able to feel closer and supportive to my students and their families and it was a pleasant surprise. I faced the commitment consistently and effectively and it was a confirmation.”

4. Discussions

The present exploratory study was conducted to investigate how teachers perceived their self-efficacy and the impact of online teaching on their digital and distance relationships. We reported the associations existing between the perception of effectiveness and the experience of perceived changes due to rise of online teaching on school relations. First of all, the results suggested that there was an association between teachers' work self-efficacy and the perception of changes due to online teaching in the management of relationships. Particularly, the association was stronger with students and colleagues, while it was almost absent related to families. We could assume that the challenges produced by unpredictable and particularly serious situations motivated teachers to search for adaptive strategies, especially in the relational areas that are directly involved in their profession, that is with students and colleagues. Despite the help and support requested by the families [21, 23] our results showed that the teachers' self-efficacy is not affected by the relationships with the parents. The interactions with students emerge as a priority, being also the one that most influences their sense of effectiveness [2] while the relationship with families appears as neglectable. With regard to relation with colleagues, teachers' self-efficacy is influenced by the efficacy beliefs of those they seek advice and help from [22]. Maintaining ties to high-efficacy peers may result in higher self-efficacy and this is helpful in emergency situations. The qualitative study on effective professional action in a period of uncertainty and changes show that teachers focused on their own characteristics that are described as improved or increased; in particular, despite the initial challenges and transitions, they gave great importance to adaptability. Moreover, the participants reported that online teaching creates distance from their students, and difficulties in managing the classroom but creates time to focus on different aspects of their relationships. Importantly, teachers from the present sample underlined the importance of taking into account the digital and technological aspects of their job. This suggests that teachers had a perception of their low online teaching self-efficacy and their need to be trained. The situation of emergency requires teachers to adapt to the digital learning environment that let them to focus on their digital and technological skills.

Our results are weakened by several noteworthy limitations. First, the small sample prevents us from a broad interpretation of the results. Secondly, the participants were not randomly selected. Instead, they were recruited through the training program implemented in their schools, and hence might not be representative of the population. Thirdly, the different models of online teaching employed by the participants, who belonged to different school levels, and the related teachers' report of self-efficacy might be not comparable. Moreover, the particularity of the period and the challenges of the Covid-19 emergency prevents us for future replication, but different samples could be integrated to generalize the results.

Nevertheless, we believe that our results are important for further understanding the role of the teachers' self-efficacy and the digital learning and education, increasing the studies on this topic. Knowledge of the relational areas within a school context and their influence on the perception of work efficacy can help in the identification of teachers' weaknesses and strengths. As a consequence, it is important to understand which specific domain of self-

efficacy can be affected by the changes and challenging situations in order to promote specific training. Practicing teachers' sense of work self-efficacy could be an example of investment to affect the experience of difficulties that emergency situations and online teaching could elicit, especially in social relationships at school. Particularly, teachers' effectiveness in the use of digital devices and online platforms seems to be an area where support and practice are needed that could lead to greater well-being and better relationship management.

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