Save Our Schools; How Self-Efficacy and Stress Influence the Intention to Quit Teaching through Job Satisfaction

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Save Our Schools

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Foreword

Before you lies the master thesis "Save Our Schools; How Self-Efficacy and Stress Influence the Intention to Quit Teaching through Job Satisfaction". This title has been chosen carefully, hinting to a signal that transmits urgency and distress: 'SOS'. The urgency displayed in this title together with the content of this thesis represents the reason I decided to start the master 'Educational Science and Technology' at the University of Twente. It also displays my past professional experiences and those to come. This is me; my vision, my path, my passion.

It all started when I was still studying to become a primary school teacher. The more experience I gained with different schools, teachers and teaching environments, the more I felt that something needed to change. I saw classes with over 30 students handled by one teacher alone. I saw teachers that came in very early every day to leave a shocking 12 hours later to make sure they did the best and provide as much as they could for their students. I saw passion, hardworking people that did everything for those kids. It made me proud to be part of this community. However, I also saw teachers on the verge of burnout, actually in one, or trying to recover. What was going on?

I only started to comprehend this when I got my degree and started teaching my own class. Work pressure, a lack of time, insecurity about competence, it all added to a growing feeling of stress. In the same time, teachers around the Netherlands went on strike regularly. They were fighting for a higher wage and lower work pressure. It made me think about education on a whole other level. A higher wage would not change anything about the working conditions. Something needed to change, but what?

After a year and a half, I knew I needed to quit teaching. No matter how much I loved it, I felt too stressed and I started feeling less and less content with my job. I was not able to provide my students with everything they needed to thrive and it made me feel horrible. I started to wonder what made me go into teaching in the first place. I did not feel like I was making the change I wanted to make. Right there I made it my goal to make that change happen and the first step was a master in educational science. Knowledge is power.

This master has given me all the knowledge I needed to start. I was taught about learning theories, multimedia, learning with new technologies and professionalisation, but also about leadership, organisational change and team learning in the workplace. This master has given me the skills to look beyond what is visible and dig through the many factors and the different layers that make education. I would like to thank all the teachers that were part of this journey. Together with you, I was able to build the foundation of my professional knowledge and I hope to continue to build more and more on top of this as I go forward.

The thesis has been a journey of its own. Initially, I started working on another project, unrelated to this one. I was confronted with the reason I started this master when I could not find participants for my research because of high work pressure in education. It opened my eyes again and put me on the right path. I could have finished what I had started knowing that my final project lacked the value I wanted. However, that would have been very uncharacteristic. I decided to not take the easy road and start all over again, this time working on the subject that is my passion. The end result makes me very proud. After a lot of work and the figurative blood, sweat and tears, I can proudly present the product that really shows me. It is the most appropriate way to close this chapter.

The one person that has been there for this whole master thesis journey is my first supervisor Marieke van Geel. I would like to thank you for all the support that you have given

me. It has been a delight to have you as a supervisor in this journey. Your approach to supporting and supervising and your constructive criticism made me thrive.

During this journey I had to gain some statistical and research technical knowledge. I am glad my second supervisor Hans Luyten was there to answer all my questions and provide me with insight on the research technicalities of handling large amounts of data. Thank you very much for your support. You made me learn a lot about doing research on a large scale.

Then I would like to give a special thanks to all friends and family that supported me in various ways. I would like to thank my parents for supporting me in every way they could. Your proudness kept me going even when the journey was tough. I also want to thank my partner for always being there, motivating me when I was not and help me maintain a positive outlook on the process. Thank you for empowering me when I needed it.

To everyone who reads this, I wish you enjoy reading this thesis as much as I enjoyed making it.

Merel Scheurwater

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Summary

All over the world schools and governments struggle with teacher shortage. It is important for any teaching force that the number of teachers and students is balanced. When teachers quit the profession, this balance shifts. Previous research indicates an indisputable reducing effect of job satisfaction on job mobility. Theoretical exploration shows that various indicators of competence and stress seem to influence job satisfaction and job mobility in opposite directions. The interrelationships between these variables remain underresearched and lack generalizability in the current research base. For that reason, this research focusses on experienced competence (self-efficacy) and a desire for occupational change, which is more specific than job mobility. The hypothesis is that job satisfaction functions as a mediator between stress and self-efficacy on the one hand and a desire for occupational change on the other hand. Secondary data is used from TALIS 2018, which uses an extensive questionnaire that was filled out by teachers from 48 countries. Correlation tests and structural equation modelling are conducted in R 4.2.2 to test the hypothesis. The model results in a good fit. The found correlations are negative for the relationship between stress and job satisfaction and the relationship between job satisfaction and a desire for occupational change, and positive for the relationship between self-efficacy and job satisfaction. These findings add to the generalizability of the reasons teachers can have to leave the profession. The research concludes in advice for school managements to help maintain their teaching force and several recommendations for further research.

Introduction

It is a wide spread problem: teacher shortage. All over the world schools and governments fight with a need for more teachers. It is important for a teaching force that there is a balance in the amount of teachers and students, both at a country level as at a school level. When teachers quit their job to teach at another school or decide to quit the teaching profession all together, the balance shifts. From a logistical perspective, teachers ideally stay in their teaching job until at least the retirement age, because it is the most efficient use of existing teachers. However, Ingersoll (2001) found that retirement is one of the least occurring reasons that teachers quit their job in the USA. Moreover, Mertler (2002) found that one in three secondary school teachers would not choose teaching if they could pick a career again, which makes them more prone to quit the teaching profession prematurely (Curtis, 2012). Additionally, Struyven & Vanthournout (2014) found that one third of all newly qualified teachers in Belgium did not even start teaching but pursued another career right away. What causes teachers to quit the profession?

Beginning teachers might not be ready for the demands of a teaching job. Dinham & Scott (1998) found that the majority of teachers in Australia, England and New Zealand did not feel that teacher training sufficiently prepared them for the teaching profession. Goddard et al. (2006) discovered that beginning teachers in Australia experienced a decline in job commitment in the first two years of their career. These teachers also consistently indicated less clarity about their roles and declining relationships with other teachers. The experienced work pressure increased continuously. Burnout levels were examined on the Maslach Burnout Inventory, using three subscales; emotional exhaustion, personal accomplishment and depersonalisation. Average scores on the subscales for emotional exhaustion and personal accomplishment became significant for an actual burnout within those two years

The findings from these two researches could be connected. A possible explanation for the decline in job commitment that was found by Goddard et al. (2006) might be the low feelings of competence that were found by Dinham & Scott (1998). Blömeke et al. (2017) discovered in Germany, Taiwan and the USA that being and feeling competent is connected to lower levels of turnover. If these results can be generalized, low feelings of competence might be a reason teachers quit teaching.

On the other hand, stress might play a part in quitting the teaching profession. Vazi et al. (2013) found high levels of stress among almost a third of the participating teachers in South Africa. While the found burnout levels by Goddard et al. (2006) are no indication for the stress levels among these teachers, stress is one of the factors influencing burnout (Maslach & Leiter, 2016). Stress is generally associated with lower job satisfaction (JS) (Borg & Riding, 1991; Klassen & Chiu, 2010) and a greater likelihood of turnover (Struyven & Vanthournout, 2014). This makes stress a possible reason teachers decide to quit the profession.

Can the effect of low feelings of competence on the decision to quit teaching been generalized on a larger scale? Is stress also a reason to leave the teaching profession and what part does JS play in this? This study focusses on various factors that influence occupational change. The research dives deeper into how competence and stress together influence JS and the decision to leave the teaching profession.

Theoretical Framework

Teachers who are more satisfied with their jobs are less likely to quit (Blömeke et al., 2017; Horrison-Collier, 2013; Ingersoll, 2001; Kelly et al., 2019; Otto et al., 2010; Skaalvik & Skaalvik, 2011). JS seems to be influenced by several categories of factors, among which are competence and stress. Competence can have a positive effect on JS (Dinham & Scott, 1998; Farber, 2001; Klassen & Chiu, 2010; Preechawong et al., 2021; Skaalvik & Skaalvik, 2010; Toropova et al., 2021), while stress can have a negative effect (Borg & Riding, 1991; Klassen & Chiu, 2010). Competence and stress might be interrelated. Stress can make people feel less competent (Bandura, 1994) and a feeling of higher competence can reduce stress (Skaalvik & Skaalvik, 2010). The desire or decision to quit (job mobility) and JS are closely related too. Their relationship and the implications for this research are discussed first in this theoretical framework. Competence and stress seem to influence job mobility (JM) through JS. These two factors are explained in the last sections of this theoretical framework.

Theoretical exploration resulted in a wide variety of influencing factors. For clarity, an overview has been made of the factors that were found to influence JM and JS. These factors are divided over several categories, among which are stress and competence. Table 1 gives a summary of this table, only indicating factors and the direction of the possible effects. Appendix A contains a more extensive table, also providing a clarification of sources.

Job Mobility

JM refers to an action or desire to change jobs. This is also known as either turnover or attrition. Occupational mobility is a more specific form of JM and occurs when an individual quits their job to pursue a career in another occupation. JM can take place as an action in which a person actually quits their job but it often is measured as a desire for a job-related change. Research usually focusses on JM as leaving the current employment. Occupational mobility remains underresearched. For this reason, in the current research, JM, turnover and attrition always refer to the action or desire to leave the current employment unless stated otherwise.

Turnover can aggravate teacher shortage. This is visible the most in big cities and less in smaller villages. The reason for this is that the working conditions in urban areas, with higher poverty rates, are more difficult to handle, which makes teachers in (sub)urban schools more likely to quit their jobs than their colleagues in rural areas and villages (Feng, 2014). A higher chance for turnover is also seen in smaller schools rather than big schools and in small districts rather than big districts (Ingersoll, 2001). This means that teacher shortage is more severe in urban areas, smaller schools and small districts.

To prevent teachers from leaving, the benefits of the job can be increased, for example through a higher salary. This increases JS as well (Curtis, 2012; Ingersoll, 2001). Feng (2014) found in a simulation on JM and high poverty rates that teachers were less likely to leave a

high poverty or urban school if their salary increased significantly. The same decreasing effect of a higher salary on JM was found in other research (Curtis, 2012; Ingersoll, 2001; Inman & Marlow, 2004). Increasing teacher salaries is used in various countries as a tactic to maintain the teaching force. While increasing salaries appears to compensate for the more difficult working conditions in urban and high poverty areas, it does not reduce the difficulty of these working conditions, which makes it a less sustainable method to fight teacher shortage.

Schools can also reduce turnover by making teachers feel supported. Both Curtis (2012) and Struyven & Vanthournout (2014) discovered that when a teacher does not feel supported by the school administration, the chance of turnover increases. Administrative support can for example be influenced by the relationship and possible conflicts between the teacher and the administration and by the level of guidance provided to the teacher by the school administration (Curtis, 2012). But that is not the only support schools can offer. Enabling and encouraging professional development can reduce turnover too (Parker et al., 2009; Whitaker, 2000).

Lastly, it is important that the teacher and the school environment fit together. Räsänen et al. (2022) found that if the teacher misses a sense of belonging, they are more likely to have the intention to quit. This sense of belonging was also found to have a negative influence on turnover intention by Skaalvik & Skaalvik (2011). However, they found that JS moderated this relationship. From Table 1, it stands out that several factors influence JM and JS in opposite directions. It raises the question how JS and JM are related.

Job Satisfaction

JS describes how a person feels about their job. It has an indisputable reducing effect on the intention to quit teaching (Blömeke et al., 2017; Horrison-Collier, 2013; Ingersoll, 2001; Kelly et al., 2019; Otto et al., 2010; Skaalvik & Skaalvik, 2011; Whitaker, 2000). However, the conceptualization of JM in previous research on the effects of JS on JM contains some fundamental differences.

Skaalvik and Skaalvik (2011) found a negative effect of JS on the motivation to leave the teaching profession. Otto et al. (2010) also found a negative relationship between JS and willingness to change occupation. These conceptualizations can be considered similar as they both refer to the psychological need or wish to leave the teaching occupation. Other research focusses on the opposite of wanting to leave; wanting to stay. It was for example found by Blömeke et al. (2017) that JS has a positive effect on the commitment to stay in the profession, and research by Kelly et al. (2019) concluded that satisfied teachers were more likely to stay in the profession. The third group of research does not focus on leaving or staying in the profession, but rather leaving or staying in the current teaching position. Both Horrison-Collier (2013) and Whitaker (2000) discovered a positive relationship between JS and teacher retention. Teachers with higher JS were less likely to leave their job. JS can increase job

commitment (Blömeke et al., 2017). Low JS is one of the possible reasons teachers state for leaving the profession (Ingersoll, 2001).

Mediator

When looking at Table 1, it becomes clear that JS has a lot of influencing factors in common with JM. It can be expected that various of these similar influencing factors affect JM through JS. This is explained below.

Räsänen et al. (2022) discovered that when teachers in their research expressed the intention to leave on multiple occasions, these teachers lacked a sense of belonging. Skaalvik and Skaalvik (2011) found out that this relationship is mediated by JS. When teachers felt that they belonged in the working environment, they experienced higher JS. However, when teachers did not have this sense of belonging, they more often expressed the intention to leave. Skaalvik and Skaalvik (2011) also concluded that, in their research, variables that increased the sense of belonging, increased JS, which in turn reduced the chance of turnover. This means that various factors that positively influenced JS and negatively influenced JM, in reality indirectly influenced them through a sense of belonging. According to Skaalvik & Skaalvik (2011), this is true for supervisory support, relations with parents and relations with colleagues. The effect of supervisory support on JS has also been found by Curtis (2012) and Struyven and Vanthournout (2014). Another factor that could positively influence JS and negatively influence JM through a sense of belonging is value consonance, which is the compatibility of a teachers' values with those of the school. This might be dependent of a country's culture, as values between cultures can be different.

Two other categories of factors that influence JS and JM in opposite directions, are competence and stress. The following two sections conceptualize these variables and explain how they influence the inverse relationship between JS and JM.

Competence

The first category to be discussed is competence. The Oxford Learner's Dictionaries (n.d.) describes competence as "the ability to do something well". The needed abilities or skills are job specific. For teachers, a model that can be used to describe competence is technological pedagogical content knowledge (TPACK). The TPACK model describes three areas of teaching knowledge (technological, pedagogical and content) and how they work together to make teachers competent and successful in the classroom (Koehler & Mishra, 2009). However, that a teacher is competent does not necessarily mean that the teacher also feels competent. Self-efficacy (SE) can be used instead of competence to investigate on the psychological effect of a feeling of (in)competence.

Table 1

Comparison of factors influencing JM and JS[1]

Category	Factor	Job mobility	Job satisfaction
Independent	Gender	Inconclusive	Female +, Male -
	Salary	-	+
	Age	Least between 30 and 50	Inconclusive
	School size	-	Unknown
	District size	-	Unknown
	Urbanization	+	Unknown
Sense of belonging	Sense of belonging	-	+
	Relations with parents	-	+
	Relations with colleagues	-	+
	Cooperation	Unknown	+
	Constructive working environment	Unknown	+
	Value consonance	Unknown	+
Competence	Competence	Unknown	+
	Self-efficacy	Unknown	+
	Sense of preparedness	-	Unknown
	Competence growth	Unknown	+
	Professional development	-	+
	Work experience	+	Inconclusive
	Autonomy	Unknown	+
	Support from principal	-	+
Stress	Stress	+	-
	Burnout	+	Unknown
	Workload	+	-
	Time pressure	Unknown	Inconclusive
	Discipline issues	Unknown	-
	Working conditions	-	Unknown
	Role dissonance	Unknown	-

SE describes how people value their competence (Bandura, 1994). Important to keep in mind is that while SE looks like competence, it is not the same variable. Competence is the

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[1] Positive effects are indicated with '+' and negative effects are indicated with '-'. 'Inconclusive' means that different sources state conflicting effects. 'Unknown' means that no effects were found in the theoretical exploration. Appendix A shows table 1 with the inclusion of the sources this table is based upon.

objective way to describe skills. SE is how one experiences their competence and is therefore subjective in nature. How one values their own competence is dependent of four factors (Bandura, 1994).

1. Experience of success or failure. When someone experiences success, SE grows, while it loses strength after failure.

2. Seeing someone similar to oneself experience success or failure. When someone similar experiences success, the belief in one's own abilities grows, while this belief decreases when someone similar experiences failure.

3. Persuasion. When someone is told repeatedly of their high competence, they will believe this and show more competence. It is however easier to be persuaded of low competence, which can cause avoidance of difficult situations.

4. Emotions, stress and fatigue. Negative emotions, stress and fatigue make the experience of failure worse. Positive emotions can enhance the experience of success.

Teaching experience can make teachers more proficient in classroom management and the use of instructional strategies, which could give them higher levels of SE (Klassen & Chiu, 2010). Competence and SE can also be increased through professional development activities, like induction and mentoring. Induction focusses on beginning teachers, where they get support in the first years of their teaching career. Mentoring focusses on all teachers, where they get support from a mentor to increase their (feeling of) competence. When teachers have high SE, they are better able to handle challenges, which on average makes them show higher levels of JS (Farber, 2001; Klassen & Chiu, 2010; Preechawong et al., 2021; Skaalvik & Skaalvik, 2010; Toropova et al., 2021). Dinham and Scott (1998) discovered that competence growth is a powerful satisfier on the work floor.

However, according to Skaalvik and Skaalvik (2010), the most important influencer of JS is a feeling of autonomy. This can be explained in the light of feeling, being and becoming competent. To act autonomous, a person needs to have a certain level of competence. Autonomy could be seen as a test of competence. It shows the teacher what they are capable of, hence increasing their JS. When teachers are not yet competent enough though, they need support. When this support is not available to them, they experience less JS (Dinham & Scott, 1998). This increases the chance of turnover, because of the aforementioned inverse relationship between JS and JM.

Stress

The second category to be discussed is stress. It is important that stress levels among teachers are low. Stress is a factor that influences burnout (Maslach & Leiter, 2016). It can decrease JS (Borg & Riding, 1991; Klassen & Chiu, 2010), make teachers feel disconnected from the profession (Lambert et al., 2018) and make them more eager to change their

occupation (Gersten et al., 2001; Miller et al., 1999). To understand how the complex variable stress influences the inverse relationship between JS and JM, it is important to first break down what stress exactly is and how it is connected to burnout.

Stress is a physical reaction of the body, influenced for example by the stress hormone Cortisol. Workload (Ghani et al., 2014; Klassen & Chiu, 2010) and time pressure (Skaalvik & Skaalvik, 2010; Vazi et al., 2013) are factors that are able to increase stress levels among teachers. Lambert et al. (2018) found that when teachers got more autonomy, they perceived the working environment as less demanding, which led to lower levels of work stress. Another source of stress is pupil misbehaviour. Special education teachers indicate this as the primary source of their work stress (Ghani et al., 2014).

As said before, stress can reduce JS and increase the chance of turnover. However, Borg and Riding (1991) found that stress reduced the chance of turnover in their research, because it improved career commitment. These contradictory results might be explained by the level of stress. It could be that some stress keeps teachers engaged, while an overload of stress makes people want to leave their jobs. Factors that are related to high stress levels, like burnout (Maslach & Leiter, 2016) and high workload (Kelly et al., 2019; Struyven & Vanthournout, 2014) can increase the chance of turnover. It is important to keep in mind that some stress could reduce the chance of turnover rather than increasing it.

Burnout

When high stress levels are part of a continuous pattern, it can cause a burnout (Maslach & Leiter, 2016). However, stress alone is not enough to do this. Skaalvik and Skaalvik (2011) define burnout through two factors: emotional exhaustion and depersonalization. Emotional exhaustion is a feeling of being emotionally drained. Depersonalization is a feeling of detachment from the job and workplace. Maslach and Leiter (2016) define burnout in a more complete way through three factors: exhaustion, cynicism and professional inefficacy. Exhaustion is what we generally define as stress: "feelings of being overextended and depleted of one's emotional and physical resources (Maslach & Leiter, 2016, p. 351)". Exhaustion includes both emotional and physical exhaustion. Cynicism is a negative outlook on and disconnection from the job. This includes depersonalization and a negative, cynical approach to the job. Professional inefficacy is a feeling of incompetence, regardless of the actual competence of the employee. This could also be described as a state of low SE.

People who are burned out show lower levels of JS and a higher intention to leave their job (Maslach & Leiter, 2016; Räsänen et al., 2022). According to Skaalvik and Skaalvik (2010), an increase in SE relieves the chance that teachers burn out. Maslach and Leiter (2016) consider a feeling of incompetence to be a crucial part of burnout. It is important to

keep stress and burnout levels low to help teachers experience higher levels of SE which can make their work less stressful and more enjoyable.

Current Study

This study aims to investigate the effect of SE and stress on JM through JS. While the interrelationships between these variables have been investigated on in various research, the effects remain underresearched and lack generalizability. Moreover, JM has rarely been researched as occupational change. This is why this research focusses specifically on a desire for occupational change (DfOC). The current research brings these variables together in a way that has not been done before, using data from teachers around the world to ensure generalizability on a large scale.

Hypothesized is that stress has a negative and SE has a positive effect on JS. Moreover, it is expected that JS has a negative effect on the DfOC. Previous research indicates that stress and SE both might have a negative influence on each other for extreme levels of stress or SE. It is beyond the scope of this research to look into this specific relationship for extreme values. However, as no further information on a relationship between stress and SE came forth from the theoretical exploration, the current research takes into account possible negative effects of stress and SE on each other. The hypothesized model of influences is made visual in Figure 1.

Figure 1

Hypothesized effects between stress, SE, JS and a DfOC
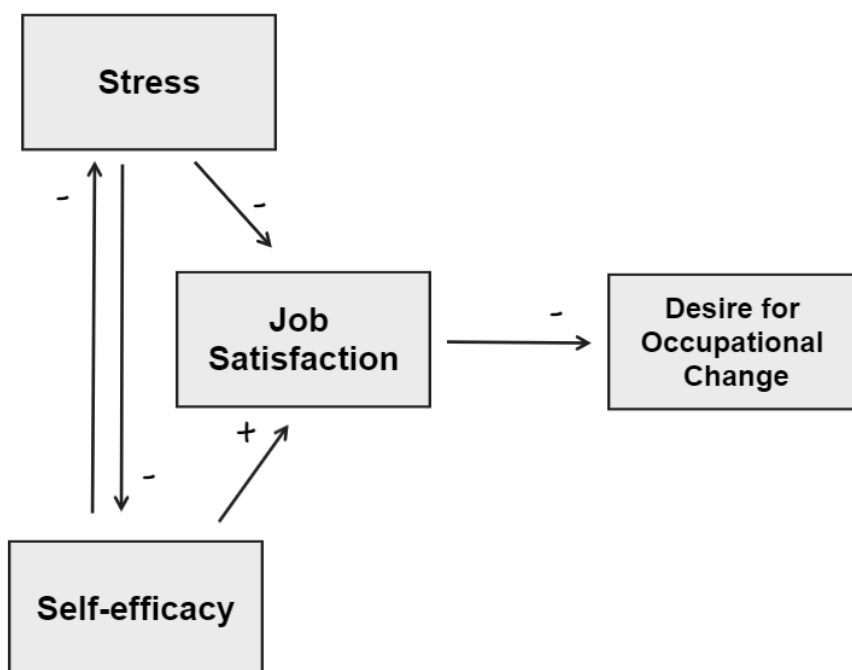
Method

Participants

This study focusses on early secondary school teachers that most probably will not retire within five years. For this reason, the TALIS 2018 (OECD, 2019) dataset for early secondary school teachers is used. The original dataset includes 153.682 early secondary school teachers from 47 countries. A list of the participating countries per geographical area can be found in Appendix B.

Teachers in the age groups 50 – 59 and above 60 are excluded from the dataset, because they might retire within five years. Participants are also excluded if data is missing for more than two of the four research variables. The adjusted dataset includes 106.073 early secondary school teachers. A majority of 69% of these teachers is female. Most are between 30 and 39 years old (40%) or between 40 and 49 years old (44%). The average teaching experience is 12 years. Almost three quarters (74%) of the participants works as a full-time teacher.

Design

This study uses secondary data from TALIS 2018 (OECD, 2019), which is conducted in 48 countries around the world. The current research uses one dataset, which is the data collected among early secondary school teachers. This dataset was chosen, because it includes all countries that participated in TALIS 2018, giving this research the broad generalizability it aims for. However, as the Icelandic government decided to withdraw the Icelandic data, the dataset includes data from not 48 but 47 different countries.

The original study has a cross-sectional design. A questionnaire was used with a combination of open questions, Likert scale items and multiple-choice questions. These questions were translated into each countries native language(s).

Instrument

In TALIS 2018 (OECD, 2019), several variables are already calculated and included in the dataset. Among these variables are JS, stress and SE. OECD (2019) used their knowledge of previous versions of TALIS and a confirmatory factor analysis to construct these variables carefully. OECD (2019) declares that the level of measurement invariance does not allow for tests in which means are compared (like a t-test). It is however possible to conduct tests for association and regression.

DfOC still has to be calculated. For this, a dichotomous variable is created. This is based on question 50 ("For how many more years do you want to continue to work as a teacher?"). Every answer equal to or below five is indicated as a DfOC. As indicated before, teachers in age groups with a high chance to retire within five years (50-59 and 60+ years old) are removed from the sample. This is in line with the methodology of Curtis (2012) who asked

participants a similar question and classified those who wanted to leave the teaching occupation within 5 years for other reasons than retirement as "leavers".

The distribution of DfOC through this method resulted in a desire for occupational change in 13.82% of cases and no desire for occupational change in 82.52% of cases. No data was available for the remaining 3.66% of participants.

More information on the construction of stress, SE and JS in the original dataset and a short description of all research variables and possible influencing factors with their descriptives from the original dataset and the adjusted dataset can be found in Appendix C.

Data Analysis

The adjusted dataset is loaded into R version 4.2.2. First, the mean, standard deviation, minimal value, maximal value and amount of missing values are determined. Normality and equal variance can be assumed because of the high sample size. The effects of the research variables on each other are investigated through weighted correlation tests, using the wCorr package. The used weight has been supplied in the dataset and is used to compensate for the different sizes between participating countries. While this is the standard procedure to handle these types of weights, it also causes the contribution of every participating country in this research to be equal, not taking into account country sizes and inhabitant numbers.

Possible influencing factors are taken into account to ensure non-spuriousness. This is done by calculating the correlations between possible influencing factors and the research variables. Significant correlations higher than 0.20 or lower than -0.20 are added to the model tested in the second part of data analysis described below. Possible influencing factors include gender, age, highest level diploma, employment status, teaching experience and the amount of special needs students in the classroom, as previous research shows they might interact with one of the research variables.

Another possible influencing factor is country as this research purposefully includes participants from a large scope of countries to enlarge generalizability. However, as country is a categorical variable and the research variables are continuous or dichotomous, correlation tests cannot be conducted. Moreover, country is a complex factor that itself consists of several possible influencing factors like economical growth, country culture and political situation. For this reason, the possible influence of the country on the research variables is merely checked. Boxplots are created for the continuous variables (stress, SE, JS) categorized by country to investigate on possible differences in the distribution. The same is done for the distribution of DfOC per country by creating a percent stacked bar chart. No matter the outcomes of these boxplots and percent stacked bar chart, country will not be included in the tested model, because a difference in distribution could be due to several country related factors.

The second part of the data analysis includes testing the complex model of relationships between SE, stress, JS and DfOC, to confirm the existence of this model. This is done through structural equation modelling, using the lavaan package. The found correlations from the first part of the data analysis are used to alter this model if needed. This means that significant correlations above 0.20 or below -0.20 are added to the model, including both interactions between research variables and between possible influencing factors and research variables. The model concludes in a good fit if CFI and TLI are higher than 0.95, RMSEA is lower than 0.06 and SRMR is lower than 0.08 (Hu & Bentler, 1999). The chi-square values are not taken into account, as large sample sizes, like the sample in the current research, can cause a significant chi-square.

<div align="center">

Results

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Descriptives and Correlations

The descriptives of the research variables of the adjusted dataset can be found in Table 2. No abnormality in data is found.

Table 2

Descriptives of the Research Variables

	Stress	JS	SE	DfOC
Mean	9.24	12.04	12.64	0.14
SD	2.06	2.01	2.02	0.35
Min	3.48	3.27	0.67	0.00
Max	16.38	16.48	19.22	1.00
Missing values	189	469	2785	3758

The correlations among the research variables and possible influencing factors can be found in Table 3. The correlations are significant but weak. Correlations higher than .20 or lower than -.20 are found between stress and JS (-.26), SE and JS (.23) and JS and DfOC (-.29). The expected correlation between SE and stress is very low (-.05). For this reason, the model will be tested without an indicated relationship between SE and stress. As all correlations between the research variables and possible influencing factors are very low as well, with a highest noted significant correlation of only .01, no possible influencing factors will be taken into account while testing the model.

As indicated before, correlations cannot be calculated between the research variables and country, but the distribution of the research variables by country are checked to help correctly interpretate the results. The boxplots showing the distribution of stress, JS and SE per country can be found in figures 2, 3 and 4. The percent stacked bar chart in figure 5 shows the distribution of DfOC per country. Countries are indicated with a number. The corresponding countries are included in Appendix C. The boxplots show no alarming differences in stress, JS and SE levels between countries. However, the percentages of DfOC do show some variation between countries. As country is a factor that includes several country related factors itself, it is impossible to say what exactly causes these differences. As indicated before, country is not taken into account while testing the model. However, these differences in DfOC among countries are taken into account while interpreting the results.

Table 3

Correlations among the Research Variables and Possible Influencing Factors

	Stress	JS	SE	DfOC
Gender	-.046***	-.010**	-.042***	-.018***
(1: female, 2: male)				
Education finished	.054***	-.013***	.028***	-.007*
(1: low – 7: high)				
Employment status	-.069***	.003	-.048***	.001
(1: full-time – 4: part-time <50%)				
Teaching experience	.034***	-.003*	.099***	-.016***
(in years)				
Special needs students	.042***	-.036***	.008**	.033***
(1: none – 4: all)				
Age group	.010***	.012***	.072***	-.056***
1: <25 y/o – 6: >60 y/o)				
Stress		-.257***	-.052***	.107***
JS			.231***	-.288***
SE				-.057***
DfOC				

* p < .05

** p < .01

*** p < .001

Figure 2

Distribution of stress by country

Spread of stress level per country
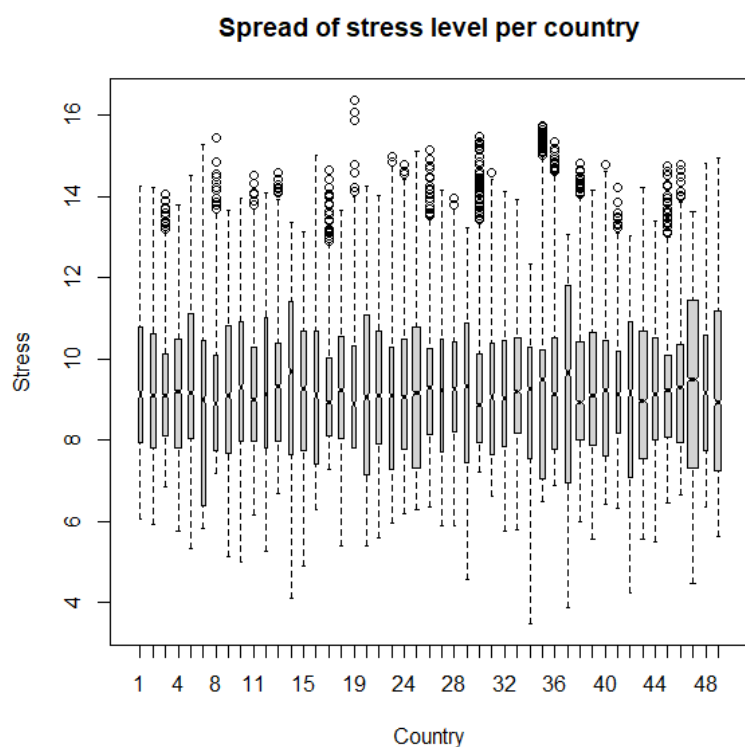
Figure 3

Distribution of JS by country

Spread of job satisfaction level per country
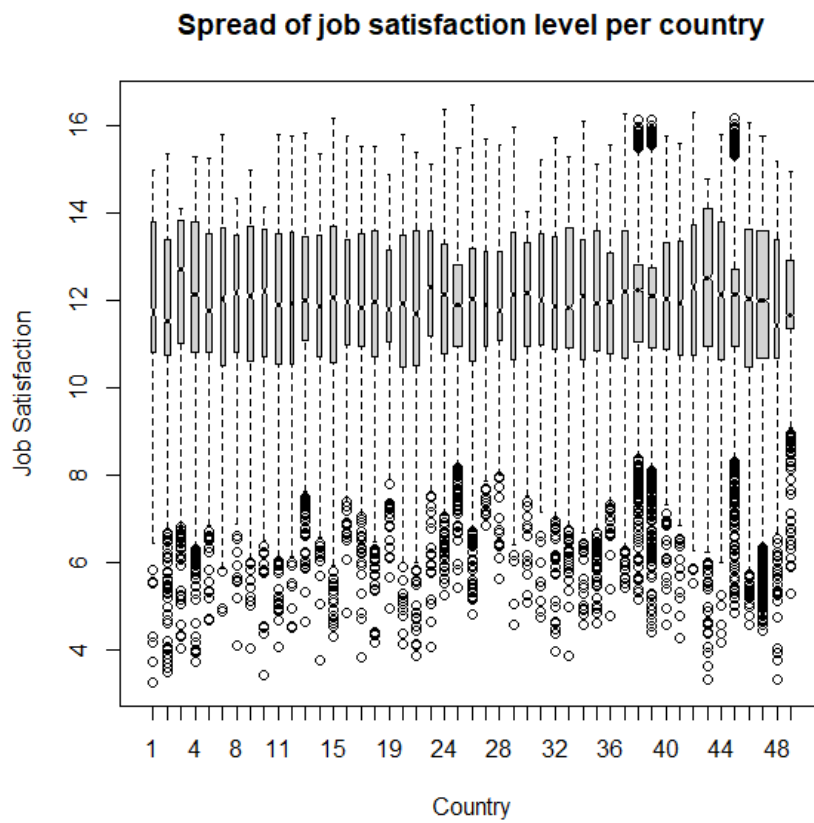
Figure 4

Distribution of SE by country

Spread of self-efficacy level per country
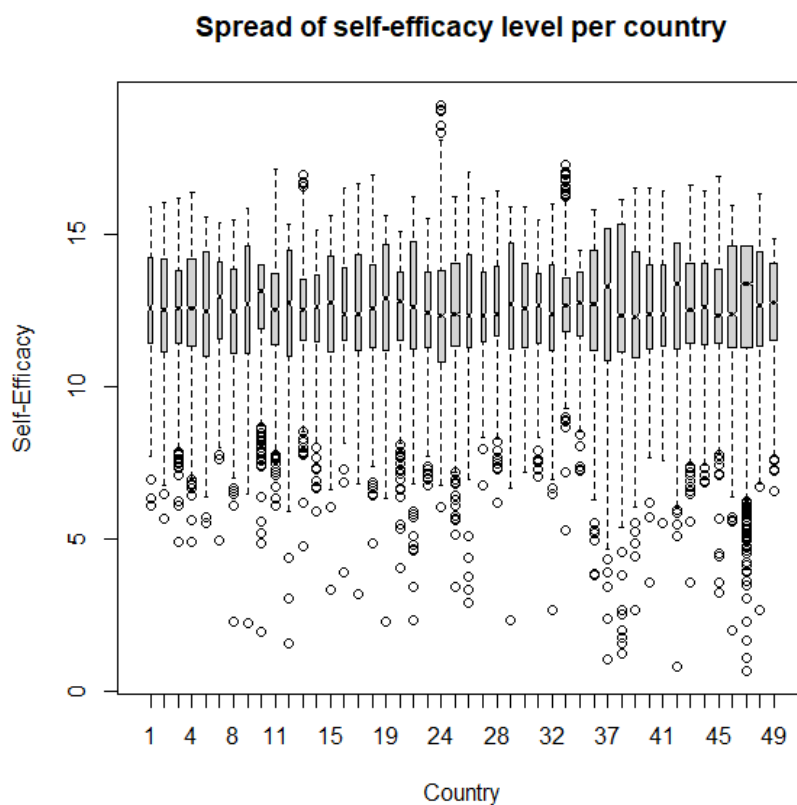
Figure 5

Percentage DfOC per country
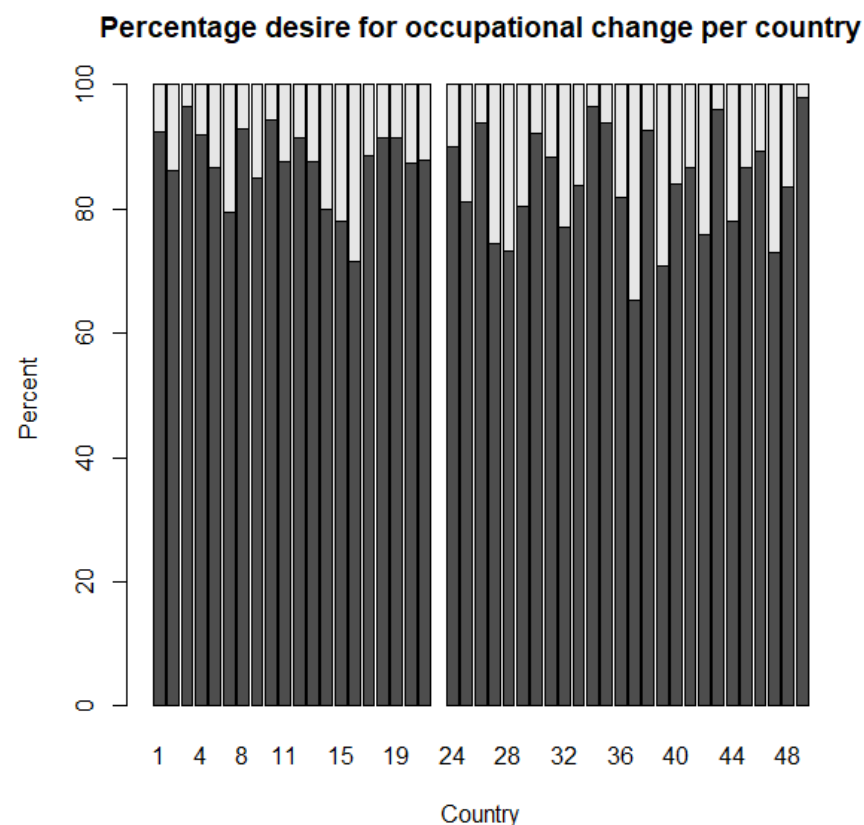
Structural Equation Modelling

The model to be tested through structural equation modelling is the adjusted hypothesized model shown in Figure 5. This figure includes the correlation coefficient (*r*) and the standardised regression coefficient (β*). Because the expected correlation between SE and stress is very low (-.05), the model is tested without an indicated relationship between these variables. The model concludes in a good fit with X^2(158.21, df = 2), p < .001, CFI = .99, TLI = .98, RMSEA = 0.028, SRMR = 0.010, because CFI and TLI conclude in values close to 1.00 and RMSEA is below 0.06. However, SRMR is slightly higher than 0.08. This could be an indication that a simpler version of the tested model exists. The chi-square is significant, which would indicate a poor fit. However, the chi-square test is sensitive to large sample sizes, leading more often to a significant result. Thus, as indicated before, the chi-square test is not taken into account.

Figure 5

Found effects between stress, SE, JS and a DfOC

$r = -.257$
$\beta^* = -.272$

$r = .231$
$\beta^* = .224$

$r = -.288$
$\beta^* = -.314$

Stress

Self-efficacy

Job Satisfaction

Desire for Occupational Change
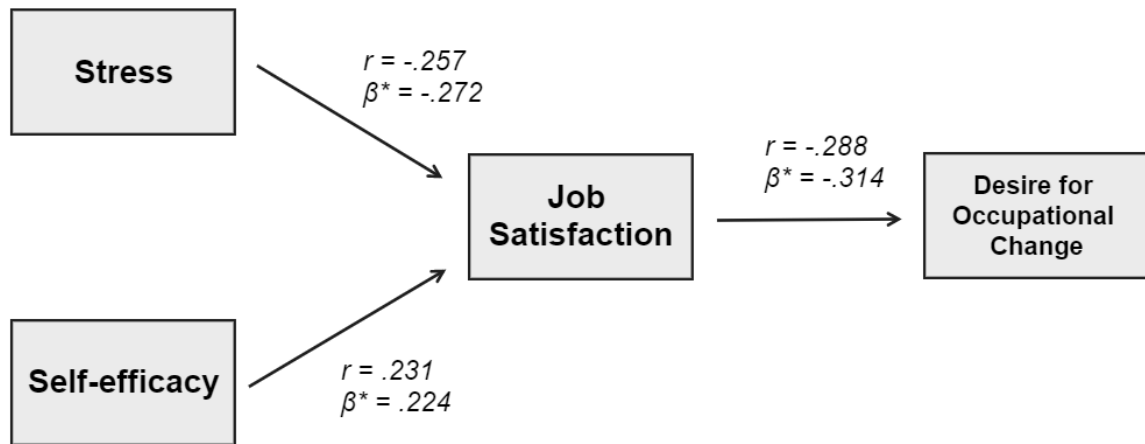
Discussion

The aim of this study is to investigate how stress and SE influence DfOC through JS. The found correlations are medium and negative for the relationship between stress and JS and the relationship between JS and DfOC. Moreover, a medium and positive correlation is found for the relationship between SE and JS. These correlations and directions correspond with the expectations. The correlation between stress and SE is statistically significant, but of marginal size ($r = -.05$). This means the hypothesized relationship between stress and SE is rejected. Structural Equation Modelling results in a good fit, thus accepting the hypothesized model without the relationship between stress and SE.

JS and DfOC

A negative relationship is found between JS and DfOC. The relationship between JS and JM has been established repeatedly in scientific research, even though the used constructs differ slightly from each other. Horrison-Collier (2013) and Whitaker (2000) conceptualized JM as an act of staying in or leaving the current teaching position. Blömeke et al. (2017), Kelly et al. (2019), Otto et al. (2010), and Skaalvik & Skaalvik (2011) conceptualized JM as a motivation to stay in or leave the profession, like the current research. DfOC is a specification of JM, stating that the teacher leaves to change their occupation, discarding the possibility that the teacher switched teaching positions. As occupational change is part of the total JM, it makes sense that both result in the same negative relationship with JS. The current research confirms this wide established negative relationship between JS and JM and provides additional information on the role of JS in the relationships between stress and SE on the one hand and DfOC on the other hand.

Stress and JS

The found relationship between stress and JS is negative. This confirms the findings by Borg and Riding (1991) and Klassen and Chiu (2010). The research from Borg and Riding (1991) was executed several decades ago in Malta, a small country in Europe with only a couple of hundred-thousand inhabitants. The research from Klassen and Chiu (2010) took place more recently in Canada, a big country in Northern-America with over 30 million inhabitants. The current research takes into account a wide variety of different countries. The fact that the same negative relationship between stress and JS is found in this research, while the distributions of both stress and JS did not show abnormalities between the participating countries, is an indicator that this relationship is likely to exist for middle-school teachers all over the world.

SE and JS

The found relationship between SE and JS is positive. The same relationship was found by Farber (2001) in the USA, Klassen and Chiu (2010) in Canada, Skaalvik and Skaalvik (2010) in Norway and Toropova et al. (2021) in Sweden. A similarity between the countries in

which these researches took place is that they are among the biggest economies in the world (World Bank Group, n.d.). JS is positively related to the national gross domestic product (GDP) (Augner, 2015). The found relationship between SE and JS in previous research is thus not necessarily generalizable to countries with smaller economies. The current research includes data from 48 countries with varying economical sizes. As the same positive relationship between SE and JS is found, it is likely that SE and JS are positively related for middle-school teachers all over the world.

Stress and SE

The found correlation between stress and SE is statistically significant, but minuscule. Previous research did not confirm nor reject such a relationship. According to Bandura (1994) high stress can enhance a feeling of failure and thus over time create lower levels of SE. On the other hand, Skaalvik and Skaalvik (2010) found that teachers with high SE had lower stress levels. It was beyond the scope of this research to investigate this specific relationship for extreme levels of stress or SE. However, the current research base seems to lack information on the existence of a relationship between stress and SE in general, which is the reason why this relationship was tested in the current research. As no relationship between stress and SE is found in the current research, the conclusion is that when it comes to the average teacher, there does not seem to be a relationship between stress and SE.

Theoretical and Practical Implications

This research added to the generalizability of the reasons behind the decision to leave the teaching profession. The evidence shows that stress can lower and SE can heighten JS. JS in turn can lower the chance a teacher leaves the profession. These effects have been found before, but the scope of the current research allows us to generalize these results on a larger scale. In addition, while the information on the effect of stress and SE on each other appears to be scarce, the current research adds to the research base that the effects of stress and SE on each other are likely to be marginal or non-existent for the average teacher. Moreover, where research often focusses on the act or desire to leave the current employment, this research shows that these effects are likely to also be in place for a desire for occupational change. However, the distribution of DfOC did show differences between countries. This might be an indication that there are country-specific variables that influence DfOC as well.

These findings can be used by school managements all around the world to help maintain their teaching force in the form of two advises. As more stress is generally related to lower JS and thus higher DfOC, the first advice is to take care of teachers' stress levels. Workload (Ghani et al., 2014; Klassen & Chiu, 2010) and time pressure (Skaalvik & Skaalvik, 2010; Vazi et al., 2013) are known to be able to increase stress. Schools that want to limit stress among teachers therefore may look into ways to limit workload and time pressure for teachers.

Another finding from the current research is that SE can increase JS and thus may lead to less DfOC. The second advice that follows is to invest in professionalization, like induction and mentoring, to increase teachers' competencies to reduce the chance of low SE. Kelly et al. (2019) have a similar recommendation, emphasizing the benefits of early career support among beginning teachers.

As indicated before, high competency does not necessarily result in high SE. Bandura (1994) found four factors that can influence SE: experiencing succes/failure; seeing someone similar to oneself experience succes/failure; persuasion; and emotions, stress and fatigue. It is important for school leaders and teachers to be aware of these factors to be able to stimulate SE among the school team.

Limitations and Future Research

The results of this research lead to broader generalizability of the influence of SE and stress on DfOC through JS, because of the large scope of the research. However, large research like this also has limitations. Big sample sizes often go hand in hand with large amounts of missing data, which can lead to selection bias. Moreover, big samples can emphasize differences, which can also lead to bias. However, the demographics of the used dataset correspond with the expected demographics of the population, which makes selection bias less likely. Moreover, the distributions of the research variables by country show no remarkable differences for stress, SE and JS. This makes bias less likely as well. However, the distribution of DfOC between countries does appear to have some variance. This could be due to country specific factors influencing DfOC, but a small chance remains that this could be due to bias in the sample. Further research is needed to rule out this possibility.

Another characteristic of large research is that instruments often measure in a subjective way at one moment in time. This leads to several additional implications for further research.

First, it would be an addition to the current research base to investigate the factors in the current research in a longitudinal setting, providing insight into how these factors make teachers leave the occupation over time.

Second, it is recommended to investigate on these variables not only in a subjective, but also in an objective way if possible. As this research looks into self-efficacy and a desire for occupational change, nothing can be said about the effect of actual competence on stress and job satisfaction or the effect of these variables on teachers actually changing occupations.

The third recommendation is to investigate how burnout factors, like stress, together make teachers quit the occupation. In the current research, only stress was looked into, isolated from other burnout factors. Skaalvik and Skaalvik (2010) found that SE has a negative effect on burnout factors emotional exhaustion and depersonalization. Looking back on the research from Goddard et al. (2006) where the average burnout levels among beginning teachers were significant for an actual burnout within two years and where teachers reported decreasing job

commitment, it would be valuable for governments and school leadership to understand the progression of burnout factors and their relationship with SE, JS and occupational change.

Fourth, further research could focus on the potential relationship between stress and SE. In the current research no relationship was found. Previous research from Skaalvik and Skaalvik (2010) and Bandura (1994) in combination with the results from the current research indicate that this relationship may exist only for extreme levels of SE or stress. Further research thus can be done looking at extreme levels of SE or stress to determine if there truly is a connection between the two.

The fifth and last recommendation for further research is to look more closely at the progression of SE among beginning teachers with different educational and cultural backgrounds. If we want to properly prepare beginning teachers for the teaching profession, we need to understand what makes pre-teachers feel less competent and how their SE can be enhanced enough so they can grow into strong teaching professionals before they start their teaching career.

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Appendix A: Factors, Influences and Sources[2]

Category	Factor	Job mobility	Job satisfaction
Independent	Gender	Ingersoll (2001): Male + (private school) Female + (public school) Skaalvik and Skaalvik (2011): Male + Struyven and Vanthournout (2014): Female +	Female + (Dinham & Scott, 1998)
	Salary	- (Curtis, 2012; Feng, 2014; Ingersoll, 2001; Inman & Marlow, 2004; Kelly et al., 2019)	+ (Curtis, 2012; Ingersoll, 2001)
	Age	Ingersoll (2001): Least between 30 and 50	Crossman and Harris (2006): Curvilinear with dip between 11 and 20 Hickson and Oshagbemi (1999): Decreases at a decreasing rate until constant Mertler (2002): Dip around 30
	School size	- (Ingersoll, 2001)	Unknown
	District size	- (Ingersoll, 2001)	Unknown
	Urbanization	+ (Kelly et al., 2019)	Unknown
Sense of belonging	Sense of belonging	- (mediated through JS and emotional	+ (Skaalvik & Skaalvik, 2011)

[2] Positive effects are indicated with '+' and negative effects are indicated with '-'. 'Inconclusive' means that different sources state conflicting effects. 'Unknown' means that no effects were found in the theoretical exploration.

		exhaustion) (Skaalvik & Skaalvik, 2011)	
	Relations with parents	- (Struyven & Vanthournout, 2014)	+ (Skaalvik & Skaalvik, 2010, 2011)
	Relations with colleagues	- (Skaalvik & Skaalvik, 2011)	+ (Skaalvik & Skaalvik, 2011)
	Cooperation	Unknown	Toropova et al. (2021): +
	Constructive working environment	Unknown	+ (Dinham & Scott, 1998; Farber, 2001; Toropova et al., 2021)
	Value consonance	Unknown	+ (Skaalvik & Skaalvik, 2011)
Competence	Competence	Unknown	+ (Farber, 2001; Preechawong et al., 2021; Skaalvik & Skaalvik, 2010)
	Self-efficacy	Unknown	+ (Klassen & Chiu, 2010; Toropova et al., 2021)
	Sense of preparedness	- (Blömeke et al., 2017)	Unknown
	Competence growth	Unknown	+ (Dinham & Scott, 1998)
	Professional development	- (Parker et al., 2009; Whitaker, 2000)	+ (through SE) (Preechawong et al., 2021)
	Work experience	+ (Struyven & Vanthournout, 2014)	Menon and Athanasoula-Reppa (2011): Higher JS after more than 5 years Mertler (2002): Lowest JS between 6 and 10 years

			Mondal et al. (2011): Lowest JS between 5 and 10 years
	Autonomy	Unknown	+ (Skaalvik & Skaalvik, 2011)
	Support from principal	- (Curtis, 2012; Struyven & Vanthournout, 2014)	+ (Buyukgoze-Kavas et al., 2014)
Stress	Stress	+ (Gersten et al., 2001; Lambert et al., 2018; Miller et al., 1999) - (Borg & Riding, 1991)	- (Borg & Riding, 1991; Klassen & Chiu, 2010)
	Burnout	+ (Maslach & Leiter, 2016)	Unknown
	Workload	+ (Kelly et al., 2019; Struyven & Vanthournout, 2014)	- (Kelly et al., 2019; Toropova et al., 2021)
	Time pressure	Unknown	+ (Skaalvik & Skaalvik, 2010) - (higher time pressure for female) (Skaalvik & Skaalvik, 2011)
	Discipline issues	Unknown	- (Skaalvik & Skaalvik, 2011; Toropova et al., 2021)
	Working conditions	- (Feng, 2014)	Unknown
	Role dissonance	Unknown	- (Gersten et al., 2001)

Appendix B: Participating Countries of Talis 2018 per Geographical Area

Western Europe	Central Europe	Eastern Europe
Iceland[3]	Austria	Estonia
Finland	Czechia	Latvia
Norway	Hungary	Lithuania
Sweden	Slovakia	Croatia
Denmark	Romania	Cyprus
England	Slovenia	
Netherlands	Bulgaria	
Belgium		
France		
Italy		
Malta		
Spain		
Portugal		
Middle East	**Asia**	**Africa**
Georgia	Russian Federation	South Africa
Turkey	Japan	
Kazakhstan	Korea	
Israel	China	
Saudi Arabia	Chinese Taipei	
United Arab Emirates	Singapore	
	Viet Nam	
Oceania	**North America**	**Latin America**
New Zealand	Canada	Mexico
Australia	United States of America	Argentina
		Brazil
		Chile
		Colombia

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[3] The Icelandic government decided to withdraw all Icelandic data to ensure the privacy of Icelandic participants. Even though Iceland participated in TALIS 2018, no Icelandic data was included in the TALIS 2018 dataset.

Appendix C: Short Description of Variables

Research variables

Stress

Stress was precalculated and already present in the used dataset. The TALIS 2018 researchers used their knowledge of previous versions and a confirmatory factor analysis to construct this variable. In the original dataset stress is referred to as "workplace well-being and stress". It includes question 51 ("In your experience as a teacher at this school, to what extend do the following occur?"), with sub-questions a) ("I experience stress in my work"), b) ("My job leaves me time for my personal life"), c) ("My job negatively impacts my mental health") and d) ("My job negatively impacts my physical health"). Answers are given on a four-point Likert scale, ranging from "not at all" (coded as 1) to "a lot" (coded as 4). Item 51b) was reverse coded before calculating the stress values. Table C1 shows the descriptives of the original and adjusted dataset.

Table C1

Descriptives of Stress

	Original dataset	Adjusted dataset
Mean	9.37	9.42
SD	2.01	2.03
Min	4.29	4.29
Max	16.32	16.32
Missing values	4556	212

Self-efficacy

Self-efficacy was precalculated and already present in the used dataset. The TALIS 2018 researchers used their knowledge of previous versions and a confirmatory factor analysis to construct this variable. In the original dataset self-efficacy is referred to as "teacher self-efficacy, overall". It includes question 34 ("In your teaching, to what extent can you do the following?"), with sub-questions a) ("Get students to believe they can do well in school work"), b) ("Help students value learning"), c) ("Craft good questions for students"), d) ("Control disruptive behaviour in the classroom"), e) ("Motivate students who show low interest in school work", f) ("Make my expectations about student behaviour clear"), g) ("Help students think critically"), h) ("Get students to follow classroom rules"), i) ("Calm a student who is disruptive or noisy"), j) ("Use a variety of assessment strategies"), k) ("Provide an alternative explanation, for example when students are confused"), and l) ("Vary instructional strategies in my classroom"). Answers are given on a four-point Likert scale, ranging from "not at all" (coded as 1) to "a lot" (coded as 4). Table C2 shows the descriptives of the original and adjusted dataset.

Table C2

Descriptives of Self-Efficacy

	Original dataset	Adjusted dataset
Mean	12.68	12.64
SD	2.00	2.02
Min	0.67	0.67
Max	19.22	19.22
Missing values	8435	2785

Job Satisfaction

Job satisfaction was precalculated and already present in the used dataset. The TALIS 2018 researchers used their knowledge of previous versions and a confirmatory factor analysis to construct this variable. In the original dataset job satisfaction is referred to as "job satisfaction, overall". It includes question 40 ("How strongly do you agree or disagree that you have control over the following areas of your planning and teaching in this <target class>?"), with sub-questions a) ("Determining course content"), b) ("Selecting teaching methods"), c) ("Assessing students' learning"), d) ("Disciplining students"), and e) ("Determining the amount of homework to be assigned"). It also includes question 53 ("We would like to know how you generally feel about your job. How strongly do you agree or disagree with the following statements?"), with sub-questions a) ("The advantages of being a teacher clearly outweigh the disadvantages."), b) ("If I could decide again, I would still choose to work as a teacher."), c) ("I would like to change to another school if that were possible."), d) ("I regret that I decided to become a teacher."), e) ("I enjoy working at this school."), f) ("I wonder whether it would have been better to choose another profession."), g) ("I would recommend this school as a good place to work."), and j) ("All in all, I am satisfied with my job."). Answers are given on a four-point Likert scale, ranging from "strongly disagree" (coded as 1) to "strongly agree" (coded as 4). Items 53c), d), and f) were reverse coded before calculating the job satisfaction values. Table C3 shows the descriptives of the original and adjusted dataset.

Table C3

Descriptives of Job Satisfaction

	Original dataset	Adjusted dataset
Mean	12.06	12.04
SD	2.00	2.01
Min	3.27	3.27
Max	16.48	16.48
Missing values	5353	469

Desire for Occupational Change

Desire for Occupational Change is determined through the amount of years the teacher wants to continue teaching, which is asked through question 50 ("For how many more years do you want to continue to work as a teacher?"). On the questionnaire, this is indicated with a number. The desire for occupational change is determined by marking all responses 5 or lower as a desire for occupational change (indicated with 1) and all responses 6 or higher as no desire for occupational change (indicated with 0). Table C4 shows the descriptives of question 50 in the original and adjusted dataset. Table C5 shows the descriptives of desire for occupational change in the original and adjusted dataset.

Table C4

Descriptives of Question 50

	Original dataset	Adjusted dataset
Mean	12.00	17.95
SD	10.43	10.38
Min	0.00	0.00
Max	90.00	75.00
Missing values	10757	3758

Table C5

Descriptives of Desire for Occupational Change

	Original dataset	Adjusted dataset
Mean	0.25	0.14
SD	0.43	0.35
Min	0.00	0.00
Max	1.00	1.00
Missing values	10757	3758

Save Our Schools

Possible Influencing Factors

Country

Table C6

Country (codes) and Number of Participants

ID	Country	Original dataset	Adjusted dataset	ID	Country	Original dataset	Adjusted dataset
1	(Alberta) Canada	1077	769	2	Australia	3573	2267
3	Austria	4255	2346	4	Belgium	5257	3954
5	Flemish Community (Belgium)	-	-	6	Brazil	2447	1818
7	Bulgaria	2862	1363	8	(Buenos Aires) Argentina	2099	1336
9	Chile	1963	1409	10	Colombia	2398	1487
11	Croatia	3358	2490	12	Cyprus	1611	1004
13	Czech Republic	3447	2121	14	Denmark	2001	1253
15	England	2376	1721	16	Estonia	3004	1337
17	Finland	2851	1810	18	France	3006	2094
19	Georgia	3101	1370	20	Hungary	3245	1688
21	Iceland	-	-	22	Israel	2627	1711
23	Italy	3612	1789	24	Japan	3555	2373
25	Kazakhstan	6566	4721	26	Korea	2931	1929
27	Latvia	2315	1072	28	Lithuania	3759	1637
29	Malta	1656	1376	30	Mexico	2926	2183
31	Netherlands	1884	1155	32	New Zealand	2257	1328
33	Norway	4154	2780	34	Portugal	3676	1941
35	Romania	3658	2667	36	Russian Federation	4011	2322
37	Saudi Arabia	2744	2012	38	Shanghai (China)	3976	3370
39	Singapore	3280	2854	40	Slovak Republic	3015	1964
41	Slovenia	2094	1233	42	South Africa	2046	1403
43	Spain	7407	4528	44	Sweden	2782	1610
45	Chinese Taipei	3835	3166	46	Turkey	3952	3578
47	United Arab Emirates	8648	7331	48	United States	2560	1720
49	Viet Nam	3825	3316				

All participating teachers in TALIS 2018 are linked to one of the 49 participating countries. Table C6 shows the country ID, country name, number of participating teachers in the original dataset and the remaining number of participating teachers in the adjusted dataset. No data is available for the Flemish community of Belgium (country ID 5) and Iceland (country ID 21). In the dataset, all teachers from Belgium, including the Flemish community, are grouped under country ID 4. Data from Iceland is missing, because the Icelandic government decided to withdraw all Icelandic data to protect the privacy of Icelandic participants.

Gender

Question 1 ("Are you female or male?") relates to gender. This is coded in the dataset as 1 for female and 2 for male. Table C7 shows the distribution of gender in the original and adjusted dataset. Table C8 shows the descriptives of the original and adjusted dataset.

Table C7

Distribution of Gender

	Original dataset	Adjusted dataset
Female	69.05%	68.69%
Male	30.94%	31.31%

102706

Table C8

Descriptives of Gender

	Original dataset	Adjusted dataset
Mean	1.31	1.31
SD	0.46	0.46
Min	1.00	1.00
Max	2.00	2.00
Missing values	8	3

Education Finished

Question 3 ("What is the highest level of formal education you have completed?") relates to the highest level of formal education finished. This includes seven options referring to the international standard classification of education (ISCED) 2011. The options go from below ISCED 2011 level 3, coded as 1, until ISCED 2011 level 8, coded as 7. Table C9 shows the descriptives of the original and adjusted dataset.

Table C9

Descriptives of Education Finished

	Original dataset	Adjusted dataset
Mean	5.34	5.34
SD	0.73	0.69
Min	1.00	1.00
Max	7.00	7.00
Missing values	8054	4819

Employment Status

Question 10b ("What is your current employment status as a teacher, in terms of working hours? All my teaching employments together:") relates to the employment status in terms of working hours, including all current teaching employments. This includes four options. Coded as 1 is a full-time employment of more than 90% of fulltime hours. A part-time employment of 71-90% of full-time hours is coded as 2. A part-time employment of 50-70% of full-time hours is coded as 3. Lastly, a part-time employment of less than 50% of full-time hours is coded by 4. Table C10 shows the descriptives of the original and adjusted dataset.

Table C10

Descriptives of Employment Status

	Original dataset	Adjusted dataset
Mean	1.37	1.37
SD	0.81	0.81
Min	1.00	1.00
Max	4.00	4.00
Missing values	11494	5744

Teaching Experience

Question 11b ("How many years of work experience do you have, regardless of whether you worked full-time or part-time?") refers to the years of total teaching experience. This is an open answer in the form "… year(s) working as a teacher in total". Table C11 shows the descriptives of the original and adjusted dataset.

Table C11

Descriptives of Teaching Experience

	Original dataset	Adjusted dataset
Mean	16.50	11.78
SD	10.79	7.23
Min	0.00	0.00
Max	58.00	58.00
Missing values	1601	378

Special Needs Students

Question 14 ("Across all your [<ISCED 2011 level x> classes where most students are 15 years old] at this school, how many are special needs students?") refers to the amount of special needs students. This includes a definition of special needs students: "'Special needs' students are those for whom a special learning need has been formally identified because they are mentally, physically, or emotionally disadvantaged. Often they will be those for whom additional public or private resources (personnel, material or financial) have been provided to support their education." The four options include none (coded as 1), some (coded as 2), most (coded as 3) and all (coded as 4). Table C12 shows the descriptives of the original and adjusted dataset.

Table C12

Descriptives of Special Needs Students

	Original dataset	Adjusted dataset
Mean	1.86	1.87
SD	0.51	0.51
Min	1.00	1.00
Max	4.00	4.00
Missing values	4492	1740

Age group

Question 2 ("How old are you") refers to the age of the participant. On the questionnaire, this is indicated with a number. However, this is included in the dataset as age groups. The chosen age groups are: under 25 years of age (coded as 1), 25-29 years of age (coded as 2), 30-39 years of age (coded as 3), 40-49 years of age (coded as 4), 50-59 years of age (coded as 5), and 60 years of age and older (coded as 6). Table C13 shows the distribution

of the participants over the age groups for the original and adjusted dataset. Table C14 shows the descriptives of the original and adjusted dataset.

Table C13

Distribution of Participants over Age Groups

	Original dataset	Adjusted dataset
Under 25 years of age	3306	3195
25-29 years of age	14316	13797
30-39 years of age	42160	40774
40-49 years of age	46294	44940
50-59 years of age	35758	0
60 years of age and older	11329	0

Table C14

Descriptives of Age Group

	Original dataset	Adjusted dataset
Mean	3.85	3.24
SD	1.16	0.80
Min	1.00	1.00
Max	6.00	4.00
Missing values	519	0