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Empty Spaces? The Show Must Go Home! Teacher Crossing “Hybrid Boundaries” of Space and Emotion during COVID-19

Yonit Nissim ^{a,*}, Eitan Simon ^a

^aThe Faculty of Education, Tel Hai Academic College, Israel

Abstract

This quantitative study delves into the emotional experiences of teachers as they navigated hybrid teaching from home during the peak of the COVID-19 pandemic, with a particular focus on understanding the relationship between physical space and emotions. This was a turning point, for the first time in the teacher's professional life, the space takes on a significant dimension. The research involved 135 teachers hailing from northern Israel, aiming to shed light on the intricate interplay between work environment and emotional well-being amidst unprecedented circumstances.

The findings of the study revealed alarmingly high levels of fatigue among the participating teachers, indicative of the immense challenges they faced while transitioning to remote teaching. Interestingly, teachers who engaged in continuing education programs tailored to remote teaching exhibited higher levels of optimism compared to their counterparts who did not participate in such programs. However, despite their increased optimism, teachers who underwent these programs also reported elevated levels of burnout and fatigue, suggesting a complex relationship between professional development and emotional strain.

One of the key insights gleaned from the study was the significant impact of working from home on teachers' emotional states, with many experiencing burnout and grappling with strong negative emotions. Moreover, the data unveiled a weak yet discernible negative correlation between the level of optimism and the number of hours spent working from home, indicating that increased home working hours were associated with decreased optimism levels among teachers.

Keywords: Covid-19, teacher, distance learning, hybrid teaching, emotions.

1. Introduction

The COVID-19 pandemic disrupted education systems, blurred the boundaries of space, and generated a diversity of emotions (Nissim, Simon, 2020; Nissim, Simon, 2022; Whalen, 2020).

* Corresponding author

E-mail addresses: Yonitn@telhai.ac.il (Y. Nissim)

In Israel, all educational institutions switched to emergency learning from March 2020 to February 2021. Approximately two million students spent 100 days in full lockdown, and for another 98 days learned remotely or in a “hybrid” system which comprised mainly remote learning. Teaching activities were originally called “remote teaching”. From June 2020 the Ministry of Education switched the definition to “hybrid learning” (Israel Ministry of Education, 2020). However, in practice, this does not match the definition of “hybrid learning” based on synchronous remote learning combined with classroom learning. All age groups in the education system spent most of this time indoors (188 days), and in fact spent only 45 days in classrooms with frontal learning. This is the highest number of days of remote learning worldwide, and the lowest number of days of face-to-face learning on campus (State Comptroller of Israel, 2021). This situation had an emotional impact on all involved.

This study seeks to examine the cognitive-emotional attitudes of teachers towards the hybrid learning that took place largely within the domestic space, taking the approach of the general appraisal theory (Moors et al., 2013).

This study was conducted during December 2021, before and during the third lockdown (see Figure 1).

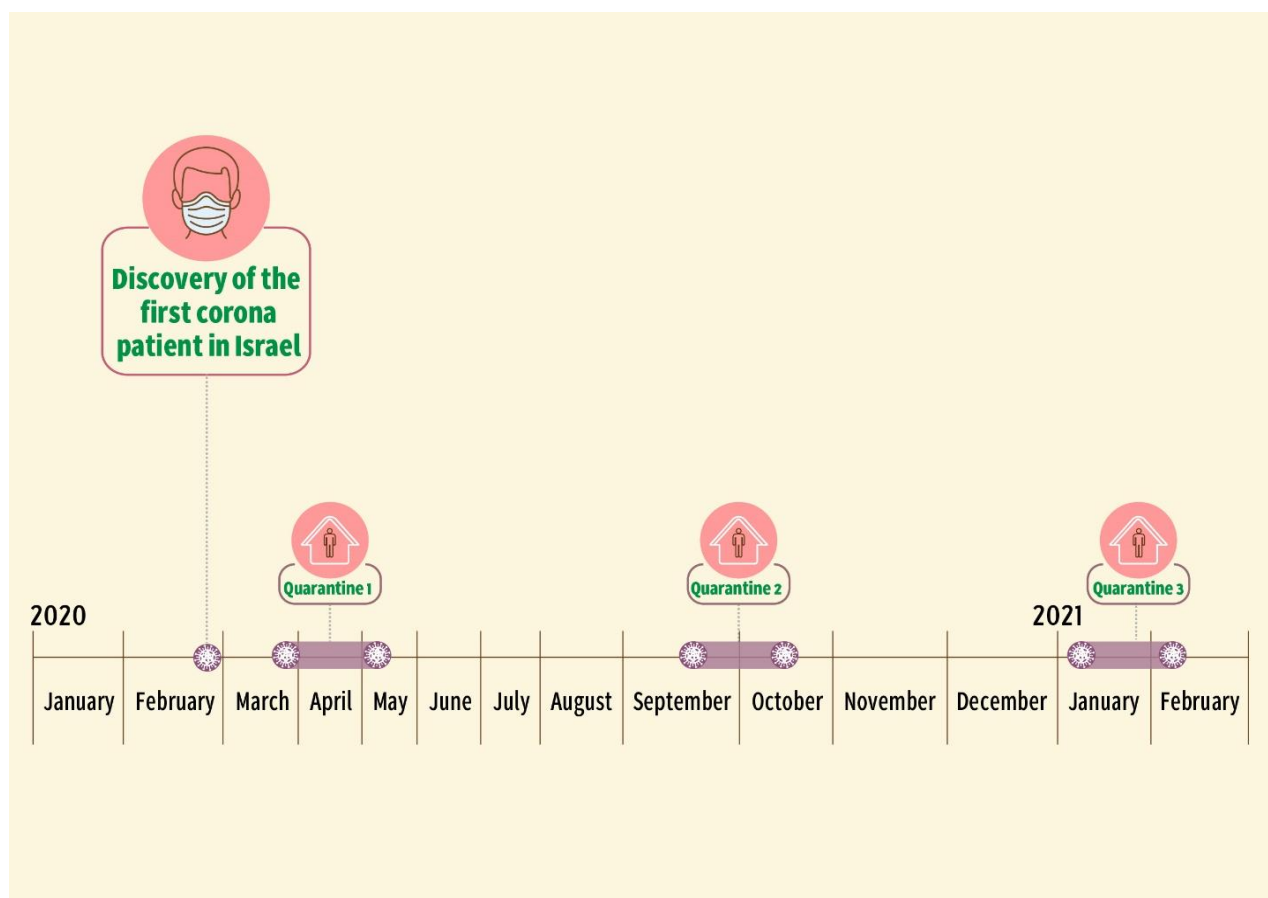


Fig. 1. Timeline of lockdowns in Israel during the COVID-19 pandemic period (State Comptroller of Israel, 2021)

We can ask: How did the changing space during the COVID-19 lockdowns affect the teachers’ cognitive perception of their emotional world?

Many studies have focused on different issues related to remote learning and teaching. Some have tried to elucidate the effect of a pandemic on the emotional crisis experienced by the teachers, which also has consequences for the emotional wellbeing of the students. The present study is based on the appraisal theory of emotion, which claims that human emotion is a reaction that reflects unconscious appraisal of a particular stimulus and its relevance for human needs. This approach examines the response to a particular event or object, rather than the emotion-generating object itself (Le et al., 2020).

2. Literature review

The COVID-19 pandemic temporarily changed schools and transformed them from a physical learning space to a virtual space. This necessary disruptive process caught the entire system off guard and highlighted the range of aspects involved in remote learning and space (Nissim, Simon, 2022; Gilbertson et al., 2023). Teachers and children alike were forced to learn in front of computer screens in their home environment (Dhawan, 2020; Reimers et al., 2020; Donitsa-Schmidt, Ramot, 2022; Roslan et al., 2022).

Teaching and learning during this emergency demanded a space that supports working and learning, computers and devices suited to remote learning, and a good internet connection. Moreover, it required an ability to share space and computers with other family members who found themselves in the same lockdown situation of working at home and learning remotely (Cowden et al., 2020; Lucisano, 2021). These difficulties and complexities were a source of stress and tension for many teachers (Cowden et al., 2020; Nash, 2020).

The forced change generated by the COVID-19 pandemic was dramatic and demanded implementation of knowledge and technical skills, different modes of thinking, and different pedagogies. In addition to the diversity of challenges experienced by the teachers, due to the crisis that was created, cognitive and social skills and professional teaching activities changed (Crawford et al., 2020; Reimers et al., 2020; Scull et al., 2020). These changes affected the teachers' welfare and wellbeing both personally and professionally. Moreover, the interaction between students and teachers changed and new tools for use in teaching and learning were introduced (Darling-Hammond et al., 2020; Di Pietro et al., 2020; Klusmann et al., 2023).

Studies conducted in Israel indicate that the first stage of the full lockdown was characterized by factors related to *a long stay in a narrow, confined space*—the home. During lockdowns, the home became the main space for all family members, as well as the workspace. Everyone was “imprisoned” in the same space during the period of time in which it was forbidden to go outside. And all of this took place during a period of increasing illness and uncertainty (Dabaui, Beles, 2021). In this context, pre-Covid studies considered space and emotion to be interdependent factors (Elden, 2007).

Thus, a *blurring of spaces* and boundaries formed between the home space and the work and learning space, creating a primarily “hybrid space” comprising home–computer–work–family in the same unit of space for both teachers and students. The boundaries of private life and work life were crossed and became intertwined.

The term “boundary” represents a social-cultural demarcation between two or more sites (Akkerman, Bakker, 2011), a space that divides and causes discontinuity of activity or interaction. Prior to the pandemic, the term “cross-border” described professionals who continue their professional work even when the boundaries and spaces become blurred in an unfamiliar situation, without suitable preparation or qualification (Suchman, 2002). In the present study we will use the concept “hybrid space” as one that comprised work-home and family during the COVID-19 period (Figure 2).

Studies on the relationship between space and emotions focus primarily on the mobility and “navigation” taking place within the relationship between emotions and space. A recent study claims that different people develop diverse emotions with respect to the space in which they are present and act (Galvez-Pol et al., 2021).

Neurological studies have demonstrated that people's appraisal of their environment involves activation of an internal model that their body creates in order to conduct itself in the world. This model reflects information about their emotional and physiological state and their future, desirable state (Byrne et al., 2007). However, the environments and spaces that surround us are not only physical places, but also spaces engraved in our memories, places that our imagination visits, pictures, experiences, and more. The representation of space in people's eyes serves as a tangible, emotional experience, which is based on and takes place with or without a relationship to the external environment (Doyle, 2020; Galvez-Pol et al., 2021).

The teachers were given very little preparation time (Daniel, 2020). A “pandemic pedagogy” (Wang et al, 2020; Wright et al., 2023) was created and activated rapidly to generate a parallel change in the roles of teachers, children and parents in online teaching (Williamson et al., 2020). This issue challenged researchers with the question: What happens when “space-time” in the classroom is suddenly integrated into the home environment? The term “polysynchronous world of learning” was introduced into family life; researchers call this the “third space” (Johnston et al., 2021).

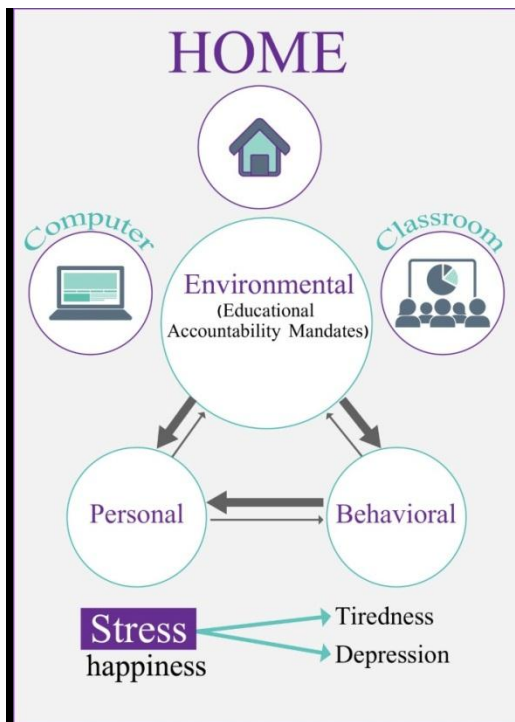


Fig. 2. The hybrid space model

In the profession of teaching and learning, emotions are considered to be very significant and located at the center of all activities (Oplatka, 2018). Teachers experience different emotions while working; these emotions are usually connected to their cognitive world, teaching practices, and burnout. These emotions, particularly the negative ones, also affect teachers' decisions to drop out and leave the profession (Sutton, Wheatley, 2003).

Other studies claim that emotions have intention, involvement, and a perception of the world that "seals its fate" (Ebrahimi, 2022). This is a modern perception that gives emotion a central, meaningful place; it has been integrated into the holistic, integrative bio-cultural model that recognizes emotions and experiences, for good and for bad, as those that are planted in the physical space. This integrative model tries to understand how emotions are built from within this space through architectonic perceptions with a multidisciplinary perspective. Nevertheless, this model demands further investigation with respect to education and teaching (Ebrahimi, 2022). Indeed, few researchers to date have focused on the emotional triggers and their effect on emotion that creates a reaction leading to a certain result (Prayag, 2022).

The appraisal of emotion approach states that emotions are a reaction to a certain situation that led to that reactivity, in other words, an automatic appraisal of emotions with respect to a certain situation that affects the wellbeing of the individual. One of the many criteria that serve as possible triggers for an emotional reaction is "change of space". I will use this approach to seek answers to the main research question: How did teachers appraise their emotions while they focused on hybrid teaching during the lockdown period? This question will be examined through three main dimensions: the happiness and optimism dimension, the depression and unhappiness dimension, and the fatigue and burnout dimension. To reinforce the theoretical foundations with respect to the examined situation we will use the new model presented by Zeng et al. (2020) – the Model of Triadic Reciprocal Determinism, based on Bandura (1978). The model assumes that people are affected by the combination of their environment, their personal traits, and their behavior. The environment can affect people and their attitudes, as well as changing the direction or intensity of an individual's behavior (Bandura, 1978).

Teaching and Emotion in Teachers' Work

Teaching is an emotional profession. The teachers' emotions have a significant effect on their professional work and the learning outcomes of their students (Yin et al., 2019). Moreover, the teachers' wellbeing is a significant and important issue with many consequences for many aspects of the profession. Teachers usually feel a sense of accomplishment and self-fulfillment in their profession, feelings that contribute to professional satisfaction (Vossen et al., 2023). They are

driven by the feeling that they are agents of change in their students' lives, and through them, a change in society. These feelings contribute to the teachers' wellbeing (Walter, Fox, 2021).

Alongside social support, it is important and possible to manage stress and tension as a central component that affects the teachers' wellbeing. Even during routine times teaching is defined as a profession that creates a high level of stress; indeed, teachers have reported high stress levels at work on a daily basis (Pressley et al., 2021).

Studies conducted during the COVID-19 pandemic emphasized the importance of considering social symptoms such as tension, anxiety, depression, loneliness, panic, and other symptoms arising from the situation and from the forced social distancing and closing of workplaces. The highest levels of stress were reported by women; the reasons for this are embedded in the career–family balance (Quílez-Robres et al., 2021) – a balance that was completely disrupted during the many lockdowns. Other studies have found that the emotional reactions of women and youth to the situation created by the pandemic were expressed through higher levels of stress and depression (Diehl, Carlotto, 2020; Lacomba-Trejo et al., 2022).

The Teaching Profession – Feelings of Stress and Burnout

Teaching poses many emotional challenges in the workplace. Teachers must juggle between their professional qualities, personalities, and emotions (De Stasio et al., 2019). Over the years, studies have indicated that teachers have a high risk of developing anxiety, stress, and burnout due to their work and due to exposure to a wide range of stress factors at work on a daily basis (Othman, Sivasubramaniam, 2019). Stress is defined as a situation in which people must cope with higher demands than what can be performed given the resources at hand, according to their subjective perception (Meurs et al., 2022). The stress response is related to personal factors, personality traits, and personal resources, as well as environmental factors, such as community support and cultural background. This of course, was correct for in the pandemic period (Zadok Boneh et al., 2022).

During the COVID-19 pandemic, many teachers reported strong feelings of loneliness, increased levels of depression, anxiety, and sleeping and eating disorders. A study that examined 634 language teachers in Europe and North America, in April 2020, during the COVID-19 pandemic, revealed a positive relationship between loneliness and anxiety, sadness, and anger (MacIntyre et al., 2020). Other studies have indicated that stress and burnout among teachers depends on their health, approach to the profession, and quality of teaching, and the achievements of their students (Klusman et al., 2022).

Levels of burnout among teachers throughout the world rose significantly with the outbreak of COVID-19 (Pellerone, 2021; Sokal et al., 2020). During the first weeks of the pandemic, teachers in Argentina reported feeling unease and stress following the closure of the schools; this feeling of being overloaded weighed heavily on the teachers who were forced to transition to virtual, remote learning (Vargas Rubilar, Oros, 2021). In the USA, teachers reported difficulties balancing work and family responsibilities during the pandemic (McKim, Sorensen, 2020). This was considered much more significant for women, who experienced difficulties balancing paid work with unpaid household tasks. Another study found that during lockdown, continuous work on digital platforms might lead to cynical behavior (Trittin-Ulbrich et al., 2021).

Stress and Burnout among Teachers in Israel during the Pandemic

A survey conducted in Israel among teachers that left the teaching profession in late 2021 found that young teachers tended to leave because of concerns related to their responsibility for the care of the children. In contrast, older teachers were concerned about their own health risks. Stress rose among all teachers. Teachers from the Jewish community experienced stress related mostly to personal factors, while teachers from the Arab community experienced stress related mainly to their functioning and their working environment (Zadok Boneh et al., 2021).

Stress levels rose because the teachers were required to manage relationships with their students, their families, and their students' families, other teachers, and the school leadership. Simultaneously, their private lives changed. During the pandemic there was an increase in anxiety regarding teaching demands, management of communication with parents, and a lack of administrative support (Pressley, Ha, 2021), in addition to the requirements to teach and to follow the safety protocols of the pandemic period. Recent studies indicate that the emergency in the education system generated negative emotions among the educational staff, including stress, anxiety, sadness, and loneliness (Beaker et al., 2021; Diliberti et al., 2021).

In light of the above, we decided to examine the emotions of teachers in northern Israel with respect to hybrid learning as experienced at the height of the pandemic in Israel (November 2020 – January 2021).

Research Question

How did teachers appraise their emotional wellbeing with respect to hybrid teaching (home-classroom) during lockdown? This question was examined through three main dimensions: the happiness and optimism dimension, the depression and unhappiness dimension, and the fatigue and burnout dimension.

3. Methodology

This is a quantitative study based on a general appraisal of emotion questionnaire. The questionnaire used in the present study required self-reporting by teachers on a Likert scale of 1–7. The first part of the questionnaire collected background information, including gender, age, marital status, teaching experience, socioeconomic status, and participation in continuing education programs for remote teaching. The second part included six statements that examined the feelings and emotions of the respondents with respect to hybrid teaching, for example, “When you think about hybrid teaching, to what extent to you feel tired?”

The questions were general and were based on personal reporting about feelings and emotions. The wording of the questions required thinking about emotion with respect to hybrid teaching. The questionnaire was based on a similar research tool developed by Maslach (2003). For the present study, the statements were tailored to the times and to the aims of the study. They sought to examine how teachers thought, in real time, about their feelings and emotions, during the COVID-19 period, after the second lockdown and at the peak of the third lockdown (Maslach, 2003).

The questionnaire was validated (i.e. examined with respect to its suitability for the research aim) by three content experts with PhDs in education. It was disseminated via the college email network to approximately 800 teachers in northern, Israel, *after the second lockdown*, and the answers were collected *during the third lockdown* (November 2020 – January 2021).

Analysis of the closed questions sought to identify and organize the teachers’ general appraisal of their own emotional state in order to elucidate the relationships between the background information and the range of different feelings and emotions the teachers felt about hybrid teaching.

There were 135 respondents, comprising 132 women (97.8 %) and three men (2.2 %), mostly in the age range 31–60 (82.2 %) and married (89.6 %). Nearly half of the respondents had at least 15 years’ experience (47.4 %). The respondents taught in different types of schools (public schools, religious public schools or religious private schools). See Table 1.

Table 2 presents the six questions from the questionnaire, with their average scores and standard deviations. In general, negative emotions received higher scores than positive emotions. The respondents reported a high level of fatigue (4.71 ± 1.55) and burnout (4.90 ± 1.71), and intermediate levels of all other emotions.

Table 1. Distribution of demographic variables among the study participants (N = 135)

Variable	Category	N	%	Minimum	Maximum	Average	St. dev.
Gender	Male	3	2.2				
	Female	132	97.8				
Age	18-25	6	4.4				
	26-30	13	9.6				
	31-40	36	26.7				
	41-50	45	33.3				
	51-60	30	22.2				
	+60	5	3.7				
Marital status	Single	6	4.4				
	Married	121	89.6				
	Divorced	8	5.9				
Seniority (years)	0-5	19	14.1				
	5-10	26	19.3				
	10-15	26	19.3				

Variable	Category	N	%	Minimum	Maximum	Average	St. dev.
	15-25	31	23.0				
	+25	33	24.4				
Type of school	Public	66	48.9				
	Religious	67	49.6				
	Democratic	1	0.7				
	Special education	1	0.7				
School level	Elementary	80	59.3				
	Elementary and middle	3	2.2				
	Middle	23	17.0				
	Middle and high	29	21.5				
Experience in remote teaching	Yes	18	13.3				
	No	117	86.7				
Number of work hours at home				1	11	2.67	1.80

Table 2. Average and standard deviation of the scores of the research questions, which were answered on a Likert scale of 1–7 (N = 135)

When you think about hybrid teaching, to what extent do you feel:	Average	St. dev.
1. Tired	4.71	1.55
2. Happy	3.32	1.52
3. Exhausted	4.90	1.71
4. Optimistic	3.56	1.59
5. Depressed	3.70	1.88
6. Unhappy	3.44	1.99

From these statements, we created three dimensions: fatigue and burnout s (statements 1 and 3), happiness and optimism (statements 2 and 4) and depression and unhappiness (statements 5 and 6), which are summarized in [Table 3](#).

Table 3. Descriptive statistics of the three research dimensions (N = 135). The original statements were examined on a Likert scale of 1–7

Dimension	Average	St. dev.	Cronbach's α
Fatigue and burnout	4.80	1.56	0.903
Happiness and optimism	3.44	1.45	0.842
Depression and unhappiness	3.57	1.83	0.882

The reliability of the dimensions, according to Cronbach's α , was high, indicating high stability and consistency in the responses of the participants to the statements comprising each dimension. In the next stage, we sought to determine which of the background factors may affect the range of emotions experienced by the teachers during the COVID-19 period.

Data analysis

Our approach employed a quantitative sequential exploratory model ([Setiawan, 2020](#)). This is a comprehensive approach involving one stage of convenience sampling. Triangulation of the

research literature, questionnaire validation, and the statistical analysis of the findings indicated high reliability and validity of the data (Cronbach's $\alpha = 0.819$).

To test the effect of seniority (years of teaching experience) and school level (categorical variables with more than categories) on the teachers' emotional responses, we conducted separate one-way ANOVAs for each statement, followed by separate tests for each dimension. To test the effect of participation in continuing educational programs on remote teaching (categorical variable with two categories) on the teachers' emotional responses, we conducted separate, independent t-tests for each statement, followed by separate tests for each dimension. To test the effect of hours of work at home (continuous variable) on teachers' emotional responses we performed Pearson correlations per statement, and then per dimension. All data analyses were conducted in SPSS V25 (SPSS Inc., IL).

4. Results

Seniority

The highest level of fatigue (4.94) and burnout (5.32) were among respondents with 15-25 years' experience. To test the relationship between fatigue (statement 1: "To what extent do you feel tired") and burnout (statement 3: "To what extent do you feel burnt out") we conducted a further Pearson test ($n = 135$). We obtained a strong, significantly positive correlation ($R = 0.827, p < 0.01$) between fatigue and burnout, in other words, the more tired the subject is, the more burnt out they feel, and vice versa.

The highest levels of depression and unhappiness were among respondents with 5–10 years' experience (3.92 and 3.85, respectively). The highest level of happiness was found among respondents with 0–5 years' experience (3.89), while the highest level of optimism was found among respondents with over 25 years' experience (3.91). However, none of the differences between the groups were significant for any of the statements.

Table 4. Responses to research statements as a function of seniority, ANOVA (N = 135). Values are average \pm standard deviation

Emotion	Experience (years)					F
	0-5 (N = 19)	5-10 (N = 26)	10-15 (N = 26)	15-25 (N = 31)	+25 (N = 33)	
Fatigue	4.58 \pm 1.46	4.62 \pm 1.53	4.54 \pm 1.84	4.94 \pm 1.36	4.79 \pm 1.60	0.32
Happiness	3.89 \pm 1.33	2.96 \pm 1.64	3.38 \pm 1.68	3.00 \pm 1.39	3.52 \pm 1.48	1.55
Burnout	4.58 \pm 1.64	4.81 \pm 1.74	4.62 \pm 1.79	5.32 \pm 1.62	4.97 \pm 1.76	0.85
Optimism	3.68 \pm 1.34	3.38 \pm 1.50	3.62 \pm 1.65	3.23 \pm 1.71	3.91 \pm 1.63	0.86
Depression	3.63 \pm 1.80	3.92 \pm 1.81	3.62 \pm 1.70	3.84 \pm 2.19	3.48 \pm 1.87	0.26
Unhappiness	3.42 \pm 1.89	3.85 \pm 1.99	3.15 \pm 1.89	3.61 \pm 2.19	3.21 \pm 1.96	0.57

Table 5. The research dimensions as a function of seniority, ANOVA (N = 135). Values are average \pm standard deviation

Dimension	Experience (years)					F
	0-5 (N = 19)	5-10 (N = 26)	10-15 (N = 26)	15-25 (N = 31)	+25 (N = 33)	
Fatigue and burnout	4.58 \pm 1.47	4.71 \pm 1.57	4.58 \pm 1.75	5.13 \pm 1.37	4.88 \pm 1.64	0.61
Happiness and optimism	3.79 \pm 1.22	3.17 \pm 1.45	3.50 \pm 1.56	3.11 \pm 1.46	3.71 \pm 1.43	1.21
Depression and unhappiness	3.53 \pm 1.83	3.88 \pm 1.78	3.38 \pm 1.69	3.73 \pm 2.07	3.35 \pm 1.79	0.43

The highest level of fatigue and burnout was among respondents with 15–25 years' experience (5.13). The highest level of depression and unhappiness was among respondents with 5–10 years' experience (3.88). The highest level of happiness and optimism was among respondents with 0–5 years' experience (3.79). However, as for the individual emotions, none of the differences among groups were significant for any of the dimensions.

Participation in Continuing Education Programs on Remote Learning

Table 6. Teachers' emotions as a function of participation in continuing education programs on remote learning, t-test (N = 135). Values are average \pm standard deviation

Emotion	Participated (N = 96)	Did not participate (N = 39)	t
Fatigue	4.82 \pm 1.47	4.44 \pm 1.73	1.32
Happiness	3.34 \pm 1.53	3.26 \pm 1.53	0.30
Burnout	4.97 \pm 1.65	4.72 \pm 1.86	0.77
Optimism	3.77 \pm 1.57	3.05 \pm 1.52	2.43*
Depression	3.71 \pm 1.88	3.67 \pm 1.90	0.12
Unhappiness	3.38 \pm 1.96	3.62 \pm 2.06	0.64

* $p < 0.05$

The level of optimism among respondents who participated in continuing education programs on remote teaching was found to be significantly higher (3.77) than among respondents who did not participate in such programs (3.05) ($t_{133} = 2.43$, $p < 0.05$). No significant differences were found for any of the other emotions.

Table 7. The research dimensions as a function of participation in continuing education programs on remote teaching, t-tests (N = 135). Values are average \pm standard deviation

Dimension	Participated (N = 96)	Did not participate (N = 39)	T
Fatigue and burnout	4.90 \pm 1.48	4.58 \pm 1.73	1.08
Happiness and optimism	3.56 \pm 1.45	3.15 \pm 1.41	0.48
Depression and unhappiness	3.54 \pm 1.84	3.64 \pm 1.83	0.29

The level of fatigue and burnout among respondents who participated in continuing education programs on remote teaching was higher (4.90) than among respondents who did not participate in such programs (4.58). Similarly, their level of happiness and optimism was higher (3.56) than among respondents who did not participate in such programs (3.15). However, the level of depression and unhappiness among respondents who participated in continuing education programs on remote teaching was lower (3.54) than among respondents who did not participate in such programs (3.64). Nevertheless, none of these comparisons were significant.

School Level

Table 8. Teachers' emotions as a function of school level, ANOVA (N = 135). Values are average \pm standard deviation

Emotion	Elementary school (N = 80)	Elementary and middle school (N = 3)	Middle school (N = 23)	Middle and high school (N = 29)	F
Fatigue	4.69 \pm 1.60	3.67 \pm 0.58	5.04 \pm 1.36	4.62 \pm 1.61	0.84
Happiness	3.36 \pm 1.54	4.33 \pm 0.58	2.96 \pm 1.58	3.38 \pm 1.47	0.91
Burnout	4.79 \pm 1.79	3.33 \pm 1.15	5.57 \pm 1.34	4.83 \pm 1.67	2.19
Optimism	3.44 \pm 1.52	4.67 \pm 1.15	3.35 \pm 1.58	3.97 \pm 1.76	1.43
Depression	3.60 \pm 1.88	3.33 \pm 1.15	4.52 \pm 1.81	3.34 \pm 1.88	1.97
Unhappiness	3.39 \pm 2.02	3.33 \pm 1.15	4.17 \pm 2.04	3.03 \pm 1.86	1.49

The highest levels of fatigue, burnout, depression, and unhappiness were among respondents teaching in middle school (5.04, 5.57, 4.52, and 4.17, respectively). Furthermore, the highest levels of happiness and optimism were among respondents teaching in elementary and middle schools (4.33 and 4.67, respectively). Nevertheless, none of the differences among school levels were significant for any of the questionnaire statements.

Table 9. Research dimensions as a function of school level, ANOVA (N = 135). Values are average ± standard deviation

Dimension	Elementary school (N = 80)	Elementary and middle school (N = 3)	Middle school (N = 23)	Middle and high school (N = 29)	F
Fatigue and burnout	4.74±1.62	3.50±0.87	5.30±1.31	4.72±1.55	1.58
Happiness and optimism	3.40±1.43	4.50±0.87	3.15±1.44	3.67±1.53	1.12
Depression and unhappiness	3.49±1.86	3.33±1.15	4.35±1.84	3.19±1.67	1.91

The highest levels of both fatigue and burnout, and depression and unhappiness, were among respondents teaching in middle school (5.30 and 4.35, respectively), while the highest level of happiness and optimism was found among respondents teaching in elementary and middle schools (4.50). Nevertheless, none of these differences were significant.

Hours of Work at Home

A weakly positive, significant relationship was found between burnout and hours of work at home ($r = 0.185, p < 0.05$), in other words, as the number of hours invested in work at home increased, burnout also increased. Similarly, a weakly positive, significant relationship was found between depression and hours of work at home ($r = 0.199, p < 0.05$), in other words, as the number of hours invested in work at home increased, depression also increased. In contrast, a weakly negative, significant relationship was found between optimism and hours of work at home ($r = -0.187, p < 0.05$), in other words, as the number of hours invested in work at home increased, optimism decreased. The rest of the relationships were non-significant.

Table 10. Pearson correlations between teachers’ emotions and hours of work at home (N = 135)

Emotion	Hours of work at home
Tired	0.136
Happy	-0.165
Exhausted	0.185*
Optimistic	-0.187*
Depressed	0.199*
Miserable	0.167

* $p < 0.05$

Table 11 Pearson correlations between questionnaire dimensions and hours of work at home (N = 135)

Dimension	Hours of work at home
Fatigue and burnout	0.169
Happiness and optimism	-0.189*
Depression and unhappiness	0.193*

* $P < 0.05$

A weakly negative, significant relationship was found between the level of happiness and optimism and hours of work at home ($r = -0.189, p < 0.05$), in other words, as the number of hours invested in work at home increased, the level of happiness and optimism decreased. In contrast, a weakly positive, significant relationship was found between the level of depression and unhappiness and hours of work at home ($r = 0.193, p < 0.05$), in other words, as the number of hours invested in work at home increased, the level of depression and unhappiness also increased.

In summary, it appears that one of the main factors affecting feelings and emotions is the number of hours invested in working at home on remote, hybrid teaching. The workload generated in the domestic space has a significant effect on the negative feelings of teachers who were forced, during the pandemic, to replace the school classroom space with the domestic space.

5. Conclusion

The COVID-19 pandemic in Israel required teachers to work most of the time in the domestic space. The transition of the teaching space from the classroom to the home, by means of computer screens, including teaching via different technologies, led to a blurring of boundaries between living spaces and work spaces in all aspects of life. This issue had a significant effect on the teachers' emotions, as demonstrated by the findings of this study.

The emotional responses to the thought of hybrid teaching were expressed by high levels of fatigue and burnout. This study revealed that as the numbers of work hours at home increased, so did the level of burnout and depression. In contrast, the level of optimism decreased. Thus, the workload in the domestic space has a significant effect on the negative feelings of the teachers who were required, during the pandemic, to replace the school classroom space with the domestic space. The findings of the present study are in line with studies conducted in Israel indicating that in the first stage of the full lockdown various difficulties developed as a result of *spending long periods of time in a narrow, limited space* – the home (Taub Center researchers, 2021). Moreover, levels of stress increased due to the great load placed on the teachers' shoulders (RAMA, 2022). Another study that examined stress among teachers during the pandemic found that teachers experienced stress mainly due to personal factors and other reasons related mainly to their role and their work environment (Appel, Robbins, 2022; Zadok Boneh et al., 2021).

We also found that the levels of fatigue and burnout among respondents who participated in continuing education programs on remote teaching were higher than among respondents who did not participate in these programs. We assume that the reason for this lies in the fact that teachers who participated in such programs invested more time and effort in preparing classes, suitable technologies, and teaching tailored to the content being taught. Therefore, their emotional experiences indicated amplified levels of fatigue and burnout. Indeed, findings from surveys performed by the Ministry of Education, the Taub Center, and others indicate that most teachers dedicated "much more time than usual" to preparing online classes (Dabau, Beles, 2021).

On the other hand, we found that the levels of happiness and optimism among teachers who participated in such programs were higher than among those who did not, but this was not significant. It was clear that these teachers experienced remote teaching as a challenge that expresses the knowledge and practical tools acquired during these programs, and that for them, the pandemic provided an "opportunity" to implement the knowledge they had gained in real time. These findings are in line with other recent studies (Apple, Mills, 2022; Pham, Phan, 2023).

The blurring of the boundaries created a "layered space" that affected the experiences of teachers teaching remotely, in turn affecting their emotions. We believe that a hybrid experience comprising an emotional-teaching and learning space was created. Its results were an emotional overload expressed by burnout. The results of this burnout, as revealed by this study, were a high level of fatigue, the consequences of which have yet to be elucidated. These issues should be expanded and addressed through training and internships in the education system.

The findings of the present study are in line with other studies that have reported an increase in levels of anxiety due to the demands of teaching, managing communication with parents, and a lack of administrative support (Pressley, Ha, 2021). In addition to teaching and following the safety protocols during the pandemic, teachers also managed external sources of stress related to their personal lives, which were perhaps unique to their personal context, in the classroom, and to the leadership circumstances of the school (Beaker et al., 2021; Diliberti et al., 2021). A study by Klusman et al. (2023) reported high levels of emotional burnout resulting from the health effects of

anxiety and high workloads among teachers. It is important to address these factors in order to enhance the desirable variables while decreasing the undesirable ones (Simon, Nissim, 2023).

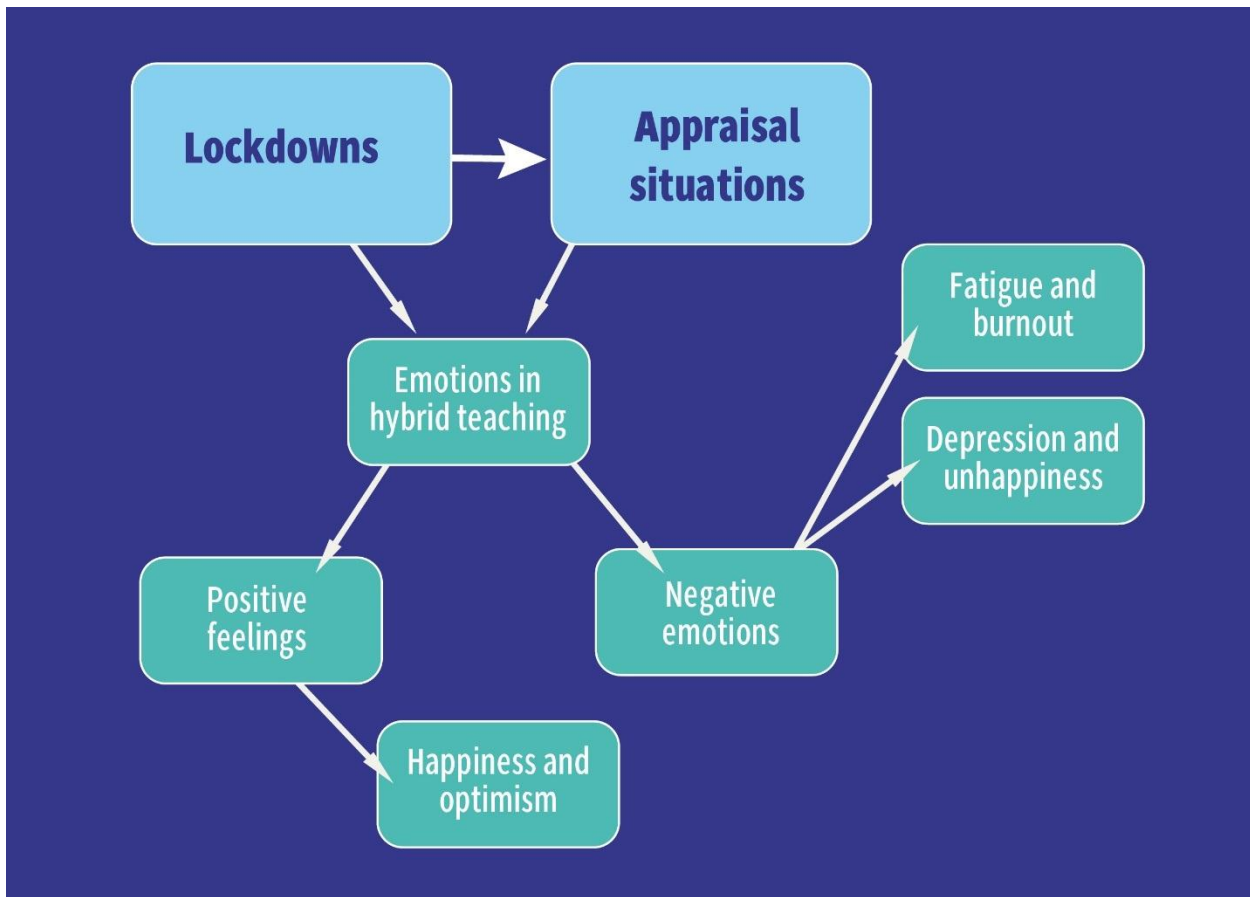


Fig. 3. An appraisal and emotional response model of teachers during the COVID-19 period

In summary, it is clear that the lockdown period and the change in teaching spaces, with respect to the challenges posed by that period, had an effect on the emotional wellbeing of the teachers. This effect was expressed mainly by high levels of fatigue and burnout. In general, this was related to high workloads, numerous teaching hours, and blurring of the boundaries between home and work. This finding is similar to a recent study that found high levels of fatigue and increased emotional exhaustion during the COVID-19 pandemic (Klusmann et al., 2023).

The pandemic brought significant changes to online teaching and learning, and emotional challenges for both teachers and students. Hong et al. (2021), Pham and Phan (2023) and Wang and Jiang (2022) recently demonstrated that during the pandemic teachers and students used different strategies to regulate their emotions, including cognitive reappraisal, social support, attention, positive thinking and positive psychological intervention in order to manage their emotions and promote positive emotions and wellbeing. These findings highlight the importance of understanding and supporting emotional experiences in the context of remote teaching in emergency situations and the need for further research to fully elucidate the consequences of these emotional experiences.

6. Limitations of the Study

This study was conducted on a small sample during a period of lockdowns at the peak of the COVID-19 pandemic; this could account for the lack of significance of many of the statistical tests, for example, the non-significant finding that levels of burnout and negative feelings were higher among teachers in middle schools. This study sought general reporting and appraisal of the teachers' emotional world; further in-depth research is required to expand knowledge on the issues studied.

7. Statements and Declarations

Partial financial support was received from Tel Hai College.

8. Competing Interests

Non-financial interests: none

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