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Research paper

Teacher burnout explained: Teacher-, student-, and organisation-level variables

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HIGHLIGHTS

- The burnout profile differed between teacher categories.
- Burnout was highest among subject teachers, lowest among special education teachers.
- Class size had a minimal association with teachers' burnout.
- Students with special needs had a small association with teacher burnout.
- Availability of additional help was associated with lower level of teacher burnout.

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ABSTRACT

Understanding the factors related to teacher burnout helps in creating schools which foster teachers' job satisfaction and the delivery of high-quality education. We studied teacher burnout and its three subdomains across several teacher-, student-, and organisation-level variables, including teacher category, class size, number of students with support needs, attitudes towards inclusive education, and availability of support. The participants were 4567 Finnish primary school teachers consisting of 2080 classroom teachers, 1744 subject teachers, 438 special-class and 305 resource room teachers. Several associations between teacher burnout and the background variables were observed and recommendations made based on these results.

1. Introduction

Burnout has been identified as a psychological risk, especially in fields which involve working with customers (Loonstra, Browers, & Tomic, 2009; Maslach & Leiter, 2016). It has been defined as "a psychological syndrome emerging as a prolonged response to chronic interpersonal stressors on the job" (Maslach & Leiter, 2016, p. 103). Burnout develops gradually when work becomes unpleasant, unfulfilling, and unrewarding. The concept is usually divided into three dimensions: exhaustion, lack of accomplishment, and feelings of cynicism towards and detachment from the job (Maslach, Schaufeli, & Leiter, 2001). Of these three dimensions, emotional exhaustion, or the feeling of being emotionally drained and worn-out, is identified as a central aspect of the whole construct (Maslach & Leiter, 2016; 2017).

Understanding burnout among teachers, as well as the factors related to it, has awakened considerable attention (Kyriacou, 2001). Teacher burnout has been shown to have significant negative implications not only for teachers' well-being in terms of their self-rated health (Hakanen, Bakker, & Schaufeli, 2006), mental health (Schonfeld & Bianchi, 2016), and job satisfaction (Klassen, Usher, & Bong, 2010; Robinson, Bridges, Rollins, & Schumacker, 2019; Skaalvik & Skaalvik, 2009; 2011) but also for student achievement (Herman, Hickmon-Rosa, & Reinke, 2018; Klusmann, Richter, & Lüdtke, 2016) and adjustment (Jennings & Greenberg, 2009; Oberle & Schonert-Reichl, 2016). Among teachers, burnout has also been related to high absenteeism, retirement, and turnover rates (Ingersoll & May 2012; Schonfeld, 2001) and a lower quality of job performance (Klusmann, Kunter, Trautwein, Lüdtke, & Baumert, 2008). As teacher burnout has negative consequences at the individual teacher-, student-, organizational, and societal levels, factors

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related to teacher burnout require more attention.

Teaching has been ranked as one of the most stressful professions in various cultural and educational contexts. In the United Kingdom, teaching was one of the most stressful among 26 occupations (Johnson et al., 2005). In Finland, teachers experienced stress and burnout more frequently (12%) than other professions (8%) (Kauppinen et al., 2010). Teachers also suffered the highest level of burnout compared to other workers in the human services and white-collar jobs (Kalimo & Hakanen, 2000).

The present study draws on the job demands-resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), which proposes that teacher stress and burnout are predicted by their perceptions of two factors, namely, job demands and resources (Hakanen et al., 2006). The central assumption of this model is that job stress arises when a person's resources have been exceeded (Bakker & Demerouti, 2007). School is a complex environment where job demands include several individual- and school-level aspects, such as work overload, role conflict, school climate, conflicts with colleagues, and students' behavioural problems (Hakanen et al., 2006; Pyhältö, Pietarinen, & Salmela-Aro, 2011; Skaalvik & Skaalvik, 2010). Job resources consist of, for example, teacher efficacy, support from one's colleagues and principal, participation in decision-making, public recognition, and professional development (Rudow, 1999). The literature has provided consistent support for the JD-R model and the primary role of job demands and resources in burnout (see Fernet, Austin, Trépanier, & Dussault, 2013, for a review; Hakanen et al., 2006). Job demands and resources can arise from the individual teacher-, student-, and organisational levels. Thus, the present study adopts a more integrative approach by investigating both the individual and environmental factors related to burnout.

In empirical research, teachers' stress and burnout have been linked to several factors. The first category is teacher and student characteristics (Engelbrecht, Oswald, Swart, & Eloff, 2003; Klusmann et al., 2008; Kokkinos, 2007). Organisational and work-related variables also play a significant role in teacher stress. These variables include time pressure (Hakanen et al., 2006; Kyriacou, 2001; Schaufeli & Bakker, 2004), relationships with colleagues (Hakanen et al., 2006; Leung & Lee, 2006; Schaufeli & Bakker, 2004), and the availability of various forms of support (Skaalvik & Skaalvik, 2011). Teacher burnout has been found to be related in particular to the quality of the social interactions occurring within the school community (Fernet, Guay, Senécal, & Austin, 2012).

1.1. Teacher-level variables

Among the teacher-level factors, teacher burnout has been studied in relation to demographic variables and attitudinal dimensions. Regarding gender, female teachers have often been more exhausted than their male counterparts (Antoniou, Polychroni, & Vlachakis, 2006; Fernet et al., 2012; Pyhältö et al., 2011; Santavirta et al., 2000). They have also reported lower levels of personal accomplishment (Lau, Yuen, & Chan, 2005), while male teachers have expressed higher levels of depersonalisation (Lau et al., 2005; Schwab et al., 1986). With regard to burnout, the association between age and work experience is less clear. Older teachers are often more exhausted than younger ones (Klusmann et al., 2008; Santavirta et al., 2000), but younger teachers have sometimes reported a higher level of emotional exhaustion than their experienced counterparts (e.g., Antoniou et al., 2006; Brunsting, Sreckovic, & Lane, 2014; Lau et al., 2005).

Teacher efficacy has been defined as teachers' confidence in their individual and collective capabilities to influence students' performance and especially their learning (Brouwers & Tomic, 2000; Klassen, Tze, Betts, & Gordon, 2011). There is emerging evidence of the positive relationship between teachers' self-efficacy and student learning (Collie, Shapka, & Perry, 2012; Klassen & Chiu, 2010). A review of 23 studies by Zee and Koomen (2016) indicated that students' motivation was predicted more consistently by teacher self-efficacy than by students' academic achievement. Lower teacher self-efficacy is associated with higher burnout and stress. Teachers with greater reliance on their capabilities, especially in regard to classroom management, have lower levels of burnout (Betoret, 2006; Dicke et al., 2014; Evers, Brouwers, & Tomic, 2002; Friedman, 2003; Friedman & Farber, 1992; Malinen & Savolainen, 2016; Skaalvik & Skaalvik, 2007, 2010; Zee & Koomen, 2016). The connection between these concepts may be partly intrinsic, because professional failure and sense of inefficacy are principal factors in burnout (Friedman, 2003).

It has been suggested that teachers' relatedness with students is also important for teachers' own well-being (Milatz, Lüftenegger, & Schober, 2015; Spilt, Koomen, & Thijs, 2011). In line with self-determination theory (Deci & Ryan, 2000), teachers have a basic need for relatedness. Relationships with students can be an important source of positive energy, enjoyment, and reward and can guide teachers' daily emotions and cognitions in the classroom (Milatz et al., 2015). Positive teacher–student relationships are generally characterised by relatedness, respect, warmth, support, trust, and low levels of interpersonal conflict (e.g., Pianta, 1999; Roorda, Koomen, Spilt, & Oort, 2011). Positive relationships are facilitated by structures, which give teachers the possibility of developing standing relationships with each student, such as in primary school where teachers have less students than in upper levels.

Warm and supportive relationships between teacher and students foster positive classroom climates (Klassen, Perry, & Frenzel, 2012) and increase positive learning outcomes (Cornelius-White, 2007; Kiuru et al., 2012; Lerkkanen et al., 2016). Teachers who devoted their time and energy to forming warm and supportive relationships with their students had higher work-related well-being (Spilt et al., 2011) and experienced lower levels of emotional stress and burnout than those who had more distant relationships with their students (Hoglund, Klingle, & Hosan, 2015; Jennings & Greenberg, 2009; Milatz et al., 2015). Teachers' relatedness with their students was associated with lower emotional exhaustion (Klassen, Perry, & Frentzel, 2012; Virtanen et al., 2018), higher work enthusiasm (Aldrup et al., 2018), and increased job satisfaction (Virtanen et al., 2018).

Teacher attitudes towards students can also be related to their experiences of burnout. So far, studies on teacher burnout and inclusive education have concentrated on the possible factors that explain teachers' stress (Brackenreed, 2011; Forlin, 2001), while studies on the association between burnout with teachers' attitudes towards inclusion seem to be lacking. As an exception, Talmor, Reiter, and Feigin (2005) showed that teachers' attitudes towards inclusion were significantly associated with burnout: The more positive the teacher's attitude, the greater the experience of burnout. Furthermore, higher levels of burnout have been linked to the lower level of support obtained from principals, colleagues, and students' parents (Brunsting et al., 2014; Skaalvik & Skaalvik, 2011).

1.2. Student-level variables

The student-level variables related to teacher burnout include, first and foremost, the ages of the students and their support needs. Students' age has typically been operationalized as grade level. The grade level taught has been shown to have a significant association with teacher burnout: Secondary school teachers tend to

experience higher levels of depersonalisation and reduced personal accomplishment than elementary school teachers (Schwab & Iwanicki, 1982). Teachers in the upper grades have been shown to experience more burnout than those in lower grades (Arvidsson, Håkansson, Karlson, Björk, & Persson, 2016). As an exception, Antoniou, Ploumpi, and Ntalla (2013) indicated that Greek primary school teachers experienced higher emotional exhaustion than teachers of secondary education.

The principle of inclusive education contains the idea of placing students with disabilities in the mainstream classrooms (United Nations Educational, Scientific and Cultural Organization [UNESCO], 1994). Increased student heterogeneity in the classroom may, in turn, have negative consequences for the teachers. In particular, students' behavioural problems have been associated with higher levels of teacher dissatisfaction and stress (Aloe, Shisler, Norris, Nickerson, & Rinker, 2014; Organization for Economic Co-operation and Development [OECD], 2014).

Few studies have investigated the association between teacher burnout and the presence of students with special education needs (SEN) in the classroom. A study from Israel found that teachers' level of depersonalisation was higher when the number of students with SEN exceeded 20% of the classroom population (Talmor, Reiter, & Fejgin, 2005). In another study, fatigue and depersonalisation among physical education teachers were higher when they had students with behaviour problems; however, their learning problems were not associated with teacher burnout (Fejgin, Talmor, & Erlich, 2005). The inclusion of students with moderate to severe intellectual disabilities was found to be somewhat stressful for regular education teachers, with the most stressful issues being the division of time between students and concerns regarding their educational outcomes (Forlin, 2001). In a replication of this study, the most stressful items were associated with teachers' perceptions of their self-competency and of the behaviour problems of the child (Brackenreed, 2011). The most frequently mentioned problems were the necessity of compromising with regard to the teaching of other students because of the presence of a child with SEN, mentioned by 83% of the teachers, the modifications needed to accommodate students with SEN (85%), and the behavioural problems of these students (80%) (Brackenreed, 2011).

Some intervening variables have mediated the effects of student characteristics on teacher burnout. Teachers have suffered more stress or burnout in inclusive classrooms when they estimated that their own skills were inadequate (Forlin, 2001) or that outside support was lacking (Talmor et al., 2005). Experience as a teacher in inclusive classrooms and participation in formal training were associated with lower burnout (Forlin, 2001). Teacher burnout was also lower when certain organisational features were present, such as independence at work, a clear division of labour, rapid student assessment, effective instructional planning, and recognition of the positive consequences of inclusion. These social and organisational variables explained 24% of the total variance in the teachers' burnout (Talmor et al., 2005). In another study, teachers, who used the versatile methods recommended in the implementation of inclusive education, suffered less stress than other teachers (Weiss, Muckenthaler, Heimlich, Kuechler, & Kiel, 2019).

1.3. Organisation-level variables

Teachers' job-specific tasks as well class size, school size, and the availability of support are among the significant organisation-level variables related to burnout. Subject teachers' overall burnout has been found to be significantly higher than burnout among class and special education teachers (Pietarinen, Pyhältö, Soini, & Salmela-Aro, 2013). Pietarinen et al. (2013) also demonstrated that subject teachers experienced the highest level of inadequacy, whereas special education teachers reported the lowest levels of inadequacy. Burnout among special education teachers was examined by Brunsting et al. (2014), who reviewed 23 studies conducted on the subject between 1979 and 2013. They found that the variables associated with burnout in this population included the lack of resources, workload problems, and teachers' role ambiguity.

It has also been indicated that larger class size is related to higher levels of burnout and exhaustion (French, 1993; Travers & Cooper, 1996). Furthermore, Skaalvik and Skaalvik (2010) indicated that larger school size plays a role in teacher burnout, as manifested in decreased job satisfaction, lower accomplishment, and a sense of depersonalisation. In a Finnish study by Pietarinen et al. (2013), teachers working in small schools (less than 100 pupils) experienced less burnout symptoms than those operating in medium-sized (301–450 pupils) or large schools (over 600 pupils). Burnout has also been linked to the level of support obtained (Brunsting et al., 2014; Skaalvik & Skaalvik, 2011). Thus, it could be assumed that the availability of a teaching assistant in a classroom is related to less burnout.

1.4. Aims of the study

Better understanding of the factors related to teacher stress and burnout helps to create school environments that foster teachers' job commitment, prevent dropout from the profession, and raise the quality of education. While numerous aspects of teacher burnout have been thoroughly investigated, others deserve further study, and many of them were selected to this study.

We used a large and representative sample of Finnish primary school teachers from different categories to survey the possible factors explaining teacher burnout. First, we investigated the structural validity of the Friedman Burnout Scale among a large Finnish sample of teachers. It was expected that the suggested three-factor structure would fit the data well (H1). The further aim of the present study was to examine the extent to which various teacher-, student-, and organisation-level variables were related to teacher burnout. The individual teacher-related variables selected for this study were the teachers' age and gender, attitudes towards inclusive education, sense of self-efficacy, relatedness with students, and perceptions of the sufficiency and availability of support. At the teacher level, it was expected that higher levels of burnout would be associated with older age (H2), the male gender (H3), negative attitudes towards inclusive education (H4), a lower sense of efficacy (H5), lower relatedness with students (H6), and lower perceptions of sufficiency and availability of support (H7). The student-related variables that were selected were grade level taught by teachers, the number of students with SEN and intensive support needs (ISN) in the class. It was hypothesised that burnout would increase for teachers in the upper grades (H8) and when the number of students with support needs increased (H9). The organisational variables included teacher category, principal's duties, class size, size of school and municipality, and availability of teaching assistants (TAs). It was expected that subject teachers (H10) and teachers with larger classes (H11) and no teaching assistant (H12) would experience higher levels of burnout.

2. Methods

2.1. Participants

The participants of this study were 4567 Finnish primary school teachers. The criterion for inclusion in the study was that the participant was currently working as a primary school teacher. The participants' distribution across current teacher position, formal

Table 1
Study participants.

Teacher category	N	Qualified %	Gender		
			Male %	Female %	Total %
Classroom teacher	2080	97	19	81	100
Subject teacher	1744	98	23	77	100
Special-class teacher	438	86	16	84	100
Resource room teacher	305	93	7	93	100
Total	4567	96	81	19	100

qualification, and gender is presented in Table 1. Of the participants, 262 also worked as school principals or vice-principals. The mean age of the participants was 45.7 years (SD = 9.5). In terms of age, the sample was representative of the Finnish teacher population (Finnish National Agency for Education, 2016). The number of formally qualified teachers in this study (96%) corresponded with the number obtained in a large Finnish study conducted in 2016 (95%) (Finnish National Agency for Education, 2016). The percentage of female teachers in each category was also close to the numbers reported in a previous large study (Finnish National Agency for Education, 2016). The subject teachers were classified into four subgroups based on their majors: languages (N = 667), science and mathematics (N = 481), humanities (N = 204) and arts, crafts and physical education (N = 472).

2.2. The Finnish primary school and its teachers

To qualify as a primary school teacher of any type, the completion of five years of university studies, leading to a master's degree, is almost always a necessity (Government of Finland, 1998). The classroom teacher instructs Grades one to six—that is, students between the ages of 7 and 12. The subject teacher is mainly responsible for the upper school—that is Grades seven to nine (ages 13 to 15). Special education teachers are either special-class teachers or resource room teachers. The former instruct self-contained classrooms of students with SEN and have at most 10 students in their class. Resource room teachers are special education teachers who encounter a changing body of students in their offices. They give elementary speech therapy, instruct in difficult school subjects, or merely provide temporary placement for students who exhibit disturbing behaviour. In 2017, about 22% of primary school students participated in this activity, which is known as "part-time special education" (Statistics Finland, 2018).

Primary school students in Finland are categorised according to their needs for general, intensified, or special support (Government of Finland, 2010). "Students with intensified support needs" (ISN) is a Finnish specialty which came into force in 2010 through a change in the school legislation. The change created a continuum of supports where ISN falls between the supports for typical students and those designated as SEN. The aim of the new three-tier system was to limit the ever-increasing number of students being categorised as having SEN and transferred to special education classrooms. The official ISN category was created to make it easier for the teacher to obtain additional help. ISN was also intended to be the necessary first step before a student can be identified as having a need for special support, which is equivalent to the expression "special educational needs" (SEN) in many other countries. Although, in principle, students with ISN remain in their mainstream classrooms, students with SEN are usually transferred to special education classrooms. Such transfers are probably more common in Finland than in any other European country (EADSNE, 2018; Statistics Finland, 2018).

2.3. Data collection

In total, 95 preservice teacher participating in a scientific methodology course collected data in the spring term 2017. Each student or a group of students obtained a sample of Finnish municipalities. Of the 317 Finnish municipalities, only 302 were needed to fulfil the data collection requirements given to the participants. After collecting teachers' email addresses from the schools' official websites, the students sent each potential participant an email containing a link to the survey. The cover letter of the email stated that participation was fully anonymous and voluntary. Individual participants, schools, and municipalities could not be identified from the data. The ethical standards of the Finnish Advisory Board on Research Integrity (2012) were followed in the data collection. If the teachers' addresses were not available on the schools' websites, the schools were omitted from the study. Between 14,000 and 15,000 letters were distributed, and approximately 30–33% of the participants who were approached completed and returned the survey.

2.4. Survey instrument

The survey included individual items on TA support ("I would prefer to have help in my class from a special education teacher than from a teaching assistant"), evaluation of adequacy of support ("In my classroom, the support is sufficient" and "I believe that in my classroom, I get enough assistance and support if needed") and demographic variables. These variables are identified in the relevant passages of the Results section. The survey also contained scales measuring teachers' burnout, attitudes towards inclusion, sense of self-efficacy, relatedness with students, and available sources of support. Teachers were asked to answer on a five-point Likert scale ranging from "strongly disagree" (score one) to "strongly agree" (score five) with a neutral midpoint.

2.4.1. The Friedman Teacher Burnout scale (FTBS)

The teachers' burnout was measured using Friedman's (1999) adaptation of the second edition of the Maslach Burnout Scale (Maslach & Jackson, 1986). The original scale was divided into three subdomains—exhaustion, lack of accomplishment, and depersonalisation. Friedman retained the three-factor structure but reduced the scale items from 22 to 14 and adapted their wording to make it applicable to teachers.

Five items were used to measure emotional exhaustion or overextension: (a) "I feel exhausted from teaching", (b) "I feel burned out from teaching", (c) "I feel worn out from teaching", (d) "I feel wiped out by the end of a day of teaching", and (e) "I feel physically worn out by teaching". In the section titled "lack of accomplishment", the participants' feelings of incompetence and lack of achievement were measured using five items: (a) "I feel I could have better used my professional and personal capabilities in a profession other than teaching", (b) "I do not feel that I fulfil myself in teaching", (c) "I feel that I am not doing so well as a teacher", (d) "I think that if I had to choose again, I would not choose teaching", and (e) "I feel my expectations of teaching have not been met". The section on depersonalisation measured negative and impersonal sentiments towards students using four items: (a) "I feel that my students do not really try enough", (b) "I feel that my students do not really care about being good students", (c) "I feel that my students do not really want to learn", (d) "I think that I would rather have better students than those I have now". The psychometric properties of the FTBS are presented in the results section.

2.4.2. Teacher Attitudes towards Inclusive Education Scale short form

Teachers' attitudes towards inclusive education were measured using three items: (a) "The best result is achieved if each child with SEN is placed in a special education classroom that best suits to him or her", (b) "The education of students with SEN should be arranged as far as possible in mainstream classrooms", and (c) "Children with special educational needs learn best in their own special education classes, in which they have specially trained teachers". These items were selected from the 10-item Teacher Attitudes towards Inclusive Education Scale (TAIS) (Saloviita, 2015) based on their high item–total correlations. In a Finnish sample, the TAIS-SF explained 86% of the variance of the original TAIS scale (Saloviita & Tolvanen, 2017). The reliability of the TAIS-SF in the present sample was $\alpha = 0.82$, which was a good level.

2.4.3. Teacher sense of efficacy in Inclusive Education Scale

Teachers' sense of self-efficacy was measured using a three-item scale constructed on the basis of the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001). The original scale contained 24 items divided into three factors. In the present study, three items were chosen so that each represented a factorial dimension discovered in TSES. The dimension of efficacy for instructional strategies was covered by the item (a) *"I can teach many kinds of students, including students with special educational needs"*; the dimension of efficacy in classroom management was measured by the item (b) *"I can keep good order in my classroom"*; and the dimension of efficacy for student engagement was assessed by the item (c) *"I get students to rely on their own abilities"*. The reliability of the TSEIES, as measured by Cronbach's alpha, was $\alpha = 0.61$, which was just above the poor level. The reliability was somewhat low because the first item focusing on children with special education needs differed from the other two.

2.4.4. Relatedness with students scale

Four items from the Teachers' Interactional Style Scale (Aunola, Lerkkanen, Poikkeus, & Nurmi, 2005; Kiuru et al., 2012) were selected to measure teachers' positive and warm behaviour towards their students. The original scale measured the extent to which the teachers perceived that their relationships with their students were characterised by affection, sensitivity, and responsiveness to the needs and interests of the children (Kiuru et al., 2012). The chosen items were (a) *"I like to talk with my students"*, (b) *"In the company of my students, I am usually uncomplicated and relaxed"*, (c) *"I like to ask how my students are doing", and* (d) *"I often show my students that I care about them"*. The reliability of the RSS, as measured by Cronbach's alpha, was $\alpha = 0.84$, thereby indicating a good level.

2.5. Analytic strategy

The data were analysed using the IBM SPSS Statistics 24 and Mplus version 8.0 (Muthén & Muthén, 1998–2015). First, confirmatory factor analysis (CFA) was used to examine the structural validity of the FTBS measure as a three-factor model. The goodness-of-fit of the estimated model was evaluated using the Chi-Square test, the Comparative Fit Index (CFI), the Tucker-Lewin Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardised Root Mean Square Error of Approximation (SRMR). A non-significant Chi-Square value, CFI and TLI values above 0.95, a RMSEA value below 0.06, and an SRMR value below 0.08 indicated a good fit with the data (Muthén & Muthén, 1998–2015). Second, burnout was analysed in relation to teacher-level variables, which consisted of the teachers' gender, age, and attitudes. The teachers' evaluations of the adequacy of support were considered as teacher-level variables, while the actual presence of teaching assistants (TA) was considered as an organisation-level variable. Third, student-level variables, that is, student age and support needs, were analysed in relation to teacher burnout. Next, teacher category (classroom, subject, special class, or resource room teacher), class size, size of the school and municipality, and TA availability were used as organisational variables. The relation of teacher burnout to different factors was investigated using the *t*-test, hierarchical regression analysis, the one-way analysis of variance (ANOVA), and the two-way analysis of variance. Bonferroni post hoc tests were used for all multiple comparisons. Effect sizes are also provided because large sample sizes tend to derive meaning from statistical significance.

3. Results

3.1. Psychometric properties of the FTBS

The distribution of the FTBS deviated from normalcy, having a thick right tail in the direction of higher burnout. The value of the skewness was 0.298, and the standard error of the skewness, SD = 0.038, indicating that the score was more than twice its standard error. The reliability of the FTBS was $\alpha = 0.90$ or excellent. The reliabilities of the subscales were of good level—$\alpha = 0.87$ for exhaustion, $\alpha = 0.80$ for lack of accomplishment, and $\alpha = 0.84$ for depersonalisation.

CFA was performed for the FTBS to study the structural validity of the measure among a sample of Finnish teachers. The results indicated that the three-factor structure described the data satisfactorily: $\chi^2(74) = 1825.926$, $p < 0.001$, SRMR = 0.049, RMSEA = 0.072, CFI = 0.931, and TLI = 0.915. The modification indices (MI = 358.095) suggested that the model fit would increase after allowing the residual correlation between items "I feel I could have better used my professional and personal capabilities in a profession other than teaching" and "If I had to choose again, I would not choose teaching" and between the items "I feel burned out from teaching" and "I feel wiped out by the end of a day of teaching" (MI = 222.942). The correlated residuals seemed justifiable, as the suggested model seemed to have a shared method variance due to the different wording, compared to other indicators, and specific item content (see Brown, 2015). The correlated residuals among the factor indicators in CFA might represent a minor factor (see Cole, Ciesla, & Steiger, 2007). After these modifications, the suggested three-factor structure fit the data well: $\chi 2(72) = 1288.662$, $p < 0.001$, SRMR = 0.044, RMSEA = 0.061, CFI = 0.952, and TLI = 0.939. In addition, to test whether the suggested three-factor structure fit across all teacher groups, we carried out multiple-group analyses. This was done by creating a non-restricted model and comparing its fit to another model that was fully restricted across teacher categories (i.e., subject teachers, classroom teachers, and special education teachers). The chi-square likelihood ratio test between the non-restricted and the restricted models suggested that there were no differences in the models between the teacher categories.

3.2. Teacher-level variables and burnout

The correlation between age as a continuous variable and burnout was not statistically significant. For a closer study, age was divided into groups of ten years and an analysis of variance was conducted. When analysed in age groups of 10 years using a polynomial contrast, a linear trend was observed, thereby indicating the lowering of the total burnout score along with age: $F(4, 4382) = 3.31$, $p = 0.010$ ($\eta^2 = 0.003$). The effect was statistically

significant only in exhaustion factor, $F(4, 4466) = 6.72$, $p < 0.000$ ($\eta^2 = 0.006$). Age did not have an effect on depersonalisation $F(4, 4477) = 1.10$, $p = 0.355$ ($\eta^2 = 0.001$) or lack of accomplishment $F(4, 4480) = 2.36$, $p = 0.051$ ($\eta^2 = 0.002$).

Among the classroom teachers, the males had higher total burnout than the females: $t(1981) = -3.27$, $p = 0.001$, $d = -0.19$. The effect was found in the lack of accomplishment, $t(2036) = -4.40$, $p < 0.000$, $d = -0.25$, and the depersonalisation factor, $t(2029) = -5.23$, $p < 0.000$, $d = -0.27$, but not in exhaustion. Among the subject teachers, no differences existed between genders in regard to total burnout; however, the female teachers exhibited higher levels of exhaustion than their male counterparts: $t(1703) = 3.02$, $p = 0.003$, $d = 0.17$. Among the special-class teachers, no differences existed between the genders in regard to in the total burnout; however, the male teachers expressed higher levels of depersonalisation: $t(420) = -3.86$, $p < 0.000$, $d = -0.54$. Furthermore, the results of ANCOVA indicated that male teachers had higher lack of accomplishment ($F(1721) = 11.18$, $p < 0.01$, $\eta^2 = 0.006$) and depersonalisation ($F(1715) = 11.10$, $p < 0.01$, $\eta^2 = 0.006$) than females, when accounting for students' age and teacher category.

The correlations between burnout and attitudes towards inclusive education, self-efficacy, and relatedness with students are provided in Table 2. The results show that higher burnout was associated with more negative attitudes towards inclusion, a lower sense of self-efficacy, and weaker relatedness with the students. In regard to all three variables, the correlations were on the same approximate level for all four teacher categories. The correlation between burnout and support for inclusion remained lower than in general among only the special-class teachers: ($r = -0.118$, $p < 0.05$). Burnout also correlated positively with the statement "Ability-based groups should be returned to school" (Table 2). The greatest effect was found in the factor of depersonalisation; the effect size in regard to depersonalisation between the teachers who agreed or disagreed with the statement was $d = 0.43$. The teachers were also asked to respond to the statement "The integration of a student with SEN into the mainstream classroom causes additional work for the teacher". The expectation of additional work caused by inclusion was associated with somewhat higher burnout among classroom teachers, $r = 0.156$, $p < 0.001$; subject teachers, $r = 0.150$, $p < 0.001$; and special-class teachers, $r = 0.211$, $p < 0.001$, but not among resource room teachers.

The teachers' perceptions regarding sufficiency of support were surveyed using the following single statements: "In my classroom, the support is sufficient" and "I believe that in my classroom, I get enough assistance and support if needed". The correlations between these items and burnout are provided in Table 2. Teachers' preferences were measured by the statement "I would prefer to have help in my class from a special education teacher than from a teaching assistant". This statement received a positive response from 60% of the classroom teachers and 45% of the subject teachers, while a smaller portion (19% and 18%, respectively) preferred receiving help from TAs. The classroom teachers who preferred receiving help from special education teachers scored higher in regard to burnout than those who preferred receiving help from TAs: $F(2, 1457) = 8.88$, $p < 0.000$. The same was true among subject teachers: $F(2, 1298) = 7.28$, $p = 0.001$.

A hierarchical regression analysis with stepwise method was conducted to investigate the role of teacher-level variables on burnout. In line with our hypotheses, the results (Table 3) indicated that relatedness with students, teacher efficacy, perceptions of sufficiency of support, and attitudes towards inclusion were negatively associated with burnout and all its subdomains. Trust in getting support if needed was negatively linked to other burnout scores but not to depersonalisation.

3.3. Student-level variables in relation to burnout

The student-related variables in this study were grade level, the number of SEN and ISN students in the teachers' classrooms. Their effects on teacher burnout were studied jointly with the presence of TAs.

The grade levels of the classroom teachers varied between 1 and 6. A linear trend existed in the teachers' burnout, $F(1) = 9.81$, $p = 0.002$, with the teachers of upper-grade students reporting higher levels of burnout than the others. When the elementary Grades 1–2 and 3–6 were compared, the difference was observed in the total score, $p = 0.002$, with an effect size of $d = -0.16$. The teachers in Grades 3–6 felt more unaccomplishment, $p = 0.043$; and depersonalisation, $p < 0.000$; but no more exhaustion, $p = 0.418$, compared to the teachers at the elementary level.

A linear trend was also found in the subdomain of depersonalisation, in which a further comparison between Grades 1 and 6 produced an effect size of $d = -0.47$. However, no differences existed between the teachers who were instructing only one grade and those who had students from several grades in their classrooms. The average number of students in these multiple-grade classrooms was 18, which undercut the other classrooms by only two students.

Among the special-class teachers, those who instructed students in Grades 1 and 2 had a lower overall level of burnout, $t(71) = -2.22$, $p = 0.030$, and a lower level of depersonalisation, $t(75) = -3.66$, $p < 0.000$, than the teachers of students in Grades 3 to 6.

Table 2
Pearson correlations between study variables and teachers' burnout (N = 4567).

Variable	Burnout	Exhaustion	Lack of accomplishment	Depersonalisation
Attitudes towards inclusive education	-.266**	-.202**	-.220**	-.239**
Ability-based groups should be returned	.232**	.122**	.197**	.278**
Teacher efficacy	-.338**	-.242**	-.304**	-.293**
Relatedness with Students	-.279**	-.179**	-.278**	-.239**
Availability of support	-.315**	-.303**	-.248**	-.225**
Trust in getting support	-.330**	-.336**	-.280**	-.200**
Gender	.055**	-.027	.076**	.102**
Age	-.033*	-.056**	-.011	-.005
Class size	.078**	.118**	.069**	-.010
Students with support needs (SEN)	.079**	.033*	.050**	.131**
Students with support needs (ISN)	.099**	.087**	.046**	.120**
Size of the school	.067**	.065**	.046**	.060**
Size of the municipality	.017	.057**	.013	-.040**

Note. r ** = $p < 0.001$ * = $p < 0.01$.

Table 3
Teacher-level Variables in Relation to Burnout (Stepwise regression, N = 4156).

Variable	Burnout total			Exhaustion			Lack of accomplishment			Depersonalisation		
	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2
Model 1												
Intercept	33.995 (.487)						10.807 (.202)			8.868 (.164)		
Gender	.055***	1.381 (.387)	.003***	–	–		.076***	.799 (.160)	.006***	.105****	.894 (.130)	.011***
Model 2												
Intercept	35.507 (.865)			15.089 (.327)								
Gender	.056***	1.406 (.387)		–	–							
Age	-.033*	-.034 (.016)	.001*	-.052**	-.024 (.007)	.003**	–	–		–	–	
Model 3												
Intercept	54.123 (1.159)			20.879 (.486)			18.530 (.421)			14.831(.343)		
Gender	.047**	1.169 (.366)		–	–		.068***	.717 (.153)		.097***	.826 (.125)	
Age	.002	.002 (.015)		-.028+	-.013 (.007)		–	–		–	–	
Teacher efficacy	-.333***	−1.745 (.077)	.109***	-.236***	-.549 (.035)	.055***	-.301***	-.666 (.032)	.091***	-.287***	-.514 (.026)	.082***
Model 4												
Intercept	58.981 (1.171)			22.348(.495)			20.006(.431)			16.167(.349)		
Gender	.026*	.649 (.357)		–	–		.052***	.542 (.151)		.079***	.669(.123)	
Age	-.010	-.010 (.015)		-.038*	-.017 (.007)		–	–		–	–	
Teacher efficacy	-.297***	−1.557 (.076)		-.208***	-.484 (.035)		-.274***	-.604 (.302)		-.256***	-.459 (.026)	
Attitudes towards inclusion	-.223***	-.774 (.050)	.048***	-.174***	-.267 (.023)	.029***	-.180**	-.262 (.021)	.031***	-.199***	-.236 (.017)	.038***
Model 5												
Intercept	65.822 (1.3779)			23.930 (.589)			23.011 (.525)			17.981 (.428)		
Gender	.012	.307 (.356)		–	–		.037*	.387 (.150)		.068***	.578 (.122)	
Age	-.015	-.015 (0.15)		-.041**	-.019 (.007)		–	–		–	–	
Teacher efficacy	-.235***	−1.233 (.083)		-.174***	-.404 (.038)		-.208***	-.459 (.035)		-.207***	-.372(.029)	
Attitudes towards inclusion	-.216***	-.752 (.050)		-.170***	-.261 (.023)		-.173***	-.252 (.021)		-.193***	-.229 (.017)	
Relatedness with Students	-.144***	-.582 (.064)	.017***	-.080***	-.144 (.029)	.005***	-.155***	-.263 (.027)	.019***	-.115***	-.159 (.022)	.011***
Model 6												
Intercept	66.698(1.329)			24.848(568)			23.408(.512)					
Gender	.041**	1.019 (.345)		–	–		.061***	.638 (.147)				
Age	-.010	-.010 (.014)		-.035*	-.016 (.007)		–	–				
Teacher efficacy	-.195***	−1.023 (.081)		-.130***	-.302 (.037)		-.173***	-.381 (.035)				
Attitudes towards inclusion	-.166***	-.576 (.049)		-.119***	-.183 (.022)		-.130***	-.190 (.021)				
Relatedness with Students	-.145***	-.583 (.061)		-.084***	-.150 (.028)		-.155***	-.264 (.026)				
Trust in getting support	-.254***	−2.120 (.118)	.059***	-.272***	−1.002 (.054)	.069***	-.218***	-.765 (.050)	.044***			
Model 7												
Intercept	67.026(1.325)			24.936(.567)			23.493(.513)			18.324(424)		
Gender	.037**	.935 (.344)		–	–		.059***	.620 (.147)		.075***	.643(.121)	
Age	-.008	-.008 (.014)		-.034*	-.015 (.006)		–	–		–	–	

(*continued on next page*)

Table 3 (*continued*)

Variable	Burnout total			Exhaustion			Lack of accomplishment			Depersonalisation		
	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2	β	B *(SE)*	ΔR^2
Teacher efficacy	-.189***	-.993 (.081)		-.125***	-.290 (.037)		-.170***	-.375 (.035)		-.182***	-.326(.029)	
Attitudes towards inclusion	-.163***	-.565 (.049)		-.116***	-.178 (.022)		-.129***	-.188 (.021)		-.168***	-.199(.017)	
Relatedness with Students	-.144***	-.582 (.061)		-.083***	-.149 (.028)		-.155***	-.263 (.026)		-.115***	-.158(.022)	
Trust in getting support	-.171***	−1.425 (.169)		-.194***	-.714 (.077)		-.177***	-.618 (.073)		–	–	
Availab. of support	-.115***	-.953 (.166)	.006***	-.108***	-.395 (.077)	.005***	-.058**	-.200 (.071)	.002**	-.154***	-.433 (.041)	.022***
Model 8												
Intercept	62.227(1.387)			24.117 (.610)			21.778(.548)			15.945(.446)		
Gender	.029*	.723 (.340)		–	–		.052***	.547 (.146)		.064***	.541(.118)	
Age	-.012	-.012 (.014)		-.035*	-.016 (.006)		–	–		–	–	
Teacher efficacy	-.189***	-.990 (.080)		-.125***	-.290 (.037)		-.169***	.547 (.146)		-.181***	-.325(.028)	
Attitudes towards inclusion	-.125***	-.435 (.050)		-.102***	-.157 (.023)		-.098***	-.142 (.021)		-.115***	-.136(.017)	
Relatedness with Students	-.138***	-.555 (.060)		-.081***	-.144 (.028)		-.150***	-.255 (.026)		-.106***	-.146 (.021)	
Trust in getting support	-.173***	−1.445 (.167)		-.194***	-.717 (.077)		-.178***	-.622 (.072)		–	–	
Availab. of support	-.106***	-.873 (.164)		-.105***	-.383 (.076)		-.051*	-.176 (.071)		-.143***	-.402(.040)	
Ability-based groups should be returned	.145***	−1.218 (.117)	.019***	.053***	.196 (.054)	.003***	.121***	.424 (.050)	.013***	.205***	.586(.041)	.038***
Total R^2	.261			.168			.206			.201		

Note: + $p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. β = Standardised estimate, B = Unstandardised estimate.

Table 4
Burnout among classroom and subject teachers in relation to number of students with support needs.

Variable	Burnout total			Exhaustion			Lack of accomplishment			Depersonalisation		
	F	*pB*	η^2	*F*	*pB*	η^2	*F*	*pB*	η^2	*F*	*pB*	η^2
Classroom teacher												
with SEN (A)	5.86**	2.93*	.009	4.31**	2.16*	.007	4.77**	2.39*	.007	4.34**	2.17*	.007
with ISN (B)	4.76**	2.38*	.007	4.44**	2.22*	.007	1.07	.54	.002	7.99***	4.00**	.012
(A X B)	1.87+	.94	.009	1.52	.76	.007	1.15	.58	.005	1.96*	.98	.009
Subject teacher												
with SEN (A)	4.05**	2.03*	.007	3.47*	1.74	.006	2.87*	1.44	.005	3.26*	1.63+	.006
with ISN (B)	4.24**	2.12*	.008	6.90***	3.45**	.013	1.48	.74	.003	2.15+	1.08	.004
(A X B)	.74	.37	.004	.92	.46	.005	.45	.23	.002	.94	.47	.005

Note. + $p < 0.10$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. *pB* Bonferroni-corrected p-value.

Table 5
Burnout among classroom and subject teachers in relation to number of students with support needs and teaching assistants.

Variable	Burnout total			Exhaustion			Lack of accomplishment			Depersonalisation		
	F	*pB*	η^2	*F*	*pB*	η^2	*F*	*pB*	η^2	*F*	*pB*	η^2
Classroom teacher												
with SEN + ISN (A)	5.69***	2.58*	.017	3.73**	1.87	.011	1.68	.84	.005	9.33***	4.67*	.028
Teaching assistant (B)	12.75***	6.38**	.005	7.24**	3.62*	.004	8.26**	4.13*	.004	12.31***	6.16**	.006
(A X B)	2.34*	1.17	.007	2.20*	1.10	.007	1.56	.78	.005	1.45	.73	.004
Subject teacher												
with SEN + ISN (A)	3.14**	1.57	.012	3.09**	1.55	.011	2.18*	1.09	.008	2.51*	1.26	.009
Teaching assistant (B)	2.14	1.07	.001	1.67	.84	.001	2.20	1.10	.001	.67	.34	.000
(A X B)	.41	.21	.002	.45	.23	.002	.99	.50	.004	.44	.22	.002

Note. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. *pB* Bonferroni-corrected p-value.

A two-way ANOVA was conducted separately for the classroom and subject teachers to investigate the effects of the presence of students with SEN and ISN on teacher burnout (Table 4). The interaction effects for total burnout were not statistically significant. The main effects for SEN and ISN were statistically significant, thereby indicating that the presence of both types of students was associated with higher overall teacher burnout. The presence of SEN students was associated with higher scores in all three subdomains of burnout for both teacher categories, while the effects of ISN students were more variable (Table 4). In particular, the presence of students with ISN was associated with depersonalisation among the classroom teachers and exhaustion among the subject teachers. In terms of effect size, the rise in the number of supported students from zero to six produced an increase in teachers' burnout scores to the level of $d = 0.46$.

Table 5 shows the results of a two-way ANOVA for measuring the effects of the presence of TAs and of supported students on teacher burnout. The main effect of the presence of TAs was significant for the classroom teachers only. For these teachers, the interaction effect was also significant, thereby indicating a complicated relationship between the student and TA variables. The closer investigation showed that although the presence of TAs was associated with a lower level of teacher burnout, this effect was lost if the number of supported students increased to more than five. For the classroom teachers, the positive effect of TAs was especially pronounced in the depersonalisation subdomain. The closer investigation showed that the positive effect of TAs' presence first emerged when the number of supported students rose to three and was lost when the number rose to six or more.

3.4. Organisational-level variables

The organisational-level variables selected for this study were teacher category, presence of TAs, class size, and size of school and municipality. The burnout sum scores for all teacher categories and their subdomains are provided in Table 6 and Fig. 1. Post hoc tests indicated that subject teachers differed from all other teacher groups, although the magnitude of the differences remained small: between d = 0.33–0.35. No differences existed among the classroom teachers, special-class teachers, and resource room teachers in regard to burnout sum scores.

Table 6
The results from the Friedman burnout scale across teacher categories.

	Teacher category	N	Mean	SD	df	F	p	Post hoc
Full scale (14 items)								
1	Classroom	2005	34.81	9.79				1 < 2
2	Subject	1693	37.28	9.94				2 > 1,2,3
3	Resource room	296	33.86	9.58				3 < 2
4	Special class	418	34.09	9.51				4 < 2
	Total	4412	35.62	9.89	3, 4408	27.33	<.000	
Exhaustion (5 items)								
1	Classroom	2042	14.17	4.39				1 > 3, 4
2	Subject	1722	14.08	4.32				2 > 3
3	Resource room	300	12.79	4.38				3 < 1, 2
4	Special class	433	13.49	4.28				4 < 1
	Total	4497	13.98	4.37	3, 4496	10.89	<.000	
Lack of accomplishment (5 items)								
1	Classroom	2062	11.62	4.09				1 < 2
2	Subject	1720	12.17	4.24				2 > 1,3,4
3	Resource room	301	11.19	4.08				3 < 2
4	Special class	429	11.08	4.00				4 < 2
	Total	4512	11.75	4.16	3, 4511	12.23	<.000	
Depersonalisation (4 items)								
1	Classroom	2055	9.06	3.17				1 < 2,3,4
2	Subject	1723	11.06	3.22				2 > 1,3,4
3	Resource room	301	9.95	3.20				2 > 3 > 1
4	Special class	429	9.66	3.69				2 > 4 > 1
	Total	4508	9.94	3.37	3, 4507	120.84	<.000	

In the subdomains of the scale, more differences emerged among the teacher categories. The classroom teachers suffered from higher exhaustion compared with the others; however, their depersonalisation rate was low. The subject teachers experienced high burnout in all subdomains, but especially in regard to depersonalisation. The two special education teacher groups felt less exhaustion and lack of accomplishment than the classroom and subject teachers; however, they scored higher in regard to depersonalisation than the classroom teachers. The resource room teachers differed from the others because of their low levels of exhaustion.

A weak association existed between the subject teachers' majors and their level of exhaustion, F(3,1681) = 5.47, p = 0.001, and depersonalisation, F(3,1582) = 3.63, p = 0.012. Multiple comparisons indicated that the language teachers were more exhausted than the teachers of science and mathematics or humanities, and the teachers of science and mathematics were more depersonalised than the teachers of humanities or arts and crafts.

The sample contained 74 teachers who also had duties as principals or vice-principals at their schools. Their level of overall burnout was lower than other teachers': $t(2289) = 4.00$, p < 0.000, d = 0.47. More specifically, they were less exhausted and did not feel as unaccomplished as the other teachers.

The classroom teachers had on average 20 students in their classrooms, the subject teachers 19, and the special education teachers nine. To have a closer look at the influence of increase in number of students on teacher burnout, class size was divided into fourteen groups among the classroom teachers: 3–13, 14–15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26–27, and 28–40 students. Each group contained 79–342 cases. A linear trend was observed in the total burnout scores, $F(1, 1975) = 6.77$, $p = 0.009$, and in the subdomain of exhaustion, $F(1, 2012) = 21.82$, $p < 0.000$. Fig. 2 shows the means of the exhaustion scores in each class-size group. The level of total burnout and exhaustion rose with the increasing number of students in the classroom. The effect size in regard to exhaustion between the classrooms with 18 and 21 students was $d = -0.23$; between 18 and 24, $d = -0.33$; and between 18 and 28–40, $d = -0.15$.

Among the subject teachers, the class size was classified into three categories: small, with 15–19 students (N = 618); medium, with 20 students (N = 432); and large, with 21–25 students (N = 475). The few cases remaining outside of these limits were excluded from the analysis. Statistically significant differences were observed in the burnout sum score, $p = 0.009$; exhaustion, $p = 0.001$; and lack of accomplishment $p = 0.019$. However, there were no statistically significant differences in regard to depersonalisation, $p = 0.760$, between the groups. In the post hoc tests, the smallest classes differed from the largest. The magnitude of the difference between the smallest and largest classes in overall burnout was $d = -0.18$; in exhaustion, $d = -0.22$; and in lack of accomplishment, $d = -0.17$.

Among the special-class teachers, no association between class size and teacher burnout was observed: $F(2) = 0.06$, $p = 0.942$. The comparison was made between classrooms with five to seven, eight to nine, and 10 students.

The schools were classified into five groups according to their sizes: fewer than 50, 50–100, 101–300, 301–500, and more than 500 students. The municipalities were divided into four groups based on their sizes: countryside (with a population of less than 10,000), conurbation (10,000–30,000), small city (30,000–100,000), and big city (more than 100,000). Each group contained at least 980 teachers.

A two-way ANOVA was conducted to investigate the effects of

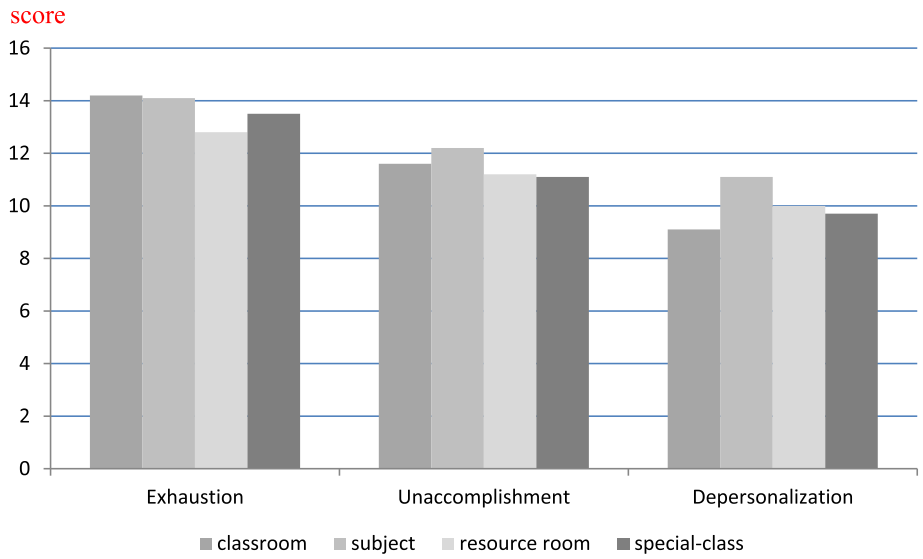

Fig. 1. Subdomain scores of the Friedman Teacher Burnout scale across teacher categories.

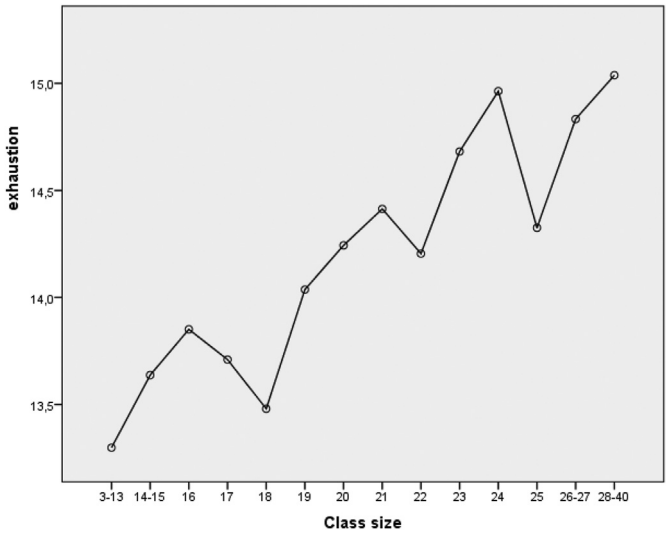

Fig. 2. Classroom teachers' exhaustion according to number of students.

school and municipality sizes on teacher burnout. A significant interaction between school and municipality sizes was found in the subdomain of depersonalisation only ($F[12, 4355] = 2.526$, $p = 0.003$). Generally, the level of depersonalisation was lower among the teachers at smaller schools than those at larger ones; however, this effect was not evident in all conditions. In the countryside, teachers' depersonalisation did not differ significantly according to school size, whereas in big cities, teachers' depersonalisation increased as school size grew. However, the size of the municipality had no main effect on overall burnout and its subdomains. The teachers' overall burnout increased when school size increased: $F(4, 4355) = 2.889$, $p = 0.021$.

4. Discussion

We investigated teacher burnout among a representative sample of primary school teachers in Finland. The FTBS (Friedman, 2003) had robust psychometric properties in terms of reliability and construct validity, and the latter was confirmed by the meaningfulness of the obtained results. Regarding the CFA, three subdomains of exhaustion, lack of accomplishment, and depersonalisation emerged, as presupposed by its original structure. The extent of the teachers' burnout were found to be sensitive to almost all teacher-, student-, and organisation-level variables examined, while the effect sizes mainly remained small. Due to the fact that these were descriptive and correlational analyses, causal inferences could not be made in this study. Future studies should consider longitudinal investigation of the same teachers.

4.1. Teacher-level variables

The teachers' ages and genders were associated only minimally with their levels of burnout. The older teachers experienced somewhat less burnout—especially exhaustion—than the younger ones. Older teachers typically have longer work experience and better routines than their younger colleagues. They might also be better adapted to teaching profession and to cope with the stress. Contrary to the findings of some previous studies (e.g., Antoniou et al., 2006; Fernet et al., 2012; Santavirta et al., 2000), male teachers experienced somewhat higher levels of burnout than their female counterparts. This difference existed in regard to depersonalisation and lack of accomplishment only, but not exhaustion. Also Lau et al. (2005) have indicated that male teachers experience higher depersonalisation than females. The results imply that there might be some gender-related patterns in teacher experience of work-related stress.

The level of burnout was associated with some attitudinal dimensions. Teachers with higher burnout were less positive towards inclusion and more often wished to reintroduce ability grouping into schools. Ability grouping, or the use of different curricula with changing levels of difficulty, was used in Finland during the seventies but was forbidden by law in 1983. However, teachers have continued to demand the reinstitution of this system (Rantio, 2006). It may be that the teachers with higher burnout level were more interested than other teachers to select their students and in this way reduce the number of problems arising in their classrooms. In line with the results of previous studies (Hoglund et al., 2015; Jennings & Greenberg, 2009), the teachers with higher rates of burnout also had lower self-efficacy and reported less relatedness with their students. They also felt that the support

available was often insufficient, and they often experienced mistrust with regard to receiving extra help when needed. The directions of effect in these cases are not obvious, because if teachers have negative stances towards inclusion, this may also lead them to see their resources as insufficient.

4.2. Student-level variables

The classroom teachers in the upper grades had higher overall burnout levels than those in the lower grades. The difference was most significant in the domain of depersonalisation. This result replicated the findings of an earlier study (Forlin, 2001) and seems to reflect the effect of students' age on teachers' work. Higher level of burnout among subject teachers compared with classroom teachers may also be associated with the higher age of their students. Teachers in multiple grade classrooms did not score higher in burnout than those in single grade classrooms. In addition, the use of a multilevel curriculum was not a significant problem for the teachers.

The burnout of classroom and subject teachers increased linearly with the rising number of supported students (SEN and ISN) in the classrooms. Among the classroom teachers, this association was strongest in the depersonalisation subdomain and among the subject teachers, it was strongest in the exhaustion subdomain. Compared to students with ISN, those with SEN, having more support needs, were more strongly associated with teachers' burnout. In terms of effect size, however, the changes in teachers' burnout remained small until the number of supported students increased to three for the classroom teachers and four for the subject teachers. Among the classroom teachers, the presence of TAs fully compensated for the increase in burnout until the number of supported students rose to more than five. For the subject teachers, the presence of TAs had no association with burnout.

Based on these results, it might be recommended that no more than two students with support needs be placed in the same classroom if no additional help is provided. Additional help from TAs was associated with lower levels of teacher burnout when students with support needs were placed in the classroom. Despite this association, teachers preferred to receive help from special education teachers rather than from TAs. Perhaps the teachers had observed that TAs did not always have the necessary qualifications to enable them to participate effectively in the class. Previous research has also listed several negative side effects of using untrained paraprofessional staff in the classrooms (Giangreco, Edelman, Luiselle, & MacFarland, 1997; Webster et al., 2010). However, the results of the present study remained descriptive and need confirmation from a longitudinal study design.

4.3. Organisation-level variables

The greatest differences in levels of burnout were found between different teacher categories. Both the levels and subdomain profiles of burnout differed between the classroom, subject, resource room, and special-class teachers. Pietarinen et al. (2013) have indicated that partly specified pedagogical tasks and educational expertise at different academic levels (i.e. class, subject, and special education qualification) contribute to teacher burnout. Subject teachers reported higher levels of burnout than those in other teacher categories, while other categories did not differ significantly from each other in regard to the burnout sum score. Similar results have been found among Finnish teachers: Subject teachers' risk of overall burnout was significantly higher than that of class and special education teachers (Pietarinen et al., 2013). The burnout profiles revealed additional differences. The subject teachers scored high on all three factors, while the classroom teachers scored high in regard to exhaustion but low on depersonalisation. The special-class teachers surpassed the classroom teachers in depersonalisation but scored comparatively lower on exhaustion. The resource room teachers scored low in exhaustion but were in second place with regard to depersonalisation.

The three most distinctive features of the teacher profiles were the higher burnout level of the subject teachers compared with the others, the relatively low rate of depersonalisation among the classroom teachers, and the relatively low level of burnout among the special education and resource room teachers. The last of these findings was somewhat surprising, because special education has typically been considered the most demanding field of education and the one in which the teachers are most exposed to mental and physical abuse (Ervasti et al., 2012).

The level of exhaustion was lowest among the resource room teachers, which was perhaps because they had more opportunities than the other teachers to control their own workloads. The reason for the higher burnout among the subject teachers may also lie in the specialty of their work. They circulate in several classrooms and have many times more students than other teachers. This may lead to a greater sense of distance from individual students in terms of relatedness and a higher sense of the lack of accomplishment. More distant relationships with students have been linked to higher levels of burnout (Hargreaves, 2000). Pietarinen et al. (2013) have also shown that subject teachers experienced higher levels of inadequacy in teacher-student interactions compared with other teacher categories, while special education teachers reported the lowest levels of inadequacy among all teacher categories.

The relatively low rate of depersonalisation among the classroom teachers may reflect their work situations as stable teachers of a small group of young students. They are in a good position to develop positive personal relationships with their students, which is a feature that has been found to be associated with lower levels of stress and exhaustion (Milatz et al., 2015; Spilt et al., 2011). For special education teachers, the higher rate of depersonalisation compared with the classroom teachers might be a reflection of the instructional and behavioural problems that they encounter in their classrooms.

The teachers who also played the role of principal had a lower level of burnout than the others. This might be explained by their higher decision authority, which has also been associated with lower exhaustion among teachers (Santavirta, Solovieva, & Theorell, 2007). The level of teacher autonomy appears to be an interesting variable for further studies on teacher burnout.

Class size had some associations with burnout. The classroom teachers in the larger classes had higher rates of exhaustion than those in the smaller ones; however, the effect size remained small, even between the smallest and largest classrooms. The subject teachers in the largest classes had higher scores for exhaustion and lack of accomplishment than those in the smallest classes, but the differences remained small.

In line with Skaalvik and Skaalvik (2010), the results also indicated that teachers in smaller schools reported less depersonalisation than those at larger ones. Teachers' overall burnout increased when school size increased. However, it should be noted that larger schools may be related to many factors, such as urbanization, greater rates of risk and poverty that may also affect teacher burnout.

It should be noted that the associations found in the present study were rather small. Therefore, other potential factors are also needed to explain teacher burnout. For example, support from colleagues and principals, school climate, personality characteristics, as well as personal life events and changes, might be important considerations for future studies.

Successful individual coping strategies may also protect some

teachers from burnout. In addition, future studies should investigate in more details how much variance is explained at teacher, student, and organizational levels.

5. Conclusions

Some of the study findings were unexpected. The issue of class size has captured the public's attention and stimulated discussion, and smaller class sizes have been publicly demanded, as large group sizes have been blamed for teachers' stress (Turun Sanomat, 2013). However, the present findings indicated that the role of class size in teacher burnout was only marginal.

Another surprise was the effect of TAs. The presence of TAs became more important only after three or more students with support needs were placed in the same classroom. Additionally, the teachers preferred to receive classroom assistance from other teachers than from TAs. This preference was associated with a higher rate of teacher burnout, which indicated that the assistance received from TAs was not always considered sufficient.

The use of two or three teachers in the classroom has recently awakened increasing interest (Solis, Vaughn, Swanson, & McCulley, 2012). A limitation of this study was that co-teaching and some other promising explanatory variables, such as the sense of autonomy at work, were not included among the ones that were examined. A strength of the present study was its large sample size, which allowed for more fine-grained analyses than is usually possible. The return rate remained low, which is typical in email surveys; therefore, the attention was on the relationships between the variables and not on absolute distributions, which are more prone to sampling bias.

A large number of statistically significant relationships were found between teacher burnout and the variables that were examined, but for the most part, the effects remained small in size. However, some medium- or near-medium-size effects emerged in the variables of teacher category, principal status, grade level, number of students with support needs, opinions concerning ability grouping, and availability of TAs. The observed associations between teacher burnout and other factors related to teachers' work offered several ideas for improving teachers' job satisfaction and welfare at work. There was a multitude of differences how several student- teacher- and organizational level variables were associated with the three subcomponents of burnout. These findings justify and even postulate the study of burnout, not just as a single dimension, but as a multifaceted phenomenon. If depersonalisation is considered the gravest dimension of burnout, special attention should be given to its occurrence in the network of background variables. The present study indicated that it was especially associated with the teacher's male gender, older age of his students, the position of subject teacher and the work place in a large school in a big city.

Author statement

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