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Research paper

Teachers' occupational well-being during the COVID-19 pandemic: The role of resources and demands

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HIGHLIGHTS

- During the COVID-19 pandemic, teachers were satisfied with their job on average.
- Female teachers were more stressed and exhausted on average than their male colleagues.
- The job resources *support from colleagues* and *principal* were both positively related to job satisfaction.
- The job demand *hindrances* was positively associated with perceived stress and exhaustion.
- The personal resource *readiness to innovate* positively related to job satisfaction, *self-efficacy* negatively to exhaustion.

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ABSTRACT

During the COVID-19 pandemic, teachers suddenly faced multiple challenges related to closed schools and remote teaching. This study investigated teachers' occupational well-being (stress, exhaustion, job satisfaction) and its relation to job resources (e.g., support from colleagues), job demands (e.g., technical difficulties), and personal resources (e.g., self-efficacy with digital media). 3250 teachers (82.8% female, $M_{age} = 40.16$) throughout Germany answered an online survey on resources, demands, and occupational well-being. The resource support *from colleagues* was particularly positively related to job satisfaction and negatively to stress and exhaustion. The results pattern remained mostly stable after including personal resources in the model.

1. Introduction

In early 2020, the global COVID-19 pandemic commenced. Schools in many countries the world over were suddenly shut down (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020a). Overnight, learning was trans-located to students' homes, and teachers had to teach remotely. Both the crisis itself and the challenge of continuing to teach and learn despite school closures strained teachers and affected their occupational well-being (e.g., Bintliff et al., 2020; See et al., 2020; Ziebell et al., 2020).

Teachers' occupational well-being is of high relevance for several reasons. Alongside being valuable on its own and crucial for positive functioning, teachers' occupational well-being is related to instructional quality, which in turn is considered an important antecedent of students' educational outcomes (e.g., Braun et al., 2019; Klusmann et al., 2008; Pianta & Hamre, 2009). Hence, national guidelines for maintaining teachers' well-being during the COVID-19 pandemic were developed in some countries (e.g., Ireland: Department of Education and Skills, 2020).

In general, teachers as a professional class are satisfied with their job, but also report feeling stressed or exhausted (e.g., Bottiani et al., 2019; Klusmann et al., 2008; Mullis et al., 2017). In the heuristic job demands-resources model, various job-related resources and demands, such as support or work-home conflict, are posited to be associated with well-being. Furthermore, beyond job-related aspects, personal resources like self-efficacy are also importantly related to well-being (e.g., Bakker & Demerouti, 2017; Schaufeli & Taris, 2014).

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This study focused on teachers' occupational well-being in the context of the COVID-19 pandemic due to the fundamental importance of this topic. Prior studies, some of which were qualitative or based on smaller sample sizes, have revealed some initial relevant insights, albeit mostly focusing on negative facets of well-being (e.g., Bintliff et al., 2020; See et al., 2020; Ziebell et al., 2020). Moreover, important first empirical results exist concerning correlations between job resources/demands and some aspects of teachers' well-being (Sokal et al., 2020a, 2020b). However, there is still a need for further research. Based on theoretical considerations, this study simultaneously investigated multiple further important job-related aspects that could be highly relevant during challenging times. Accordingly, job resources, such as pre-pandemic use of information and communication technologies (ICT), support from colleagues and principal, as well as job demands, like professional challenges and hindrances relating to technical issues, for example, were analyzed as crucial determinants of various negative as well as positive aspects of teachers' occupational well-being with a large sample size. Furthermore, to increase our understanding of central personal resources such as readiness to innovate, openness, and self-efficacy with digital media, the study systematically tested these relations as well. The focus on these malleable variables might help promote and maintain teachers' well-being in the future — both in general as well as during challenging periods and crises.

1.1. Teachers' occupational well-being

Subjective well-being is a broad and multidimensional construct (Granziera et al., 2021; Seligman, 2011) for which no clear and widely established definition exists. It generally describes how a person feels and thinks about certain domains of life and life in general (Diener et al., 1999). Several approaches exist in the field of subjective well-being. One prominent perspective is the hedonic approach (Eid & Larsen, 2008; Ryan & Deci, 2001). This approach distinguishes between affective and cognitive components as core aspects of psychological well-being (Diener, 1984; Diener et al., 1999). Positive and negative affect are facets of the affective component (Bradburn, 1969), while cognitive evaluations regarding global or domain-specific satisfaction make up the cognitive component (Diener et al., 2013; Kleinkorres et al., 2022). Global evaluations are attitudes and beliefs concerning life in general, whereas domain-specific evaluations refer to a certain area, such as one's occupation (Schimmack, 2008).

Teachers' occupational well-being constitutes a specific domain of well-being. Important aspects of teachers' occupational well-being are perceived stress, exhaustion, and job satisfaction (e.g., Klusmann et al., 2008). According to Kyriacou (2001), teachers' *stress* refers to negative experiences that are directly related to their work as a teacher. These negative experiences include, for example, negative emotions such as frustration or tension. Perceived *exhaustion* involves feeling listless and emotionally drained. Emotional exhaustion is one of three symptoms of the psychological syndrome known as burnout and is the result of perceiving occupational stress over a long period of time (Jennett et al., 2003; Lee & Ashforth, 1990). The *job satisfaction* construct refers to teachers' sense of pleasure in teaching, meaning that their evaluation of their job situation is positive (e.g., Mullis et al., 2017; Weiss, 2002).

Teachers are key actors in everyday school routines. For example, they have to prepare instruction, teach classes, assign grades, and monitor students. In total, the expectations and demands placed on teachers are multifaceted and ubiquitous—meaning that teachers must have the ability to meet a variety of different requirements (Klusmann & Waschke, 2018).

Recognizing this, more research has been conducted in recent years on teachers' occupational well-being (e.g., Benevene et al., 2020). This research has revealed that teachers feel stressed in their jobs on average (e.g., Chaplain, 2008; Klassen & Chiu, 2010; Schwarzer & Hallum, 2008). These findings are in line with the fact that teaching is often included in the list of high-stress professions. In about one-quarter of teachers reported experiencing teaching as very stressful (Kyriacou, 2001). Moreover, teachers also reported being exhausted (e.g., Skaalvik & Skaalvik, 2011). However, despite feeling stressed and exhausted, teachers are on average satisfied with their job (e.g., Collie et al., 2016; Mullis et al., 2017). Teachers' job satisfaction, in turn, is negatively associated with stress and exhaustion (Klassen & Chiu, 2010; Klusmann et al., 2008; Malinen & Savolainen, 2016; Skaalvik & Skaalvik, 2014).

Teachers' personal characteristics, which make up a part of who they are as individuals, can impact how they think about their work (e.g., Tran, 2015; Wang et al., 2015). Thus, it has been found that female teachers have higher levels of job-related stress compared to male teachers, but also report higher job satisfaction (e.g., Antoniou et al., 2006; Bottiani et al., 2019; Chaplain, 2008; Klassen & Chiu, 2010; Skaalvik & Skaalvik, 2011). Moreover, age is related to teachers' occupational well-being, with older teachers reporting greater well-being compared to younger teachers (e.g., Gloria et al., 2013; Shresta, 2019; Skaalvik & Skaalvik, 2011). In addition to personal characteristics, an individual's environment is also of interest. One important environmental factor is the school. Accordingly, some studies reported relations between teachers' well-being and school type (e.g., elementary vs. secondary), with elementary school teachers reporting higher job satisfaction than secondary school teachers; however, other studies did not find a significant relation (e.g., Butt et al., 2005; Collie et al., 2015; Gloria et al., 2013; Perie & Baker, 1997; Skaalvik & Skaalvik, 2011). The associations between well-being and individual and school demographic characteristics such as gender, age, and school type can be theoretically explained with Bronfenbrenner's (1979) ecological systems theory, which seeks to model the complex sociocultural environment. Besides personal factors, the model is used to describe the environment faced by teachers and thus accounts for different factors influencing teachers' well-being (Cross & Hong, 2012; Price & McCallum, 2015; Roffey, 2012). Even though aspects like gender, age, and school type are not modifiable, it is important to analyze and understand the relations between them and well-being during challenging times, for example, in order to identify potential "at-risk" groups.

1.2. The heuristic job demands-resources model and teachers' occupational well-being

Alongside general factors, specific job-related resources and demands are of high relevance for teachers' occupational well-being. The widely-applied heuristic job demands-resources model (Bakker & Demerouti, 2007, 2017; Bakker et al., 2005; Schaufeli & Taris, 2014) posits direct relations between job resources/demands and employee outcomes. Working conditions in all occupations can be classified as either resources or demands (e.g., Demerouti et al., 2001) and can potentially impact well-being (e.g., Schaufeli & Taris, 2014). The model is quite popular to explain employees' health and performance because it is very broad and can encompass all potential job resources and demands. Due to the model's flexibility, it has been frequently refined, and different factors have been defined as resources or demands and integrated into it (e.g., Bakker & Demerouti, 2017; Schaufeli & Taris, 2014). In recent years, it has also been more often applied to teachers' occupational situation (e.g., Granziera et al., 2021; Klusmann et al., 2008).

1.2.1. Job-related resources and demands and their relation to teachers' occupational well-being

Job resources can be seen as positive job characteristics (Schaufeli & Taris, 2014). Resources are physical, social, or organizational in nature and expected to be important for achieving work goals, stimulating growth and development, and reducing job demands and physiological and psychological costs (e.g., Demerouti et al., 2001). It is assumed that resources are positively related to positive aspects of well-being like engagement, and negatively related to negative aspects like burnout (e.g., Schaufeli & Bakker, 2004; Schaufeli & Taris, 2014). During the COVID-19 pandemic, when digitally supported remote teaching was unavoidable for many teachers (König et al., 2020; Misirli & Ergulec, 2021), teachers' prior teaching-related *ICT usage* could be an important resource. In general, ICT usage is an integral part of teachers' and other professionals' work and can be defined as a resource due to the fact that it assists teachers in completing their work, reduces job demands, and promotes personal growth and development (Day et al., 2010). International comparisons have repeatedly showed that teachers in Germany use digital media less frequently in the classroom than their colleagues from other countries, although both international and national studies have revealed a trend of increasing use of digital media by teachers in Germany (e.g., Drossel et al., 2019; Eickelmann et al., 2014; Fraillon et al., 2020; Lorenz et al., 2017). The prominent job resource of *social support* (e.g., Schaufeli & Taris, 2014) is known to be beneficial for teachers' well-being (e.g., Aelterman et al., 2007). Accordingly, Doménech-Betoret et al. (2015) revealed that support from colleagues was negatively associated with exhaustion, meaning that teachers' mean level of perceived exhaustion was lower when they received more support. Other cross-sectional studies have likewise demonstrated the importance of support from colleagues or the principal for numerous aspects of teachers' well-being (e.g., Bottiani et al., 2019; Briones et al., 2010; Collie et al., 2016; Skaalvik & Skaalvik, 2018). Thus, co-workers and school leaders play an important role in teachers' well-being, especially during these extraordinary times.

Alongside job resources, job demands are also of importance in this framework (Schaufeli & Taris, 2014). Demands are also physical, social, or organizational in nature, but require steady mental or physical effort (Demerouti et al., 2001). Demands are associated with psychological costs and particularly positively related to negative aspects of employees' well-being, such as burnout (e.g., Hu et al., 2011; Schaufeli & Bakker, 2004; Schaufeli & Taris, 2014). During the COVID-19 period, where most interaction was digital, work overload as well as *technical* or *computer problems* respectively were prominent examples of job demands (Schaufeli & Taris, 2014) and thus important to investigate. Based on their meta-analysis, Crawford et al. (2010) classified demands into the two categories *challenges* and *hindrances,* providing a more differentiated view. According to Crawford et al. (2010), unlike hindrances, challenges can actually be positive if they have the potential to lead to personal growth and learning. Hindrances reflect demands that are perceived as negative. Therefore, positive challenges are related positively and hindrances negatively to engagement, as one positive employee outcome (e.g., Bakker & Demerouti, 2017; Crawford et al., 2010). Bakker and Demerouti (2017) called for further research to investigate under which conditions job demands act as a challenge or hindrance.

1.2.2. Personal resources and their relations to teachers' occupational well-being

Alongside job resources and demands, various personal resources and demands are also directly related to various employee outcomes (e.g., for an overview see Bakker & Demerouti, 2017;

Schaufeli & Taris, 2014). In the pandemic context, teachers' personal resources are of particular interest. Teachers' job-related *readiness to innovate* could be an important resource for overcoming the various challenges posed by the pandemic. In general, little is known about this issue. Readiness to innovate, defined as employees' willingness to try out new things, seems to be especially beneficial for job satisfaction (e.g., Sameer, 2018). Moreover, teachers' personality is related to their well-being (e.g., Kim et al., 2019; Kokkinos, 2007; MacIntyre et al., 2019). For example, *openness* is positively correlated with teachers' overall well-being (MacIntyre et al., 2019). This trait describes how curious and inventive or cautious a person is. Thus, it could be of special interest in times of crisis when it is important to react flexibly. Alongside personality, *self-efficacy* is another important resource (e.g., Salami, 2010). Following social cognitive theory, self-efficacy can be conceptualized as belief in one's own abilities (Bandura, 2006), which underlines its particular importance in challenging times. With respect to COVID-19 pandemic and remote teaching, teachers' self-efficacy with digital media is of special interest, which is defined as their belief that they are competent in dealing with digital media for different purposes, such as ICT instruction (e.g., Hatlevik & Hatlevik, 2018). Teachers' general self-efficacy with digital media is relevant for their ICT self-efficacy for instructional purposes and for their use of ICT in the educational context (Hatlevik & Hatlevik, 2018). In recent years, this type of self-efficacy has increased significantly (Seufert et al., 2021). In general, teachers' self-efficacy has been found to be negatively associated with their stress and exhaustion and positively associated with job satisfaction (e.g., Bottiani et al., 2019; Skaalvik & Skaalvik, 2010; Zee & Koomen, 2016). In particular, whether self-efficacy with digital media is related to teachers' occupational well-being is unclear at present. To sum up, the job-related resources and demands introduced above as well as teachers' personal resources can be seen as malleable and relevant for teachers' well-being, even or especially in challenging times. Thus, it is of importance to investigate their relations to well-being in order to define starting points for interventions or support, for example.

1.2.3. Teachers' occupational well-being during the COVID-19 pandemic and the job demands-resources model

Zooming in on the COVID-19 pandemic and resulting lockdown, teachers suddenly faced an enormously challenging situation. For example, technical difficulties arose during the attempt to quickly and suddenly implement digital distance learning. These technical difficulties occurred in addition to everyday challenges, such as caring for one's own children at home, and included the need for teachers to manage their virtual classes and develop remote learning materials in order to continue teaching in the new distance format (UNESCO, 2020b; 2020c; Ziebell et al., 2020).

Several studies focusing on different aspects of teachers' (occupational) well-being or teachers' mental health during the lockdown period were conducted. See et al. (2020) reported that a sample of more than 3400 teachers in England felt happy and cheerful on average. Most of the surveyed teachers indicated that they had no to little experience in online teaching and found online teaching stressful. Aperribai et al. (2020) explored how 345 teachers in Spain were affected by the crisis, including their emotional problems. The results showed that teachers reported experiencing high levels of distress during the lockdown. Also focusing on teachers in Spain, Ozamiz-Etxebarria et al. (2021) showed that when schools were reopened again, a high percentage of teachers reported stress, anxiety, and depressive symptoms. Female as well as younger teachers perceived more stress on average than male and older teachers. Another study conducted by Bintliff et al. (2020) revealed that 73 teachers in Southern California

reported a higher sense of worry. Likewise, Chan et al. (2021) found that US elementary school teachers felt exhausted and perceived high task stress. Jakubowski and Sitko-Dominik (2021) reported at least mild levels of stress, anxiety and depression among Polish teachers during the first and second waves of the pandemic. Furthermore, longitudinal studies of teachers in England showed that well-being and mental health declined during the COVID-19 pandemic (Allen et al., 2020; Kim et al., 2021). In conclusion, prior studies have investigated teachers from cultures other than Germany and mostly revealed that teachers experienced negative emotions. The main focus was on negative aspects of well-being. Thus, not much is known with respect to job satisfaction in challenging times. Due to the high importance of teachers' well-being, this study thoroughly investigated teachers' well-being during times of crisis like the present with a more holistic approach.

To date, only a few studies have used the job demands-resources model to explain teachers' well-being during the COVID-19 pandemic (e.g., Chan et al., 2021). Sokal et al. (2020a) found for Canadian teachers that resources such as support from peers were significantly positively associated with exhaustion, whereas support from administrators was significantly negatively related to exhaustion. Demands such as technology issues correlated significantly positively with exhaustion. Furthermore, Kim et al. (2021) found in a qualitative study that social support was associated positively with teachers' mental health and well-being, but demands such as workload were negatively associated with them. Additionally, Sokal et al. (2020b) reported significant negative relations between exhaustion and various forms of teacher efficacy (e.g., strategies) as well as various attitudes toward change (e.g., cognitive) for their first measurement point in April 2020, during the initial stage of the pandemic. Taken together, first results underscore the importance of investigating central resources and demands, especially in uncertain times. Nevertheless, there remains a need for further research to shed further light on other core job resources and demands as well as central personal resources, and to broaden our knowledge regarding other cultural groups. To sum up, due to the importance of teachers' well-being, attempts should be made to detect protective or benevolent factors. Thus, in the present study, multiple resources and demands related to teachers' well-being were examined simultaneously.

1.3. Purpose of the study and research questions

Teachers' occupational well-being is of high importance for teachers themselves and for educational processes in schools. Generally, occupational well-being is related to different factors, such as gender, age, and school type. The COVID-19 pandemic placed a very specific burden on teachers, as their schools and other educational institutions were closed suddenly and they had to teach remotely, which came along with several job and personal challenges. Consequently, various types of job resources and demands as well as personal resources might be of relevance for occupational well-being in this context. The identification of job and personal factors that contribute to teachers' well-being is of high importance and is a precondition for ensuring that schools are able to maintain teachers' well-being even during challenging times. First studies mainly investigated negative aspects of teachers' well-being. Moreover, studies on resources and demands largely took job-related, but not personal aspects into account. Thus, by focusing on another cultural group, negative as well as positive well-being aspects, and additional central job resources and demands as well as personal resources, the present study focused on extending the level of knowledge using a large sample. Against this background, the following research questions and hypotheses (H) were formulated:

1. To what extent are core aspects of teachers' occupational well-being (stress, exhaustion, job satisfaction) during times of crisis such as the COVID-19 pandemic related to fundamental characteristics (gender, age, school type)?
2. How are (a) job resources (previous ICT usage, support from colleagues, support from principal) and (b) job demands (positive professional challenges, hindrances) related to different aspects of teachers' occupational well-being during the COVID-19 crisis?
3. Do the relations between job resources/demands and occupational well-being change when personal resources (readiness to innovate, openness, self-efficacy with digital media) are included in the model?

1.3.1. Hypotheses 1

Teachers' occupational well-being should be related to their gender, age, and school type. Female teachers should perceive more stress and exhaustion, but also feel more satisfied with their job than their male colleagues (H1a, e.g., Bottiani et al., 2019; Ozamiz-Etxebarria et al., 2021). Age should be negatively associated with negative facets and positively with positive facets of teachers' occupational well-being (H1b, e.g., Shresta, 2019; Skaalvik & Skaalvik, 2011). Regarding school type, elementary school teachers should be more satisfied with their job than secondary school teachers (H1c, e.g., Butt et al., 2005; Perie & Baker, 1997).

1.3.2. Hypotheses 2

Job resources and job demands should be associated with different aspects of teachers' occupational well-being. More concretely, job-related resources should be negatively related to negative facets of occupational well-being (stress, exhaustion), but positively related to job satisfaction (H2a, e.g., Schaufeli & Bakker, 2004; Schaufeli & Taris, 2014). Hindrances should be positively related to stress and exhaustion and negatively related to job satisfaction, while the opposite pattern should arise for challenges (H2b, e.g., Bakker & Demerouti, 2017; Crawford et al., 2010).

1.3.3. Hypotheses 3

Relations should remain stable when controlling for personal resources (H3a). Furthermore, personal resources (H3b), as a kind of resilience factors, should be negatively associated with negative facets of occupational well-being (stress, exhaustion), but positively related to job satisfaction (e.g., MacIntyre et al., 2019; Sameer, 2018).

2. Method

2.1. Participants and procedure

The analyses are based on 3250 teachers (82.8% female) from across Germany. Teachers were 40.16 years old on average ($SD = 9.57$) and had a mean work experience of 12.72 years ($SD = 9.23$). The majority of participants worked at secondary schools (71.1%). All others were elementary school teachers. In Germany, all federal states implemented school closures beginning in the week of March 16, 2020 (Robert Koch Institut, 2020). Teachers took part in an online survey between mid-April and the end of May 2020. As different German schools were still completely closed, partly reopened or completely reopened during this period, we tested whether participants in these three groups differed in their occupational well-being and in the independent variables ($F(22,5648) = 3.26$, $p \leq .000$, partial $\eta^2 = 0.01$, Wilk's $\Lambda = 0.975$). Differences by school closure were found for job satisfaction, ICT usage, support by colleagues, and self-efficacy with digital media

Table 1
Differences between participants in occupational well-being and independent variables by school closure.

Measure	School is closed ($n = 1248$)		School is partly open ($n = 1556$)		School is open ($n = 33$)		F (2, 2834)	η_p^2	Post hoc LSD
	M	SD	M	SD	M	SD			
Stress[a]	2.32	0.74	2.37	0.74	2.58	0.76	2.87	.00	–
Exhaustion[a]	2.44	0.76	2.46	0.75	2.51	0.85	0.31	.00	–
Job satisfaction[a]	2.99	0.61	2.92	0.62	2.96	0.68	4.65**	.00	1 > 2
ICT usage[b]	2.83	0.82	2.94	0.77	3.23	0.86	10.77***	.01	1 < 2, 1 < 3, 2 < 3
Support colleagues[a]	2.79	0.97	2.65	0.93	2.79	0.86	7.31**	.01	1 > 2
Support principal[a]	2.66	1.01	2.57	0.99	2.63	1.08	2.77	.00	–
Positive challenges[a]	2.71	0.81	2.71	0.82	2.54	0.87	0.70	.00	–
Hindrances[a]	3.03	0.62	3.04	0.60	3.06	0.66	0.19	.00	–
Innovation[a]	3.26	0.54	3.25	0.53	3.25	0.55	0.06	.00	–
Openness[a]	3.30	0.52	3.31	0.50	3.37	0.48	0.36	.00	–
Self-efficacy[b]	3.49	0.89	3.64	0.83	3.58	0.80	10.05***	.01	1 < 2

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.
Notes.
[a] 1 = (Fully) disagree/Never or almost never to 4 = (Fully) agree/Very often.
[b] 1 = Never to 5 = Every day.

(see Table 1). Thus, in the analyses, school closure was used as a control variable for job satisfaction, ICT usage, support by colleagues, and self-efficacy with digital media. The survey was designed to take about 15 min to complete. In the beginning, teachers provided demographic information concerning their age, gender, work experience in years, and the school type in which they taught. Afterwards, they answered questions concerning their occupational well-being, job-related resources and demands, as well as personal resources. The survey was posted online on the authors' institute's website and social media channels. Participation was voluntary. Withdrawal was possible at any time during the study.

2.2. Measures

2.2.1. Teachers' occupational well-being

Current occupational well-being was measured by investigating teachers' levels of stress, exhaustion, and job satisfaction. To measure teachers' perceived workplace *stress*, a five-item scale measuring teachers' stress level was administered (Ditton, 2001). Two examples for the stress scale are: "How much do you agree with the following statements regarding your professional activities in recent weeks during the COVID-19 pandemic? During this time, I felt overwhelmed by the pressures of the teaching profession" and "The stress at work had a negative impact on my personal life". The stress scale's reliability was good ($\alpha = 0.84$). *Exhaustion* was assessed with three items from the PISA 2003 scale for teachers' exhaustion and depression (Ramm et al., 2006). Two example items measuring work-related exhaustion were "How much do you agree with the following statements regarding your professional activities in recent weeks during the COVID-19 pandemic? I often noticed how listless I was" and "Sometimes, I was really exhausted at the end of the day". The reliability of the exhaustion scale was satisfactory ($\alpha = 0.76$). The stress and exhaustion scales used the same response scale. Teachers rated their agreement with the statements on a four-point Likert scale ranging from 1 = "agree" to 4 = "disagree". Items were recoded so that higher values indicate a higher manifestation of the construct at hand. *Job satisfaction* was measured with a six-item scale based on the PIRLS 2006 and 2016 scales for job satisfaction (Hußmann et al., 2020; Mullis et al., 2006). Teachers rated how often they agreed with statements like "I am satisfied with my job as a teacher" on a four-point scale with the response options 1 = "very often", 2 = "often", 3 = "sometimes", and 4 = "never or almost

never". The items were recoded for better interpretability before analysis. This scale's reliability was also good ($\alpha = 0.87$). The three dimensions of teachers' occupational well-being were empirically supported by the data (3-factor model: $\chi^2 = 1446.45$, df = 74, $p < .05$, CFI = 0.94, RMSEA = 0.076; global model: $\chi^2 = 9269.77$, df = 77, $p < .05$, CFI = 0.57, RMSEA = 0.19; model comparison: $\Delta\chi^2 = 7823.32$, Δdf = 3, $p < .05$).

2.2.2. Job resources

Job resources were assessed by asking about teachers' previous experience with using digital media for different tasks during lessons, as well as the support and assistance they had received from colleagues and the principal. Teachers' *previous ICT usage* captured their experience using digital media for different purposes, such as teaching, learning, and providing support to individual students. It was measured with a six-item scale on the frequency with which teachers had used digital media for different purposes in their lessons prior to the pandemic. Three of the items stemmed from the Länderindikator 2017 and had therefore been previously tested with a large sample of teachers (Eickelmann et al., 2017). Based on theoretical assumptions and the existing three items, the other three items were self-constructed. Statements began with "How often did you usually use digital media in your lessons before the COVID-19 pandemic …", with examples including "for individual support (Länderindikator 2017)" or "for groupwork" (self-constructed). Response options for this scale were 1 = "every day", 2 = "once a week but less than once a day", 3 = "once a month but less than once a week", 4 = "less than once a month", and 5 = "never". All items were recoded for better interpretability. This scale's reliability was good ($\alpha = 0.81$). Support was assessed with two single-item statements. Support *from colleagues* was assessed with the statement "My colleagues were an important source of assistance during the weeks of the COVID-19 pandemic", while support *from the principal* was assessed with the similar statement "My principal was an important source of assistance during the weeks of the COVID-19 pandemic". Teachers indicated their agreement on a four-point Likert scale (from 1 = "agree" to 4 = "disagree"; items were recoded for analysis). These items were self-constructed based on theoretical assumptions and prior research indicating that support is important.

2.2.3. Job demands

Job demands were assessed with two constructs covering the two sides of job demands. Perceived *positive challenges* were

measured with a single item asking teachers to rate their agreement with the statement "I experienced many positive professional challenges during the COVID-19 pandemic". All items relating to job demands were measured with a four-point Likert scale ranging from 1 = "agree" over 2 = "somewhat agree" and 3 = "somewhat disagree" to 4 = "disagree". The negative side of job demands was assessed as well. The hindrances construct covered negative aspects such as technical and computer problems or overextension. These negative *hindrances* were assessed with a four-item scale, with the example items "Please think of the weeks of school closings due to the COVID-19 pandemic. During these weeks, too much was expected from teachers" and "During these weeks, there were many technical problems (e.g., with hardware, internet, learning management system)". This scale's reliability was merely acceptable (α = 0.67). Based on the theoretical assumptions of the job demands-resource model and the definition of job demands, the items were self-constructed and were also recoded for analysis.

2.2.4. Personal resources

Teachers' personal resources during the pandemic were measured with three different scales. *Readiness to innovate* was assessed with a scale by Klusemann (2003). It consists of four statements, to which teachers were asked to rate their agreement on a four-point Likert scale, with the options 1 = "fully agree", 2 = "somewhat agree", 3 = "somewhat disagree", and 4 = "fully disagree". The items were recoded for better interpretability before analysis. An example statement is "I like trying out something unfamiliar at my workplace." Internal consistency for the readiness to innovate scale was good (α = 0.83). Additionally, a shortened version of the German Big Five scale was used to investigate *openness* (Satow, 2012). This shortened scale comprised four items (e.g., "I like learning new things") with identical response options to the readiness to innovate scale. Again, the items were recoded for analysis. The reliability was acceptable (α = 0.79). The third scale measuring personal resources asked about teachers' *self-efficacy with digital media*. Specifically, the technological pedagogical and content knowledge (TPACK) scale developed by Schmidt et al. (2009), which was translated for and previously deployed in the Länderindikator 2016 with a large sample of teachers in Germany, was administered (Bos et al., 2016). The scale consists of five statements (e.g., "I can select digital media that allow me to better teach subject content during lessons"), with the response options 1 = "agree", 2 = "somewhat agree", 3 = "neither agree nor disagree", 4 = "somewhat disagree", and 5 = "disagree". The items on this scale were also recoded. The reliability for the TPACK scale was good (α = 0.88).

2.2.5. Sociodemographic data

In addition, teachers answered sociodemographic questions on their age ("How old are you?"), gender ("Please indicate your gender. Please select one of the following answer options: female, male, diverse"), and school type ("At which type of school do you teach? Please select one of the following answer options: elementary school, lower-track secondary education, middle-track secondary school, comprehensive secondary school, academic-track secondary school, other type of secondary school that does not award a university entrance qualification, other type of secondary school that awards a university entrance qualification"). Gender was coded as 1 = "female" and 2 = "male", and type of school as 1 = "elementary school" and 2 = "secondary school".

2.3. Data analysis

SPSS 25 was used to calculate descriptive statistics and correlations. For all other analyses, structural equation models were conducted with M*plus* 8.1 (Muthén & Muthén, 1998−2017). Goodness of fit was evaluated with the comparative fit index (CFI), root mean square error of approximation (RMSEA), and χ^2 (Hu & Bentler, 1999). Residual covariances were allowed for three item pairs to improve model fit. The constructs were latently modeled. As some constructs were measured with only one item (e.g., support from principal), the single indicator approach was used. Each of these items was modeled as a single indicator of a latent variable. A reliability value of 0.85 was used (e.g., Jöreskog & Sörbom, 1982; Petrescu, 2013). Missing data was accounted for by applying full information maximum likelihood estimations, as the missing values were missing completely at random (FIML; Graham & Coffman, 2012; Little, 2013; Little & Rubin, 2020). The control variables school closure, gender, age, and school type are not depicted in the figures for simplicity's sake. Correlations between resources and demands as well as between aspects of teachers' well-being were permitted.

3. Results

3.1. Descriptive statistics

During the COVID-19 pandemic, teachers felt only slightly stressed and exhausted on average, as indicated by the empirical mean value statistically significantly below the theoretical scale mean (see Table 2; one-sample *t*-tests for stress: $t(3056) = -11.11$, $p \leq .001$, $d = -0.20$; exhaustion: $t(3056) = -3.02$, $p \leq .01$, $d = -0.05$). Moreover, teachers were on average somewhat satisfied with their job (one-sample *t*-test: $t(3056) = 40.88$, $p \leq .001$, $d = 0.74$). The effect size was small for stress and medium for job satisfaction (Cohen, 1988). Perceived stress correlated significantly positively with exhaustion, indicating that those who reported being more stressed also felt more exhausted on average. Significantly negative relations with job satisfaction were found for both stress and exhaustion (see Table 2). Correlations between the different aspects of teachers' occupational well-being were moderate to large (Cohen, 1988).

3.2. Relations between gender, age, school type, and teachers' occupational well-being

The structural equation model revealed relations between gender, age and school type and teachers' occupational well-being (see Fig. 1). Model fit was satisfactory. Female and elementary school teachers perceived more stress compared to male and secondary school teachers. Furthermore, gender and age were negatively related to exhaustion: Female and younger teachers reported feeling more exhausted than male and older teachers. Only age was statistically significant related to job satisfaction, indicating that older teachers were less satisfied with their job than younger teachers. The effect sizes and explained variances were small (Cohen, 1988). To conclude, during the COVID-19 pandemic, the expected relations between gender and stress as well as exhaustion were found, but those between gender and job satisfaction were not. Moreover, as anticipated, age was negatively related to exhaustion; while it was not statistically significantly associated with stress, it was significantly negatively associated with job satisfaction. Therefore, the results supported Hypotheses 1a and b only partially. In addition, Hypothesis 1c concerning the relation between school type and job satisfaction was not supported.

3.3. Relations between different job resources and demands and teachers' occupational well-being

Fig. 2 illustrates the relations between different job resources

Table 2
Descriptive statistics and intercorrelations.

Variable	M (SD)	Missings	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Gender[a]	1.17 (0.38)	—	.04*	.21**	−.07**	−.09**	.01	.11**	−.08**	.01	.04*	−.09**	−.02	−.06**	.13**	.11**
(2) Age	40.16 (9.57)	—	—	.05*	.00	−.12**	−.02	.07**	−.04*	−.01	.04*	−.01	−.07**	−.07**	−.11**	.02
(3) School type[a]	1.71 (0.45)	—		—	−.05**	−.03	−.03	.22**	−.15**	−.03	.01	−.09**	−.01	.02	.17**	.41**
(4) Stress[b]	2.35 (0.74)	3.1%			—	.55**	−.31**	−.03	.01	−.14**	−.29**	.60**	−.05**	−.03	−.08**	.04*
(5) Exhaustion[b]	2.46 (0.76)	3.1%				—	−.37**	−.06**	.01	−.11**	−.43**	.48**	−.09**	−.07**	−.15**	.02
(6) Job satisfaction[b]	2.96 (0.61)	—					—	.13**	.14**	.21**	.35**	−.23**	.31**	.27**	.19**	−.05**
(7) ICT Usage[c]	2.89 (0.80)	8.3%						—	−.00	.06**	.11**	−.11**	.21**	.20**	.41**	.08**
(8) Support colleagues[b]	2.71 (0.95)	—							—	.33**	.04*	.12**	.02	.01	−.04*	−.06**
(9) Support principal[b]	2.63 (1.01)	—								—	.12**	−.09**	.03	.00	.02	−.04*
(10) Positive challenges[b]	2.71 (0.82)	—									—	−.29**	.22**	.17**	.17**	−.02
(11) Hindrances[b]	3.03 (0.61)	—										—	−.03	−.03	.01	.01
(12) Innovation[b]	3.25 (0.54)	5.9%											—	.74**	.36**	.01
(13) Openness[b]	3.30 (0.51)	5.9%												—	.34**	.02
(14) Self-efficacy[c]	3.57 (0.86)	12.7%													—	.08**
(15) School closure[d]	1.57 (0.52)	—														—

* $p \leq .05$, ** $p \leq .01$.
Notes.
[a] 1 = female/elementary school, 2 = male/secondary school.
[b] 1 = *(Fully) disagree/Never or almost never* to 4 = *(Fully) agree/Very often*.
[c] 1 = *Disagree/Never* to 5 = *Agree/Every day*.
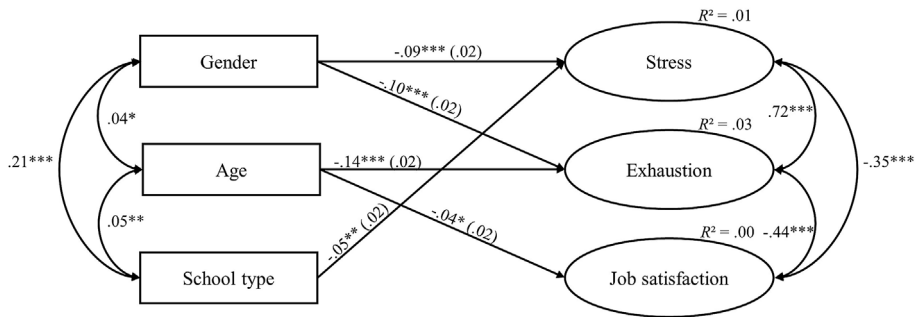[d] 1 = school is closed, 2 = school is partly open, 3 = school is open.

Fig. 1. Relations between gender, age, school type and teachers' occupational well-being. *Notes.* Only significant paths are depicted. 1 = female/elementary school, 2 = male/secondary school. Model fit: χ^2 = 1497.84, df = 118, $p \leq .001$, CFI = 0.94, RMSEA = 0.06. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.
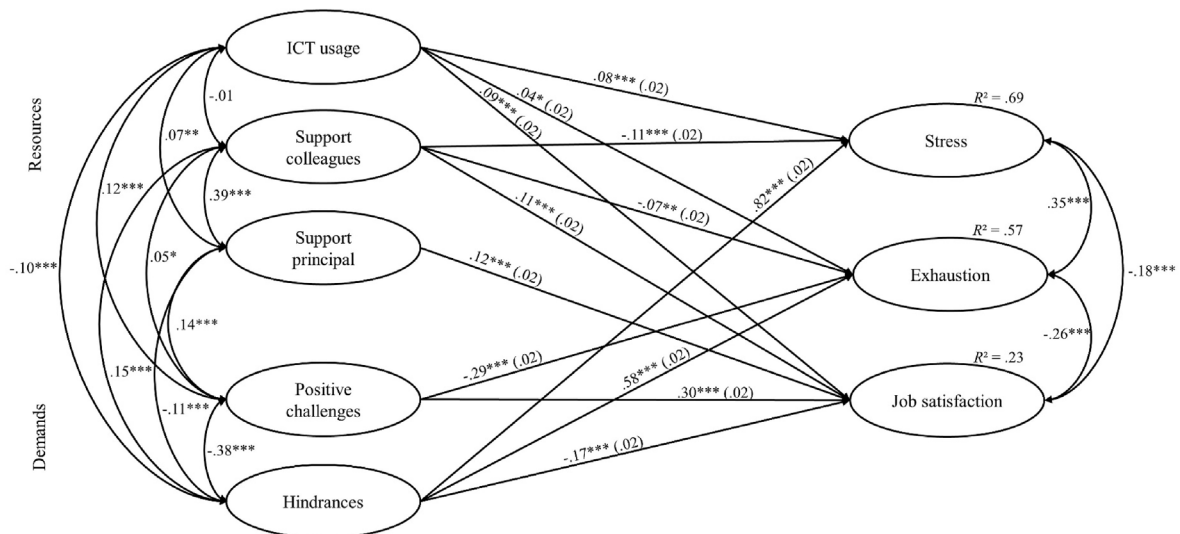

Fig. 2. Relations between different aspects of job resources and demands and teachers' occupational well-being. *Notes.* Only significant paths are depicted. Model fit: χ^2 = 3454.74, df = 384, $p \leq .001$, CFI = 0.91, RMSEA = 0.05. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

and job demands and teachers' occupational well-being. Model fit was satisfactory. For stress, it was found that perceived stress was

lower when support from colleagues was evaluated as higher. Moreover, teachers were more stressed on average when they
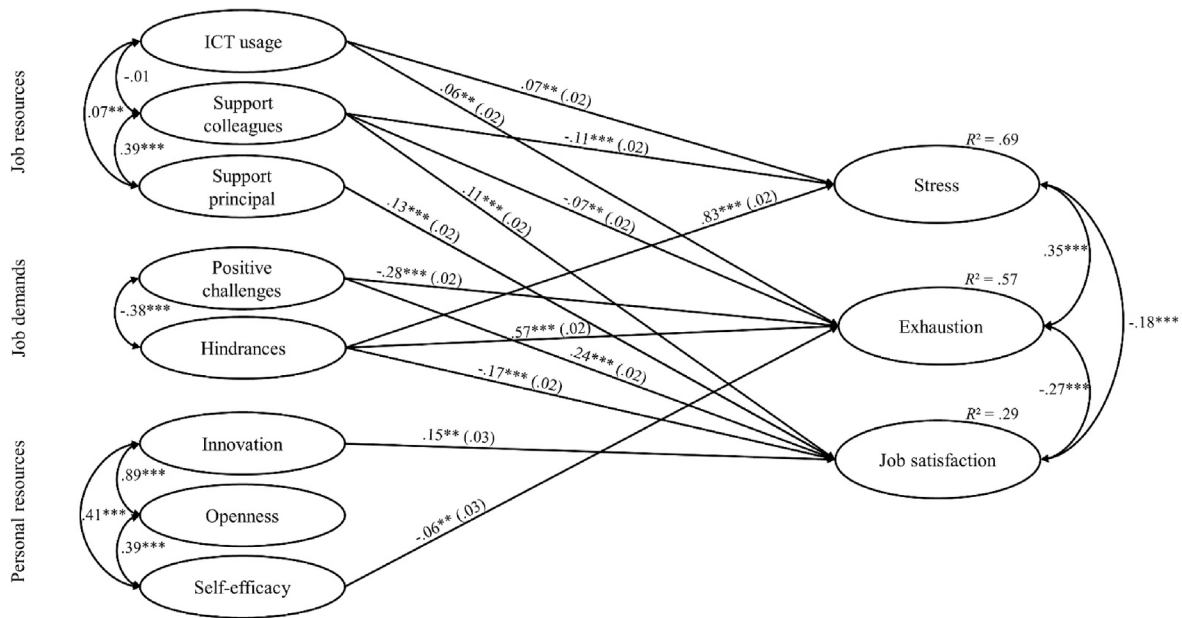
Fig. 3. Relations between job resources, job demands, personal resources and teachers' occupational well-being. *Notes.* Only significant paths are depicted. Model fit: $\chi^2 = 6111.36$, df = 816, $p \leq .001$, CFI = 0.91, RMSEA = 0.05. $** p \leq .01$, $*** p \leq .001$. Correlations ($p \leq .05$): ICT usage − Positive challenges $\Phi = 0.13$; ICT usage − Hindrances $\Phi = -0.10$; ICT usage − Innovation $\Phi = 0.29$; ICT usage − Openness $\Phi = .28$; ICT usage − Self-efficacy $\Phi = 0.50$; Support colleagues − Positive challenges $\Phi = 0.05$; Support colleagues − Hindrances $\Phi = 0.15$; Support colleagues − Self-efficacy $\Phi = -0.05$; Support principal − Positive challenges $\Phi = 0.14$; Support principal − Hindrances $\Phi = -0.11$; Positive challenges − Innovation $\Phi = 0.25$; Positive challenges − Openness $\Phi = .21$; Positive challenges − Self-efficacy $\Phi = 0.20$; Hindrances − Innovation $\Phi = -0.06$; Hindrances − Openness $\Phi = -0.07$; Hindrances − Self-efficacy $\Phi = -0.18$.

reported perceiving hindrance demands. Furthermore, a relation between stress and previous ICT usage was found in the model in which all variables were simultaneously considered. Higher stress was related to higher prior ICT usage (see Fig. 2). A similar picture was found for exhaustion. In addition, teachers felt on average less exhausted when they perceived positive challenges. Job satisfaction was related to all job resources and demands (see Fig. 2). For instance, job satisfaction was higher if teachers reported more previous ICT usage before the pandemic started. Moreover, job satisfaction was also positively related to perceived support from colleagues and the principal. Furthermore, job satisfaction was rated lower if negative hindrances were present. Beta coefficients were small to medium. The level of explained variance was high for stress and exhaustion (69.0% and 56.6%, respectively) and medium for job satisfaction (23.0%; Cohen, 1988).[1] To conclude, some negative facets of well-being were negatively associated and job satisfaction was positively associated with resources, as expected. Contrary to expectations, stress and exhaustion were positively related to previous ICT usage. The data supported Hypothesis 2a only partially. Hypothesis 2b was supported with the exception of the lack of a significant association between stress and positive challenges.

3.4. Change in relations between different job resources and demands and teachers' occupational well-being

To test whether the relations found between job resources/demands and teachers' occupational well-being changed when personal resources were included into the model, a structural equation model was specified (see Fig. 3). The model fit was satisfactory. The pattern of results remained stable, with the exception that the

magnitude of the relation between previous ICT usage and job satisfaction decreased and was no longer statistically significant. Further, the personal resource readiness to innovate was statistically positively associated with job satisfaction. Furthermore, self-efficacy with digital media was statistically negatively related to exhaustion, indicating that teachers were higher self-efficacy with digital media reported being less exhausted. The amount of explained variance remained high for stress and exhaustion, and the explained variance in job satisfaction increased. The results supported Hypothesis 3a, with the exception of the statistically non-significant relation between previous ICT usage and job satisfaction. Moreover, Hypothesis 3b was only partially supported, as only readiness to innovate and self-efficacy with digital media were related to one occupational well-being facet each.

4. Discussion

Teachers' occupational well-being is important in general, but particularly important during crises like the COVID-19 pandemic, when teachers faced myriad demands. The pandemic itself and the switch to remote teaching can both be seen as strains that may have impacted teachers' occupational well-being. This study specifically focused on the relations between teachers' occupational well-being and several job resources and demands, as opposed to the more general factors gender, age, and school type. In addition, the relevance of personal resources vital in times of crisis was analyzed.

Gender, age, and school type were related to perceived stress and exhaustion even during the pandemic (e.g., Ozamiz-Etxebarria et al., 2021). The findings were mostly in line with prior studies investigating teachers' occupational well-being during less burdensome circumstances (e.g., Bottiani et al., 2019; Skaalvik & Skaalvik, 2011). In particular, the direction of relations indicated that female, younger, and elementary school teachers experienced more stress and exhaustion. The relations between age and gender on the one hand and stress and exhaustion on the other could

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[1] When only job resources were included into the model, level of explained variance was small (stress: 0.04, exhaustion: 0.05, job satisfaction: 0.08).

potentially be explained by vulnerability stress models, where certain intra-individual factors are seen as vulnerability factors. These models posit that intra-individual factors, such as gender or genetic dispositions, as well as inter-individual factors like family background and social network help to explain how stressors are perceived and how stressful events may in turn lead to psychological disorders depending on the frequency, type, duration, and severity of stressors, for example (e.g., Wirtz, 2021). Furthermore, the results are explainable via Bronfenbrenner's (1979) ecological systems theory, which holds that in addition to personal characteristics such as gender and age, the environment, e.g., school type, is important as well. However, in contrast to the existing literature, relations between gender as well as school type and job satisfaction were not found during the COVID-19 pandemic (e.g., Collie et al., 2015), which could be due to the exceptionality of this situation.

During the COVID-19 pandemic, several job-related resources and demands were associated with teachers' occupational well-being (e.g., Bakker & Demerouti, 2017; Skaalvik & Skaalvik, 2018; Sokal et al., 2020a). The relations between support from colleagues and from the principal and teachers' occupational well-being show that social support is essential for teachers' well-being, even - or especially - in challenging times, therefore underlining the importance and benefits of support (e.g., Kim et al., 2021). These relations are consistent with prior literature (e.g., Collie et al., 2016; Sokal et al., 2020a; Yildirim, 2014) and further extend them with respect to a crisis situation such as the COVID-19 pandemic and to another cultural group. The positive relations between previous ICT usage and perceived stress and exhaustion were unexpected. Under certain circumstances, such as when technologies are incompatible, ICT usage could be seen as a demand that might cause stress (e.g., Al-Fudail & Mellar, 2008; Day et al., 2010; Fernández-Batanero et al., 2021). Thus, an interpretation based on technostress is possible. Technostress, namely when digital devices or the use of them causes stress and overwhelms the user, can be seen as a disadvantage of digitalization (e.g., Al-Fudail & Mellar, 2008; Brod, 1984). Another explanation might be that teachers with previous experience with ICT were more often asked by colleagues for help and to fix problems. When interpreting this result, it should be kept in mind that the relation did not exist bivariate. Taking into account the positive relation between prior ICT usage and job satisfaction, ICT could be seen as a resource and demand simultaneously (Day et al., 2010). Furthermore, the results may indicate how important the evaluation or framing of situations or demands, respectively, can be, reflected in the relations between perceived challenges and exhaustion as well as job satisfaction. These relations might underscore that such challenges have the potential to foster personal growth and learning, reflected in the direction of associations (Crawford et al., 2010). Additionally, perceived hindrances were, as expected, notably negative for teachers' occupational well-being (e.g., Crawford et al., 2010; Sokal et al., 2020a). All found relations, with the exception of ICT usage and teachers' stress and exhaustion, can be explained with the job demands-resources model (e.g., Crawford et al., 2010; Demerouti et al., 2001; Schaufeli & Taris, 2014). Furthermore, the fact that the level of explained variance was small if only job resources were included into the model could indicate that job demands were particularly relevant for teachers' well-being in such a challenging time.

The relations between job resources/demands and well-being remained mostly stable when personal resources were included into the model. This might underscore the relevance of job resources and demands for occupational well-being, theoretically explainable via the job demands-resources model (e.g., Schaufeli & Taris, 2014). One exception was the relation between previous ICT usage and job satisfaction, which was no longer statistically significant. This could be explained statistically; i.e., it could be a result

of the strength of the relations between the other variables and job satisfaction. It could also be a suppressor effect: Self-efficacy with digital media (suppressor) was not statistically significantly related to job satisfaction, but was significantly related to previous ICT usage. Consequently, the irrelevant variance in the independent variable was suppressed (Pedhazur, 1997).

Beside job-related characteristics, some central personal resources were also related to teachers' occupational well-being (e.g., Bakker & Demerouti, 2017; Schaufeli & Taris, 2014). If teachers liked trying new things and were curious and inventive, they were more satisfied with their job, which is also the case in less burdensome times (e.g., MacIntyre et al., 2019; Sameer, 2018). Thus, being ready to innovate could be interpreted as a positive character trait, especially when environmental conditions changed quickly, such as needing to switch to remote teaching from one day to the need. Furthermore, teachers with high self-efficacy with digital media were less exhausted, which fits with theoretical assumptions and prior literature focusing, for example, on self-efficacy in classroom management and teacher burnout (e.g., Aloe et al., 2014; Skaalvik & Skaalvik, 2010). Believing in one's abilities with respect to digital media was an important resource during a time of remote teaching. To sum up, those two personal resources could be seen as types of resilience factors and may represent starting points for interventions.

To summarize, the study revealed important relations between central job resources and demands as well as personal resources and well-being. These insights might help to successful react to so-called VUCA world conditions: volatility, uncertainty, complexity, ambiguity (e.g., Laukkonen et al., 2019). The Organization for Economic Co-operation and Development (OECD) has underlined the significance of preparing humanity in general, and teachers in particular, for such a VUCA world. For example, ongoing support from colleagues as well as the principal or promoting teachers' readiness to innovate could be key factors for dealing with volatility, which is characterized by unexpected and unstable challenges with unknown duration, or for uncertainty, which is distinguished by insecurity concerning the probability of occurrence of certain challenging events (Laukkonen et al., 2019).

4.1. Limitations and future directions

The study's limitations have to be kept in mind when interpreting the results. One limitation is the study's cross-sectional-design, meaning that no causal interpretations can be drawn. Another limitation is that teachers' self-reports were used. Self-reports can be affected by social desirability bias, which can influence participants' responses both consciously and unconsciously (Bohner & Dickel, 2011; Paulhus, 2007). Another limitation could be the recruitment method, which may limit the generalizability of the findings, as using social media channels might have been selective. In addition to these limitations, the strengths of the study should also be considered. One such point is the large sample size. This goes along with another point: teachers throughout Germany participated. Furthermore, the new knowledge about teachers' occupational well-being during challenging times should be emphasized. Moreover, not only was the relation between well-being and its relation to job resources and demands analyzed, we also examined the role of several relevant individual resources. This is an important contribution, particularly because they were all investigated simultaneously.

Several implications for research can be derived from the study's limitations and strengths. Firstly, it would be interesting to replicate the study during the current period. Data collection took place during the first COVID-19 lockdown. By now, many countries have experienced multiple lockdowns due to the persistence of the

COVID-19 pandemic. As a result of this long-lasting period of uncertainty and restrictions, it is plausible that teachers' occupational well-being now differs from at the beginning of the COVID-19 pandemic, because negative emotions are likely to be unavoidable under such challenging conditions (e.g., Bao et al., 2020). Secondly, it would be worthwhile to have more than just one measurement point in order to illustrate developments in wellbeing over time (e.g., Sokal et al., 2020b) or differences in the importance of resources and demands at different stages of the pandemic, for example. Thirdly, considering further individual variables that could potentially promote resilience is important. Drawing upon the COACTIV model of teachers' professional competence by Baumert and Kunter (2013), self-regulative competencies, which seem to protect against teacher burnout, would be interesting to investigate. Moreover, more detailed data on personality characteristics could be included in order to analyze how these are related to occupational well-being in times of crisis. For instance, neuroticism has been empirically found to be positively associated with burnout aspects like teachers' emotional exhaustion, meaning that high mean values of emotional exhaustion are correlated with high mean values of neuroticism (e.g., Cano-García et al., 2005; Kokkinos, 2007). Fourthly, perceived job-related stress (e.g., task stress, Chan et al., 2021) could be assessed as a further demand, which would differ from the occupational stress conceptualized as part of teachers' well-being. When doing so, it would be worthwhile to measure whether individuals perceive job-related stress as a hindrance or challenge, as appraisals can play a critical role for psychological outcomes (Webster et al., 2011). Fifthly, personal demands such as caring for (younger) children at home should be investigated, because caring for children can be timeconsuming and stressful in general (e.g., Buddelmeyer et al., 2018; Craig et al., 2020) as well as in challenging times (e.g., Ozamiz-Etxebarria et al., 2021). Lastly, future studies should integrate instructional quality, given findings that teachers' occupational well-being is related to high-quality instruction (e.g., Braun et al., 2019; Klusmann et al., 2008). For instance, teacher ratings of their own well-being and student ratings of instructional quality dimensions could potentially be combined. Based on this study's findings, it seems that support from colleagues and the principal is a very important resource for reducing stress and exhaustion and enhancing job satisfaction during challenging times. Therefore, it seems vital to encourage support from colleagues and the principal. Alongside improving social support in challenging times, it is also important to foster teachers' usage of and self-efficacy with digital media as well as readiness to innovate, particularly in Germany. Overall, what is relevant in a non-digital environment also seems to be highly important in a digital environment.

4.2. Conclusion

Successfully coping with persistently challenging times is essential for positive occupational well-being. Therefore, protective factors must be well understood and communicated. This is important not only during the current COVID-19 pandemic, but for the future as well with respect to the VUCA world (Laukkonen et al., 2019). Manifold competencies seem to be necessary for this. Specifically, not only job-related but also personal resources must be strengthened among teachers to help them successfully manage VUCA-related challenges. Based on a large sample size including all major groups of teachers, a well-documented theoretical framework, and state-of-the-art analytical methods with structural equation models, the study can substantially contribute to the research literature and advance our knowledge in terms of both theory and practical implications in the important area of teachers' well-being. The findings of this study will benefit teachers' wellbeing in challenging times, as crucial possibilities to support and maintain teachers' occupational well-being can be derived, both for the persistent COVID-19 pandemic and for future periods.

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