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Interpersonal work resources and school personnel well-being before and after lockdown during the first phase of the COVID-19 pandemic in Finland

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ABSTRACT

This two-wave mixed-methods study used the job demands and resources model to examine the effects of the COVID-19 pandemic on school personnel's work well-being (including burnout, work engagement, and sense of belonging) in spring 2020 in Finland in particular with respect to collegial relationships (respectful engagement) and leadership support. A pre-lockdown survey was administered prior to the pandemic (in January–February, n = 437) and a post-lockdown survey was administered after the two-month lockdown (at the end of May, n = 270). At post-lockdown, the school personnel reported, on average, more exhaustion, less work engagement (measured as enthusiasm and energy at work), and a decreased sense of belonging than before lockdown. The period of lockdown was characterized as highly burdening, and many had missed their work communities. On the other hand, work absorption related to work engagement showed an increase, and there was no change in burnout with respect to cynicism; only a few expressed high levels of cynicism, whereas many reported positive experiences. The effects of pre-lockdown interpersonal relationships on school personnel's well-being during lockdown were mediated by pre-lockdown well-being. Respectful engagement was also directly associated with a higher sense of belonging during lockdown over and above the pre-lockdown sense of belonging. Collegial relationships were described as salient and available work resources during lockdown, whereas leadership was often perceived negatively during pandemics. The findings underline the importance of fostering respectful work community interactions and improving supportive school leadership to cope with crises while maintaining high-quality teaching and student support.

1. Introduction

School personnel faced many challenges in the spring of 2020 due to the worldwide spread of COVID-19 (UNESCO, 2020). Schools in many countries closed their doors to prevent the spread of the virus, and instruction, as well as support and guidance services (e.g., provided by school assistants, psychologists, and social workers), had to adapt to online environments (Lindblad et al., 2021). Despite the efforts during the past years to utilize digital tools in schools, personnel were not prepared for the quick shift to predominantly digital environments (Bergdahl and Nouri, 2021; Fraillon et al., 2020, pp. 247–248) nor did students' home environments provide equal opportunities for digital learning (Andrew et al., 2020; Bacher-Hicks et al., 2021; Sainio, Hämeenaho, Aro et al., 2020). School personnel experienced varying situations: Many had to work from home while attending to their own children, those living alone were isolated from their daily social interactions, and those working at school had to face the threat of infection (Hidalgo-Andrade et al., 2021; Rudolph et al., 2021).

Overall, the school lockdown presented many demands and challenges for school personnel, and many teachers experienced high levels of stress and burnout symptoms during that time (e.g., Anderson et al., 2021; Chan et al., 2021; Pöysä et al., 2021; Sokal, Eblie Trudel, & Babb, 2020). However, some teachers also experienced relatively high levels of work engagement (Pöysä et al., 2021) and perceived the lockdown as beneficial for learning and creativity (Anderson et al., 2021). As it is likely that schools may need to tackle similar crises in the future, bet-

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ter knowledge is needed on how to help maintain school personnel's well-being in such a demanding time.

This study examined school personnel's well-being, focusing on changes in burnout, work engagement, and sense of belonging at work from the pre- to post-lockdown period during the first phase of the pandemic. We also study the role of interpersonal work resources (respectful engagement among colleagues and leadership support) in relation to changes in well-being. The study was conducted in Finland, where a state of emergency leading to school lockdown was announced on the 16th of March 2020 due to the COVID-19 pandemic (Tiirinki et al., 2020). We collected baseline data on school personnel's well-being in January–February 2020, when the pandemic was not yet a public concern in Finland (*pre-lockdown survey, W1*), and a follow-up data collection took place as the schools reopened in mid-May (*post-lockdown survey, W2*). Although the pandemic was not over at that point, the two months of complete lockdown in spring 2020 represented the most drastic changes in the school personnel's work in Finland.

The job demands and resources (JD-R) model (Bakker and Demerouti, 2017; Bakker et al., 2014; Demerouti et al., 2001) was used as the main framework in the study. The challenges posed by the school lockdown represent high job demands (e.g., working in isolation and adapting ones' work to the exceptional conditions) with potential negative influences on the well-being (burnout, work engagement, and sense of belonging) of all staff. The interpersonal work relationships (leadership and collegial relationships), in turn, are assumed to serve as job resources supporting well-being during the demanding period. More specifically, we study if pre-lockdown respectful engagement among colleagues and support from leaders (job resources) prevent burnout and maintain work engagement and sense of belonging at work during the lockdown (demand).

To gain a more comprehensive understanding of school personnel's experiences during the lockdown, we used both quantitative data from the pre- and post-lockdown survey and qualitative data from the post-lockdown survey (open-ended responses). Thus, the study was a mixed-method study using a convergent parallel design (Doyle et al., 2016; Halcomb and Hickman, 2015). The research questions were set as follows: 1) Were there changes in school personnel's well-being (burnout, work engagement, and sense of belonging) between the pre-lockdown and post-lockdown phases, 2) Did the pre-lockdown interpersonal work relationships (leadership support and respectful collegial relationships) buffer against negative changes in school personnel's well-being, and 3) How did school personnel describe their well-being and interpersonal work relationships during school lockdown?

1.1. Job demands and resources model: burnout, work engagement, and sense of belonging

The job demands and resources (JD-R) model (Bakker et al., 2014) is among the most widely used models in understanding employee health and performance (Granziera et al., 2020), and in examining teachers' burnout and work engagement (e.g., Granziera et al., 2020; Hakanen et al., 2006; Skaalvik and Skaalvik, 2018; Van Droogenbroeck et al., 2014). Recently, the model has been employed to examine occupational health during the COVID-19 pandemic (e,g., Chan et al., 2021; Rudolph et al., 2021; Sokal et al., 2020).

The JD-R model assumes two underlying processes for work well-being: 1) the health impairment process triggered by job demands, such as excessive workload and classroom management problems due to students' problematic behavior, and 2) the motivational process, which is predicted by job resources, such as social support (Bakker et al., 2014; Demerouti et al., 2001). However, these two pathways are not completely independent; job resources can intervene in the health impairment process by reducing the negative influence of job demands (Bakker et al., 2014). In some situations, job demands can even function as motivating challenges (*challenge demand*) when adequate resources are available instead of having only negative consequences (i.e., appearing as a *hindrance demand*; Albrecht, 2015; Crawford et al., 2010; Olafsen and Frølund, 2018; Vinod-Nair et al., 2020).

During the lockdown in spring 2020, school personnel experienced increased job demands, for instance, in terms of increased workload, uncertainty, and role ambiguity (Chan et al., 2021; Kim et al., 2021) making JD-R model particularly relevant. Working from home can be demanding if the working space is inadequate or if appropriate equipment is missing. Moreover, combining the work and family can increase the burden (Rudolph et al., 2021). Yet, the novel situation can also be viewed as a source of new opportunities and positive experiences (Mäkelä et al., 2020; Rudolph et al., 2021). Indeed, some teachers have reported that the demanding situation actually promoted creativity (Anderson et al., 2021). Also the learning new digital skills has been motivating to some, and increased autonomy and flexibility in scheduling one's work can be a positive experience (Mäkelä et al., 2020; Rudolph et al., 2021).

In this study, we examine changes in three different well-being outcomes during lockdown: 1) Burnout as the outcome of the health impairment process, 2) work engagement reflecting the motivational process, and 3) a sense of belonging, which represents the social aspect of well-being. Sense of belonging is especially interesting outcome given that lockdown required working in isolation, although not typically studied under JD-R model.

Burnout is the most typically studied outcome under the JD-R model. It is described as a progressive loss of energy and enthusiasm in response to work-related demands (i.e., the health impairment process; Bakker et al., 2014). Burnout comprises three core dimensions: exhaustion, cynicism (or depersonalization), and feelings of inadequacy (Maslach et al., 2001). Exhaustion, described as fatigue and loss of energy, is considered central but not sufficient in identifying burnout (Leiter and Maslach, 2016; Maslach et al., 2001). Cynicism or depersonalization is manifested as an indifferent or negative attitude toward work and can be seen as a way of trying to cope with a stressful situation by personally seeing work as less important (Maslach et al., 2001). Feelings of inadequacy, in turn, can result from long-term job demands exceeding one's capabilities (Maslach et al., 2001). Based on the JD-R model, the health impairment process leading to burnout is caused by excessive job demands with too few resources to cope with the demands (Bakker and Demerouti, 2017; Demerouti et al., 2001; Lee and Ashforth, 1996). Thus, we expected that the increased demands caused by the lockdown would increase burnout as reported also in previous studies (e.g., Chan et al., 2021; Pöysä et al., 2021; Sokal et al., 2020).

Work engagement is the other commonly studied outcome in the JD-R model. Work engagement is considered as a separate continuum rather than the opposite of work burnout (Schaufeli and Bakker, 2004; Schaufeli et al., 2002). It is defined as a positive motivational orientation toward work manifested in experiences of vigor (energy), dedication (enthusiasm), and absorption (concentration) at work (Schaufeli et al., 2017). Although we may expect that working in isolation and communicating mostly or only virtually influence negatively ones' work engagement (Mäkelä et al., 2020; Rudolph et al., 2021; Van Bavel et al., 2020), the prior studies provide no clear evidence supporting this expectation. In contrast, at least one study indicated that teachers' work engagement was not severely affected by school lockdown, and many teachers actually experienced relatively high levels of work engagement (Pöysä et al., 2021).

Sense of belonging is the third outcome used in this study. Sense of belonging is considered as one of the fundamental human motivations (Baumeister and Leary, 1995) and identified as an essential psychological need behind work well-being (Deci et al., 2017). Quite natural, we expected that working in isolation would decrease sense of belonging among school personnel.

Importantly, it is not only the changes in well-being that we need to understand, but also the work resources that can help school personnel cope with the demanding situation should be identified (Rudolph et al., 2021). Consequently, we turn our focus on the resources that may buffer

the negative consequences of high demands (i.e., prevent burnout), help to maintain or even enhance work engagement under the demands, and support the sense of belonging at work despite isolation. In this study our focus was on interpersonal relationship at work as job resources.

1.2. Interpersonal work resources

Although the social aspects of teacher's work are identified as the most typical sources of stress, interpersonal resources such as leadership and collegial support are also salient resources for work engagement (Pyhältö et al., 2011; Upadyaya and Salmela-Aro, 2020). Moreover, such interpersonal work resources can intervene in the health impairment process, which leads to burnout (Bakker et al., 2007; Pietarinen et al., 2013; Van Droogenbroeck et al., 2014). They can also be related to a stronger sense of belonging at work (Skaalvik and Skaalvik, 2011). Accordingly, previous research has identified collegial support and appreciation, leaders' autonomy support, and both colleagues' and leaders' acts of compassion as important job resources for teachers (Bakker et al., 2007; Eldor and Shoshani, 2016; Van Droogenbroeck et al., 2014). Eldor and Shoshani (2016) found that experienced acts of compassion from colleagues and leaders were associated with enhanced emotional vigor, organizational commitment, job satisfaction, and lower burnout among teachers. These effects were especially pronounced in high-stress conditions. Compassion by colleagues and leaders was thus seen as an important work resource that enhanced teachers' coping abilities when facing demanding situations. Also, leadership support has been identified as a work resource during organizational changes, which can be viewed as stressful conditions (Gagne et al., 2000).

During the COVID-19 pandemic, collegial relationships and leadership can be important resources that help cope with increased demands. Support from administrators has, indeed, been found to be related with lower exhaustion and cynicism, and with higher accomplishment among teachers (Sokal, Eblie Trudel, & Babb, 2020), and similarly, workplace emotional support has been identified as an important job resource for teachers during lockdown (Chan et al., 2021). Thus, support from colleagues and leaders are crucial resources that can help to cope with the demands during lockdown and maintain work engagement and a sense of belonging when the school personnel mostly work without physical contact with the work community.

In this study, we examine how *respectful engagement* among colleagues relates to burnout, work engagement, and sense of belonging. Respectful engagement focuses on positive interactions in terms of recognition and appreciation (Carmeli et al., 2015). Such experiences of being valued can be especially relevant during the time in isolation, when colleagues were not constantly present. Respectful engagement at work prior to lockdown could, for instance, lower the threshold for maintain connections and interactions during lockdown, and consequently, be related with maintained sense of belonging during lockdown. Moreover, through enhancing creativity (Carmeli et al., 2015), respectful engagement can also be related to increased work engagement.

In addition to respectful engagement among colleagues, we were also interested in leadership support as an interpersonal work resource that may benefit personnel's well-being. As previous research has shown that support from administrators is related to lower teacher burnout during lockdown (Sokal et al., 2020), we expected to find similar relationship longitudinally. In crisis situation active listening and empowerment are important characteristics of leadership (Fernandez and Shaw, 2020; McLeod and Dulsky, 2021). These forms of support can be especially relevant during lockdown because school personnel had to work highly autonomously (Baard et al., 2004), and also could help to sustain the social relationships and enhance the emotional atmosphere in the school community. Therefore, we focused on support from leaders in the form of listening and encouraging the personnel, and expected that such support helped to maintain the personnel's well-being and sense of belonging also longitudinally during lockdown.

1.3. The present study

Most studies on the relationship between infectious disease outbreaks and work well-being have been cross-sectional (e.g., Chan et al., 2021; Pöysä et al., 2021), or followed the well-being from the time the pandemic had already started (e.g., Anderson et al., 2021; Kim et al., 2021). With our unique two-wave pre- and post-lockdown data, we can quantitatively investigate the changes in a) burnout, b) work engagement, and c) a sense of belonging (research question 1) between the time the pandemic had not yet reached public concern (January 2020) and the time when the respondents were just returning to contact teaching with the experiences during lockdown freshly in mind (May 2020).

We consider the lockdown to represent high job demands for school personnel and, consequently, expected to find higher burnout scores for post- than pre-lockdown surveys (Hypothesis 1a). However, as a previous study implied that teachers' work engagement was not severely affected by school lockdown (Pöysä et al., 2021), it is possible that there were no changes in this outcome (Hypothesis 1b). Regarding the sense of belonging, we expected it to decrease, given the isolation as a specific demand related to this period (Hypothesis 1c).

According to the JD-R model, the two-wave data allow us to quantitatively examine whether the pre-lockdown interpersonal resources can support personnel well-being when facing a new demanding situation (research question 2, Fig. 1). Given the previous findings indicating that social relationships at work are important work resources (Bakker et al., 2007; Eldor and Shoshani, 2016; Van Droogenbroeck et al., 2014), we expected that pre-lockdown respectful collegial relationships (*respectful engagement*; Carmeli et al., 2015) and encouraging and listening leadership (*supportive leadership*) would be concurrently associated with lower burnout symptoms, and higher work engagement and sense of belonging (Hypothesis 2a), and would buffer burnout symptoms and boost work engagement and sense of belonging during lockdown (Hypothesis 2b, see Fig. 1). We examined the unique effects of leadership support and respectful engagement, and explored both indirect and direct effects to test Hypothesis 2b. That is, the pre-lockdown interpersonal work resources could be uniquely related to school personnel's well-being during lockdown indirectly through building resilience (i.e., stronger well-being prior to pandemic) but potentially also directly related to well-being during lockdown.

Finally, the post-lockdown qualitative data were used to complement the quantitative findings through analysis that explored whether the responses differed or brought up new aspects of well-being. Analysis of the open-ended responses also clarified school personnel's experiences during lockdown on well-being and interpersonal relationships (research question 3). Even though the average changes in the outcome measures may show a negative trend, we also anticipated some positive experiences during lockdown, as suggested in the literature (Hypothesis 3) (Mäkelä, Mehtälä, Clements, & Seppä, 2020; Pöysä et al., 2021; Rudolph et al., 2021).

2. Methods

2.1. Study context

This study is part of a research project carried out in Central Finland with the original aim of providing knowledge on well-being work at school and school personnel's well-being. The two-month school lockdown caused by the COVID-19 pandemic presented an opportunity to examine the changes in school personnel's well-being with a pre- and post-lockdown design, which thus resembled a quasi-experimental condition (Baldwin and Berkeljon, 2010).

Central Finland includes both urban and rural areas with an average population density of 17 per km^2, which is close to the average population density in Finland (18 per km^2). As for the education system, this study focuses on school personnel in basic education (grades 1–9, ages 7–16). Grades 1–6 are mostly taught by class teachers, whereas

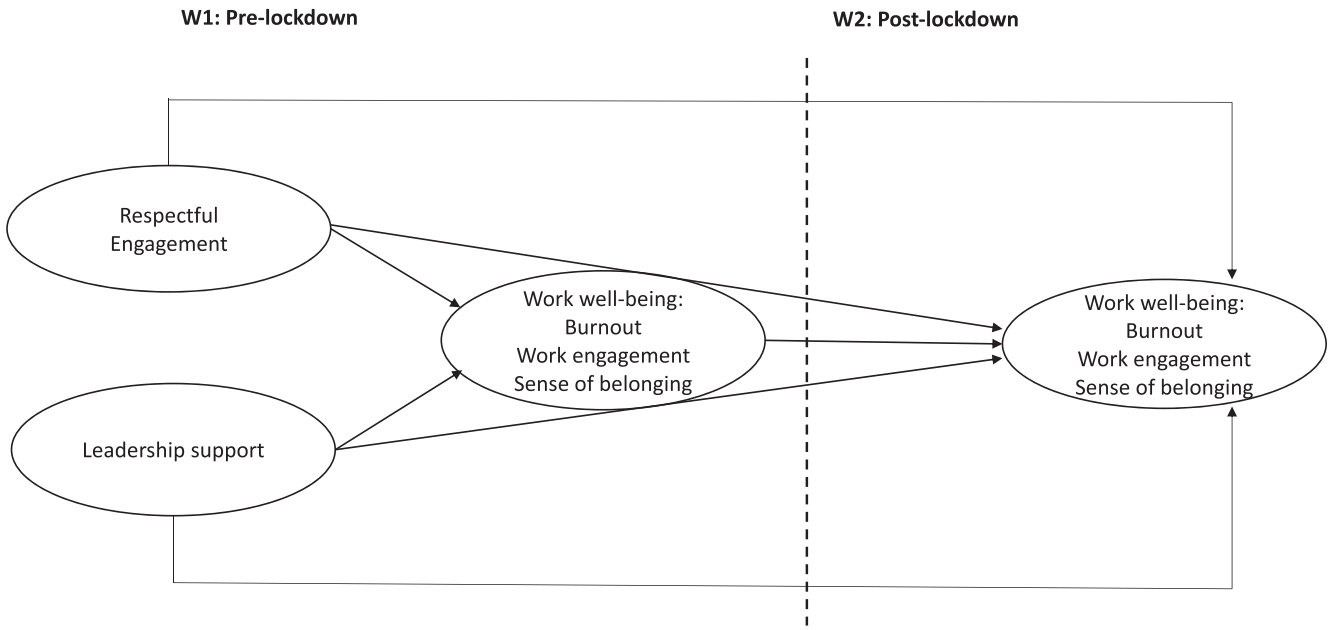


Fig. 1. Longitudinal mediation model explaining work well-being outcomes (burnout, work engagement, and sense of belonging) from pre- to post-lockdown by pre-lockdown interpersonal work resources (respectful engagement and leadership support). Note. Four models with different work well-being measures: burnout as 1) exhaustion and 2) cynicism, 3) work engagement, and 4) sense of belonging. Indirect paths from respectful engagement and leadership were demonstrated as the line touching the W1 well-being measure above and below.

grades 7–9 are taught by subject teachers (with average classroom sizes 20 and 19, respectively; Finnish National Agency of Education, 2019). Although the ICT infrastructure in educational settings in Finland before the pandemic was relatively good by international comparison, the use of ICT equipment in teaching tasks and activities was limited (Leino et al., 2019; Vuorio et al., 2021, p. 40).

The pandemic reached the country relatively late compared to many other countries; the first case was detected at the end of January 2020, and the identifiable spread of the virus began in early March after winter vacations (e.g., Saunes et al., 2021; Tiirinki et al., 2020). The lockdown in schools in Finland started on the 16th of March, and lasted until the13th of May (Saunes et al., 2021). The government mandated that all schools shift to online teaching and support except students in grades 1–3 whose parents worked in critical occupations, or those needing special education (Education and Culture Committee, 2020). Practically, only a minority of students in these groups participated in contact teaching (Kyllönen et al., 2020). At both ends, decisions were made hastily, leaving very little time for school personnel to prepare for change.

We used a mixed-method design combining quantitative and qualitative data for several reasons (e.g., Bryman, 2006; Doyle et al., 2016): First, we sought corroboration of the findings of different methods, that is, whether the quantitative measures and the open-ended responses on well-being were telling the same story. The results from the different data were thus used to validate the findings (*triangulation*), but also to point out potential divergencies. Second, the qualitative post-lockdown data provided *illustrations* and *clarifications* of work well-being during lockdown. Third, the different data types were used to *offset* the weaknesses inherent to each method (e.g., objective measure of change vs. subjective experiences) and the study design (lacking quantitative measures of interpersonal relationships at post-lockdown).

2.2. Procedure and participants

The pre-lockdown online survey was administered before the COVID-19 outbreak reached public concern in Finland (from 13th of January to14th of February) and post-lockdown survey was opened when the lockdown ended and kept open until summer vacation (from the 12th to 31th of May). The anonymized data will be available at the Finnish Social Science Data Archive (Sainio, Hämeenaho, Nurminen et al., 2020; Sainio, Hämeenaho, Aro et al., 2020).

We proceeded with the research in accordance with Finnish National Board on Research Integrity (Finnish National Board on Research Integrity TENK, 2019). The participants were recruited by first contacting the board of education in 23 municipalities in Central Finland in December 2019 (targeting 118 schools in total). Thereafter, school principals in 13 approving municipalities were contacted through e-mails or phone calls to give a detailed description of the project. In mid-January, the survey link was sent to principals in 75 schools, asking them to deliver the survey link to whole school personnel if the school decided to participate.

At the beginning of the survey, it was stated that responding was voluntary, and the participants received detailed information on data usage, storage, and management. The participants were told that, by responding to the survey, they agreed to the data use, as described. The survey included several scales and open-ended questions about school and work well-being. The first survey had 437 respondents in 48 schools and 12 municipalities. The response time varied between 15 and 45 min.

The post-lockdown survey targeted 48 schools that responded to the pre-lockdown survey. Before sending the survey link to principals in mid-May, we contacted the municipalities to evaluate whether the situation allowed school personnel to participate in the short survey. The information for the respondents was like in the first survey to ensure informed consent. The questions were selected from the pre-lockdown survey, except for some specific questions concerning experiences during lockdown. However, the questions were modified slightly to guide respondents in reflecting on the time during lockdown. Thus, although the post-lockdown survey was opened at the time lockdown ended, we used the term *during* rather than *after* lockdown. The post-lockdown survey data included 270 respondents from 27 schools in 10 municipalities. It typically took 5–20 min to respond to this survey.

The samples included schools of different sizes (number of students $m = 424$; $sd = 235$) located in the center of a larger municipality as well as more rural areas. The number of responses from a school varied from 1 to 35 in the pre-lockdown survey to 1–34 in the post-lockdown sur-

vey. In the pre- and post-lockdown surveys, respectively, most respondents were classroom teachers (31.7% and 29.5%) or subject teachers (23.8% and 32.1%), followed by teaching assistants (17.6% and 19.0%), special education teachers (9.5% and 8.6%), and principals (5.8% and 6.0%, including vice principals). The rest (11.6% and 4.8%) consisted of various school professionals (e.g., school secretaries, cleaning and food services staff, school psychologists, and social workers). Most respondents worked in comprehensive school settings (grades 1–9, ages 7–15: 47.7% and 55.8%), and the rest in elementary school (grades 1–6: 37.2% and 27.3%) or lower secondary school settings (grades 7–9: 16.9% and 15.2%). About 80.0% of the respondents were women.

2.3. Attrition

We had responses from 41% of the schools in the pre-lockdown survey from the target area, Central Finland. The reason for non-participation at the municipality or school level was typically due to participation in other research projects or ongoing surveys. In some cases, the school was undergoing large changes. The education board or the principal wanted to protect personnel from increased demands in the form of additional projects. The post-lockdown survey targeted only those schools participating in the pre-lockdown survey, with 56% coverage.

We matched the informants between pre- and post-lockdown surveys by the informant's name or e-mail. However, most informants (66%) did not provide their contact information at the end of the pre-lockdown survey, which was used for matching. Consequently, although 203 respondents in the post-lockdown survey reported responding to the pre-lockdown survey, only 87 respondents provided identification information that could be used to match the responses. As we had 116 informants in the second wave who indicated participating in the first wave (asked as a separate question in the second wave) but could not be matched based on personal identifiers, we utilized other information (information on school, work role, work experience, and gender) for matching. For example, if only one male teacher responded from a school in the second wave survey and only one male teacher had responded to the first wave survey, and confirmed having responded earlier, these observations were matched. If there was any ambiguity (e.g., two different respondents could represent a match), we did not match the responses to avoid errors. Using these heuristics, we could match an additional 28 responses to bring our longitudinal sample size to 115.

Missing data techniques (full information maximum likelihood [FIML]) allowed us to use the full samples from both surveys in the structural equation models, even if all responses could not be matched longitudinally. That is, if a pre-lockdown response could not be matched to a post-lockdown response, the corresponding post-lockdown response was treated as missing data. The same was applied to the unmatched post-lockdown responses. In FIML estimation, the use of auxiliary variables has been shown to improve the results as long as the number of auxiliary variables is not excessive (Graham, 2012, p. 272). Even if responses could not always be matched on the person level, all first-and second-wave responses could be matched to a school. Therefore, we added dummy variables for schools as auxiliary variables, limiting this strategy to just the largest schools to keep the number of auxiliary variables manageable.

2.4. Measures

The surveys, especially at post-lockdown, were kept as short as possible to avoid burdening school personnel. The quantitative work well-being measures (burnout, work engagement, and sense of belonging) were assessed in both measurement waves, whereas interpersonal work resources (respectful engagement and leadership support) were assessed only in the pre-lockdown survey, and the open-ended questions were assessed only in the post-lockdown survey. In the post-lockdown survey, respondents were guided to reflect on the time during the lockdown. All quantitative items were measured using five-point Likert scales ranging from 1 (*completely disagree)* to 5 (*completely agree)*. All quantitatively measured items, confirmatory factor analyses (CFA), and omega reliabilities for the scales (McNeish, 2018) are found in Table 1, and the CFA procedure is described after presenting the measures.

2.4.1. Burnout symptoms

We used six items[1] from the nine-item Bergen Burnout Inventory (BBI-9) to measure burnout (Feldt et al., 2014; Salmela-Aro et al., 2011), and used it to measure two different types of burnout symptoms. Two items measured *exhaustion* and four measured cynicism or inadequacy aspects of burnout labeled as *cynicism* (Table 1).

2.4.2. Work engagement

We used the Ultrashort Work Engagement (UWES-3) measure for work engagement (Schaufeli et al., 2017). Among the three items representing vigor, dedication, and absorption dimensions of work engagement, the absorption item ("I am immersed in my work") was left out (see below the CFA). Thus, *work engagement* was measured as enthusiasm (dedication) and energy (vigor). We also explored the changes in the *absorption* dimension between the first and second waves but did not include it in the longitudinal models.

2.4.3. Sense of belonging

Sense of belonging was measured by four items from the Finnish version of the Work-related Basic Need Satisfaction (W-BNS) questionnaire (Karkkola et al., 2019; Van den Broeck et al., 2010) with some modifications made after pilot testing among school personnel.

2.4.4. Respectful collegial relationships

We used the nine-item respectful engagement scale, developed, and first evaluated by Carmeli et al. (2015) to measure respectful interactions among staff (e.g., listening, being interested, recognition, appreciation, understanding, and communicating with respect). We first translated the items into Finnish independently by two authors, and then compared the translation and negotiated to reach mutual agreement. The translation was back-translated by the third author. At this point, a few modifications were made. The final scale involved some modifications to the original with respect to contexts; for instance, the original instruction "Organizational members here…" was changed to "The members of the work community at this school…"

2.4.5. Leadership support

Respondents evaluated leadership support in the first wave using a three-item scale developed for this study. We chose the three items among several leadership items in the survey to represent individual supportive leadership in contrast with collegial support from the work community.

2.4.6. Open-ended questions: school personnel descriptions of well-being and interpersonal work resources

School personnel descriptions of well-being and interpersonal work resources during the COVID-19 were analyzed based on responses to two open-ended questions in the second wave survey: 1) "What other concerns arose during the school lockdown related to students or work community? and what kind of benefits did you notice for the students and/or the work community?" and 2) "What else would you like to tell researchers about the working conditions during online schooling or its effects on students (positive or negative things)?" Among the 270 respondents, 181 responded to at least one of these questions. In this

[1] The questions "My expectations to my job and to my performance have reduced" from the original BBI-9 scale was left out as considered not relevant during school lockdown, and "I am snowed under with work." was left out accidentally. Furthermore, the item "Honestly I felt more appreciated at work before" was dropped from the scale during the measurement invariance analysis.

Table 1
Confirmatory Factor Analyses with Items Used in Longitudinal Models, Standardized Factor Loadings, Standard Errors (SE), and Scale Omega Reliabilities.

	Loading	SE	Omega
EXHAUSTION W1			0.70
I often sleep poorly because of the circumstances at work.	0.81	0.04	
I constantly have bad conscience because my work forces me to neglect my close friends and relatives.	0.65	0.04	
EXHAUSTION W2			0.58
I often sleep poorly because of the circumstances at work.	0.69	0.05	
I constantly have bad conscience because my work forces me to neglect my close friends and relatives.	0.58	0.05	
CYNICISM W1			0.86
I frequently question the value of my work.	0.65	0.03	
I feel dispirited at work and I think of leaving my job.	0.83	0.02	
I feel that I am gradually losing interest in my work.	0.89	0.01	
I feel that I have gradually less to give.	0.76	0.02	
CYNICISM W2			0.83
I frequently question the value of my work.	0.65	0.03	
I feel dispirited at work and I think of leaving my job.	0.75	0.03	
I feel that I am gradually losing interest in my work.	0.87	0.02	
I feel that I have gradually less to give.	0.69	0.03	
WORK ENGAGEMENT W1			0.77
At my work, I feel bursting with energy.	0.74	0.03	
I am enthusiastic about my job.	0.84	0.02	
WORK ENGAGEMENT W2			0.74
At my work, I feel bursting with energy.	0.71	0.03	
I am enthusiastic about my job.	0.83	0.03	
SENSE OF BELONGING W1			0.85
At work, I feel part of a group.	0.89	0.01	
I often feel lonely in the work community. (reversed coded)	0.70	0.03	
I feel that I am cared for in the work community.	0.85	0.02	
I don't feel connected with my colleagues. (reversed coded)	0.77	0.02	
SENSE OF BELONGING W2			0.84
At work, I feel part of a group.	0.88	0.02	
I often feel lonely in the work community. (reversed coded)	0.70	0.03	
I feel cared for in the work community.	0.79	0.02	
I don't feel connected with my colleagues. (reversed coded)	0.75	0.03	
RESPECTFUL ENGAGEMENT W1			0.94
The members of the work community at this school are always available to hear out and listen to each other.	0.82	0.02	
The members of the work community at this school pay the utmost attention to each other's needs.	0.85	0.02	
The members of the work community at this school express genuine interest in each other's position and the units they are managing and responsible for.	0.79	0.02	
The members of the work community at this school recognize and understand, what goes into each other's work.	0.71	0.03	
The members of the work community at this school emphasize other members' good sides.	0.81	0.02	
The members of the work community at this school express appreciation and respect for each other's contribution to the organization.	0.87	0.01	
The members of the work community at this school appreciate how valuable other members' time is.	0.80	0.02	
The members of the work community at this school make requests, not demands from each other.	0.83	0.02	
The members of the work community at this school speak to each other in a respectful rather than in a demanding way.	0.81	0.02	
LEADERSHIP SUPPORT W1			0.84
My manager encourages me to use my talents.	0.84	0.02	
I receive encouraging feedback from my manager.	0.81	0.02	
My manager listens me when making decisions concerning my work.	0.74	0.03	

Note. W1 = First wave (pre-lockdown); W2 = Second wave (post-lockdown).

study, we used responses that referred to work conditions or personnel well-being ($n = 141$).

2.5. Confirmatory factor analysis and measurement invariance

The data analysis involved a series of CFAs to examine the measurement structure. We started with a factor analysis of all the variables used in the study. As for burnout symptoms, our starting point was to test the three-dimensional structure of the Bergen Burnout Inventory (exhaustion, cynicism, and inadequacy) suggested in previous studies (Feldt et al., 2014; Salmela-Aro et al., 2011). The factor analysis showed that in the first assessment wave, the model with three expected factors was the best fit with the data. In the second assessment wave, separating cynicism from inadequacy dimensions did not improve the model fit, suggesting that the two scales were not empirically distinct (Rönkkö and Cho, 2020). Therefore, we decided to use a more parsimonious factor structure combining inadequacy and cynicism dimensions as one factor using the label cynicism.

Regarding work engagement, the absorption item from the UWES-3 was left out due to low loading with the factor and high cross loadings with the exhaustion dimension of burnout. After these modifications, the χ^2-test still rejected the exact fit hypothesis. Therefore, we performed diagnostics by inspecting modification indices and residuals (Kline, 2011, Chapter 8), and run exploratory factor analyses in individual scales to discover unmodeled dimensionality. This analysis revealed a secondary dimension in the sense of belonging scale, where the negatively worded items correlated with each other more strongly than they should have if the one-factor model had been the best fit for the data. This is likely due to individual response tendencies to these kinds of scales and is not of theoretical interest. Therefore, we added error covariances between the negative items. This improved the model fit and slightly improved the factor loadings of the items. The respectful engagement scale also contributed to the misfit to some extent and was further analyzed. Exploratory factor analysis indicated some dimensionality, which is expected for a scale of this length. As there was no clear reason for the existence of secondary factors, and given that the increase in explained variance after adding such factors was trivial, we decided that not making any modifications in the well-established scale was the most appropriate course of action. Similar conclusions were reached with the Bergen Burnout In-

Table 2
The Fit Indices for the Final CFA Models.

Model	$\chi 2$	df	$\chi 2$ diff	Df diff	Pr(>Chisq)	CFI	TLI	RMSEA	SRMR
Configural	866.65	535				0.96	0.95	0.03	0.06
Weak	876.52	543	9.88	8	0.27	0.96	0.95	0.03	0.06
Strong	905.68	551	29.15	8	0.00	0.96	0.95	0.03	0.06

ventory scale. No major cross loadings were discovered during this analysis.

Because our study analyzed effects over time, establishing measurement invariance over time was critically important. In our case, we were mostly interested in covariances between factors over time, and thus establishing weak factorial invariance (invariant factor loadings across time) was sufficient (Brown, 2013). Comparison of the weak factorial invariance model against the configural invariance model produced significant χ^2 statistics suggesting that the loadings were not fully invariant. Score tests revealed that the item "Honestly, I felt more appreciated at work before" was the cause of the misfit. In the configural invariance model, the loading of this item in the second wave was about half the loading estimated in the first wave data. This issue was resolved by dropping the item, after which the data passed the weak factorial invariance test. The fit indices for the final CFA models are shown in Table 2. The strong invariance analysis was reported for completeness but not used in the article because weak factorial invariance was sufficient for our study. The fit indices of the structural regression models used for hypothesis testing are not reported because they are identical with the CFA model indices because these models have the same degrees of freedom.

2.6. Analysis

In this mixed-method study, the quantitative and qualitative analyses were conducted in tandem to gain a richer perspective on work well-being processes during school lockdown. The aim was to link the quantitative and qualitative approaches in a meaningful and coherent way.

As for the quantitative data, first, to examine the changes in school personnel's well-being during school lockdown (i.e., to answer the first question), we compared the first and second wave means on exhaustion, cynicism, work engagement, and sense of belonging using a *t*-test with a *p*-value of 0.05 threshold for statistical significance. The mean differences were tested using an independent samples *t*-test (i.e., using the complete samples), and verified using the paired samples *t*-tests with the respondents that could be combined longitudinally in the two datasets. Additionally, we tested the differences in the variances between the pre- and post-lockdown data using the *F*-test.

Second, to examine the associations among the study measures (i.e., the second question), we used structural equation modeling with latent factors to minimize the effects of measurement error on the results. Longitudinal mediation models were built for each well-being outcome (exhaustion, cynicism, work engagement, and sense of belonging) to test the protective effect of prior interpersonal work resources on work well-being during pandemics (Fig. 1). All quantitative analyses were conducted using R programming language. The Lavaan package (Rosseel, 2012) was used for the structural equation models with FIML estimation.

The qualitative analyses to examine school personnel experiences during lockdown (i.e., the third question) were done together by three authors (first, second, and fourth). The analyses were largely deductive, guided by the theoretical concepts used in the quantitative analyses (burnout as exhaustion and cynicism, and work engagement). The use of the concepts as themes was not, however, predetermined, but was based on the heuristic achieved when reading the responses while conducting the quantitative analyses.

We followed Braun and Clarke (2006) on conducting the thematic analysis. First, we read through the open-ended responses several times independently and discussed together the topics and themes we had identified related to school personnel experiences. We also agreed that the theoretical concepts used in the quantitative part of the study were identifiable themes in the responses: exhaustion, combined cynicism-inadequacy, and work engagement, as well as interpersonal relationships at work. The contents of each theme was then further specified by reading thoroughly the responses in each category (see Table 6 for the themes, contents, example responses and number of responses in each theme): 1) *Exhaustion* included descriptions of exhaustion, tiredness, workload, and work influencing personal life as well as descriptions of work demands leading to such experiences; 2) *Cynicism* included responses implying high negativity, deep apathy, helplessness, or feelings of inadequacy; and 3) *Work engagement/Positive views* comprised responses expressing motivation, personal growth, and enthusiasm, as well as other positive views such as learning new things and skills.

The responses referring to interpersonal work relationships were classified as: 1) *Collegial relationships,* which included comments on communality and support, as well as descriptions of concrete interactions among colleagues during pandemic; and 2) *Leadership*, which included all descriptions on leadership or management during lockdown. We further classified the comments as negative versus positive experiences, and quantified the findings based on the number of respondents expressing each theme. The content, quantity, and quality (positive versus negative) provided insights into the availability and meaning of interpersonal work resources during lockdown.

To validate our coding, we coded the responses separately, however, discussing and specifying the contents together to ensure we agree on the principles. For the final coding, the interrater reliability, Fleiss' kappa was on average 0.87 varying from 0.83 to 0.93). The categories in the qualitative analyses were not mutually exclusive; the same respondent could describe various aspects of work (e.g., exhaustion and work engagement, or describing leadership both positively and negatively). However, each respondent was allocated only once, so that if the same category appeared twice in one-person responses (e.g., in two open-ended responses), this was counted only once.

3. Results

3.1. Quantitative results on burnout, work engagement, and sense of belonging

As shown in Table 3, exhaustion increased from pre- to post-lockdown (from $M = 2.31$ to $M = 2.71$), whereas cynicism did not change statistically significantly (supporting only partly Hypothesis 1a on increased burnout). Work engagement measured as energy and enthusiasm decreased statistically significantly (from $M = 3.81$ to $M = 3.34$), while the work absorption dimension of work engagement increased (from $M = 3.45$ to $M = 3.78$) ambiguously answering Hypothesis 1b). The sense of belonging decreased from the first ($M = 4.16$) to the second assessment wave ($M = 3.75$, supporting Hypothesis 1c).

As the standard deviations differed between the two measurement waves, we tested the statistical significance of the differences in variance using the *F*-test (Table 3). The variance in work engagement and sense of belonging were statistically significantly higher at the post-lockdown ($SD = 0.87$ and $SD = 0.95$, respectively) than at the pre-lockdown mea-

Table 3
Means (M), Standard Deviations (SD), Independent Samples T-tests, and F-tests between Pre-Lockdown (W1) and Post-Lockdown (W2) Well-Being Scale Scores.

			Test of Equality of Means		Test of Equality of Variances	
	M	SD	t	p	F	p
Exhaustion W1	2.31	1.04				
Exhaustion W2	2.71	1.15	−4.57	<.001	0.83	0.08
Cynicism W1	1.94	0.88				
Cynicism W2	1.86	0.84	1.25	.213	1.09	0.42
Work engagement W1	3.81	0.75				
Work Engagement W2	3.34	0.87	7.25	<.001	0.74	0.01
Sense of Belonging W1	4.16	0.77				
Sense of Belonging W2	3.75	0.95	5.97	<.001	0.65	0.00
Respectful engagement W1	3.94	0.71				
Leader Support W1	4.02	0.86				
Absorption W1*	3.45	1.00	−4.06	.000	0.88	0.23
Absorption W2	3.78	1.07				

Note. T-tests were also evaluated with repeated samples (n = 115) with similar results.
*Absorption item was removed from the work engagement scale, and not used in the longitudinal analyses. Nevertheless, we explored changes in this measure that guided the open-ended responses, implying work absorption during lockdown.

Table 4
Correlations among Study Measures.

		1	2	3	4	5	6	7	8	9	10
1	Exhaustion W1	1.00	.44	.63	.41	−.50	−.19	−.42	−.12	−.35	−.25
2	Exhaustion W2	.39	1.00	.37	.56	−.21	−.52	−.17	−.30	−.18	−.27
3	Cynicism W1	.52	.26	1.00	.47	−.84	−.27	−.57	−.32	−.39	−.48
4	Cynicism W2	.33	.41	.44	1.00	−.36	−.82	−.35	−.55	−.27	−.37
5	Work Engagement W1	−.38	−.16	−.67	−.22	1.00	.38	.50	.37	.35	.51
6	Work Engagement W2	−.19	−.38	−.22	−.64	.31	1.00	.20	.60	.19	.29
7	Sense of Belonging W1	−.34	−.06	−.53	−.21	.41	.08	1.00	.52	.67	.55
8	Sense of Belonging W2	−.08	−.25	−.22	−.48	.25	.49	.36	1.00	.52	.39
9	Respectful Engagement W1	−.28	−.07	−.37	−.13	.29	.09	.57	.37	1.00	.46
10	Leadership Support W1	−.21	−.15	−.44	−.30	.41	.21	.47	.28	.43	1.00

Note. Correlations among latent factor scores above and among sum scores below diagonal; W1 = First wave (pre-lockdown), W2 = Second wave (post-lockdown).

sures (SD = 0.75 and SD = 0.77, respectively), indicating that these experiences varied more during lockdown than prior to it.

3.2. Quantitative results of interpersonal work resources

The correlation coefficients between the study measures are presented in Table 4. As expected, the well-being measures (exhaustion, cynicism, and work engagement) were significantly correlated with each other concurrently (|.25|–|.67|), and autocorrelations over time were moderate (|.31|–|.44|). The first wave of interpersonal resources, respectful engagement and leadership support, were concurrently moderately correlated with the well-being measures (|.21|–|.57|). The longitudinal associations between interpersonal resources and well-being measures were, as expected, weaker (|.07|–|.37|).

In the longitudinal mediation models for each well-being measure (Table 5), the concurrent associations in the first wave showed that interpersonal work resources were negatively associated with exhaustion and cynicism, and positively associated with work engagement and sense of belonging. The associations were statistically significant, except for the correlation between leadership support and exhaustion, thus largely supporting Hypothesis 2a.

Concerning the longitudinal associations, there were statistically significant indirect relations between pre-lockdown interpersonal resources and post-lockdown cynicism and a sense of belonging via pre-lockdown respective autoregressors. Respectful engagement was also indirectly negatively related to exhaustion during lockdown. Additionally, pre-lockdown respectful engagement was directly positively related to a stronger sense of belonging in the post-lockdown measure, even when the prior sense of belonging was considered. These findings imply that pre-pandemic interpersonal work relationships could protect from decreases in well-being during the lockdown, thus supporting Hypothesis 2b.

3.3. Qualitative results on burnout and work engagement during school lockdown

In line with the quantitative data, exhaustion was frequently brought up in the open-ended responses (n = 63; see Table 6 for example responses). School personnel frequently referred to work demands in terms of high workload along with insufficient time resources, and the difficulties in differentiating work and personal life. Remote work challenged daily routines, often meaning workdays without proper breaks, and it was described as difficult to cut loose from work. Physical burdens were brought up as an exhausting aspect of remote work, with references to the long days sitting by the computer, often without proper work ergonomics.

Responses reflecting cynicism, in turn, were scarce, thus corroborating the quantitative findings of no change. However, such experiences were not completely absent (n = 10). The few responses identified described feelings of inadequacy as regards providing support for students, deep loneliness leading to apathy, and loss of interest toward students or work in general.

The responses classified as work engagement were largely in line with our expectations (Hypothesis 3); although the average work engagement decreased in the quantitative measures, we identified positive expressions of learning new things, enjoyment, empowerment, and personal growth in the qualitative data (n = 59, Table 6). Some responses were clearly implying inspiration from this new experience (n = 9). Most typically, however, positive experiences were related to learning new skills (mostly ICT skills) or to successful online interaction with stu-

Table 5
Longitudinal Mediation Models Explaining Work Well-being Outcomes: Exhaustion (EXH), Cynicism (CYN), Work Engagement (WE), and Sense of Belonging (SB) by Pre-Lockdown (W1) Respectful Engagement (RE) and Leadership (LE).

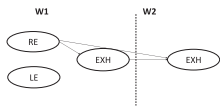
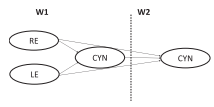
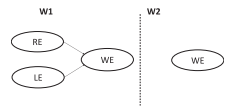
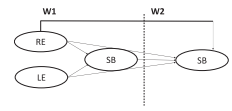
Outcomes	Model 1: Exhaustion (Burnout Dimension)	Model 2: Cynicism (Burnout Dimension)	Model 3: Work Engagement	Model 4: Sense of Belonging
Concurrent Paths At W1				
Resp. Eng.	−0.43 (0.10)***	−0.22 (0.06)***	0.13 (0.05)*	0.60 (0.06)***
Leadership	−0.13 (0.09)	−0.33 (0.06)***	0.33 (0.05)***	0.29 (0.05)***
Longitudinal Direct Paths from W1 to W2				
Autoregression	0.40 (0.15)**	0.36 (0.11)***	0.32 (0.17)	0.36 (0.16)*
Resp. Eng.	−0.01 (0.24)	−0.08 (0.12)	−0.03 (0.16)	0.41 (0.18)*
Leadership	−0.09 (0.20)	−0.15 (0.12)	0.17 (0.15)	0.07 (0.16)
Indirect Effects from W1 to W2				
Resp. Eng.	−0.17 (0.08)*	−0.08 (0.03)*	0.04 (0.03)	0.22 (0.10)*
Leadership	−0.05 (0.04)	−0.12 (0.04)**	0.11 (0.06)	0.10 (0.05)*
Statistically significant paths, $p < .05$ x (See Fig. 1).				

Table 6
Thematic Classification of the Open-Ended Responses, Example Responses, and the Number of Responses in which the Theme Was Identified.

Theme	Contents	Example Responses	*n*
Exhaustion	Tiredness, work load, work influencing personal life, physical, psychological, and social burdens	The working hours were stretched from morning to late evening, because during the working day I also had to take care of family everyday life, remote preschool, etc. Evenings (20–22) and weekends I used to plan the following days to get the days rolling. Separating work and leisure was really challenging. (Classroom teacher) For a teacher, it is difficult to separate work from life when you work at home because then school work is present all the time. (Subject teacher) The physical burden is huge when you sit by a computer much more than usual. Work ergonomics is not very good at home. In the beginning, one had to work 24/7. That is too much. (Subject teacher) The mental burden caused by work increased hugely. (Classroom teacher)	63
Cynicism	Loss of motivation, inadequacy, apathy, and high negativity	I had a lot of feelings of inadequacy for my work. (Classroom teacher) I live alone, and I was very isolated. Contacts were only online. I was under mental strain. I had to cope because of the students. After the online teaching sessions, I was often hit by anxiety, and my night's sleep was deprived. (Subject teachers) I did not have strength/resources to be genuinely interested in the students, because I had to take care of my own children at the same time. Of course, I did my work and took care of students, but normally in school, reactions came from the heart. Now I just dealt with issues that came up. (Subject teacher)	10
Work Engagement /Positive Views	Learning new things, high motivation, inspiration, enthusiasm, energy, and personal growth	My stress levels decreased, because I was not burdened by the hectic daily work at school:). (Classroom teacher) Distance learning brought a new and inspiring challenge: the joy of learning. (Subject teacher) This was a burdensome yet tremendous experience. (Special education teacher) But I did megalomanic workdays, writing, inventing, and finding appropriate excercises. When both parties were committed (referred to parents), the results were awesome, and it brought pleasure, at least to myself. In that, using time was irrelevant…However, wouldn't have been able to continue work as such for very long term. This gave a new boost to well over 20 years of work career:). (Classroom teacher)	9/59[a]
Collegial Relationships	*Positive*: Togetherness, team spirit, collaboration, communication, help, and support	The shared practices and experiences of success (as well as failures) motivated and helped to cope with the situation. (Teacher assistant) There was a great desire in the work community to help and encourage others. (Subject teacher) Better ideas were shared among colleagues than before. Our digital tutors were excellent. Joint meetings were more focused. (Classroom teacher) The team spirit strengthened; we supported each other by listening and discussing together. (Student instructor)	49
	Negative: Negative communication, climate	Remote work was done with varied inputs in the work community; this seems unequal. (Subject teacher) Fatigue is reflected in communication among adults. (Classroom teacher) The large amount of work and the large amount of new technology clearly tightened the atmosphere in the work community. (Classroom teacher)	14[b]
Leadership	*Positive*: Provide facilities, support, listen, encourage, and understand	Our school offered top facilities to implement remote learning. Management support was, therefore, complete in these respects. (Subject teacher) Principal's positivity, calmness, and understanding. (Classroom teacher) I felt that the support and understanding of our leaders were key to the teachers' coping at work during the distance work period. (Subject teacher) The principal and the management team kept in close contact, and together, we discussed how the work would be limited. Our work was appreciated. (Classroom teacher)	9
	Negative: Unclear/rigid/ lack of instructions or support, and absence	The dictatorial and vague instructions of the management left the teacher to survive alone. Remote learning was not adequately instructed, and common methods were not adopted. The boss's harshness also caused an atmosphere of fear. (Classroom teacher) Unequal treatment between employees. Employees were forced to take annual leave, even if the work was remote. (Teacher assistant) Supervisors' support was missing during the remote work period. The instructions received were loose, and I felt good about them, and it gave space to create my own solutions to suit the nature of my own work. (Teacher assistant)	23

Note. A total of 140 respondents referred to work conditions (resources and demands) or work well-being during lockdown.
[a] Expressions of enthusiasm, energy, or high motivation were fewer ($n = 9$) than other positive comments.
[b] There were additionally comments expressing missing or colleagues ($n = 9$).

dents or collaboration with their parents. A few respondents referred to reduced work demands as the work environment moved from school to home. Nevertheless, most responses with a positive tone included comments of the time being intensive and exhausting. One classroom teacher literally expressed "being swallowed by remote work" when explaining how it was difficult to set limits to work. For others, being absorbed by work was an inspiring experience. Overall, even the respondents who had fairly positive experiences expressed relief about the prospect of going back to normal, or as one subject teacher commented about the newly learned skills, "I can continue to use them—hopefully only as part of my job".

Overall, health impairment and motivational processes appeared to be mixed. Some respondents seemed to cope better, or even enjoy the challenges and new opportunities at work, while some described having a very difficult time. Nevertheless, the exhausting nature of the lockdown period was evident in these data, with only a few respondents experiencing it as a respite compared to normal hectic work at school.

3.4. Qualitative results of interpersonal work resources during lockdown

The descriptions concerning collegial relationships were predominantly positive ($n = 49$, Table 6), implying that colleagues were viewed as an important and available work resource during the lockdown. Collaboration, team spirit, or support among colleagues were often mentioned, and in some responses, team spirit was experienced as even improved, or work community was viewed as stronger than before. Also, remote team meetings were described positively. The negative comments were fewer ($n = 14$) including descriptions of misunderstandings through online communication, negative communication due to fatigue, or uneven time and effort investment in work. Additionally, respondents expressed missing colleagues ($n = 9$), which could be interpreted as positive (e.g., colleagues as important) or negative given the situation.

While collegial relationships were mentioned often, and mostly positively, leadership was brought up in fewer responses ($n = 32$), and more often in a negative tone ($n = 23$, Table 6). The positive comments ($n = 9$) referred to leadership as supporting, caring, and listening during the crisis. Leaders were also considered important in providing facilities. Moreover, a couple of respondents expressed gratitude for the increased autonomy, although in these specific responses, leaders' absence and non-participation were also criticized. Other negative comments on leadership typically referred to too little or unclear or, in some cases, too rigid and inflexible instructions. Some respondents even described a leader as having been harsh and condemning, which was experienced as unmotivating. These comments emphasize the need for emotional and instructional support while being able to make own decision without fear of being condemned. Overall, respondents wished for stronger leadership attendance, support, and guidance, as one teacher assistant commented: "It would have been great if the leaders would have even occasionally asked how we are doing.

4. Discussion

4.1. Was school lockdown a risk for school personnel well-being?

In this two-wave mixed-method study, we used the JD-R model (Bakker and Demerouti, 2017; Bakker et al., 2005; Demerouti et al., 2001) as a framework to examine changes in school personnel well-being before and after the two-month school lockdown in spring 2020. After lockdown, school personnel reported more exhaustion, less work engagement, and a lower sense of belonging than before lockdown, and exhaustion was the most prominent theme identified in the open-ended responses. The demands experienced as taxing one's well-being were largely in line with the previous literature on the COVID-19 pandemic (Chan et al., 2021; Rudolph et al., 2021; Sokal, Eblie Trudel, & Babb, 2020). Respondents typically referred to work overload, difficulties separating work and personal life, poor work ergonomics, increased screen time, challenges in online communication, and loneliness. These results imply that school lockdown, as a highly demanding situation, increases the risk of burnout (in line with Hypothesis 1) and decreases the sense of belonging (Hypothesis 1c). Work engagement, measured as energy and enthusiasm, also decreased, although we anticipated no average changes based on previous studies identifying engaged and inspired teachers (Anderson et al., 2021; Pöysä et al., 2021). However, the more detailed analyses provided more nuanced perspective on the respondent's experiences.

First, cynicism did not show the expected increase from the pre- to post-lockdown measure, and only a few respondents expressed disinterest or highly negative feelings in the post-lockdown survey. In previous literature, negativity toward work is considered a coping response to continued demanding work situations, and based on longitudinal studies, health impairment is sequential to exhaustion (Houkes et al., 2011; Leiter and Maslach, 1988; Taris et al., 2005). The school lockdown in Finland started suddenly in mid-March 2020, and although its continuation was unclear for a long time, it lasted only two months. Possibly, the situation was experienced as passing and transitory, and therefore, stronger negative attitudes toward work were not developed despite the high demands. Overall, these results imply that the risk of school personnel's well-being was moderate at that time point, and the burnout was not, on average, deepened to the level of experiencing cynicism. However, when interpreting these results, it is important to note that some individuals did suffer more and it is also possible that the most cynical personnel did not respond to the survey.

Second, although work engagement measured as energy and dedication decreased from the pre- to post-lockdown measure, the work absorption dimension of work engagement, measured by a single item,"I am immersed in my work" (Schaufeli et al., 2017), increased. The increased absorption was also illustrated in the open-ended data in expressions such as "being swallowed" during intensive online work. However, the controversy over this dimension of work engagement was evident in these responses. Sometimes, it could be interpreted in connection to exhaustion (e.g., when described along with difficulties in limiting work), whereas in others it could be interpreted as experiencing motivational challenges and inspiration, which carried away (i.e., proxying a flow-experience; Csikszentmihalyi et al., 1990).

Third, there was also a larger variance at post-lockdown compared to pre-lockdown work engagement, and the qualitative analyses revealed that the lockdown indeed presented new opportunities for personal growth and learning for some participants, as suggested in previous literature (Anderson et al., 2021; Mäkelä et al., 2020; Rudolph et al., 2021). Thus, although our hypothesis on unchanged work engagement (Hypothesis 1b) was not straightforwardly met, our findings are in line with the findings by Pöysä et al. (2021), who identified distinct profiles of teachers with regard to burnout and work engagement. It seems that school lockdown was not a similar experience for all, and for some, it seemed to represent a challenge demand instead of a hindrance demand (Albrecht, 2015; Crawford et al., 2010; Olafsen and Frølund, 2018; Vinod-Nair et al., 2020).

Finally, like work engagement, the sense of belonging decreased on average from the pre- to post-lockdown measure but with a larger variance at post-lockdown. The qualitative part of the study demonstrated how the respondents missed work communities and commented on being lonely, corroborating with the observation of a decreased sense of belonging. However, some respondents also described how the work community had grown even tighter, and that collaboration and support was more tangible than before. Thus, our study showed that pandemic crises can also enhance mutual support and team spirit as a consequence of facing the challenge together despite a lack of face-to-face contacts (as suggested by Rudolph et al., 2021). These results demonstrate again that the experience was not similar to all. There were also seemingly contradictory experiences; the same person could describe missing colleagues yet at the same time emphasize the team spirits and frequent connections (virtually) with colleagues. Based on these observations, it

is clear that virtual connections were not completely compensating the face-to-face contacts in everyday school life.

4.2. Did interpersonal work resources buffer from burnout and boost work engagement?

The job demands and resources model builds on the propositions that the health impairment process is caused by increased job demands that exceed one's capabilities, and that it can be buffered by adequate job resources (Bakker and Demerouti, 2017; Schaufeli and Bakker, 2004). At the same time, job resources can boost the motivational process reflected in enhanced work engagement (Bakker et al., 2005, 2007). In this study, the interpersonal work resources, both respectful collegial relationships and leadership support, were concurrently, prior to lockdown, negatively related with burnout, and positively with work engagement and sense of belonging (i.e., supporting Hypothesis 2a). All effects were statistically significant, except for leadership support in relation to exhaustion.

In the longitudinal analyses, pre-lockdown respectful engagement was indirectly related with less exhaustion and cynicism and a higher sense of belonging. Leadership support was related to less cynicism and a higher sense of belonging through enhanced levels of the respective indicators prior to lockdown (supporting thus partly Hypothesis 2b). This finding could be interpreted as a resilience effect (Granziera et al., 2020), in which interpersonal resources build well-being in normal circumstances, which can then support personnel in coping with the crisis. The mechanism could also be explained by increased adaptability (Collie and Martin, 2016), which has previously been related to principal's support and considered an important capacity to meet the inherent changes and demands in teaching occupation (Collie and Martin, 2017). Naturally, measuring resilience and adaptability would provide us with more direct information on the mechanism through which the support effectuates.

Respectful engagement among colleagues prior to lockdown was also directly related with a higher sense of belonging during lockdown beyond the previously measured sense of belonging. Thus, respectful engagement at work can support work communities in maintaining a sense of belonging despite isolation. This is an important message for school communities; supporting respectful interpersonal relationships at work can increase work community connectedness during unexpected isolation.

4.3. What was the role of interpersonal work resources during lockdown?

As respectful and supportive relationships among colleagues or leadership were not measured during lockdown, we could not use the quantitative data to estimate changes in these experiences, or their concurrent association with well-being during lockdown. However, the qualitative part of the study demonstrated that collegial relationships (e.g., collaboration and support) were salient and readily available resources during the lockdown, and they were also explicitly singled out as being important for coping with the challenging time. Although respondents were missing face-to-face contact with colleagues, majority had positive experiences. Overall, as previous literature suggests, the effective use of online environments to enhance virtual teamwork can produce positive collaborative experiences (Rudolph et al., 2021), even though they may not completely compensate for the face-to-face connections among school personnel.

In contrast to collegiality, leadership was often brought up in a negative tone in school personnel's descriptions. Many respondents described leadership support as rather weak or absent, or critique was expressed due to unclear, vague, or too rigid guidelines by management. Unfair work division and workload were also brought up in many comments referring to management. Leaders were sometimes seen as participating too little in planning the work together. Moreover, harsh and condemning leadership was explicitly mentioned as an unmotivating factor during the lockdown.

Leadership support was nevertheless pointed out as key to better coping. Positive leadership was expressed through leaders being understanding, respectful, and participatory (i.e., listening and planning together). Moreover, autonomy support and leaders providing facilities to support work were mentioned. As clear guidelines were mostly lacking in the unexpected crisis, personnel may have needed encouragement to invent their own innovative solutions without fear of critique if they failed. These findings are in line with the reflections by Van Bavel and colleagues (2020) of leaders participating in sharing burdens with employees, and notions that trust and respect are keys for cooperation, whereas threats and sanctions create merely a climate of distrust.

4.4. Limitations

Our study has limitations that should be considered. First, not all measures were repeated in the second wave. It would have been interesting to see the changes in respectful engagement and leadership during the lockdown. The changing conditions likely also changed the availability of these interpersonal resources and, thus, may partly explain the weak longitudinal effects.

Second, some measures were not psychometrically optimal, and factor analyses would have benefited from more items. However, given the stressful situation for school personnel, implementing a longer survey could have brought the risk of an even smaller sample of respondents answering the survey.

Third, the data were collected in a specific part of Finland and were relatively small. Although the study findings are likely similar in other parts of Finland due to the rather homogenous population and school system, generalizability to other countries can be questioned. Moreover, the responses to the post-lockdown survey were especially scarce, which is likely due to the tiredness of school personnel in general. The representativeness of the sample size thus needs to be considered; it is possible, for instance, that the most tired personnel did not respond. A larger sample would also have allowed to examine the between-school differences in relation to responses to the situation. Such analyses could help to more specifically identify the contextual (organizational) protective factors, which can help to face similar crises in the future.

Finally, all the school personnel did not provide personal information in the pre-lockdown survey, which was used to combine the datasets. Contact information was requested at the end of the survey. In the future, identification information should be asked at the beginning of the survey, and perhaps anonymous identifiers could be a solution to collect longitudinal data without the need to ask for identity information.

5. Conclusions and practical implications

Spring 2020 was a highly taxing time for school personnel. It may be impossible to reduce the increased workload and burdens directly in such a crisis, but as this study shows, it is possible to locate resources to help school personnel cope with the demands, and even turn the demands into motivating challenges.

First, this study highlights collegial relationships as a salient work resource that provides both emotional and practical support for school personnel. In our sample, however, there were members of the school communities who felt very lonely and isolated. Thus, although school personnel are clearly self-organized in collaboration, more effort needs to be made to ensure that all members are included in the work community. Moreover, in a changed situation, it is essential to plan work together, including all members of the school community, to ensure that the work division is fair and that all members have meaningful roles.

Second, leaders providing encouragement and emotional support seem to contribute to the well-being of the work community during such an uncertain time. Listening to and understanding personnel and participating in the work community are especially important leadership

qualities during a crisis. It is important to support personnel autonomy, but this does not mean leaving the personnel alone to survive. Servant and compassionate attitudes by a leader are likely keys to supporting personnel to cope with the challenges. In contrast, strict instructions and condemning attitudes are ill-suited in the changing and insecure situation, when no one really knows the best way to operate.

Finally, there may be several other resources that can help school personnel cope with the demanding situations and burdens described in this study. For instance, being able to prioritize work, modify working modes, and have enough recovery time during intensive work time are important factors that support well-being in the long run. Explicitly raising these factors in the work community and by a leader is important. Leaders can, for instance, suggest walking meetings (or allowing participants to go walking when having a meeting), encourage new solutions for teaching and support (e.g., taking students to an outside lesson), and frequently remind personnel to keep short breaks, to have enough recovery time, and to take care of themselves. Also, by modeling such caretaking behaviors themselves, leaders can set the norms in their work communities. Our data clearly demonstrated that school personnel did their best to help and support students, some even compromising their own health while doing so. Therefore, it is crucial that leaders understand and emphasize that taking care of oneself is the key to be able to continue providing support.

Declaration of Competing Interest

The authors in this manuscript do not have financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work, none

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