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Dimensions of teacher burnout: relations with potential stressors at school

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Abstract The purpose of this study was to analyze how four potential stressors in the school environment (discipline problems, time pressure, low student motivation, and value dissonance) were related to dimensions of teacher burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment). Participants were 1145 teachers from grade 1 to 13. Data were analyzed by means of confirmatory factor analysis and SEM analysis. A confirmatory factor analysis including the four stressors and the three dimensions of burnout had good fit to the data and the correlations between the factors were moderate. Although all the potential stressors were significantly related to emotional exhaustion, time pressure was the far strongest predictor. In comparison, depersonalization and personal accomplishment was not significantly related to time pressure but was significantly predicted by discipline problems, low student motivation, and value dissonance. Teachers at the lowest grade levels reported more discipline problems and higher time pressure than teachers at higher grade levels, whereas teachers at the highest grade levels experienced low student motivation as a greater problem than teachers at lower grade levels.

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1 Introduction and purpose

Recent research in different countries indicates that teaching is a particularly stressful occupation and that teacher stress and burnout is an international phenomenon (Chan 2002; Johnson et al. 2005; Hakanen et al. 2006; Liu and Onwuegbuzie 2012; Maslach et al. 2001; Montgomery and Rupp 2005; Stoeber and Rennert 2008). Teacher burnout may have devastating consequences both for the teachers and the quality of education. Moreover, according to Chang (2009), the high level of teacher attrition can be traced back to stress and burnout in the profession (see also Skaalvik and Skaalvik 2011a; Weiss 1999). Many teachers leave school for non-retirement reasons, especially during their first years of teaching (Hong 2012) and through early retirement (Köber et al. 2005).

Teacher burnout is traditionally conceptualized as resulting from long term occupational stress (Maslach et al. 1996)—the experience of unpleasant and negative emotions resulting from aspects of the work as a teacher (Kyriacou 2001). A number of studies, for instance in Spain, Finland, Iran, and Germany, show that general measures of teacher stress (e.g., stress as a single latent variable) are associated with burnout (Betoret 2009; Hakanen et al. 2006; Khani and Mirzaee 2015; Schwarzer and Hallum 2008). For instance, testing the Job Demands—Resources model among Finnish teachers Hakanen et al. (2006) found that a latent measure of job demands (or potential stressors) strongly predicted a latent teacher burnout variable ($\beta = .57$). Similarly, in a SEM analysis Betoret (2009) found that a latent measure of potential stressors in the school environment strongly predicted burnout among Spanish teachers ($\beta = .87$). Other researchers report more moderate relations. For instance, in a SEM analysis of teachers in Iran Khani and Mirzaee (2015) found a beta value of .38 between stress and burnout.

Although these studies clearly show that teacher burnout is related to stressful working conditions, there is a need for studies examining the relative association between *different* potential stressors in the school environment and specified dimensions of burnout. Studies of stress as a unidimensional or single latent variable provide limited understanding of the relative impact of particular stressors on burnout. Moreover, research indicates that the dimensions of burnout cannot be added up to a single measure (Byrne 1994; Lee and Ashforth 1996) and the dimensions of burnout may be differently related to particular stressors. Following these reflections, the purpose of this study was to analyze how four potential stressors in the school environment (discipline problems, time pressure, low student motivation, and value dissonance) were related to three dimensions of burnout (emotional exhaustion, depersonalization, and personal accomplishment).

2 Theoretical framework

2.1 Teacher burnout

Burnout has been described as an erosion of engagement (Maslach and Leiter 1997). It is resulting from long term occupational stress (Jennett et al. 2003) and is commonly conceptualized as a syndrome consisting of emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach and Jackson 1981; Maslach et al. 1996). Emotional (and physical) exhaustion, the core element of burnout, is characterized by a loss of energy, debilitation, chronic fatigue and the feeling of being worn out (e.g., Pines and Aronson 1988; Schwarzer et al. 2000). Depersonalization in teacher burnout is characterized by negative or cynical attitudes towards one's students, but also towards colleagues. Depersonalization may be caused by the emotional demands of the work as a teacher that may deprive the teacher of the capacity to be responsive to the needs of the students (see for instance Maslach et al. 2001). Reduced accomplishment refers to a negative self-evaluation and the feeling that one is no longer doing a good and meaningful job. Emotional exhaustion and depersonalization is by several researchers regarded the central dimensions of burnout (e.g., Schaufeli and Salanova 2007). A previous study of Norwegian teachers showed these dimensions to correlate weakly ($r = .23$). Additionally, we included a positive measure of personal accomplishment, which we expected to be negatively related to stressors or emotional demands of the work.

A number of studies in different cultures show that teacher burnout is negatively related to teacher self-efficacy (Brouwers and Tomic 2000; Skaalvik and Skaalvik 2007), teachers' subjective health (Hakanen et al. 2006), and teacher job satisfaction (Skaalvik and Skaalvik 2010), whereas burnout is positively related to intentions of leaving the teacher profession (Leung and Lee 2006). These studies include teachers from the Netherlands, Norway, Finland, Norway, and Hong Kong. Some studies also indicate that the dimensions of burnout may be differently related to stressors at school as well as 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 depersonalization ($\beta = -.52$ and $-.21$, respectively).

2.2 Discipline problems

Discipline problems or disruptive student behavior is recognized as a serious work-related stressor among teachers (Klassen and Chiu 2011; Klassen et al. 2013; Skaalvik and Skaalvik 2011a). Not being able to control student behavior may cause a feeling of defeat and lack of authority, which may result in serious stress responses (Skaalvik and Skaalvik 2012). Moreover, even the expectation of disruptive student behavior may cause a feeling of uncertainty and having to be on constant alert, which is energy tapping and may increase anxiety. Also, for some teachers controlling student behavior takes much time, effort, and energy. In support of these reflections, significant but small to moderate correlations have been found between

discipline problems and measures of burnout or particular indicators of burnout among teachers in Canada, Finland, and Israel (Fernet et al. 2012; Friedman 1995; Hakanen et al. 2006). Also, using multiple regression analyses, Betoret and Artiga (2010), in a study of Spanish teachers, found that student misbehavior significantly predicted both emotional exhaustion and depersonalization when controlled for a number of potential stressors like workload and student diversity. Moreover, using SEM analysis and controlling for demands (time pressure) and job resources (social relations and autonomy), Skaalvik and Skaalvik (2010) found significant associations between discipline problems and both emotional exhaustion and depersonalization in a large sample of elementary and middle school teachers in Norway. However, the associations were small ($\beta = .13$ and .11 for emotional exhaustion and depersonalization, respectively).

2.3 Time pressure

During the last two decades educational researchers in different countries have reported an increasing number of work assignments in the teaching profession and an acceleration of working speed among teachers (Buchanan 2010; Hargreaves 2003; Lindqvist and Nordänger 2006; Smithers and Robinson 2003). Teachers also report that this has led to a working situation with little time for rest and recovery (Skaalvik and Skaalvik 2012). Previous research shows that time pressure or work overload is associated with the emotional exhaustion dimension of burnout, whereas inconclusive results are found for the relations between time pressure and the depersonalization dimension. Using regression analysis Betoret and Artiga (2010) found a significant but weak association between workload and emotional exhaustion among Spanish teachers ($\beta = .19$), whereas Skaalvik and Skaalvik (2010, 2011a), using SEM analyses in two studies of Norwegian teachers, found that time pressure strongly predicted emotional exhaustion ($\beta = .59$ and .48, respectively). Betoret and Artiga (2010) also found a significant but weak association between workload and depersonalization ($\beta = .10$), while Skaalvik and Skaalvik (2010) failed to find a significant association between these constructs. Also, Fernet et al. (2012) found that work overload correlated more strongly with emotional exhaustion than with depersonalization among Canadian teachers and Goddard et al. (2006), in a path analysis of a small sample of 79 Australian teachers found that time pressure was significantly related to emotional exhaustion ($\beta = .29$) but not significantly related to depersonalization. Based on these studies it seems likely that workload or time pressure affects the emotional exhaustion dimension of burnout more strongly that the depersonalization dimension.

2.4 Low student motivation

Several studies of stressful working environments in school have focused on discipline problems or disruptive student behavior, whereas there is a lack of research examining low student motivation. However, Friedman (1995) found that student lack of attention was predictive of teacher burnout. Also, in a first attempt to study low student motivation in Norwegian senior high school, Skaalvik and Skaalvik (2016) measured

both teachers' perception of discipline problems and low student motivation for schoolwork. Confirmatory factor analysis showed that discipline problems and low student motivation should be treated as separate but correlated constructs. The constructs were only moderately correlated ($r = .45$). SEM analysis revealed that teachers' perception of low student motivation positively predicted both emotional exhaustion and motivation to leave the teaching profession. These associations were weak ($\beta = .10$ and .13, respectively), whereas a stronger negative association was found between teachers' perception of low student motivation and teacher self-efficacy ($\beta = -.31$). A possible interpretation of the association with teacher self-efficacy offered by Skaalvik and Skaalvik (2016) was that motivating the students is seen as an important part of the instructional process. Therefore, experiencing students to be unmotivated may be interpreted as a personal failure to motivate students for schoolwork, which may lead to a lack of self-efficacy for teaching.

2.5 Value dissonance

Skaalvik and Skaalvik (2011a, b) defined value consonance as the degree to which teachers feel that they share the prevailing norms and values at the school where they are teaching. In this study we were concerned with the *lack* of value consonance which we term value dissonance. Teachers at the same school may differ in their beliefs about what goals should be pursued, what content should be emphasized, and what educational means and methods should be used.

Value dissonance (or consonance) may be particularly important in the teacher profession because teaching is typically driven by values, ethical motives and intrinsic motivation (Sahlberg 2010; Skaalvik and Skaalvik 2011a). According to Chang (2009), teachers set explicit or implicit goals for their teaching. Also, as pointed out by Skaalvik and Skaalvik (2011a), in their teaching and classroom management teachers communicate values. Therefore, Skaalvik and Skaalvik (2011a) expected that teachers would be most comfortable if they were able to teach in congruence with their own educational beliefs and values. A teacher who feels that the prevailing norms, values and practices at the school are incompatible with her or his own values may experience what Rosenberg (1977, 1979) referred to as contextual dissonance. A contextual dissonance may affect the relations between the individual and his or her environment negatively and result in a feeling of not belonging, a feeling that one does not fit, that one is out of it, somehow wrong (Rosenberg 1977, 1979). In accordance with these expectations, Skaalvik and Skaalvik (2011a, b) found that value consonance positively predicted Norwegian teachers' feeling of belonging and job satisfaction. Skaalvik and Skaalvik (2011a) also found that value consonance was indirectly and negatively related to the emotional exhaustion dimension of burnout.

2.6 The present study

The purpose of this study was to analyze how four potential stressors in the school environment (discipline problems, time pressure, low student motivation, and value dissonance) were related to emotional exhaustion, depersonalization, and personal

accomplishment. Previous studies (see above) indicate that time pressure is strongly related to teacher burnout, particularly to the emotional exhaustion dimension of burnout. The previous studies also indicate that discipline problems and low student motivation are related to teacher burnout. A study by Skaalvik and Skaalvik (2011a) also indicates that value consonance may be negatively related to emotional exhaustion, whereas we do not know any studies exploring the relation between the experience of value dissonance and the dimensions of burnout.

3 Method

3.1 Participants and procedure

Participants in the study were 1145 teachers: 427 teachers in elementary school (grade 1–7), 333 teachers in middle school (grade 8–10), and 385 teachers in high school (grade 11–13). Thirty-four schools were drawn at random from three counties in central Norway and all teachers in those schools were invited to participate. Based on the school statistics 81% of the teachers at the selected schools participated in the study. Participation was voluntary for both the schools and the individual teachers. 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. Sixty-five percent of the participants were women. The age ranged from 23 to 68 years and the experiences as teachers ranged from 1 to 47 years.

3.2 Instruments

3.2.1 Time pressure

We measured time pressure with a five-item time pressure scale (Skaalvik and Skaalvik 2016). Examples of items are: "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 "Teachers are loaded with work." Responses were given on a 6-point scale from "Completely disagree" (1) to "Completely agree" (6). Cronbach's alpha for the scale was .82.

3.2.2 Discipline problems

Discipline problems were measured by a three-item scale previously tested in elementary school and high school (Skaalvik and Skaalvik 2011a, 2016). 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). Cronbach's alpha for the scale was .84.

3.2.3 Low student motivation

A four-item scale was used for measuring the teachers' perceptions of low student motivation (Skaalvik and Skaalvik 2016). 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 .88.

3.2.4 Value dissonance

Value dissonance was measured by a 3-item value conflict scale (Skaalvik and Skaalvik 2016). 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 scale was .78.

3.2.5 Emotional exhaustion

Emotional exhaustion was measured by a short six-item version of the emotional exhaustion dimension of the Maslach Burnout Inventory—Educators Survey (see Skaalvik and Skaalvik 2011a). The participants rated statements indicating that their work made them feel emotionally drained or exhausted. Cronbach's alpha for the scale was .91.

3.2.6 Depersonalization

Depersonalization was measured by an extended six-item version of the depersonalization dimension of the Maslach Burnout Inventory—Educators Survey (Maslach et al. 1996). The original 5-item scale was extended because a Norwegian version of the original scale had marginal reliability (see Skaalvik and Skaalvik 2007). The participants rated statements indicating that they, at times, did not care about the students or talked negatively about the students. Cronbach's alpha for the scale was .74.

3.2.7 Personal accomplishment

Personal accomplishment was in this study measured positively with a 5-item "Personal accomplishment scale" developed for the purpose of this study. Thus, low scores on this scale indicate reduced or low personal accomplishment. The items were: "I am doing a good job", "I am very satisfied with my teaching", "I feel that I am doing an important and meaningful job", "I feel successful as a teacher", and, "I can see positive results of my teaching every day". Cronbach's alpha for the scale was .88.

3.3 Data analysis

We first tested a measurement model by means of confirmatory factor analysis using the AMOS 23 program. The model specified the four potential stressors and the three dimensions of burnout as seven separate variables. The purpose of testing the measurement model was to test that the factors specified were independent constructs as well as the correlation between the factors. We then tested relations between the four stressors and the three dimensions of burnout by means of SEM analysis (structural equation modeling). In order to control for the impact of gender and grade level at which the participants were teaching we tested a model with gender and grade as endogenous variables. In order to assess the model fit, we used well-established indices such as CFI, IFI, TLI, and RMSEA, as well as the Chi square test statistics. For the CFI, IFI, and TLI indices, values greater than .90 are typically considered acceptable and values greater than .95 indicate a good fit to the data (Bollen 1989; Byrne 2001; Hu and Bentler 1999). For well-specified models, an RMSEA of .06 or less reflects a good fit (Hu and Bentler 1999).

4 Results

4.1 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. The correlations between the four potential stressors in the working environment (discipline problems, time pressure, low student motivation, and value dissonance) were small to moderate. All potential stressors correlated positively with emotional exhaustion and three of the stressors correlated positively with depersonalization. The exception was time pressure which did not correlate significantly with depersonalization. Also, three of the stressors correlated negatively with personal accomplishment showing that stressors in the school environment were associated with reduced personal accomplishment. Time pressure was particularly strongly related to emotional exhaustion ($r = .54$), whereas it was not significantly related to depersonalization or personal accomplishment. Gender was not strongly related to any of the study variables. However, we found weak tendencies that female teachers felt the strongest time pressure, whereas male teachers reported more problems with student motivation and stronger tendencies towards depersonalization compared to female teachers. Teachers at lower grade levels reported more discipline problems than teachers at higher levels, whereas teachers at higher levels reported more problems related to low student motivation.

4.2 Factor analysis

We tested the measurement model by means of confirmatory factor analysis. The model had good fit to the data [χ^2 (437, $N = 1145$) = 1234.190, $p < .001$, $\chi^2/df = 2.824$, RMSEA = 0.040, IFI = 0.955, CFI = .954, TLI = 0.945]. All

Table 1 Zero order correlations and descriptive statistics

Variables	1	2	3	4	5	6	7	8	9
1 Gender	–	.17	–.17	–.05	.12	.09	–.08	.13	.04
2 Grade level		–	–.19	–.29	.33	.11	–.10	.11	–.07
3 Time pressure			–	.22	.07	.06	.54	.04	–.02
4 Discipline problems				–	.24	.04	.26	.16	–.13
5 Low student motivation					–	.20	.19	.28	–.24
6 Value dissonance						–	.23	.30	–.19
7 Emotional exhaustion							–	.29	–.23
8 Depersonalization								–	–.34
9 Personal accomplishment									–
Mean	–	–	20.19	9.47	11.87	5.22	17.37	10.20	34.19
SD	–	–	3.35	3.91	4.79	2.41	7.01	3.94	3.16

Grade levels vary from 1 to 13 and represent the grade level where each teacher has the majority of his or her teaching. All correlations above .05 are significant ($p < .05$). Female teacher scored 1 and male teachers scored 2

regression weights except one were above .5, and with one exception all correlations between the latent variables were low to moderate (see Table 2). The exception was a correlation of .65 between time pressure and emotional exhaustion. However, theoretically, these are separate constructs and the correlation does not represent any serious collinearity problem.

4.3 SEM analysis

We further tested the relations among the variables by means of a SEM analysis. The empirical model, reporting standardized regression weights, is displayed in Fig. 1. Non-significant paths are not included in the figure. The final model had acceptable fit to the data [χ^2 (494, $N = 1145$) = 1613.299, $p < .001$, $\chi^2/df = 3.266$, RMSEA = 0.045, IFI = 0.938, CFI = 0.938, TLI = 0.925].

Table 2 Confirmatory factor analysis—correlations among the latent variables

Variables	1	2	3	4	5	6	7
1 Time pressure	–	.27	.12	.04	.65	.01	–.02
2 Discipline problems		–	.32	.03	.32	.18	–.17
3 Motivation problems			–	.22	.24	.39	–.27
4 Value dissonance				–	.22	.36	–.19
5 Emotional exhaustion					–	.31	–.25
6 Depersonalization						–	–.40
7 Personal accomplishment							–

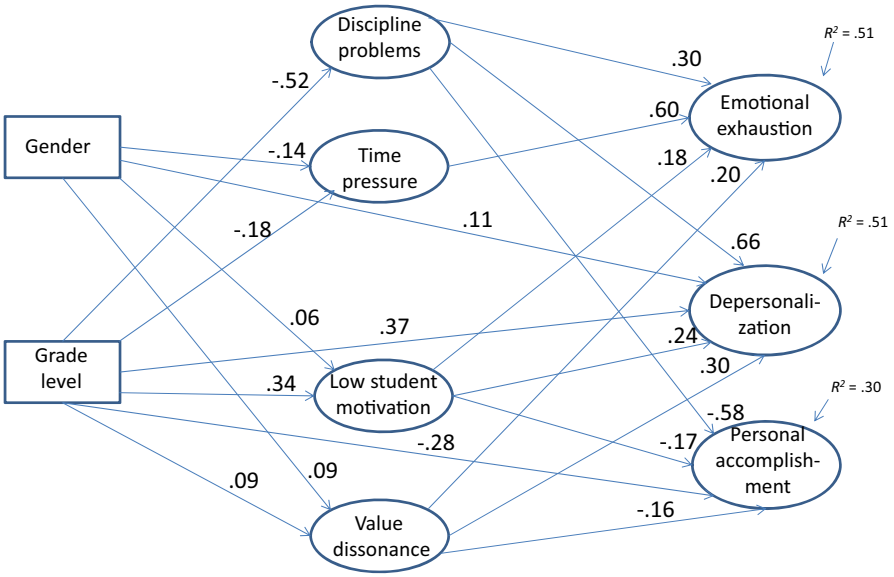

Fig. 1 Structural model of relations between gender, grade level, stressors in the working environment at school, and three dimensions of teacher burnout. Accomplishment is measured positively, not as reduced accomplishment. Standardized regression weights reported. Only significant regression coefficients are included in the figure

The SEM analysis verified that all the four potential stressors were significantly associated with the emotional exhaustion dimension of burnout. Time pressure was the far strongest predictor of emotional exhaustion ($\beta = .60$). However, discipline problems, value dissonance, and low student motivation were also moderately to weakly related to exhaustion ($\beta = .30$, .18, and .20, respectively).

Three of the potential stressors in the working environment in school were also significantly related to the depersonalization dimension of burnout. Discipline problems was the strongest predictor of depersonalization ($\beta = .66$), whereas value dissonance and low student motivation were moderately related to depersonalization ($\beta = .30$ and .24, respectively).

Three of the potential stressors were also significantly and negatively related to personal accomplishment confirming that stressors in the environment are associated with reduced accomplishment. Discipline problems was the strongest predictor of personal accomplishment ($\beta = -.58$), whereas value dissonance and low student motivation were weakly related to personal accomplishment ($\beta = -.16$ and $-.17$, respectively).

Gender was not significantly related to the teachers experiences of discipline problems but was weakly related to time pressure ($\beta = -.14$), value dissonance ($\beta = .09$), and the experience of low student motivation ($\beta = .06$). These findings indicate a weak tendency that female teachers, compared to male teachers, experience the strongest time pressure and the lowest levels of value dissonance.

The SEM analysis revealed that teachers at lower levels experienced the strongest discipline problems ($\beta = -.52$) and the strongest time pressure ($\beta = -.18$). In comparison, teachers at the higher levels reported the lowest student motivation ($\beta = .34$) and the strongest value dissonance ($\beta = .09$). The level at which the participants were teaching was then classified into (1) elementary school, (2) middle school, and (3) high school. One way analyses of variances with Scheffe's post hoc tests revealed significant differences between teachers in elementary school and teachers in high school for all four potential stressors ($p < .05$). For discipline problems we also found significant differences between teacher in elementary school and middle school and between teacher in middle school and teachers in high school. For time pressure there was a significant difference between teachers in middle school and teachers in high school, whereas low student motivation showed a significant difference between teachers in elementary school and middle school. These analyses indicate that discipline problems and time pressure decrease with increasing grade level and that value dissonance problems and problems related to low student motivation increase with increasing grade level.

We found no direct associations between emotional exhaustion and either gender or school level. These results indicate that the associations between gender and exhaustion but also between school level and exhaustion were indirect, mediated through the potential stressors in the study. The standardized indirect effects of gender and school level on exhaustion were −.06 and −.19, respectively. Thus, the indirect effects show small tendencies of higher burnout among female teachers than among male teachers and among teachers at the lower grade levels.

Depersonalization was both directly and indirectly related to both gender and school level. The direct relations were shown by positive beta values of .11 and .37 for gender and school level, respectively. However, the indirect effect of grade level on depersonalization was negative (−.23), resulting in a small positive total effect of grade level (.13). The indirect effect of gender on depersonalization was nonsignificant. These results show small tendencies of more depersonalization among male that among female teachers and higher levels of depersonalization among teachers at higher grade levels.

Personal accomplishment was not significantly related to gender. It was directly as well as indirectly related to grade level. The direct relation was negative ($\beta = -.28$), whereas an indirect effect via lower discipline problems was positive (.30). Additionally, small negative indirect effects were found via student motivation and value dissonance. This resulted in a total effect of −.05.

5 Discussion

Previous studies show that teacher burnout is related to stressful working conditions. However, there is still a lack of research investigating the relative impact of different potential stressors on particular dimensions of burnout. The purpose of this study was therefore to explore relations between teachers' perceptions of four potential stressors in the school environment and three dimensions of teacher

burnout. The stressors included in this study were discipline problems, time pressure, low student motivation, and value dissonance. We explored relations between these potential stressors and emotional exhaustion, depersonalization, and personal accomplishment by means of structural equation modeling. Gender and grade level were included as endogenous variables in the SEM model.

The analysis revealed that the four potential stressors were weakly correlated and that they could not be added up to a single stressful-working-condition-variable. In accordance with previous research (Skaalvik and Skaalvik 2010) the three dimensions of burnout were also weakly to moderately correlated, and could not be added up to a single burnout variable (see also Byrne 1994). We also found some distinct differences in how strongly the two burnout constructs were associated with the potential stressors.

Time pressure was strongly associated with emotional exhaustion, whereas it was not significantly related to depersonalization or to personal accomplishment. This finding supports previous research showing that time pressure or work overload is most strongly related to the emotional exhaustion dimension of burnout (e.g., Skaalvik and Skaalvik 2010). A heavy workload and a high time pressure may be exhausting in itself. Many teachers report long working days as well as working in the weekends (Skaalvik and Skaalvik 2012). Additionally, emotional exhaustion may in turn result in a feeling that one does not have the time and energy to adequately prepare for teaching and to care for the individual students. In accordance with this reasoning we found that emotional exhaustion was positively associated with depersonalization and negatively associated with personal accomplishment (Table 2).

The present study indicates that both depersonalization and the feeling of personal accomplishment are unrelated to workload and time pressure, but that these dimensions of burnout are strongly influenced by the teacher—student relationship, which in this study was illustrated by teacher perception of discipline problems and low student motivation. For instance, discipline problems or disruptive student behavior may lead to frustration, cause teachers to feel uncertain and anxious and to be on a constant alert. We suggest that discipline problems, in the mind of the teacher, may be directly associated with students' (or particular students') characteristics and behavior. The teacher may therefore perceive these students as interfering with his or her teaching and goal attainment. Consequently, over time, discipline problems may change the teacher—student relationship and cause a more cynical attitude towards particular students or students in general. Also, if disruptive student behavior interferes with teaching and goal attainment, it may also result in reduced feeling of personal accomplishment. Similarly to discipline problems, teachers may also perceive low student motivation as caused by student characteristics. Similarly to discipline problems, it may lead to worry and may be time consuming for teachers who care about the students and who make an effort to engage all students in schoolwork. However, it may also lead teachers to blame the students, which may develop into depersonalization.

Value dissonance is a potential stressor which is not systematically studied in previous research on teacher stress and burnout. Value dissonance is a construct derived from Rosenbergs' (1977) theory of contextual dissonance (see

introduction). An environment is not dissonant per see, but may be so for individuals who do not share the majority norms, values, and goals in the particular environment. The present study shows that teachers who are in a dissonant value context at school tend to report higher levels of both emotional exhaustion and depersonalization and lower levels of personal accomplishment. A reasonable explanation of the association with emotional exhaustion may be that being in a dissonant context may lead teachers to doubt themselves and to have to defend their positions and practices. The association with depersonalization and personal accomplishment needs more research. A possible hypothesis for future research may be that, for a teacher, value dissonance may lead to indifference because of a feeling that one cannot follow one's own values or that one is not highly valued if one does. As discussed above, teaching is based on values and teachers set goals for their teaching. Also, educational values, for instance helping children learn and develop, and make a difference in children's lives are central motives for choosing the teaching profession (Watt and Richardson 2008). Therefore, not being able to teach accordingly to one's own values and beliefs, or not being valued if one does, may result both in a cynical attitude to teaching (depersonalization) and a feeling that one is not doing a good or meaningful job (reduced accomplishment).

A limitation of this study is that it is based on a cross sectional design. Although the SEM analysis is based on a theoretical assumption of causality, longitudinal analyses are needed to draw firm causal conclusions. Also, possible causal relations between the dimensions of burnout also call for longitudinal studies. Another limitation is that we have included only four potential stressors in the school environment. Future research should include other potential stressors, for instance conflicts with parents and with the school administration, lack of teacher autonomy, and the feeling that the teacher profession is not highly valued in society. A third limitation is that all measures of potential stressors in this study are based on self-reports.

6 Conclusions and implications

An important finding in this study is that the three dimensions of teacher burnout were differently associated with the potential stressors in the school environment. In particular, time pressure and discipline problems related very differently to the dimensions of burnout. Time pressure or work overload was the strongest predictor of emotional exhaustion, whereas it was not significantly related to depersonalization and personal accomplishment. In contrast, disruptive student behavior was the strongest predictor of depersonalization and personal accomplishment. When combined with the low correlations among the dimensions of burnout, these findings imply that the traditional dimensions of teacher burnout may develop relatively independent of each other, but also that they may influence each other in a reciprocal manner. That is, teacher burnout may not always start with the development of emotional exhaustion.

This study has both practical and theoretical implications. It clearly shows that all the traditional dimensions of burnout are associated with stressors at school.

Because the potential stressors are weakly correlated, but also because the dimensions of burnout are weakly correlated and relate differently to some of the potential stressors, multiple measures are needed to prevent teacher burnout. A reduction of the workload and the time pressure in the teaching profession seems vital in order to reduce emotional exhaustion. On the other hand, measures designed to develop a positive teacher-student relationship and to avoid teacher experiences of value dissonance seems to be central to avoid depersonalization and reduced personal accomplishment among teachers. We suggest that school leaders should work to build a collective culture at school, characterized by a common set of goals and values. Values cannot be imposed on teachers, but develop through dialogue and experiences in secure environments. Building common values therefore requires instructional leadership. The study also has implications for designing research on teacher stress and burnout. It indicates that researchers should include multiple stressors in the studies and that both the stressors and the dimensions of burnout should be treated as separate variables.

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