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# Teacher burnout: relations between dimensions of burnout, perceived school context, job satisfaction and motivation for teaching. A longitudinal study

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## ABSTRACT

The purpose of this longitudinal study was to analyse relations between teachers' perceptions of job demands and job resources in the school environment and dimensions of burnout, depressed mood, job satisfaction and motivation to leave the teaching profession (quit). The participants were 262 Norwegian high school teachers. The teachers' perceptions of three job demands (time pressure, low student motivation, and dissonant value context) and two job resources (autonomy and supervisory support) were measured at time 1 (September) whereas burnout, depressed mood, job satisfaction and motivation to leave the teaching profession were measured at time 2 (April). The data were analysed by means of confirmatory factor analysis and SEM analysis. The job demands and the job resources that were included in the study related differently to the three dimensions of burnout (emotional exhaustion, cynicism, and self-perceived accomplishment) and the dimensions of burnout related differently to measures of depressed mood, job satisfaction, and motivation to quit. For instance, time pressure was the strongest predictor of emotional exhaustion whereas low student motivation and working in a dissonant value context were the strongest predictors of cynicism. Also, autonomy was positively associated with self-perceived accomplishment whereas low student motivation was negatively associated with self-perceived accomplishment.

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## KEYWORDS

Teacher burnout; job demands; job resources; teacher job satisfaction; depressed mood

## Introduction and purpose

Research during the last two decades systematically reveal that teaching is a stressful occupation and that teachers are at risk of developing symptoms of burnout (Chan, 2002; Hakanen et al., 2006; Liu & Onwuegbuzie, 2012; Skaalvik & Skaalvik, 2017a). Teacher burnout may be the end result of long-term occupational stress (Betoret, 2009; Khani & Mirzaee, 2015; Schwarzer & Hallum, 2008), and stressful working conditions, often termed job demands, have been shown to be associated with measures of burnout (Betoret, 2009; Hakanen et al., 2006; Skaalvik & Skaalvik, 2010, 2017a). Moreover, positive and stimulating working conditions, also termed job resources, have been

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shown to predict lower levels of burnout (Hakanen et al., 2006). Research also shows that teacher burnout is predictive of lower engagement and job satisfaction and higher levels of depression, motivation to leave the teaching profession, and actual attrition (Collie et al., 2012; Den Brok et al., 2017; Desrumaux et al., 2015; Leung & Lee, 2006). However, as pointed out by Kelchtermans (2017), there are multiple reasons for teacher attrition.

Despite an increasing interest in teacher burnout, there is still a need for research exploring which school context variables (job demands and job resources) are most strongly associated with each dimension of teacher burnout. Moreover, there is a need for more research exploring relations between each dimension of teacher burnout and teacher motivation and well-being. One purpose of this study was to explore relations between teachers' perceptions of three job demands and two job resources measured at the beginning of the school year (September) and the teachers' experiences of each of the three dimensions of burnout measured seven months later (April). Another purpose was to explore associations between the three dimensions of burnout and measures of depressed mood, job satisfaction, and motivation to leave to teaching profession. A third purpose was to test if associations between (a) teachers' perceptions of job demands and job resources at time 1 and (b) depressed mood, job satisfaction, and motivation to leave to teaching profession measured at time 2 were mediated through the dimensions of burnout.

## Theoretical framework

### *Teacher burnout*

Burnout is traditionally conceptualised as a syndrome consisting of three dimensions: emotional exhaustion, depersonalisation or cynicism, and reduced accomplishment (Maslach & Jackson, 1981). It is also described as an erosion of engagement (Maslach & Leiter, 1997). Emotional (and physical) exhaustion, the core element of burnout, is characterised by a loss of energy and chronic fatigue (Pines et al., 1988; Schwarzer et al., 2000). In the teaching profession, cynicism shows through negative attitudes towards the students as well as reduced capacity to respond to their needs (Maslach et al., 2001). Reduced accomplishment refers to a negative self-evaluation and a feeling of not doing a good job (Maslach & Jackson, 1981).

Llorens-Gumbau and Salanova-Soria (2014) suggest that the development of burnout may start with chronic job demands or stressors, which in turn may deplete employees' energy resources and lead to burnout. Several studies support the notion that burnout results from stressful working conditions. For instance, longitudinal studies show that burnout is associated with teaching in heterogeneous classes making it difficult to adapt teaching to individual student needs (Shirom et al., 2009) and with discipline problems (González-Morales et al., 2010; Llorens-Gumbau & Salanova-Soria, 2014). Moreover, emotional exhaustion has been shown to be positively and strongly associated with teachers' experiences of work overload (Skaalvik & Skaalvik, 2009, 2017a), and significantly but weakly associated with disruptive student behaviour (Skaalvik & Skaalvik, 2010, 2011) and low student motivation (Skaalvik & Skaalvik, 2016).

Teacher burnout has, in different countries, been shown to predict lower teacher self-efficacy (Brouwers & Tomic, 2000; Skaalvik & Skaalvik, 2007) lower teacher job

satisfaction (Skaalvik & Skaalvik, 2010), lower organisational commitment (Hakanen et al., 2006), lower self-perceived health and work ability (Hakanen et al. 2006), and stronger intentions of leaving the teaching profession (Leung & Lee, 2006).

Several researchers have shown that the three dimensions of burnout are weakly to moderately correlated and that they cannot be added up to a single measure (Byrne, 1994), and Schaufeli and Salanova (2007) regard emotional exhaustion and cynicism as the central dimensions of burnout. Therefore, more research is needed to explore which school context variables or working conditions are most strongly associated with the different dimensions of teacher burnout. More research is also needed to investigate if the different dimensions of teacher burnout are differently associated with possible outcomes. Some studies indicate that the dimensions of burnout may be differently related to stressors at school as well as to outcome variables. For instance, using SEM analysis, Skaalvik and Skaalvik (2010) found that emotional exhaustion was a far stronger predictor of job satisfaction among Norwegian teachers than was depersonalisation (beta =  $-.52$  and  $-.21$ , respectively).

### ***The Job Demands-Resources model***

The Job Demands—Resources (JD–R) model offers an interesting conceptualisation of teacher burnout and motivation. The model distinguishes between job demands and job resources, which are seen as two categories of work characteristics that may be found in all occupations (Demerouti et al., 2001; Bakker & Demerouti, 2006; Hakanen et al., 2006). Job demands refer to physical, social, and organisational aspects of the job that require constant effort and may be associated with physical or psychological cost (Demerouti et al., 2001). Job resources are conceptualised as physical, psychological, social, and organisational aspects of the job that help achieve work goals, reduce job demands, and stimulate personal growth and development (Demerouti et al., 2001).

According to the JD–R model, we may distinguish between two relatively independent processes: (a) a health impairment process in which job demands may lead to exhaustion and negative affect and (b) a motivational process in which job resources may increase job satisfaction and engagement (Bakker & Demerouti, 2014). Although the two processes are described as relatively independent, they may interact (Bakker & Demerouti, 2006). For instance, supervisory support (a job resource) may lead to increased job satisfaction but may also lead to a decrease of depression and negative affect.

Empirical research supports the notion that job demands may result in a strong health impairment process whereas job resources may result in a more moderate motivational process. For instance, in a SEM analysis Hakanen et al. (2006) found that a latent teacher job demand variable indicated by workload, pupil misbehaviour, and unfavourable physical environments strongly predicted teacher burnout (beta =  $.57$ ). A latent job resource variable indicated by autonomy, information, supervisory support, social climate, and innovative climate was positively but weakly associated with teacher engagement (beta =  $.10$ ) and moderately and negatively associated with burnout (beta =  $-.28$ ). Also, in a study of 546 Norwegian teachers Skaalvik and Skaalvik (2017b) found that work overload strongly predicted burnout (beta =  $.65$ ), whereas perceptions of a supportive social climate moderately predicted job satisfaction (beta =  $.21$ ).

Previous research has identified several job demands in the teaching profession. Frequently studied job demands are work overload, discipline problems, low student motivation, large student diversity, conflicts with colleagues, lack of administrative support, and dissonant value contexts (e.g., Betoret & Artiga, 2010; Collie et al., 2012; Friedman, 1995; Hakanen et al., 2006; Kokkinos, 2007; Shernoff et al., 2011; Skaalvik & Skaalvik, 2011, 2015).

Previous research has also identified several job resources, for instance, teacher autonomy, positive and supportive relations with colleagues as well as with the school administration and the parents, perceived fairness, teachers' opportunities for learning and development, value consonance, and collective culture (Boyd et al., 2011; Hakanen et al., 2006; Simbula et al., 2011; Skaalvik & Skaalvik, 2011a).

### ***Depressed mood***

Depression is characterised by multiple symptoms (American Psychiatric Association, 2013), for instance, depressed mood and lack of interest or of pleasure in activities (Kleftaris & Didaskalou, 2006) and is found to be common among teachers, particularly in primary school (for an overview, see Hindman & Bustamante, 2019). Depression can range from temporary sadness to severe clinical depression (Papastylianou et al., 2009) and is found to be associated with burnout (Zhong et al., 2009). This study included a measure of depressed mood or negative affect, which is previously found to be associated with the emotional exhaustion dimension of burnout (Papastylianou et al., 2009).

### ***Job satisfaction***

Previous studies show that job satisfaction is associated with enthusiasm (Chen, 2007) and lower teacher retention or motivation to leave the teaching profession (Ingersoll, 2001; Skaalvik & Skaalvik, 2011). We conceptualised teacher job satisfaction as a motivational construct emphasising teachers' affective reactions towards their work (see Locke, 1976; Weiss, 1999). Skaalvik and Skaalvik (2011) discuss two different approaches to assessing job satisfaction: (a) measuring an overall satisfaction with one's job and (b) measuring satisfaction with specific aspects of the job. In evaluative studies of particular workplaces, with the aim of improving working conditions, assessing specific aspects of the job seem an adequate approach. In the present study, we explored how particular job demands and resources were related to teachers' general job satisfaction, hence a scale assessing overall job satisfaction were used (see method).

### **The present study**

The present study was designed to explore relations between teachers' perceptions of three job demands (time pressure, low student motivation, and dissonant value context) and two job resources (autonomy and supervisory support) measured at time 1 (September) and the three dimensions of teacher burnout, depressed mood, job satisfaction, and motivation to leave the teaching profession at time 2 (April). Relations between the three dimensions of burnout and depressed mood, job satisfaction, and motivation to quit were also analysed. Thirdly, the study explored if the relations between the school

context variables and depressed mood, job satisfaction, and motivation to quit were mediated through the dimensions of teacher burnout.

## **Method**

### ***Participants and procedure***

The participants in this study were 262 teachers working at ten senior high schools (grade 11 – 13) in three large counties in central Norway. The ten schools were drawn by random from all senior high schools in the three counties. At time 1 a total of 546 teachers (81%) returned the questionnaire whereas 262 teachers participated at time 2. The present study builds on the 262 teachers who participated at both times. Participation was voluntary both for the schools and the individual teachers.

In Norway, elementary school (seven years) and middle school (three years) are mandatory. Senior high school in Norway is not mandatory, but it is open to everyone after finishing middle school. More than 90% of the population start a high school education. However, the teachers experience that many students lack the motivation for schoolwork (Skaalvik et al., 2012) and the dropout rate in senior high school has been close to 30% for a number of years (Kulberg & Gjone Sildnes, 2017).

### ***Instruments***

#### ***Time pressure***

Time pressure was measured by means of a previously tested five-item scale (Skaalvik & Skaalvik, 2017b). Examples of items are: ‘Preparation for teaching must often be done after working hours’ and ‘Life at school is hectic and there is no time for rest and recovery.’ Responses were given on a 6-point scale from ‘Completely disagree’ (1) to ‘Completely agree’ (6). Cronbach’s alpha for the present sample was .82.

#### ***Low student motivation***

A previously tested four-item scale (Skaalvik & Skaalvik, 2017b) was used for measuring teachers’ perceptions of low student motivation. Examples of items are: ‘Many of my students show little interest in schoolwork’ and ‘I find it difficult to make all students work seriously with schoolwork.’ Responses were given on a 6-point scale from ‘Completely disagree’ (1) to ‘Completely agree’ (6). Cronbach’s alpha for the present sample was .89.

#### ***Dissonant value context***

Teachers’ perceptions of working in a dissonant value context was measured by means of a three-item scale (Skaalvik & Skaalvik, 2017c). The items were: ‘The goals and values which are emphasized at this school do not fit my personal educational values,’ ‘My colleagues and I have quite different opinions about what is important in education,’ and ‘My colleagues and I have quite different opinions about what constitutes good teaching and education.’ Responses were given on a 6-point scale from ‘Completely disagree’ (1) to ‘Completely agree’ (6). Cronbach’s alpha for the present sample was .74.

### **Autonomy**

Autonomy was measured by means of a six-item teacher autonomy scale (Author, 2017b). Autonomy was in this study limited to the actual teaching and to working with the students. The scale had a common introduction followed by a description of six areas: 'In your teaching, how much decision latitude do you have to (a) adapt the learning material in order for all students to have mastery experiences, (b) adapt the pace and the progression of the instruction to the students' abilities, (c) change the plan of the instruction in order to exploit current events or situations, (d) raise issues that are not mentioned in the curriculum, (e) treat the students the way you think is best for their learning and development, and (f) set realistic goals for each student.' Responses were given on a 5-point scale from 'No latitude at all' (1) to 'A great deal of latitude' (5). Cronbach's alpha for the present sample was .83.

### **Supervisory support**

Supervisory support was measured with a three-item scale (Boyd et al., 2011). The items were: 'In educational matters, I can always get good help and advice from the school leadership,' 'My relationship with the school leadership is one of mutual trust and respect,' and 'The school leadership is supportive and praise good work.' Responses were given on a 6-point scale from 'Completely disagree' (1) to 'Completely agree' (6). Cronbach's alpha for the present sample was .85.

### **Teacher burnout**

Teacher burnout was measured by means of a modified short version of the Maslach Burnout Inventory—Educators Survey (see Skaalvik & Skaalvik, 2011). Emotional exhaustion, cynicism, and accomplishment were measured by six, six, and five items, respectively. The teachers responded to statements that the work as a teacher made them feel emotionally drained (emotional exhaustion), that they sometimes did not care about their students (cynicism), and that they felt they accomplished many things in their work (note that accomplishment was measured positively). Responses were given on a 6-point scale from 'Completely disagree' (1) to 'Completely agree' (6). Cronbach's alphas for exhaustion, cynicism, and accomplishment were .91, .78, and .87, respectively.

### **Depressed mood**

Depressed mood was measured by means of a five-item scale. The items were: 'During this school year, to what extent have you been bothered by: (a) Feeling of hopelessness, (b) Anxiety, (c) Depression, (d) Feeling of uselessness, and (e) Worry?' Responses were given on a four-point scale from 'Not at all bothered' (1) to 'Very much bothered' (4). Cronbach's alpha for the present sample was .83.

### **Job satisfaction**

The teachers' overall job satisfaction was measured by means of a four-item scale (Skaalvik & Skaalvik, 2017a). Examples of items are: 'I enjoy working as a teacher' and 'Working as a teacher is extremely rewarding.' Responses were given on a 6-point scale from 'Completely disagree' (1) to 'Completely agree' (6). Cronbach's alpha for the present sample was .89.



### Motivation to quit

Motivation to leave the teaching profession was measured by means of a three-item Motivation to leave scale (Skaalvik & Skaalvik, 2011). The items were: 'I wish I had a different job to being a teacher,' 'If I could choose over again, I would not be a teacher,' and 'I often think of leaving the teaching profession.' Responses were given on a 6-point scale from 'Completely disagree' (1) to 'Completely agree' (6). Cronbach's alpha for the present sample was .90.

### Data analyses

The data were analysed by means of confirmatory factor analyses and SEM analysis. We first analysed two models of job demands and job resources by means of confirmatory factor analyses (see results). Secondly, we analysed a model including the three dimensions of burnout, depressed mood, job satisfaction and motivation to quit. Subsequently, a model of relations between the latent variables was tested by means of structural equation modelling (SEM analysis). Model fit was assessed by means of well-established indices, such as CFI, IFI, TLI, and RMSEA. For the CFI, IFI, and TLI indices, values greater than .90 are typically considered acceptable, and values greater than .95 indicate a good fit (Byrne 2001; Hu & Bentler, 1999). For well-specified models, an RMSEA of .06 or less reflects a good fit (Hu & Bentler, 1999; Tabachnick & Fidell, 2007).

## Results

### Zero order correlations, statistical means and standard deviations

Table 1 shows zero order correlations among the observed variables as well as statistical means and standard deviations. The job demands and job resources were low to moderately correlated. The highest correlation was found between supervisory support and autonomy ( $r = .51$ ). Supporting previous research, the three dimensions of burnout were also weakly related with correlations ranging from  $-.25$  to  $.32$ . Motivation to quit was strongly correlated with job satisfaction ( $r = .70$ ) but more moderately correlated with all dimensions of burnout ( $.53$ ,  $.37$ ., and  $-.36$  with emotional exhaustion, cynicism, and self-perceived accomplishment, respectively).

**Table 1.** Zero order correlations and descriptive statistics.

Study variables	1	2	3	4	5	6	7	8	9	10	11
1. Time pressure	—	.13	.05	-.07	-.19	.48	.04	.06	.18	-.16	.21
2. Low student motivation		—	.16	-.13	-.20	.23	.37	-.28	.20	-.23	.31
3. Value dissonance			—	-.32	-.17	-.16	.30	-.14	.07	-.17	.13
4. Supervisory support				—	.51	.26	-.19	.23	-.19	.34	-.23
5. Autonomy					—	-.28	-.15	.23	-.25	.33	-.24
6. Emotional exhaustion						—	.32	-.25	.62	-.56	.53
7. Depersonalization							—	-.38	.28	-.37	.37
8. Perceived accomplishment								—	-.34	.51	-.36
9. Depression									—	-.48	.46
10. Job satisfaction										—	-.70
11. Motivation to quit											—
<i>M</i>	3.91	3.24	1.83	4.90	4.95	2.78	1.76	4.79	1.41	5.00	2.20
<i>SD</i>	0.68	1.20	0.77	1.01	0.68	1.19	0.71	0.64	0.52	0.91	1.21

Note. All correlations higher than .12 are significant at  $p < .05$ , and correlations higher than .15 are Significant at  $p < .01$ .



### **Confirmatory factor analyses**

We conducted two confirmatory factor analysis of the three job demands and the two job resources included in the study. Model 1 defined five correlated primary factors whereas model 2 defined two second order factors (demands and resources) based on the primary factors. Both models had acceptable fit to the data. The fit values for model 1 were: ( $\chi^2$  (179,  $N= 262$ ) = 313.615,  $p < .001$ ,  $\chi^2/df = 1.752$ , RMSEA = 0.054, IFI = 0.941, CFI = .939, and TLI = 0.922) and the values for model 2 were ( $\chi^2$  (183,  $N= 262$ ) = 324.694,  $p < .001$ ,  $\chi^2/df = 1.774$ , RMSEA = 0.054, IFI = 0.938, CFI = .936, and TLI = 0.920). The two models were compared using the Chi<sup>2</sup>-difference test ( $\Delta\text{Chi}^2$ ). The Chi<sup>2</sup>-difference test indicated that a model with primary factors fitted the data significantly better than a model with second order factors ( $\Delta\text{Chi}^2 = 11.1$ ,  $\Delta df = 4$ ,  $p < .05$ ). Although the difference was marginal, it justifies our choice of analysing separate job demands and job resources in the SEM-analysis whereas much of the research on the JD–R model analyses relations with second order job demand and job resource variables (e.g., Hakanen et al., 2006).

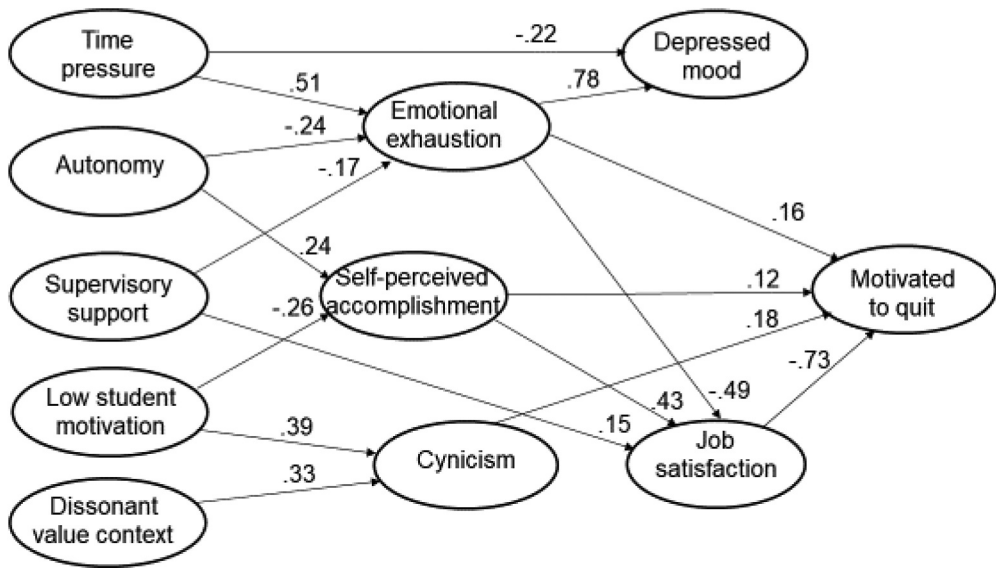
We also conducted a confirmatory factor analysis of all variables measured at time 2 (the three dimensions of burnout, depressed mood, job satisfaction, and motivation to quit). The model had acceptable fit to the data ( $\chi^2$  (332,  $N= 262$ ) = 698.418,  $p < .001$ ,  $\chi^2/df = 2.104$ , RMSEA = 0.065, IFI = 0.920, CFI = .919, and TLI = 0.901).

### **SEM analysis**

The SEM analysis tested a model with job demands and job resources as exogenous variables. The initial model included paths from all job demands and job resources to all dimensions of burnout. Also, paths were included from job demands, job resources, and all dimensions of burnout to depressed mood, job satisfaction, and motivation to quit. Non-significant paths were deleted one by one, starting with the path with the highest  $p$ -value. The final model (Figure 1) had acceptable fit to the data ( $\chi^2$  (1097,  $N= 262$ ) = 1762.082,  $p < .001$ ,  $\chi^2/df = 1.606$ , RMSEA = 0.048, IFI = 0.907, CFI = .905, TLI = 0.894). Correlations among the exogenous variables were included, but for simplicity they are not reported in Figure 1.

The strongest predictor of emotional exhaustion by the end of the schoolyear was time pressure measured at the beginning of the schoolyear. The two other potential job demands included in the final model, low student motivation and dissonant value context, were in the SEM model not significantly related to emotional exhaustion. However, emotional exhaustion was negatively associated with both job resources included in the final model, autonomy and supervisory support. Cynicism was not significantly associated with time pressure. However, it was significantly associated with both low student motivation and dissonant value context. Self-perceived accomplishment was positively associated with autonomy and negatively associated with low student motivation.

Depressed mood was positively associated with emotional exhaustion, but not significantly related to cynicism or self-perceived accomplishment. Job satisfaction was negatively associated with emotional exhaustion and positively associated with self-perceived accomplishment. It was not significantly related to cynicism in the SEM



**Figure 1.** Structural model of relations between job demands and resources, dimensions of burnout, depressed mood, job satisfaction, and motivation to quit. Standardised regression weights reported.

**Table 2.** Indirect effects of job demands and job resources on depressed mood, job satisfaction, and motivation to quit.

Effects of	Effects on		
	Depressed mood	Job satisfaction	Motivation to quit
Time pressure	.40	-.23	.25
Autonomy	-.23	.21	-.17
Supervisory support	-.13	.08	-.19
Low student motivation	.04	-.11	.11
Dissonant context	.00	.00	.05

analysis. Motivation to quit was negatively and strongly associated with job satisfaction and positively associated with all dimensions of burnout. The SEM analysis revealed few direct associations between (a) job demands and job resources and (b) depressed mood, job satisfaction, and motivation to quit. The relations were mostly indirect, via the dimensions of burnout (see Table 2.).

## Discussion

Previous occupational research shows that job demands are predictive of burnout and health problems whereas job resources are predictive of work motivation and commitment (e.g., Bakker & Demerouti, 2006; Hakanen et al. 2006). These studies, as most studies based on the JD–R model, analysed job demands, job resources, and burnout as single latent variables. However, there is a need for more research exploring associations between different job demands and job resources, different dimensions of burnout and possible

outcomes. Based on confirmatory factor analysis, the present study therefore analysed relations between three particular job demands, two job resources, the three traditional dimensions of burnout, and depressed mood, job satisfaction, and motivation to quit.

The SEM analysis revealed that different job demands predicted different dimensions of burnout. Time pressure was the strongest predictor of emotional exhaustion whereas low student motivation and dissonant value context was not significantly associated with emotional exhaustion. In contrast, low student motivation and dissonant value context were predictive of cynicism whereas time pressure was not significantly associated with cynicism. Also, low student motivation was the only aspect of job demands that was significantly related to self-perceived accomplishment. These results indicate that emotional exhaustion is affected by the total workload, the hectic life at school, and the limited opportunities for rest and recovery, which may lead to an erosion of energy. In contrast, a possible interpretation of the results is that the development of cynicism or depersonalisation is less related to the workload. Instead, cynicism seems to be associated with value congruence, goal achievement and social relations with the students. Low student motivation may prevent teachers from achieving their goals and from developing positive relations with the students, whereas a dissonant value context may prevent teachers in teaching according to their personal educational goals and values.

Both job resources in this study were predictive of lower levels of emotional exhaustion. Although only two job resources were included in this study, this is a very important finding supporting the notion that the impact of a health impairment process may be reduced by experiencing job resources at work, which is described as an interaction between the health impairment process and the motivational process (Bakker & Demerouti, 2006). As could be expected, low student motivation was negatively associated with self-perceived accomplishment. As already noted, low student motivation may prevent teachers from achieving their goals. It is also worth noting that teacher autonomy was positively associated with self-perceived accomplishment. Autonomy allows teachers to pursue goals they believe are important with educational methods they believe to be adequate. This result indicates that it is important to persevere teacher autonomy. However, this should be balanced against the need to develop a collective culture at school, characterised by common goal and values.

As expected, job satisfaction was positively associated with self-perceived accomplishment and negatively associated with emotional exhaustion. Also, depressed mood was strongly associated with emotional exhaustion. These findings strongly indicate that emotional exhaustion and self-perceived accomplishment were strongly associated with teacher well-being and motivation and, through job satisfaction with motivation to quit. An interesting finding was that when controlled for emotional exhaustion, the SEM analysis revealed a small negative association between time pressure and depressed mood. A possible interpretation is that enthusiastic teachers add to the time pressure by spending much time preparing for teaching. Another interesting finding was a small but positive association between the positive measure of self-perceived accomplishment and motivation to quit. This may indicate that not only exhausted and cynical teachers may be motivated to leave the teaching profession, but also that the belief that one is capable of doing a good job, which overlaps self-efficacy, may increase teachers' motivation to try alternative occupations.

Cynicism was not significantly associated with neither depressed mood nor job satisfaction. Cynicism was significantly but only weakly associated with motivation to quit. Thus, cynicism, which in the SEM analysis was associated with teachers' perceptions of low student motivation and working in a dissonant value context, did not seem to have any strong impact on teachers' well-being and motivation. Nevertheless, cynicism may have strong impact on the quality of the teaching and the quality of the teachers' relations with the students. Our data does not allow further speculations concerning the development and impact of teacher cynicism, which are important questions that should be explored in future research.

Importantly, we found few and small direct associations between job demands and job resources on the one hand and depressed mood, job satisfaction, and motivation to quit on the other hand. These relations were mostly indirect, mediated through the dimensions of burnout. These results show that educational administrators should pay particular attention to symptoms of burnout among the teachers.

The study has several limitations. Although the data were collected at two points of time, the endogenous variables were only collected at time 2. Therefore, the predictive value of job demands and job resources at time 1 on endogenous variables at time 2 were not controlled for previous measures of the endogenous variables. Also, only three job demands and two job resources were included in this study. Although these demands and resources are found to be associated with teacher motivation and well-being in previous studies, future research should investigate other potential demands and resources as well.

## Conclusion

This study adds to our understanding of job demands and job resources, burnout, well-being, and motivation in the teaching profession. The results show both that different job demands and resources predict different dimensions of burnout and that the associations between (a) job demands and resources and (b) teacher motivation and well-being primarily are indirect, mediated through teacher burnout. The analyses reveal that the different dimensions of burnout are differently related to teachers' motivation and well-being. Emotional exhaustion appears as the dimension of burnout that is most strongly affected by time pressure, but also as the dimension of burnout that affects teacher motivation and well-being most strongly.

The study has both theoretical and practical implications. Theoretically it indicates that different job demands and job resources affect teacher well-being and motivation through different processes, which is hidden in analysis of job demands and job resources as single latent variables. More research is needed exploring associations with separate demands and resources. The same reasoning applies for analysing burnout. Practically, the findings strongly show the need to reduce job demands and to increase job resources in the teaching profession. In particular, there is a need to find ways to reduce the time pressure experienced by the teachers.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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## Ethical approval

This study was conducted in line with the ethical research guidelines and approved by the Norwegian Centre for Research Data (NSD) which serves as a national ethical research committee for social research.

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