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Still motivated to teach? A study of school context variables, stress and job satisfaction among teachers in senior high school

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Abstract This study explored how teachers' working conditions or school context variables (job demands and job resources) were related to their teaching self-concept, teacher burnout, job satisfaction, and motivation to leave the teaching profession among teachers in Norwegian senior high school. Participants were 546 teachers in three counties in central Norway. We analyzed data by means of confirmatory factor analyses and SEM analysis for latent traits. The results supported expectations derived from the Job Demands–Resources model of one health impairment process and one motivational process, but also showed that these processes are related. The analyses indicated that, in the teaching profession, different dimensions of job demands and job resources predict teachers' well-being and motivation differently.

Keywords Teacher stress · Teaching self-concept · Teacher job satisfaction · Teacher burnout · Teacher motivation

1 Introduction

Recent research in different cultures shows that most teachers perceive teaching as a highly rewarding occupation but that many teachers also experience severe stress and symptoms of burnout (Johnson and Birkeland 2003; Neves de Jesus and Lens 2005; Skaalvik and Skaalvik 2015; Stoeber and Rennert 2008). Research strongly

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indicates that, although rewarding, teaching is a particularly stressful occupation and that teacher stress is an international phenomenon (Chan 2002; Johnson et al. 2005; Liu and Onwuegbuzie 2012; Montgomery and Rupp 2005; Stoeber and Rennert 2008). International research also reveals that teacher attrition—the departure of teachers from their teaching jobs—has become a global problem (Chang 2009; Hong 2012; Ingersoll 2001). We should pay attention to both teacher stress and teacher job satisfaction because they may have serious negative or positive consequences, respectively, both for the teachers' wellbeing and for the quality of education. Possible consequences of teacher stress are reduced teacher self-efficacy (Klassen et al. 2013), lower job satisfaction (Collie et al. 2012), lower levels of commitment (Klassen et al. 2013), higher levels of burnout (Betoret 2009), and increased teacher attrition (Skaalvik and Skaalvik 2011), whereas job satisfaction is predictive of lower levels of absenteeism and attrition (Sargent and Hannum 2005; Skaalvik and Skaalvik 2011; Wriqi 2008; Zembylas and Papanastasiou 2004). Although stress and motivation to leave the teaching profession as well as job satisfaction and motivation for teaching are related to both teachers' life situations and personal characteristics, stress and job satisfaction are also related to teachers' working conditions (e.g., Day et al. 2007; Klassen and Chiu 2010, 2011; Skaalvik and Skaalvik 2011, 2015). The purpose of this study was to explore the experiences of job demands and job resources among teachers in senior high school in Norway and how teachers' perceptions of job demands and job resources were related to their teaching self-concept, symptoms of burnout, job satisfaction, and motivation to leave the teaching profession.

2 Teacher stress

Teacher stress is commonly defined as the experience by a teacher of unpleasant emotions resulting from aspects of the work as a teacher (Collie et al. 2012; Kyriacou 1987, 2001; Liu and Onwuegbuzie 2012). Based on this conceptualization of teacher stress researchers have explored aspects of the work situation that teachers experience as stressful. Empirical research has identified a number of potentially stressful aspects of the work as a teacher. These aspects, which are often termed "stressors", include time pressure, student diversity, discipline problems, low student motivation, value conflicts, lack of recognition, lack of shared decision making, lack of personal autonomy, conflicts with colleagues, parents, or the school administration, lack of administrative support, low pay and low status (e.g., Betoret 2009; Fernet et al. 2012; Friedman 1995; Hakanen et al. 2006; Klassen and Chiu 2011; Kokkinos 2007; Skaalvik and Skaalvik 2009, 2011). Several of these stressors were also found in two recent semi-structured interview studies. Shernoff et al. (2011) interviewed 14 urban US teachers and found nine main sources of stress, for instance, disruptive student behavior, excessive workload, student diversity, limited resources and support, school-level disorganization, and accountability policies. In an interview study of 34 Norwegian teachers and former teachers Skaalvik and Skaalvik (2015) found seven categories of stressors that more than half of the teachers identified. The categories were: disruptive student behavior, workload and

time pressure, student diversity and working to adapt teaching to students' needs, lack of autonomy, lack of shared goals and values, problems and conflicts related to teamwork, and lack of status. Skaalvik and Skaalvik (2015) reported that teachers at different ages experienced the same stressors at school, but that senior teachers needed increasingly more time to recover from stress.

Although there is a general agreement about the definition of teacher stress as the experience by a teacher of unpleasant emotions resulting from aspects of the work as a teacher, teacher stress has in quantitative research been measured differently by different researchers. Some researchers measure stress in terms of *perceived stressors* in the school environment and ask teachers to identify sources of stress (Collie et al. 2012; Gilbert et al. 2014; Klassen and Chiu 2010, 2011; Klassen et al. 2013). For instance, one item used by Collie et al. (2012) was "How great a source of stress is maintaining class discipline?" Other researchers identify *potential stressors* in school (Fernet et al. 2012; Helms-Lorenz et al. 2011; Skaalvik and Skaalvik 2007, 2010, 2011). Instead of asking directly about sources of stress, these researchers ask to what degree teachers perceive predefined potential stressors to be present in the school environment. For instance, one item used by Skaalvik and Skaalvik (2011) was "My teaching is often disturbed by students who lack discipline". Instead of asking teachers to identify sources of stress in the school environment these researchers estimate statistically to which degree the potential stressors or aspects of the school environment are associated with symptoms of stress, for instance teacher emotional exhaustion, burnout and motivation to leave the teaching profession. For instance, in a SEM analysis of data from 2569 Norwegian teachers Skaalvik and Skaalvik (2011) found that teachers' perception of time pressure and discipline problems predicted emotional exhaustion ($\beta = .48$ and .21, respectively). In the present study, we measured three *potential stressors* (time pressure, discipline problems, and low student motivation) and estimated statistically to which degree they predicted teaching self-concept, burnout, job satisfaction, and motivation to leave the teaching profession. By this procedure, we were able to discriminate between description of the school environment (potential stressors) and symptoms of stress without asking the teachers to identify which aspects of the school environment were most stressful.

3 The Job Demands–Resources model

Whereas school context variables such as time pressure and discipline problems may predict burnout and motivation to leave the teaching profession, other school context variables, for instance, social support and autonomy, have been shown to positively predict teacher self-efficacy, job satisfaction, engagement, and feeling of belonging (Koustelios et al. 2004; Skaalvik and Skaalvik 2010, 2011; Weiss 1999). According to the Job Demands–Resources model (JD–R model; Demerouti et al. 2001) one may distinguish between two broad categories of work characteristics in all occupations: job demands and job resources (Hakanen et al. 2006). Job demands refer to those physical, social, or organizational aspects of the job that require sustained physical or mental effort and are therefore associated with physiological

and psychological costs, for instance, exhaustion (Demerouti et al. 2001). Thus, job demands cannot be distinguished from what we have termed "stressors". Job resources refer to those physical, psychological, social, and organizational aspects of the job that help achieving work goals, reduce job demands or costs and stimulate personal growth. The JD–R model proposes two relatively independent processes: (a) a health impairment process in which job demands may lead to exhaustion or burnout and (b) a motivational process in which job resources may increase job satisfaction, belonging, and engagement (Bakker and Demerouti 2014). The JD–R model also proposes an interaction between job demands and job resources (Bakker and Demerouti 2006). For instance, social support (a job resource) may buffer the effect of job demands on burnout. Thus, we propose that job resources may increase teaching self-concept and job satisfaction among the teachers but also reduce stress and burnout whereas job demands may increase burnout and motivation to leave the teaching profession but also reduce teaching self-concept and job satisfaction.

Most research on the JD–R model has tested single latent job demand and job resources variables. However, we assumed that different job demands may relate differently to teaching self-concept and job satisfaction, and that different job resources may relate differently to burnout and teaching self-concept. Instead of automatically letting all job demands or potential stressors indicate a single latent job demand variable and letting all job resources indicate a single latent job resource variable, we therefore based the SEM analysis on a series of confirmatory factor analyses.

4 The present study

The purpose of this study was to explore how the experiences of job demands and job resources among teachers in senior high school in Norway related to their teaching self-concept, symptoms of burnout, job satisfaction, and motivation to leave the teaching profession.

4.1 Job demands (potential stressors)

The job demands (or potential stressors) measured in this study were time pressure or work overload, discipline problems, and low student motivation. Time pressure and discipline problems were chosen because research in elementary school and middle school shows these school context variables to predict higher levels of overall job stress and burnout as well as lower levels of commitment and teacher self-efficacy (Betoret and Artiga 2010; Collie et al. 2012; Fernet et al. 2012; Klassen and Chiu 2010, 2011; Skaalvik and Skaalvik 2011). Low student motivation was included because it was among the most frequent stressors named by teachers in open-ended interviews (Skaalvik and Skaalvik 2015), but also because of the extremely high dropout rate in Norwegian senior high school. About one out of three students drop out of senior high school in Norway (Statistics Norway 2015) and we do not know of any study exploring how the motivational problems indicated by this rate of drop out affect stress among the teachers.

4.2 Job resources

Demerouti et al. (2001) distinguish between two categories of job resources: organizational resources and social resources. An important organizational resource is job control or autonomy, whereas social resources refer to support from colleagues, supervisors, or parents. We included four measures of job resources in this study: one organizational resource (teacher autonomy) and three social resources (supportive colleagues, supervisory support, and collective culture). Previous studies in both primary and secondary school show that autonomy, supervisory support and support from colleagues are associated with engagement and job satisfaction (Hakanen et al. 2006; Simbula et al. 2011; Skaalvik and Skaalvik 2009, 2011, 2014; Zembylas and Papanastasiou 2006). Previous studies also indicate that positive and supportive relations with colleagues and supervisors may work as a buffer against burnout (e.g., Pines and Aronson 1988; Skaalvik and Skaalvik 2011). Positive relations with parents also predict belonging and job satisfaction among Norwegian teachers in elementary school and middle school (Skaalvik and Skaalvik 2010, 2011). However, teachers in Norwegian senior high school have less contact with parents, which is why we did not include this variable in the present study. A collective culture was in this study conceptualized as a common understanding of goals and values among the teachers and between the teacher and the school administration and as a set of common practices among the teachers. We reasoned that a collective culture would reduce conflicts and increase teachers' beliefs about their practices. We therefore expected a collective culture to relate positively to teaching self-concept and job satisfaction and negatively to burnout.

4.3 Outcome variables

4.3.1 Teaching self-concept

A number of recent studies of teacher stress and teacher well-being have focused on teacher self-efficacy. This research provides evidence that teacher self-efficacy is associated with higher teacher engagement and job satisfaction, lower levels of burnout, and less intention of leaving the teaching profession (Avanzi et al. 2013; Collie et al. 2012; Gilbert et al. 2014; Klassen and Chiu 2010; Saricam and Sakiz 2014; Skaalvik and Skaalvik 2007, 2010). Researchers have focussed less on teacher self-concept. According to Bong and Skaalvik (2003), self-concept differs from self-efficacy in that it is a more general, stable, and domain-specific and less context dependent belief in ones abilities in a particular area (see also Huges et al. 2011). However, Bong and Skaalvik (2003) emphasize important similarities between the two constructs, for instance, that they are both predictive of motivation. Moreover, research shows considerable overlap when both constructs are measured at the same level of specificity, indicating that perceived competence is a common core for the two constructs (Huges et al. 2011; Pietsch et al. 2003; Skaalvik and Rankin 1996). Because reflected appraisals from significant others are important sources of self-concept (Bong and Skaalvik 2003; Skaalvik 1997) we expected supportive relations

with colleagues and the school administration to be predictive of teaching self-efficacy.

4.3.2 Teacher burnout

Burnout is often described as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach et al. 1996). Emotional exhaustion is characterized by low energy and chronic fatigue (Pines and Aronson 1988). Depersonalization is characterized by negative, cynical attitudes and feelings towards students and colleagues. Reduced personal accomplishment means that teachers no longer feel that they are doing a meaningful and important job. However, research indicates that the three dimensions of burnout cannot be added up to a single measure (Byrne 1994; Lee and Ashforth 1996), and Schaufeli and Salanova (2007) regard emotional exhaustion and depersonalization as the central elements of burnout. The analysis of burnout in this study is limited to the latter two dimensions. Research in elementary school and middle school reveals that burnout is predicted by stressors in the school environment. For instance, Skaalvik and Skaalvik (2010) found that the emotional exhaustion dimension of teacher burnout was strongly predicted by time pressure whereas the strongest predictor of depersonalization was negative relations with parents. Burnout among teachers is also negatively related to teachers' job satisfaction and motivation (Leung and Lee 2006; Skaalvik and Skaalvik 2010).

4.3.3 Teacher job satisfaction and motivation to leave the teaching profession

Teachers' job satisfaction was in this study conceptualized as teachers' affective reactions towards their work (Locke 1976; Weiss 2002). In previous research job satisfaction has been measured either as satisfaction with specific aspects of the work or as an overall satisfaction with the job (Skaalvik and Skaalvik 2011). In this study, we measured an overall satisfaction with the job as a teacher in order to analyze see how it was related to different job demands and resources. Previous studies show that job satisfaction is associated with enthusiasm (Chen 2007) and lower teacher retention or lower motivation to leave the teaching profession (Ingersoll 2001; Skaalvik and Skaalvik 2011).

4.4 A theoretical model

Based on the research review (see above) we developed a theoretical model that guided the present study (Fig. 1). We expected that the job demands included in the study would be positively related to burnout and negatively related to teaching self-concept and job satisfaction. Moreover, we expected that the job demands would be both directly and indirectly (through burnout and job satisfaction) related to teachers' motivation to leave the profession. Moreover, we expected the job resources included in the study to be positively related to teaching self-concept and job satisfaction and negatively related to burnout and motivation to leave the profession. We also expected that the job resources would predict motivation to

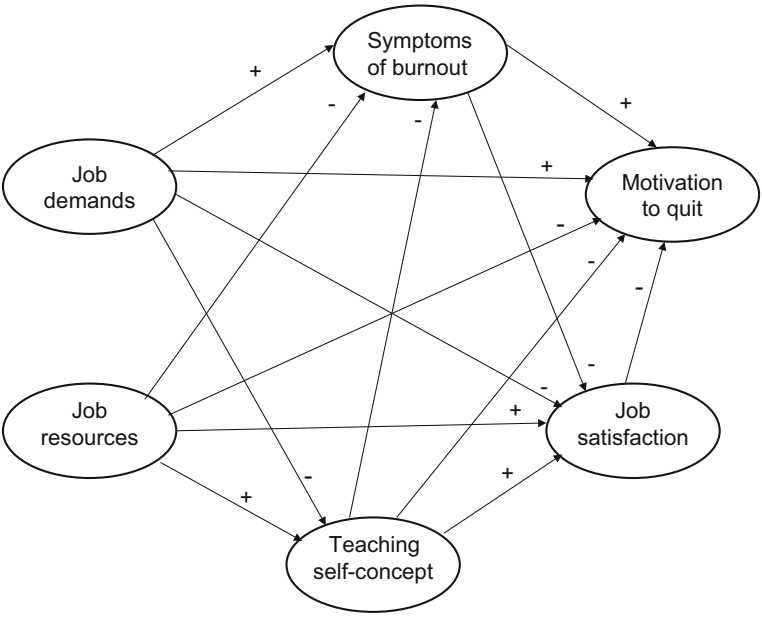


Fig. 1 Theoretical model of relations between the main constructs

leave the profession indirectly and negatively, mediated through burnout, teaching self-concept, and job satisfaction. Furthermore, we expected a negative association between teaching self-concept and burnout and a positive association between teaching self-concept and job satisfaction. We should note that the theoretical model is a general model for job demands and job resources. However, as noted above, we assumed that different job demands might relate differently to the outcome variables. For instance, a reasonable assumption is that those job demands that reduce teachers' goal attainment affect teachers' self-beliefs the most. In accordance with such a reasoning Betoret and Artiga (2010) found that workload was unrelated to instructional self-efficacy. In the SEM model, we therefore distinguished between different job demands and job resources based on factor analysis.

5 Method

5.1 Norwegian senior high school

Senior high school in Norway starts when students are 16 years of age and is a 3-year education from grade 11–13. It is voluntary, but 92% of the population enters senior high school (Statistics Norway 2016). The dropout rate has been high in recent years—29% of the students do not graduate within 5 years (Statistics Norway 2015).

5.2 Participants and procedure

Participants in the study were 546 teachers from 10 senior high schools. We drew the 10 schools randomly from all senior high schools in three counties in central Norway. The schools ranged from small schools with 20–30 teachers to large schools with more than 100 teachers. The two largest schools had 109 and 151 teachers, respectively. Participation was voluntary for both the schools and the individual teachers. All schools we asked agreed to participate and 81% of the teachers participated. A particular period during working hours was set aside for all teachers to fill out the questionnaire at the same time. When the questionnaires were filled out, they were put in envelopes and sealed at the spot in order to assure the teachers that they were anonymous.

5.3 Instruments

5.3.1 Discipline problems

We measured discipline problems by a three-item scale previously tested in elementary school and middle school (Skaalvik and Skaalvik 2011). The items were: "My teaching is often disrupted by students who lack discipline," "Some students with behavioral problems make it difficult to carry out lessons as planned," and "Controlling students' behavior takes a lot of time and effort". Responses were given on a 6-point scale from "Completely disagree" (1) to "Completely agree" (6). Skaalvik and Skaalvik (2011) reported a Cronbach's alpha of .87, whereas we found an alpha value of .83 in the present study.

5.3.2 Time pressure

A five-item scale measured time pressure. Three of the items were previously tested in elementary school and middle school with a Cronbach's alpha of .81 (Skaalvik and Skaalvik 2011). These items were "Preparation for teaching must often be done after working hours," "Life at school is hectic and there is no time for rest and recovery", and "Meetings, administrative work, and documentation take much of the time that should be used for teaching preparation." The two additional items were "Teachers are loaded with work," and "To provide a good education, teachers would need more time with the students and for preparing their teaching." Responses were given on a 6-point scale from "Completely disagree" (1) to "Completely agree" (6). Cronbach's alpha for the five-item scale was .83.

5.3.3 Low student motivation

A four-item scale developed for the purpose of this study measured the teachers' perceptions of low student motivation. The items were: "Many of my students show little interest in schoolwork," "Many of my students give up once they meet a challenge," "I find it difficult to make all students work seriously with schoolwork," and "Many of my students show little effort at schoolwork."

Responses were given on a 6-point scale from "Completely disagree" (1) to "Completely agree" (6). Cronbach's alpha for the scale was .89.

5.3.4 Supportive relations with colleagues and supervisors

Three-item scales previously tested in elementary school and middle school (Skaalvik and Skaalvik 2011) measured supportive relations with colleagues and supervisors. The items measuring supportive relations with colleagues were: "In educational matters, I can always get good help from my colleagues", "The relations among the colleagues at this school are characterized by friendliness and a concern for each other", and "Teachers at this school help and support each other". Cronbach's alpha for the scale was .84. The items measuring supervisory support were: "In educational matters, I can always get help and advice from the school leadership", "My relationship with the school leadership is characterized by respect and trust", and "The school leadership is supportive and helpful". Cronbach's alpha for the scale was .86.

5.3.5 Collective culture

A three-item scale measured collective culture. The items were: "The teachers and the school administration at this school have a common understanding of the direction in which the school should be developed", "The teachers at this school have a shared perception of goals and means of the school development", and "The teachers at this school practice a common set of norms and rules". Cronbach's alpha for the scale was .78.

5.3.6 Autonomy

Autonomy was in this study limited to the actual teaching and to working with students. We used a six-item scale that was a modified and extended version of a previously tested scale (Skaalvik and Skaalvik 2009). The original scale had three statements and a response scale run from "False" to "True". The modified scale presented six questions about the teacher's decision latitude regarding their teaching with a 5-point response scale: 1 = No latitude, 2 = Limited latitude, 3 = Some latitude, 4 = Great latitude, and 5 = Very great latitude. The items 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 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 students the way you think is best for their learning and development, and (f) set realistic goals for each student". Cronbach's alpha for the scale was .85.

5.3.7 Teaching self-concept

Teaching self-concept was in this study measured with a five-item scale. The items were: "I think that I am doing a good job", "I am satisfied with my teaching", "I feel that I am doing an important job", "I always succeed with my teaching", and "I see positive results of my teaching every day". Cronbach's alpha for the scale was .88.

5.3.8 Emotional exhaustion

Emotional exhaustion was measured by a short six-item scale. The items were drawn from a Norwegian version of the emotional exhaustion dimension of the Maslach Burnout Inventory—Educators survey (MBI: Maslach et al. 1996). The short version of the scale was previously tested on Norwegian teachers in elementary school and middle school and had a Cronbach's alpha of .90 (Skaalvik and Skaalvik 2011). Cronbach's alpha in this study was .91.

5.3.9 Depersonalization

Six items from the MBI also tested depersonalization. The six-item scale is previously tested on a sample of Norwegian elementary and middle school teachers, showing a Cronbach's alpha of .80 (Skaalvik and Skaalvik 2009). Cronbach's alpha in this study was .79.

5.3.10 Job satisfaction

A four-item job satisfaction scale measured job satisfaction. The items were: "I enjoy working as a teacher," "I look forward to going to school every day," "Working as a teacher is extremely rewarding," and "When I get up in the morning, I look forward to going to work." The scale was previously tested on teachers in elementary school and middle school with a Cronbach's alpha of .91 (Skaalvik and Skaalvik 2011). Cronbach's alpha in this study was .90.

5.3.11 Motivation to leave the teaching profession (quit)

The teachers' motivation to leave the teaching profession was measured by a three-item motivation to leave scale (Skaalvik and 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 scale was .90.

5.4 Data analysis

We first estimated zero order correlations between the study variables. We then conducted a series of confirmatory factor analyses of the seven school context

variables (three stressors and four demands). Based on the result of the factor analyses we then conducted a SEM analysis with two job demand factors and two job resource factors as exogenous variables (see Fig. 2). The factor analyses and the SEM analysis were conducted using the AMOS 21 program. We finally tested gender differences for all study variables by means of *t*-tests for independent samples as well as Cohens' *d*.

6 Results

6.1 Zero order correlations among the study variables

Table 1 shows the zero order correlations between the study variables as well as statistical means and standard deviations. We found low to moderate correlations between .23 and .45 between the three potential stressors (discipline problems, time pressure, and low student motivation). We also found moderate correlations between .42 and .49 between three of the job resources (supportive colleagues, supportive leadership, and collective culture), whereas autonomy correlated lower, between .24 and .27, with these job resources. The school context variable that correlated strongest with teaching self-concept was autonomy (.33), the school context variable correlating strongest with emotional exhaustion was time pressure (.59), whereas low student motivation was the school context variable that correlated strongest with depersonalization (.38). All school context variables were

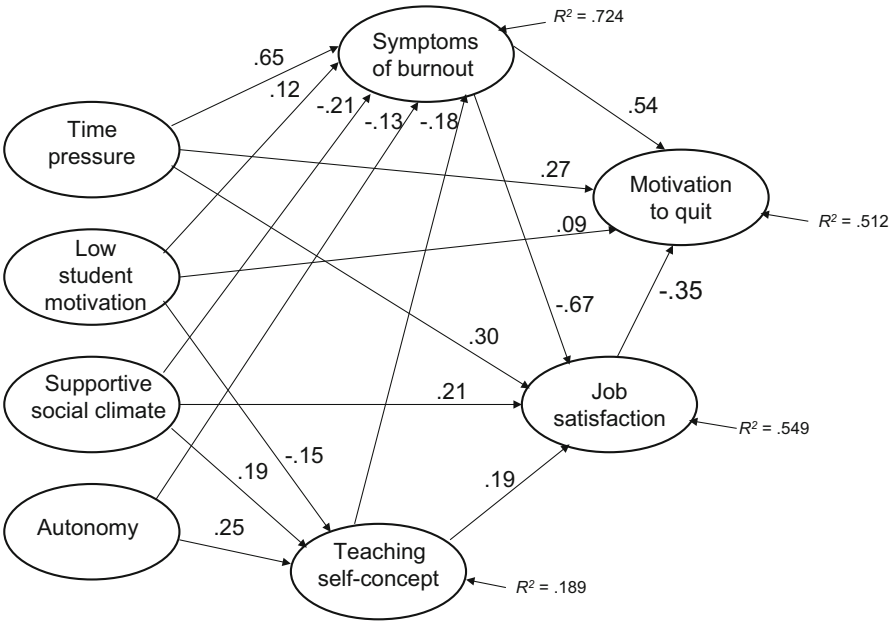


Fig. 2 Structural model of relations between the study variables

Table 1 Zero order correlations and descriptive statistics

Study variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Discipline problems	–	.27	.45	−.06	.02	−.03	−.02	−.03	.27	.18	−.12	.17
2. Time pressure		–	.23	.06	−.12	−.11	−.14	.01	.59	.13	−.14	.17
3. Low student motivation			–	−.17	−.13	−.21	−.16	−.22	.30	.38	−.27	.30
4. Supportive colleagues				–	.49	.42	.27	.23	−.19	−.24	.36	−.28
5. Supervisory support					–	.43	.24	.18	−.20	−.22	.35	−.29
6. Collective culture						–	.24	.20	−.20	−.26	.31	−.22
7. Autonomy							–	.33	−.32	−.27	.32	−.27
8. Teaching self-concept								–	−.24	−.34	.46	−.33
9. Emotional Exhaustion									–	.39	−.47	.46
10. Depersonalization										–	−.38	.38
11. Job satisfaction											–	−.61
12. Motivation to quit												
M	8.3	19.6	13.1	15.7	15.1	12.1	23.0	24.3	17.2	11.0	20.1	6.5
SD	3.6	3.5	4.9	2.2	3.0	2.8	3.5	3.5	7.1	4.6	3.4	3.6

All correlations higher than .09 are significant ($p < .05$)

significantly related to job satisfaction and motivation to leave the teaching profession.

6.2 Factor analyses

We tested four measurement models of the school context variables (job demands and job resources) by means of confirmatory factor analyses. Model 1 defined seven primary factors: three job demands (discipline problems, time pressure, and low student motivation) and four job resources (supportive colleagues, supervisory support, collective culture, and autonomy). Model 2 defined a single latent job demand variable indicated by discipline problems, time pressure, and low student motivation and a single latent job resource variable indicated by supportive colleagues, supervisory support, collective culture, and autonomy. Model 3 defined six factors by letting discipline problems and low student motivation define a single discipline/motivation factor. Model 4 had five factors – the difference from model 1 was that supportive colleagues, supervisory support, and collective culture loaded on a single factor (supportive social climate). The results of the factor analyses are shown in Table 2. Model 1 and 4 had acceptable fit to the data. Model 2, defining one single job demand factor and one single job resource factor, showed marginal fit to the data. The χ^2/df ratio was high (5.212) as was RMSEA (.088), whereas the TLI was low (.795). This result indicated that we should be careful not to treat job demands and job resources as single latent variables. Model 3 also did not fit the data well, as can be seen by a TLI = .837 and a CFI = .866. This result indicated that discipline problems and low student motivation should be treated as separate variables. Model 1 and 4 had the best fit to the data. These models also had quite similar fit. We therefore used the most parsimonious of these models (Model 4) as exogenous variables in the SEM analysis.

The correlations among the latent variables in Model 4 are displayed in Table 3. The correlations are weak indicating that the school context variables defined as job

Table 2 Examination of measurement models of the school context variables

Model	χ^2/df	CFI	TLI	RMSEA
Model 1	2.407	.935	.920	.052
Model 2	5.212	.905	.795	.088
Model 3	3.856	.866	.837	.074
Model 4	2.770	.931	.911	.058

Model 1 had 7 primary factors: three job demands (discipline problems, time pressure, and low student motivation) and four job resources (supportive colleagues, supervisory support, collective culture, and autonomy). Model 2 had a single latent job demand variable indicated by discipline problems, time pressure, and low student motivation and a single latent job resource variable indicated by supportive colleagues, supervisory support, collective culture, and autonomy. Model 3 had six factors—the difference from model 1 was that discipline problems and low student motivation loaded on one single factor. Model 4 had five factors—the difference from model 1 was that supportive colleagues, supervisory support, and collective culture loaded on a single factor

Table 3 Correlations among the latent school context variables

Study variables	1	2	3	4	5
1. Discipline problems	–	.33	.55	−.10	−.07
2. Time pressure		–	.28	−.04	−.17
3. Low student motivation			–	−.25	−.18
4. Supportive social climate				–	.40
5. Autonomy					–

demands and job resources in this study are relatively independent of each other. Two of the correlations are moderate. Discipline problems and low student motivation are moderately correlated ($r. = .55$), although the model testing indicated that they should be treated as separate variables. Supportive social climate and autonomy were also moderately correlated ($r. = .40$).

We also tested a full measurement model including the five latent school context variables displayed in Table 3 (discipline problems, time pressure, low student motivation, supportive social climate, and autonomy) and four latent outcome variables (teaching self-concept, burnout, job satisfaction, and motivation to quit). The model had acceptable fit to the data [χ^2 (523, $N = 546$) = 1244.992, $p < .001$, $\chi^2/df = 2.380$, RMSEA = .050, IFI = .930, TLI = .915]. With four exceptions we found only weak to moderate correlations among the latent variables. The exceptions were the correlations between time pressure and burnout (.72), burnout and job satisfaction (−.62), burnout and motivation to quit (.61), and job satisfaction and motivation to quit (−.64).

6.3 SEM analysis

The relations between the variables were further analyzed by means of a SEM analysis for latent variables using the AMOS 21 program. The empirical model, reporting standardized regression weights, is displayed in Fig. 2. We tested a model with five exogenous variables (discipline problems, time pressure, low student motivation, supportive social climate, and autonomy) and four outcome variables (teaching self-concept, symptoms of burnout, job satisfaction, and motivation to leave the teaching profession). In the initial analysis, we included all the expected paths following the theoretical model. We then deleted non-significant paths one by one, starting with the path with the lowest regression weight. Discipline problems did not relate significantly to any of the outcome variables and were not included in the final model (Fig. 2). Correlations among the exogenous variables are not reported in Fig. 2, but are shown in Table 3. The final model had acceptable fit to the data [χ^2 (533, $N = 546$) = 1256.828, $p < .001$, $\chi^2/df = 2.358$, RMSEA = .050, IFI = .930, TLI = .917].

Three of the school context variables were associated with teaching self-concept. Low student motivation was negatively related to teaching self-concept ($\beta = -.15$), whereas autonomy and supportive social climate were positively associated with teaching self-concept ($\beta = .25$ and .19, respectively). Time pressure was not significantly related to teaching self-concept.

The strongest predictor of burnout was time pressure ($\beta = .65$). Low student motivation was also predictive of higher levels of burnout ($\beta = .12$) whereas

autonomy, supportive social climate, and teaching self-concept predicted lower levels of burnout ($\beta = -.13, -.21$, and $-.18$, respectively). Thus, three of the school context variables (low student motivation, autonomy, and supportive social climate) were both directly and indirectly associated with burnout. Altogether, the school context variables and teaching self-efficacy explained 72% of the variance in burnout.

The SEM model explained 55% of the variance in teachers' job satisfaction. The strongest (and negative) predictor of job satisfaction was burnout ($\beta = -.67$). Time pressure, supportive social climate, and teaching self-concept were also directly and positively associated with job satisfaction ($\beta = .30$, .21, and .19, respectively). Additionally, all school context variables were indirectly related to teacher job satisfaction, through teaching self-concept and burnout.

The SEM model explained 51% of the variance in the teachers' motivation to leave the teaching profession. The strongest predictors of motivation to leave the profession were burnout ($\beta = .54$) and job satisfaction ($\beta = -.35$). Both job demands were also directly associated with motivation to quit ($\beta = .27$ and .09 for time pressure and low student motivation, respectively). Additionally, both time pressure and low student motivation were indirectly and positively related to motivation to quit. No direct relations were found between the job resources and teachers' motivation to quit.

6.4 Gender differences

Table 4 shows the statistical means and standard deviations for female and male teachers. We used *t*-tests for independent samples as well as effect size (Cohen's *d*) to estimate significance. Cohen's *d* is a measure of the difference in statistical means between two groups in terms of standard deviation. According to Cohen (1988) a difference that is lower than .2 standard deviation is considered not to be significant. A difference between .2 and .5 standard deviations is considered significant, but small, whereas a difference larger that .8 is considered large.

Table 4 shows that there were few and small gender differences for the variables in this study. Both the *t*-tests and the effect sizes revealed significant differences between female and male teachers for three of the variables. Female teachers reported significantly higher time pressure and emotional exhaustion than their male colleagues. Interestingly, female teachers also reported that they had more supportive colleagues than did male teachers. We found no significant differences between female and male teachers' experiences of discipline problems, student motivation, autonomy, supervisory support, collective culture or any other outcome variable than emotional exhaustion.

7 Discussion

In this study, we measured three potential stressors or job demands (time pressure, discipline problems, and low student motivation) and four potential job resources (supportive colleagues, supervisory support, autonomy, and collective culture). Confirmatory factor analyses indicated that neither the potential stressors nor the

Table 4 Means and standard deviations for male and female teachers

Variables	N of items	Females	Males	*d*	*t*	*p*
Discipline problems	3	8.39	8.11	.078	.911	>.05
		(3.74)	(3.46)			
Time pressure	5	20.27	18.70	.449*	5.188	<.001
		(3.29)	(3.56)			
Low student motivation	4	13.23	13.00	.047	.554	>.05
		(4.89)	(3.56)			
Autonomy	6	22.74	23.23	.014	−1.650	>.05
		(3.50)	(3.44)			
Supportive colleagues	3	15.93	15.33	.272*	3.035	<.01
		(2.11)	(2.36)			
Supervisory support	3	15.19	14.91	.093	1.051	>.05
		(3.02)	(3.00)			
Collective culture	3	11.98	12.29	.111	−1.276	>.05
		(2.78)	(2.81)			
Teaching self-concept	5	24.08	24.62	.154	−1.787	>.05
		(3.40)	(3.51)			
Emotional exhaustion	6	18.03	16.00	.285*	3.309	<.01
		(7.15)	(6.92)			
Depersonalization	6	10.76	11.26	.111	−1.264	>.05
		(4.84)	(4.26)			
Job satisfaction	4	20.31	19.88	.126	1.383	>.05
		(3.34)	(3.59)			
Motivation to quit	3	6.35	6.58	.091	−.711	>.05
		(3.65)	(3.64)			

d = effect size (Cohen 1988)

* Cohen's *d* between .2 and .5 indicating small but significant differences

potential resources in this study could be used as indicators of two single underlying constructs, as is often done in research on the JD–R model (e.g., Bakker et al. 2003; Demerouti et al. 2001; Hakanen et al. 2006). However, three of the potential job resources (supportive colleagues, supervisory support, and collective culture) could be used as indicators of a common underlying construct that we termed "supportive social climate".

Surprisingly, the teachers' experiences of discipline problems and low student motivation correlated moderately and could not be added up to a single student behavior/motivation variable. A reasonable explanation would be that it is the least motivated students who show the most disruptive behavior and that discipline problems and low student motivation are therefore strongly correlated. A possible explanation of the moderate correlation may be that the participants in this study were teachers in senior high school. In senior high school, low student motivation for schoolwork may not necessarily lead to disruptive student behavior. Instead, it

may lead to lack of attention, lack of effort, and absence from school. Our measure of discipline problems focused on disruptive behavior and student behavior that makes it difficult to follow a lesson plan. The zero order correlations also revealed that low student motivation was more strongly associated with the teachers' teaching self-concept, depersonalization, job satisfaction, and motivation to leave the teaching profession than was discipline problems. Moreover, the initial SEM analysis showed that when controlled for student motivation discipline problems were not significantly related to any of the outcome variables. Thus, in senior high school students' effort and motivation seem to be more important to the teachers' teaching self-concept, job satisfaction and motivation to continue teaching than noisy and disruptive student behavior. This finding clearly indicates that being able to motivate students is an important dimension of the teacher's identity. Theories of motivation should therefore be a central part of both teacher training and in-service training of teachers. Our interpretations need to be tested in future research. In addition, we need research comparing the experiences of teachers in high school with teachers in elementary school and middle school. For instance, we need research testing the association between the experiences of discipline problems and student motivation as well as how these constructs are related to teacher self-concept and job satisfaction for teachers at different levels in the school system.

A preliminary conclusion that can be drawn from our testing of measurement models is that neither potential stressors (job demands) nor job resources should automatically be treated as one-dimensional variables. More research is needed to identify possible categories or dimensions of job demands and of job resources in the teaching profession and if they are differently related to teacher stress and job satisfaction. More research is also needed comparing teachers' experiences of job demands and resources in elementary school, middle school and high school. Also, the JD–R model is a general model and it is not always clear which job characteristics should be recognized as job demands or job resources. For instance, the degree of control or autonomy may vary from one school to another. A high degree of autonomy is traditionally conceptualized as a job resource, as we also did in this study. However, the result of a lack of autonomy may be that teachers have to use educational methods that run counter to their educational believes and values. When this is the case, the lack of autonomy may be stressful and may be regarded as a job demand. Also, a teachers' relation with his or her colleagues may be positive and supportive but it may also be confrontational and strained. Hence, the classification and registration of some job characteristics as demands or resources is to a certain extent a matter of choice.

We tested a final SEM model with four exogenous variables, two potential stressors (time pressure and low student motivation) and two potential job resources (supportive social climate and teacher autonomy). Time pressure was the far strongest predictor of burnout. However, all exogenous variables were significantly related to burnout. Low student motivation was positively but weakly associated with burnout whereas both job resources (supportive social climate and teacher autonomy) were predictive of lower levels of burnout. Thus, the SEM analysis confirmed our expectation that the job resources included in this study might buffer the development of burnout. Both job resources (supportive social climate and

teacher autonomy) were positively associated with the teachers' teaching self-concept and job satisfaction. Supportive social climate related both directly and indirectly to job satisfaction, whereas we found no direct relation between autonomy and job satisfaction. The indirect positive associations between the job resources and job satisfaction were mediated through a more positive teaching self-concept but also through lower levels of burnout.

As expected, low student motivation was predictive of lower levels of teaching self-concept. However, time pressure was in the SEM analysis not significantly associated with the teachers' teaching self-concept although it was strongly associated with burnout. This indicates that it is those job demands that interfere with the instruction and with the teachers' goal attainment that negatively affect the teachers' teaching self-concept, whereas other job demands, in this study time pressure, may affect burnout and teachers' motivation to continue in the teaching profession. This finding supports our expectation that different dimensions of job demands in the teaching profession may be differently associated with the teachers' wellbeing and motivation.

Both teaching self-concept and teacher burnout was predictive of teacher job satisfaction. Burnout was predictive of lower job satisfaction and was the far strongest predictor whereas teaching self-concept was associated with higher job satisfaction. Only two of the school context variables were directly related to job satisfaction. Both time pressure and supportive social climate were directly and positively related to job satisfaction. A possible interpretation of this finding is that the social climate at school is a primary source of job satisfaction whereas autonomy and student motivation affects teacher job satisfaction only through their influences on teachers' self-concept and burnout. An interesting finding was the positive association between the teachers' experiences of time pressure and their job satisfaction. We have no reason to believe that an extreme time pressure causes higher job satisfaction among the teachers. Rather, our interpretation is that the most engaged teachers have the highest job satisfaction, the highest ambitions for their teaching, and spend the most time preparing for teaching and guiding students. Moreover, we believe that job satisfaction may result in higher investment in teaching. A possible consequence may be that the most engaged teachers run the highest risk of burnout. This conclusion is in accordance with Pines and Aronson (1988) who claimed that burnout tends to afflict people who enter their professions highly motivated and idealistic.

The strongest predictors of teachers' motivation to leave the teaching profession were burnout and job satisfaction. These findings underscore the importance of increasing job satisfaction and reducing burnout among the teachers. Interestingly, both job demands (time pressure and low student motivation) were directly, although only weakly, associated with motivation to leave the profession, whereas the job resources in this study did not relate directly to motivation to leave the profession.

The JD–R model proposes two relatively independent processes: (a) a health impairment process in which job demands may lead to exhaustion or burnout and (b) a motivational process in which job resources may increase job satisfaction, belonging, and engagement (Bakker and Demerouti 2014). The SEM analysis

supports these processes and indicates that the health impairment process is the stronger of these two processes. However, our analysis also indicates that job resources may reduce the health impairment process and that some job demands may affect the motivational process negatively. The analysis indicates that the two processes cannot be separated and that the health impairment process has motivational implications as well. In fact, as shown above, teacher burnout was the strongest predictor of both job satisfaction and teachers' motivation to leave the profession.

We found only few and small gender differences in means. Nevertheless, it is worth noting that female teachers compared to male teachers reported higher time pressure and emotional exhaustion, although they also perceived their colleagues as more supportive. These results are in accordance with previous findings among teachers in elementary school and middle school (Skaalvik and Skaalvik 2011); however, Skaalvik and Skaalvik (2011) also found that female teachers in elementary school and middle school reported higher job satisfaction and lower motivation to leave the profession. More research is needed to explore why female teachers' experience higher time pressure and more exhaustion compared to male teachers. One possible explanation may be that females still take the main responsibility at home. More research is also needed to explore why male teachers in elementary school and middle school, but not in senior high school, are less satisfied than their female colleagues.

This study has both practical and theoretical implications. Close to 70% of the variance in teacher burnout could in this study be explained by school context variables. Moreover, teacher burnout was a strong predictor of motivation to leave the teaching profession. One implication is that school leaders should pay particular attention to teacher stress and teacher job satisfaction. They need to be aware of potential stressors in the school environment. Also, because different dimensions of job demands and job resources are moderately correlated and may affect teachers' differently, single measures to reduce stress and increase job satisfaction will probably have limited effect. However, we also need more research to increase our understanding of possible dimensions of job demands and job resources in the teaching profession and their differential effect on teacher stress and job satisfaction.

This study also has several limitations. Although we believe that we measured the most central job demands and resources in the teaching profession, other potential demands and resources could have been included. Future research should include more potential demands as well as resources in order to analyze possible dimensions of both demands and resources. The present study is cross-sectional and readers should be careful not to draw firm conclusions about casual relations. We therefore call for longitudinal studies.

8 Conclusions

Confirmatory factor analyses showed that neither the job demands nor the job resources included in this study could be used as indicators of single underlying constructs as is often done in research on the JD–R model. However, although the factor analyses did not support a common underlying job resource factor, we found evidence of a supportive social climate factor underlying teachers' perception of a collective culture at the school, having supportive colleagues, and supervisory support. The SEM analysis further revealed that the two job demand variables in the final SEM model related differently to the outcome variables. Time pressure was the far strongest predictor of burnout. Furthermore, low student motivation, which probably influences teachers' goal attainment, was negatively associated with teaching self-concept, whereas time pressure did not relate significantly to teaching self-concept. Moreover, supportive social climate was directly related to teachers' job satisfaction, whereas autonomy was not. These results indicate a need to explore different dimensions of job demands and job resources and test how these dimensions relate to different outcome variables among teachers.

The JD–R model proposes two relatively independent processes: (a) a health impairment process in which job demands may lead to exhaustion or burnout and (b) a motivational process in which job resources may increase teaching self-concept and job satisfaction. Our results provided partly support for these processes. Both time pressure and low student motivation (job demands) predicted teacher burnout and motivation to leave the teaching profession. Moreover, both autonomy and supportive social climate (job resources) was associated with job satisfaction through teaching self-concept. Supportive social climate was also directly related to job satisfaction, which again predicted lower motivation to leave the teaching profession.

However, our analysis indicates that the two processes are not independent. Both autonomy and supportive social climate as well as teachers' self-concept predicted burnout negatively, indicating that job resources and a positive teacher self-concept may work as a buffer against burnout or generally against the impairment process. Moreover, low student motivation was negatively related to teachers' self-concept, whereas burnout was a strong negative predictor of job satisfaction. Burnout affected motivation to leave the teaching profession both directly and through job satisfaction. These results strongly indicate that the health impairment process and the motivation process interact with each other.

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