

Moving Beyond Classroom Teaching: A Study of Multidimensional Teacher Self-Efficacy on Job Satisfaction and Occupational Commitment

Xianhan Huang^{a*}, Chin-His, Lin^a and John Chi-Kin Lee^b

^aFaculty of Education, The University of Hong Kong, Hong Kong; ^bDepartment of Curriculum and Instruction, The Education University of Hong Kong, Hong Kong

*Corresponding author: Xianhan Huang. Room 628, Meng Wah Complex, The University of Hong Kong, Pokfulam, Hong Kong Island, Hong Kong. Email: yxhhuang@hku.hk

Moving Beyond Classroom Teaching: A Study of Multidimensional Teacher Self-Efficacy Effect on Job Satisfaction and Occupational Commitment

ABSTRACT: Teacher self-efficacy is a key predictor of teacher attrition, but studies have primarily examined teacher self-efficacy via classroom teaching and overlooked other roles that teachers play in school. Accordingly, this study explores the relationships between, on the one hand, primary and secondary teachers' job satisfaction and occupational commitment and, on the other, their self-efficacy in three domains: classroom teaching, teacher-student relationships, and school decision-making. The participants included 1,424 primary and secondary teachers from Shanxi, Xinjiang, and Chongqing, China. Confirmatory factor analysis was performed to ensure the validity of the survey instruments. The results of path analysis on the survey responses indicate that although all three types of self-efficacy showed a positive relationship with these teachers' satisfaction and commitment, self-efficacy in teacher-student relationships and self-efficacy in school decision-making both ranked as more important than self-efficacy in classroom teaching. The theoretical and practical implications of these findings are also discussed.

Keywords: teacher self-efficacy, teacher-student relationships, school decision-making, job satisfaction, occupational commitment

Teacher attrition is detrimental to student learning and achievement (Buchanan et al., 2013). Many studies have reported that low job satisfaction and low occupational commitment are key predictors of teacher attrition (Klassen & Chiu, 2011; McInerney et al., 2015). Accordingly, correct identification of the major factors that affect teacher satisfaction and/or occupational commitment is critically important for policymakers' and administrators' teacher retention efforts (Scheopner, 2010).

Teacher self-efficacy (TSE) is consistently reported as an important influence on teachers' job satisfaction (Canrinus et al., 2012; Chesnut & Burley, 2015) and occupational commitment (Malinen & Savolainen, 2016). Although studies of the association between TSE and the two outcomes have helped address teachers' attrition, they have conceptualized TSE almost exclusively in the aspect of classroom teaching (Zee & Koomen, 2016) and have tended to overlook the multiple roles that teachers play in schools. It is thus possible that the relationship between TSE and teacher attrition has been oversimplified in the literature (Chesnut & Burley, 2015).

Specifically, over the past two decades, teachers' roles in constructing good teacher-student relationships and participating in school decision-making have been increasingly highlighted (Danielson, 2014; European Commission, 2013), and numerous studies have explored the importance of these two aspects of teacher work to teacher outcomes, such as teacher-student relationships (for a review, see Spilt, Koomen, & Thijs, 2011) and participation in school decision-making (for a review, see Wenner & Campbell, 2017). However, few studies have discussed the extent to which teachers' self-efficacy lies in these two aspects and its relationships with teacher job satisfaction and occupational commitment.

Bandura (2006) asserted that self-efficacy is a “differentiated set of self-beliefs linked to distinct realms of functioning” (p. 307). That is to say, the assessment of self-efficacy should be “tailored to spheres of functioning and the realities people have to manage” (Bandura, 2012, p. 9). In the field of teacher education, although most efforts have been devoted to the exploration of TSE in classroom teaching (Zee & Koomen, 2016), various types of TSE have been proposed, such as interpersonal TSE (see Veldman et al., 2017), TSE in the school context (see Friedman & Kass, 2002), and professional self-efficacy (Ventura et al., 2015). In a review of the relationship between TSE and occupational commitment, Chesnut and Burley (2015) highlighted that conceptually accurate and behavior-specific TSE measures may provide a more accurate picture of the relationship between TSE and the outcomes.

The purpose of this study is to more accurately estimate the effects of TSE on teacher outcomes. By moving beyond a narrow view of TSE in classroom teaching, this study used a multidimensional perspective of TSE and explored its influences on the two factors known to be closely related to teacher attrition: job satisfaction and occupational commitment. Specifically, TSE was examined from these three dimensions: 1) classroom teaching, 2) teacher-student relationships, and 3) school decision-making. To facilitate the exploration of multidimensional TSE on teacher satisfaction and occupational commitment, we began with an articulation of three aspects of TSE, as given in the following section. We then reviewed the related literature not only from the perspective of TSE but also from that of teacher-student relationships and school management to posit our hypotheses on the separate relationships between TSE and job satisfaction and between TSE and occupational commitment.

The study was guided by the following research questions:

- (1) What are the relationships between the three kinds of TSE and job satisfaction?

(2) What are the relationships between the three kinds of TSE and occupational commitment?

Literature Review

Evolving Definitions of TSE

Drawing on the social learning theory as described by Rotter (1966), the Rand Corporation developed two items to measure a teacher's perspective on student motivation and performance, which were demonstrated to be powerful predictors of student achievement (Armor et al., 1976). Given the success of the Rand studies, several researchers continued to use this early conception of TSE (Ashton et al., 1982; Guskey, 1981, 1988;), which mainly measured teachers' perspective on their perceived impact on student learning motivation and performance.

Unlike the strand of research grounded in Rotter's work, Bandura (1997) theorized efficacy as "beliefs in one's capabilities to organise and execute the courses of action required to produce given attainments" (p. 3). He wrote that self-efficacy is not necessarily uniform across tasks and developed a TSE scale that contains seven subscales to measure TSE in various aspects of teachers' daily work, such as instruction, discipline, enlisting parental involvement, influencing decision making, and creating a positive school climate. Regarding TSE in instruction, Tschannen-Moran and Woolfolk Hoy (2001) further developed the Teachers' Sense of Efficacy Scale, which operationalizes TSE in classroom teaching with three dimensions—1) instructional strategy, 2) classroom management, and 3) student engagement; it has been widely adopted and has had a profound influence on the field (Fackler & Malmberg, 2016). Notably, rather than contributing to specification of TSE in classroom teaching, some scholars have committed efforts to explore TSE in other domains of teacher work, such as cooperation with colleagues and parents (Skaalvik & Skaalvik, 2007), maintaining a positive classroom climate

(Dellinger et al., 2008; Veldman et al., 2017), and influencing the achievement of school goals (Friedman & Kass, 2002). Amid constant changes in both teachers' roles and the societal expectations of their capability (Danielson, 2014), and given the tangled relationship between efficacy and capability (Bandura, 2006), calls have recently been made for a fundamental review of the concept of TSE (Chesnut and Burley, 2015; Zee & Koomen, 2016). This paper is partly a response to that call.

Our argument of multidimensional TSE was inspired by the Framework for Teaching Evaluation developed by Danielson (2014), who divided teacher competence into four domains: 1) planning and preparation, 2) instruction, 3) classroom environment, and 4) professional responsibilities. The first two of these are closely related to classroom teaching ability, and the third refers to teachers' abilities to develop healthy teacher-student relationships. The final category, professional responsibilities, emphasizes teachers' abilities to influence school change by assuming leadership roles. Based on this categorization scheme, we argue that TSE should include three dimensions: classroom teaching, teacher-student relationships, and school decision-making. As noted above, TSE has been extensively examined in classroom teaching, but the other two dimensions are seldom discussed (Zee et al., 2016). The theoretical roots of these two overlooked dimensions of TSE are discussed in the next two sections.

TSE in Teacher-Student Relationships

Pianta et al. (2012) noted that the focus of the teacher-student relationships should be placed on how the teacher supports the students' social and emotional functioning in the classroom. This proposed dimension includes three aspects: emotional climate, teacher sensitivity, and regard for student perspectives. The emotional climate is the environment in which both teachers and students can laugh and play, share stories, and learn together. Teacher

sensitivity refers to the teacher's ability to provide a warm and caring social environment in which students feel safe and free. Regard for students' perspectives refers to a teacher's encouragement of and access to the students' ideas and thoughts (Pianta et al., 2004). Similarly, Millar and Rogers (1976) proposed three features of interpersonal communication—shared control, trust, and intimacy—which highlighted that interpersonal communication depends not only on mutual trust and an intimate relationship but also on shared control of the topic and process of communication. Integrating Pianta's framework and Millar and Rogers's theory, our understanding of TSE in the teacher-student relationships refers to the extent to which teachers feel capable of building an atmosphere of mutual trust in which thoughts and emotions can be freely expressed and the bonds of intimacy can be forged. Meanwhile, teachers and students can share their control of the classroom, which ensures that effective teaching and learning can be carried out.

As a key element of effective classroom practice, the importance of the teacher-student relationships to student and teacher outcomes has been demonstrated both theoretically and empirically. Self-determination theory (Deci, 2009) and attachment theory (Furrer & Skinner, 2003) both lend theoretical support to the importance of the teacher-student relationships. The former highlights relatedness as not only a strong psychological power that influences students' intrinsic motivation, self-management, and well-being and thereby students' learning outcomes (Quin, 2017) but also a basic psychological need for teachers (Riley, 2009). An extension of attachment theory also indicates that teacher-student feelings of mutual affection and connection can provide students with a sense of security that mitigates their frustration, anxiety, and stress (Furrer & Skinner, 2003). A growing body of empirical evidence has also confirmed that supportive teacher-student relationships can improve students' psychological engagement and

academic achievement (Hamre et al., 2013; Quin, 2017) and teachers' well-being (Spilt et al., 2011).

TSE in School Decision-Making

An increasing number of studies have highlighted the organizational aspect of teacher work (Mangin & Stoelinga, 2008; Somech, 2010) and confirmed the importance of teacher participation in school decision-making to teacher outcomes (Sarafidou & Chatziioannidis, 2013; Somech, 2010) and school change (Malloy et al., 2015; Wenner & Campbell, 2017). Fisher and Fraser (1991) indicated that participation in school decision-making means that teachers have the opportunity to share and influence school decision-making at various levels that can affect the school as a whole.

In the field of TSE, Bandura (1997) also suggested that teacher efficacy should include an organizational aspect, such as influencing decision-making and generating an open school climate. Following this trend, Friedman and Kass (2002) proposed that measurements of TSE should consider the teacher's role as a leader in achieving the school's goals. Based on the literature, we define TSE in school decision-making as the extent to which a teacher believes that he or she is able to contribute to school decision-making on various issues, such as curriculum revision, instructional reform, or a school development plan. However, few studies have further explored how TSE in school decision-making is related to teacher job satisfaction and occupational commitment.

To summarize, today's teachers face ever-changing demands that have increased the array of competences that they are required to possess and demonstrate, including not only professional performance when teaching, but also the development of positive relationships with students and an influence on school changes. Mirroring the recommendation by Bandura (1997)

that efficacy must be tailored to specific domains of functioning, our paper argues that TSE should be routinely extended beyond classroom teaching to include at least two additional dimensions: teacher-student relationships and school decision-making.

Research Hypotheses

Based on a multidimensional perspective on TSE, as discussed above, this study explores the relationships between the three proposed TSE dimensions and teachers' job satisfaction and occupational commitment. Studies that are relevant to this approach are reviewed below.

TSE and Job Satisfaction

Teacher job satisfaction refers to teachers' affective reactions to their teaching role and tasks (Skaalvik & Skaalvik, 2011). In general, TSE has a positive relationship with job satisfaction. Bandura (1997, 2001) noted that when individuals feel content, they become inclined to believe that they are efficacious, and conversely, positive beliefs about one's capabilities can also result in satisfaction.

In the case of the first dimension of TSE, extensive research has confirmed that TSE in classroom teaching is a pivotal factor in predicting job satisfaction in teachers with various levels of teaching experience (Salanova, Llorens & Schaufeli, 2011) and in elementary (Stephanou, Gkavras & Doulkeridou, 2013), middle, and high schools (Canrinus et al., 2012).

Turning to the second dimension, few studies have directly addressed teacher-student relationships, amid a general lack of attention to the emotional aspects of TSE (Zee et al., 2016). However, a positive association between teachers' ability to foster positive teacher-student relationships and their satisfaction can readily be deduced from previous findings. Based on a review of studies about teachers' social and emotional competence published over the previous three decades, Jennings and Greenberg (2009) concluded that a generally positive association

existed between teachers' social-emotional skills and/or healthy teacher-student relationships on the one hand and teacher satisfaction on the other. Based on the known relationship between teachers' skills in a given area and their TSE in that area (Zee & Koomen, 2016), we hypothesize that TSE in teacher-student relationships has a positive association with job satisfaction.

Studies of TSE's third proposed dimension, school decision-making, exhibit a similar pattern to that of TSE in teacher-student relationships: few studies have explored the effects of TSE in school decision-making on teachers' job satisfaction. However, studies of educational management have discussed the relationship between decision-making styles and teacher satisfaction and reported that participative decision-making can improve teachers' self-esteem, which in turn increases their overall job satisfaction (Bogler, 2001; Somech, 2010). Studies of psychological ownership have also indicated that employees' participation in decision-making is likely to enhance their control over their organizations' goals and that such control shows a positive correlation with job satisfaction (Peng & Pierce, 2015). Therefore, a positive association between TSE in school decision-making and teachers' job satisfaction is predicted for this study.

TSE and Occupational Commitment.

Teachers' occupational commitment refers to the psychological bonds that teachers have with teaching as a role, an occupation, and an institution (Chesnut & Burley, 2015). Most studies of TSE and occupational commitment have focused on classroom teaching, and the other two aspects of TSE highlighted in our study have received little attention.

Ample empirical evidence across various educational contexts has consistently suggested a positive relationship between TSE in classroom teaching and teachers' commitment (Canrinus et al., 2012; Meyer et al., 2004). When teachers believe that they are skilled at implementing the curriculum, they will have strong work-related motivations to continue teaching, and as a

component of work-related motivation (Meyer et al., 2004), occupational commitment should also show a positive correlation with TSE. Based on the outcomes of previous studies, it is reasonable to predict a positive relationship between TSE in classroom teaching and occupational commitment.

To the best of our knowledge, the effects of TSE on occupational commitment in teacher-student relationships have not been specifically examined. However, several theories have indirectly indicated that a relationship exists between these constructs, and various studies have suggested a link between TSE and more general commitment. Cognitive-emotional theory highlights the significance of individual-environment relationships on personal well-being (Lazarus, 1991), and increased commitment is likely to result when such a relationship is healthy (Jo, 2014). Similar causal mechanisms have been identified in other studies, notably for organizational commitment (van Maele & Van Houtte, 2012). Therefore, and in light of the efficacy theory advanced by Bandura (1997), this study proposes that a teacher's belief in his or her ability to foster healthy teacher-student relationships will show a positive correlation with the level of occupational commitment.

Occupational commitment and organizational commitment have a positive relationship in the school context (McInerney et al., 2015). Many studies of the relationship between TSE in school decision-making and organizational commitment have found that a shared decision-making mechanism can encourage teachers to feel accountable for meeting their targets and to experience a sense of belonging, which in turn directly increases the affective dimension of their organizational commitment (e.g., Hulpia, Devos, & Van Keer, 2011). In a similar way, participation in the decision-making process can promote employees' psychological sense of ownership, which also results in a higher level of occupational commitment (Dawkins et al.,

2017). As such, this study hypothesizes that teachers' level of belief in their ability to contribute to school affairs has a positive correlation with their level of occupational commitment.

Methods

To test the multiple dimensions of TSE and investigate the relationship between each dimension of TSE on the one hand and job satisfaction and occupational commitment on the other hand, this study used the survey method, which is well suited to understand individuals' psychological characteristics (Fowler, 2013) and is commonly used in TSE research (Klassen & Tze, 2014).

Data Collection and Cultural Context

This study was conducted in three areas of mainland China: the Xinjiang Uyghur Autonomous Region, Shanxi Province, and Chongqing Municipality. The educational quality in Chongqing is rated at an intermediate level in mainland China, whereas that in Shanxi and Xinjiang is rated at a low level for different reasons (Wang et al., 2013). Located in the less-developed northwest part of China, Xinjiang suffers from a scarcity of good educational resources (He & Sun, 2019). Located in central China, the main challenge faced by Shanxi is a teacher shortage (Ministry of Education, 2018).

Because cultural context is important to interpret the findings, we briefly describe the cultural context in our study. The Chinese educational system is deeply influenced by Confucian culture (Law, 2012), and Chinese people are inclined to adopt a collectivist-cooperative orientation that focuses on relationships and networks (Lowe, 2003). The Chinese paternalist culture emphasizes obedience to rules, respect for authority, and loyalty to superiors (Hong & Engeström, 2004), which can facilitate the construction of harmonious relationships and

networks. Chinese teachers tend to be more motivated by teacher-student relationships than their Western counterparts (Liu & Onwuegbuzie, 2014).

Participants

Convenience sampling was used to recruit teachers from a wide range of urban, suburban, and rural school types in each district. All participants were volunteers who were approached via questionnaires mailed to 75 schools (40 in Shanxi, 20 in Xinjiang, and 15 in Chongqing) along with stamped, addressed return envelopes. A total of 1424 responses with complete data were received from 595 teachers at 35 schools in Shanxi, 401 teachers from 15 schools in Xinjiang, and 428 teachers from 14 schools in Chongqing, corresponding to individual response rates of 75.1%, 59.2%, and 76.7% respectively. The participants' average age was 34.31 years, and they had an average of 11.29 years of teaching experience; 74% were female, 63% taught in secondary schools, and 79% had at least a Bachelor's degree. Table 4 presents the demographic information by district.

(Insert Table 1 here)

Measures

All items were answered on the same six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree), apart from the items covering TSE in classroom teaching, the scale for which ranged from 1 (very low) to 6 (very high).

TSE in classroom teaching

The Teachers' Sense of Efficacy Scale (short version), adopted from Tschannen-Moran and Woolfolk Hoy (2001), includes 12 items (Cronbach's $\alpha = .97$). A sample question from this instrument is *How much can you do to craft good questions for students?*

TSE in teacher-student relationships

Based on the theory advanced by Millar and Rogers (1976), we developed three items to capture teachers' sense of their ability to balance intimacy and shared control. A sample item from this group is *I can let my students laugh or joke in the classroom but keep the teaching on the right track*. Two additional items were designed to capture teachers' views regarding their ability to empower their students to express emotion. One of these is *I can let my students feel safe to express their feelings freely in my class*. The Cronbach's α for the five items in this subscale was .92.

TSE in school decision-making

Ten items were adopted from the efficacy scale of Friedman and Kass (2002) in school contexts (Cronbach's $\alpha = .94$). A sample item is *I can play an important role in solving serious school problems*.

Occupational commitment

The subscale to measure teacher commitment was adapted from one developed by Meyer, Allen, and Smith (1993). To keep this study's questionnaire reasonably brief, only the original instrument's affective subscale of six items was used (Cronbach's $\alpha = .94$). A sample item is *Teaching is important to my self-image*.

Job satisfaction

A five-item scale developed by Judge, Locke, Durham, and Kluger (1998) was used to measure the teachers' overall job satisfaction (Cronbach's $\alpha = .90$). A sample item is *Most days I am enthusiastic about my work*.

Data Analysis

The five types of background data collected for use as control variables were age, gender, education level, teaching experience in years, and current educational context (i.e., elementary or secondary school).

Before performing the analyses to address the research questions, confirmatory factor analysis was performed to assess the validity of the latent constructs (i.e., TSE, job satisfaction, and occupational commitment). Path analyses were conducted separately for both dependent variables (job satisfaction and occupational commitment) to determine whether the multidimensional perspective of TSE could explain more variances than a single-construct TSE. The background data, including the teacher's age, gender, years of teaching, highest degree earned, and educational setting, were controlled and entered in Model 1 of the path analysis. TSE in classroom teaching was entered in Model 2, TSE in teacher-student relationships was entered in Model 3, and TSE in school decision-making was entered in Model 4. All quantitative analyses were performed with Stata 13 software.

Results

Measurement Model

The results of confirmatory factor analysis confirmed the fitness of all three types of TSE, with 12 indicators for classroom teaching, 5 for teacher-student relationships, and 10 for school engagement, and of both outcome variables, with 5 indicators for job satisfaction and 6 indicators for teacher commitment. The results of maximum likelihood estimation indicated that the assumption of five latent variables held ($\chi^2(655) = 4711.54, p < .0001, CFI = 0.919, RMSEA = 0.066$). Although the chi-square results were significant, both CFI and RMSEA were within the cutoff model-fit criteria recommended by Hu and Bentler (1999), which suggests that this

study's model had a fair factor structure. In addition, the average variance extracted (AVE) by the five latent variables was all above .62, which suggests that the constructs all had satisfactory convergent validity. Furthermore, the square roots of AVE for all latent variables were larger than the intercorrelations between the latent variables, which suggests that the variables all had satisfactory discriminatory validity. In addition, the Cronbach's α values of all latent variables were higher than .90 (see Measures), which suggests good internal reliability. Lastly, the composite reliability (CR) of each of the measurement items was also larger than .70. The mean scores for each latent variable were calculated for subsequent analyses (see Table 2).

(Insert Table 2 here)

Correlation

On Pearson correlation (Table 3), the three types of TSE showed the following correlations: .72 between TSE in classroom teaching and in teacher-student relationships, .49 between TSE in classroom teaching and in school decision-making, and .49 between TSE in teacher-student relationships and in school decision-making. In addition, each type of TSE was correlated with both job satisfaction (.57 to .59) and commitment (.42 to .50), and job satisfaction and commitment were correlated (.66).

(Insert Table 3 here)

Descriptive Statistics

Table 4 presents the mean scores and standard deviations of the participants' questionnaire responses by district. Approximately three-quarters of them were women between 20 and 65 years of age (mean, 34.31 years; SD, 8.07 years), and the whole sample's average teaching experience was 11.29 years (SD, 7.26 years). Approximately four-fifths of the whole sample held at least a Bachelor's degree.

(Insert Table 4 here)

TSE and Job Satisfaction

To answer the first research question, path analysis was performed to examine which aspect of TSE had the greatest effect on teachers' job satisfaction (Table 5). Model 1 includes background information and reveals that age, gender, years of teaching, and school context did not predict teachers' job satisfaction. However, the teachers with at least a Bachelor's degree had a lower level of job satisfaction than those without a Bachelor's degree ($b = -0.06, p = .018$). This model explained 0.6% of the variance in satisfaction.

After adding TSE in classroom teaching in Model 2, school context (i.e., teaching in secondary schools) showed a positive and significant association with job satisfaction ($b = 0.07, p = .002$), whereas the effect of the type of degree became insignificant ($b = -0.04, p = .055$). TSE in classroom teaching had a positive effect on job satisfaction ($b = 0.58, p < .001$), whereas the years of teaching had a negative effect ($b = -0.10, p = .027$). The overall variance explained the increase from 0.006 in Model 1 to 0.341 in Model 2.

The effects of TSE in classroom teaching on job satisfaction remained significant after TSE in teacher-student relationships was added in Model 3; however, the magnitude of that effect decreased from 0.58 to 0.32 ($p < .001$), whereas the effects of the school context (i.e., teaching in secondary schools) on job satisfaction remained positive and significant at approximately the same level ($b = 0.08, p < .001$). The years of teaching remained a significant predictor of job satisfaction in Model 3 ($b = -0.10, p = .019$), and the teachers' degree type once again became significant ($b = -0.05, p = .010$). TSE in teacher-student relationships had a positive effect on job satisfaction ($b = 0.37, p < .001$), and the overall variance explained increased from 0.341 in Model 2 to 0.409 in Model 3.

TSE in school decision-making was added in Model 4, and the overall variance explained increased from 0.409 to 0.485. The effect of years of teaching again became insignificant ($b = -0.07, p = .093$), as did the degree type ($b = -0.03, p = .151$). The coefficients of TSE in classroom teaching ($b = 0.22, p < .001$) and TSE in teacher-student relationships ($b = 0.27, p < .001$) both decreased, whereas TSE in school decision-making had a positive effect on job satisfaction ($b = 0.33, p < .001$), the largest effect among these three types of TSE. TSE in classroom teaching had the smallest effect on job satisfaction of the three types.

(Insert Table 5 here)

TSE and Occupational Commitment

For the second research question regarding the relationships between occupational commitment and each of the three aspects of TSE, the same analyses were performed using the respondents' occupational commitment as the dependent variable, and a somewhat similar pattern was identified in the effects of the three dimensions of TSE (Table 6). In this case, the results of Model 1 (background information) reveal that age, gender, and years of teaching did not predict teachers' commitment, whereas school settings (i.e., teaching in secondary schools; $b = -0.09, p = .001$) and possession of a Bachelor's degree ($b = -0.06, p = .021$) had a negative effect on occupational commitment. This model explained 2.0% of variance in occupational commitment.

After the addition of TSE in classroom teaching in Model 2, the years of teaching became a significant negative predictor of commitment ($b = -0.12, p = .015$), whereas the school setting ($b = -0.05, p = .062$) and degree type became insignificant ($b = -0.05, p = .060$). TSE in classroom teaching had a positive effect on teachers' commitment ($b = 0.43, p < .001$), and the overall explained variance increased from 0.020 in Model 1 to 0.201 in Model 2.

The effects of TSE in classroom teaching remained positive and significant after TSE in teacher-student relationships was added in Model 3, but its magnitude was reduced by roughly two thirds ($b = 0.14, p < .001$), whereas the negative effects of teaching experience ($b = -0.12, p = .013$) remained roughly the same, and the degree type ($b = -0.06, p = .004$) once again became significant. TSE in teacher-student relationships had a positive effect on teachers' commitment ($b = 0.40, p < .001$), and the explained variance increased from 0.201 in Model 2 to 0.280 in Model 3.

When TSE in school decision-making was added in Model 4, the overall explained variance increased from 0.280 to 0.315. The effect of teaching experience decreased slightly ($b = -0.10, p = .032$), as did TSE in classroom teaching ($b = 0.08, p = .013$) and TSE in teacher-student relationships ($b = 0.33, p < .001$). Gender, meanwhile, emerged as a positive and significant predictor of occupational commitment, with female teachers showing greater commitment to their profession than their male peers ($b = 0.06, p = .015$), whereas the effects of the degree type ($b = -0.04, p = .071$) lost their significance. TSE in school decision-making had a positive effect on occupational commitment ($b = 0.23, p < .001$). Of the three studied types of TSE, TSE in teacher-student relationships had the greatest effect on commitment, and TSE in classroom teaching had the least.

(Insert Table 6 here)

Discussion

If one accepts the argument of Bandura (1997) that efficacy should be linked to a specific domain or skills and the teacher competence model of Danielson (2014), it becomes necessary to re-examine the effects of TSE on teachers' outcomes from a multidimensional perspective. Specifically, we propose the separate conceptualization and examination of TSE in classroom

teaching, teacher-student relationships, and school decision-making. On the basis of this multidimensional model, we examined TSE's effects on both teacher job satisfaction and occupational commitment and made three major findings. First, all three studied types of TSE were positive predictors of teacher job satisfaction and occupational commitment. Second, we found a much smaller effect of TSE in classroom teaching on both of those outcomes than found in the literature (e.g., Chesnut & Burley, 2015). Third, TSE in teacher-student relationships and in school decision-making were stronger predictors of both outcomes than TSE in classroom teaching.

Toward a Multidimensional View of TSE

This study responds to the need to expand TSE to better correspond with changes in scholars' understandings of teacher competence (Danielson, 2014) and supports for the first time with empirical evidence the resulting multidimensional view of efficacy. All three proposed TSE dimensions were positive predictors of teacher outcomes, in line with the assumption of Bandura (1997) and the framework of Danielson (2014).

Moreover, the data derived from our multifaceted approach to TSE highlight the limitations of reliance on a single facet (classroom teaching) when examining teacher outcomes. Although that facet explained 34.1% and 20.1% of the variance in teacher job satisfaction and occupational commitment, respectively, the addition of TSE in teacher-student relationships and TSE in school decision-making further increased the explained variance to 48.5% for job satisfaction and 31.5% for commitment, representing increases in predictive accuracy of 42.2% and 56.7%, respectively, over the teaching-only version of the model. The magnitude of these effects highlights the importance of the multidimensional view of TSE.

Effects of TSE in Classroom Teaching

Our arguments for the importance of adopting a multidimensional view of TSE in the study of teacher outcomes should not be taken to mean that we no longer view TSE in classroom teaching as important. In fact, in our model this construct by itself explained a significant amount of the variance in teacher job satisfaction and occupational commitment, and the sizes of such effects were in line with the findings of a meta-analysis of occupational commitment performed by Chesnut and Burley (2015) and the findings of various other studies of occupational commitment (Chesnut & Cullen, 2014) and job satisfaction (Malinen & Savolainen, 2016).

However, when TSE in classroom teaching and in school decision-making were added to the model, the effect of the magnitude of TSE in classroom teaching on job satisfaction decreased from .58 to .32 (-45%), whereas its effect on occupational commitment fell from .43 to .14 (-67%). In other words, it seems fairly clear that efficacious teachers believe in their ability to implement curricula and engage students and are thus satisfied with their own performance and with the teaching profession (Skaalvik & Skaalvik, 2011). However, although TSE in classroom teaching continued to act as a positive predictor of both teacher outcomes after the addition of the other two dimensions of TSE to our models, these changes resulted in much smaller effect sizes for classroom teaching than have been reported in studies to date (cf. Chesnut & Burley, 2015). These effect-size differences call for a re-examination of the comparative importance of various dimensions of TSE and of current educational programs and policies aimed at retaining and supporting teachers, as discussed below in detail.

Effects of TSE in Teacher-student Relationships

Zee and Koomen (2016) noted that the questions of how to build an optimal classroom climate and provide students with emotional support should be critical to conceptualizations of TSE, but they did not examine the effects of TSE in teacher-student relationships on teacher outcomes. When TSE in teacher-student relationships was included in the model alongside TSE in classroom teaching, the results suggested that the former was pivotal for both job satisfaction and occupational commitment. This not only provides empirical support for the hypothesis advanced by Zee and Koomen, it also enables comparisons between TSE in classroom teaching and other TSE dimensions.

As noted previously, no studies have specifically examined the relationship between TSE in teacher-student relationships and job satisfaction, but Friedman (2003) reported that this TSE dimension showed a negative relationship with teacher burnout and exhaustion. Given that teacher burnout also has a negative association with job satisfaction (Skaalvik & Skaalvik, 2009), our finding of a positive effect of TSE in teacher-student relationships on job satisfaction is not surprising. Similarly, in a non-TSE-related survey conducted in Hong Kong (Opper, 1992), teachers reported that the most important component of their job satisfaction was derived from relationships with students, and our study's finding that TSE in classroom teaching and TSE in teacher-student relationships had approximately equal importance has implications for the design of educational programs and for policymaking, as discussed below.

In terms of occupational commitment, studies have indicated that healthy teacher-student relationships can promote teachers' appraisals of classroom interactions, which in turn evokes positive emotions (Fredrickson & Cohn, 2010). Those positive emotions can in turn boost teacher commitment (Jo, 2014). In fact, of the three dimensions of TSE in our study, TSE in

teacher-student relationships was the strongest predictor of occupational commitment. Although many studies have elucidated the positive link between teacher-student relationships and organizational commitment (Canrinus et al., 2012; Jo, 2014), studies of the link between such relationships and occupational commitment are currently lacking. This study helps to fill that gap by providing empirical evidence of a relationship between teacher-student interaction and teacher commitment.

Effects of TSE in School Decision-making

Of the three TSE dimensions we studied, TSE in school decision-making was the strongest predictor of teacher job satisfaction. This is generally consistent with the finding of Friedman (2003) that teachers' levels of belief in their ability to influence school affairs has a negative association with burnout and exhaustion. Extensive studies on leadership and educational administration have also indicated that participative decision-making can cultivate teachers' sense of involvement (Bogler, 2001), increase their feelings of belonging, and decrease their emotional exhaustion. However, the manner in which those external factors transform individuals' attitudes remains unclear. Notably, feelings of belonging and emotional exhaustion have been identified as pivotal variables that can mediate the effects of contextual factors such as relationships with colleagues or value consonance on job satisfaction (Skaalvik & Skaalvik, 2011). As identified in this study, TSE in school decision-making can also serve as a crucial mediator of this effect and could help to explain the mechanism by which school culture and/or leadership affects teacher satisfaction.

Studies have demonstrated that empowering teachers or increasing teacher engagement in school affairs have positive relationships with teacher commitment (Ware & Kitsantas, 2011). We also found that TSE in school decision-making is a stronger predictor of teacher commitment

than TSE in classroom teaching. From the perspective of TSE, this study explains the relationship between teacher engagement and occupational commitment. If teachers have successful experiences in participation in curriculum planning or school management, their TSE in school decision-making will be correspondingly higher than that of their counterparts who lack similar experience, and as this study has shown empirically, a higher level of TSE in school decision-making can contribute to greater commitment.

Some limitations of this study must be noted. First, we used a one-time survey as an initial step toward a comprehensive understanding of TSE's effects on job satisfaction and teacher commitment. Although the results were encouraging, it is important to acknowledge that TSE can change with individuals' experiences (Bandura, 1997). It will thus be necessary to conduct a longitudinal study to capture changes in the various dimensions of TSE over time and to examine these changes with regard to teacher well-being. Second, because TSE varies across cultures (Chesnut & Burley, 2015), the findings of this study might not be generalizable to other cultural contexts.

Implications

These findings have some important implications for teacher education and school policies. First, teacher-education programs should help pre-service teachers develop methods to build optimal teacher-student relationships. Our results highlight the crucial role of teacher-student relationships in understanding teacher satisfaction and commitment. To construct healthy teacher-student relationships, a teacher must possess a certain level of social-emotional competence; however, in China and in some other countries, pre-service teacher-education programs focus largely on knowledge and skills with regard to the needs of specific groups of students (e.g., special education) and/or specific subjects and give very limited attention to the

development of teachers' emotional regulation or prosocial competence (Malinen & Savolainen, 2016). Thus, subject teachers normally have strong backgrounds in the subjects they teach, but little knowledge of how to build a positive classroom climate. In light of the findings of this study, this is an obvious weakness in current pre-service teacher-education programs, not least when it comes to teacher retention. Therefore, such programs should seek urgently to build a robust sense of TSE as part of their development of optimal teacher-student relationships.

Second, school administrators should provide more opportunities and support for teachers to exercise leadership in ways that are closely tied to their professional practice. Substantial evidence from the teacher leadership field indicates that participation in school decision-making can increase teacher commitment and job satisfaction (Hulpia et al., 2011). Our study suggests that in addition to such empowerment, administrators should give more attention to how various experiences can be leveraged to improve TSE in school decision-making as a means of improving teachers' occupational commitment and job satisfaction, and thus retention. In addition, school administrators should establish mechanisms to validate teacher participation and ensure that teachers' voices are heard and can influence all levels of decision-making, from curriculum design to assessment. In short, a participation-friendly school environment can encourage sustainable active participation by teachers, which can in turn increase TSE in school-decision making.

To summarize, if school administrators wish to attract and retain good teachers, they must provide meaningful, engaging experiences for teachers and ensure that successful and positive emotions can result from those experiences (Ware & Kitsantas, 2011). This is likely to require various types of teacher support and training, in which both passive observation of new

teachers and active participation by experienced teachers should be effectively combined (Fackler & Malmberg, 2016).

Conclusions

This study contributes to the theory of self-efficacy by encouraging the measurement of TSE in three dimensions (i.e., classroom teaching, teacher-student relationships, and school decision-making) and by examining the relationships between these three types of TSE on one hand and the teacher outcomes of job satisfaction and occupational commitment on the other hand. The results show that the proposed multidimensional TSE was empirically supported by research data. In addition, this study extends the current understanding of the effects of TSE by demonstrating that TSE in teacher-student relationships and TSE in decision-making are more powerful in predicting job satisfaction and occupational commitment than TSE in classroom teaching.

References

- Armor, D., Conroy-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., & Zellman, G. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools, REPORT NO. R-2007-LAUDS*. Santa Monica, CA: Rand Corporation (ERIC Document Reproduction Service No. 130 243).
- Ashton, P. T., Olejnik, S., Crocker, L., & McAuliffe, M. (1982, April). *Measurement problems in the study of teachers' sense of efficacy*. Paper presented at the annual meeting of the American Educational Research Association, New York.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology*, 52, 1–26.
- Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (pp. 307–337). Charlotte, NC: Information Age.
- Bandura, A. (2012). Social cognitive theory. In P. A. M. Van Lange, A. W. Kruglanski & E. T. Higgins (Eds.), *Handbook of Theories of Social Psychology* (pp. 1-25). London: Sage.
- Bogler, R. (2001). The influence of leadership style on teacher job satisfaction. *Educational Administration Quarterly*, 37(5), 662–683.
- Buchanan, J., Prescott, A., Schuck, S., Aubusson, P., Burke, P., & Louviere, J. (2013). Teacher Retention and Attrition: Views of Early Career Teachers. *Australian Journal of Teacher Education*, 38(3), 112–129.
- Canrinus, E. T., Helms-Lorenz, M., Beijaard, D., Buitink, J., & Hofman, A. (2012). Self-efficacy, job satisfaction, motivation and commitment: Exploring the relationships between indicators of teachers' professional identity. *European Journal of Psychological Education*, 27(1), 115–132.
- Chesnut, S. R., & Burley, H. (2015). Self-efficacy as a predictor of commitment to the teaching profession: A meta-analysis. *Educational Research Review*, 15, 1–16.
- Chesnut, S. R., & Cullen, T. A. (2014). Effects of self-efficacy, emotional intelligence, and perceptions of future work environment on preservice teacher commitment. *The Teacher Educator*, 49(2), 116–132.
- Danielson, C. (2014). *The framework for teaching evaluation instrument* (2nd ed.). Princeton, NJ: Danielson Group.
- Dawkins, S., Tian, A. W., Newman, A., & Martin, A. (2017). Psychological ownership: A review and research agenda. *Journal of Organisational Behavior*, 38(2), 163–183.
- Deci, E. L. (2009). Large-scale school reform as viewed from the self-determination theory perspective. *Theory and Research in Education*, 7, 244–252.
- Dellinger, A. B., Bobbett, J. J., Olivier, D. F., & Ellett, C. D. (2008). Measuring teachers' self-efficacy beliefs: Development and use of the TEBS-Self. *Teaching and Teacher Education*, 24(3), 751–766.
- European Commission. (2013). *Supporting Teacher Competence Development for Better Learning Outcomes*. Retrieved from https://ec.europa.eu/assets/eac/education/experts-groups/2011-2013/teacher/teachercomp_en.pdf

- Fackler, S., & Malmberg, L. E. (2016). Teachers' self-efficacy in 14 OECD countries: Teacher, student group, school and leadership effects. *Teaching and Teacher Education*, *56*, 185–195.
- Fisher, D. L., & Fraser, B. J. (1991). Validity and use of school environment instruments. *The Journal of Classroom Interaction*, *26*(2), 13–18.
- Fowler, F. J. (2013). *Survey research methods* (5th ed.). Thousand Oaks, CA: Sage.
- Fredrickson, B. L. & Cohn, M. A. (2010). Positive emotions. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (3rd ed.) (pp. 777–796). New York, NY: The Guilford Press.
- Friedman, I. A. (2003). Self-efficacy and burnout in teaching: The importance of interpersonal-relations efficacy. *Social Psychology of Education*, *6*(3), 191–215.
- Friedman, I. A., & Kass, E. (2002). Teacher self-efficacy: A classroom-organisation conceptualization. *Teaching and Teacher Education*, *18*(6), 675–686.
- Furrer, C., & Skinner, E. A. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology*, *95*(1), 148–162.
- Guskey, T. R. (1981). Measurement of the responsibility teachers assume for academic successes and failures in the classroom. *Journal of Teacher Education*, *32*(3), 44–51.
- Guskey, T. R. (1988). Teacher efficacy, self-concept, and attitudes toward the implementation of instructional innovation. *Teaching and Teacher Education*, *4*(1), 63–69.
- Hamre, B. K., Pianta, R. C., Downer, J. T., DeCoster, J., Mashburn, A. J., Jones, S. M., Brown, J. L., Cappella, E. Atkins, M., Rivers, S. E., Brackett, M. A., & Hamagami, A. (2013). Teaching through interactions: Testing a developmental framework of teacher effectiveness in over 4,000 classrooms. *The Elementary School Journal*, *113*(4), 461–487.
- He, W. & Sun, X. T. (2019). An analysis of the key influencing factors on mathematics achievement of students in ethnic regions. *Journal of Research on Education for Ethnic Minorities*, *30*(2), 50–56.
- Hong, J., & Engeström, Y. (2004). Changing principles of communication between Chinese managers and workers: Confucian authority chains and guanxi as social networking. *Management Communication Quarterly*, *17*(4), 552–585.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55.
- Hulpia, H., Devos, G., & Van Keer, H. (2011). The relation between school leadership from a distributed perspective and teachers' organisational commitment: Examining the source of the leadership function. *Educational Administration Quarterly*, *47*(5), 728–771.
- Jennings, P. A., & Greenberg, M. T. (2009). The prosocial classroom: Teacher social and emotional competence in relation to student and classroom outcomes. *Review of Educational Research*, *79*(1), 491–525.
- Jo, S. H. (2014). Teacher commitment: Exploring associations with relationships and emotions. *Teaching and Teacher Education*, *43*, 120–130.
- Judge, T. A., Locke, E. A., Durham, C. C., & Kluger, A. N. (1998). Dispositional effects on job and life satisfaction: The role of core evaluations. *Journal of Applied Psychology*, *83*(1), 17–34.

- Klassen, R. M., & Chiu, M. M. (2011). The occupational commitment and intention to quit of practicing and pre-service teachers: Influence of self-efficacy, job stress, and teaching context. *Contemporary Educational Psychology, 36*(2), 114–129.
- Klassen, R. M., & Tze, V. M. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. *Educational Research Review, 12*, 59–76.
- Law, W. W. (2012). Educational leadership and culture in China: Dichotomies between Chinese and Anglo-American leadership traditions? *International Journal of Educational Development, 32*(2), 273–282.
- Lazarus, R. S. (1991). *Emotion and adaptation*. New York, NY: Oxford University Press.
- Liu, S., & Onwuegbuzie, A. J. (2014). Teachers' motivation for entering the teaching profession and their job satisfaction: A cross-cultural comparison of China and other countries. *Learning Environments Research, 17*(1), 75–94.
- Lowe, S. (2003). Chinese culture and management theory. In Alon, I. (Ed.), *Chinese Culture, Organizational Behavior, and International Business Management* (pp. 1–2). Westport, CT: Praeger.
- Malloy, M., Acock, A., DuBois, D. L., Vuchinich, S., Silverthorn, N., Ji, P., & Flay, B. R. (2015). Teachers' perceptions of school organizational climate as predictors of dosage and quality of implementation of a social-emotional and character development program. *Prevention Science, 16*(8), 1086–1095.
- Malinen, O. P., & Savolainen, H. (2016). The effect of perceived school climate and teacher efficacy in behavior management on job satisfaction and burnout: A longitudinal study. *Teaching and Teacher Education, 60*, 144–152.
- Mangin, M. M., & Stoelinga, S. R. (2008). Teacher leadership: What it is and why it matters. In M. M. Mangin & S. R. Stoelinga (Eds.), *Effective teacher leadership: Using research to inform and reform* (pp. 1–9). New York, NY: Teachers College Press.
- McInerney, D. M., Ganotice Jr, F. A., King, R. B., Marsh, H. W., & Morin, A. J. (2015). Exploring commitment and turnover intentions among teachers: What we can learn from Hong Kong teachers. *Teaching and Teacher Education, 52*, 11–23.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organisations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology, 78*(4), 538–551.
- Meyer, J. P., Becker, T. E., & Vandenberghe, C. (2004). Employee commitment and motivation: A conceptual analysis and integrative model. *Journal of Applied Psychology, 89*(6), 991–1007.
- Millar, F. E., & Rogers, L. E. (1976). A relational approach to interpersonal communication. In G. R. Miller (Ed.), *Explorations in interpersonal communication* (pp. 87–104). Beverly Hills, CA: Sage.
- Ministry of Education (2018, Aug 06). *Number of full-time teacher in primary schools by academic qualifications and professional rank*. Retrieved from http://www.moe.gov.cn/s78/A03/moe_560/jytjsj_2018/gd/201908/t20190812_394253.html
- Opper, S. (1992). *Hong Kong's young children: Their preschools and families*. Hong Kong, HK: University of Hong Kong Press.

- Peng, H., & Pierce, J. L. (2015). Job- and organisation-based psychological ownership: Relationship and outcomes. *Journal of Managerial Psychology, 30*(2), 151–168.
- Pianta, R. C., Hamre, B. K., & Allen, J. P. (2012). Teacher-student relationships and engagement: Conceptualizing, measuring, and improving the capacity of classroom interactions. In *Handbook of Research on Student Engagement* (pp. 365–386). Boston, MA: Springer.
- Pianta, R. C., La Paro, K. M., & Hamre, B. K. (2004). *Classroom assessment scoring system [CLASS]*. Unpublished measure, University of Virginia, Charlottesville, VA.
- Quin, D. (2017). Longitudinal and contextual associations between teacher–student relationships and student engagement: A systematic review. *Review of Educational Research, 87*(2), 345–387.
- Riley, P. (2009). An adult attachment perspective on the student–teacher relationship & classroom management difficulties. *Teaching and Teacher Education, 25*(5), 626–635.
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80*(1), 1–28.
- Salanova, M., Llorens, S., & Schaufeli, W. B. (2011). ‘Yes, I can, I feel good, and I just do it!’ On gain cycles and spirals of efficacy beliefs, affect, and engagement. *Applied Psychology: An International Review, 60*(2), 255–285.
- Sarafidou, J. O., & Chatziioannidis, G. (2013). Teacher participation in decision making and its impact on school and teachers. *International Journal of Educational Management, 27*(2), 170–183.
- Scheopner, A. J. (2010). Irreconcilable differences: Teacher attrition in public and catholic schools. *Educational Research Review, 5*(3), 261–277.
- Skaalvik, E. M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology, 99*(3), 611–625.
- Skaalvik, E. M., & Skaalvik, S. (2009). Does school context matter? Relations with teacher burnout and job satisfaction. *Teaching and Teacher Education, 25*(3), 518–524.
- Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and Teacher Education, 27*(6), 1029–1038.
- Somech, A. (2010). Participative decision making in schools: A mediating-moderating analytical framework for understanding school and teacher outcomes. *Educational Administration Quarterly, 46*(2), 174–209.
- Spilt, J. L., Koomen, H. M. Y., & Thijs, J. T. (2011). Teacher wellbeing: the importance of teacher–student relationships. *Educational Psychology Review, 23*(4), 457–477.
- Stephanou, G., Gkavras, G., & Doulkeridou, M. (2013). The role of teachers’ self-and collective-efficacy beliefs on their job satisfaction and experienced emotions in school. *Psychology, 4*(3), 268–278.
- Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*(7), 783–805.
- Van Maele, D., & Van Houtte, M. (2012). The role of teacher and faculty trust in forming teachers’ job satisfaction: Do years of experience make a difference? *Teaching and Teacher Education, 28*(6), 879–889.

- Veldman, I., Admiraal, W., Mainhard, T., Wubbels, T., & Van Tartwijk, J. (2017). Measuring teachers' interpersonal self-efficacy: Relationship with realized interpersonal aspirations, classroom management efficacy and age. *Social Psychology of Education, 20*(2), 411–426.
- Ventura, M., Salanova, M., & Llorens, S. (2015). Professional self-efficacy as a predictor of burnout and engagement: the role of challenge and hindrance demands. *The Journal of Psychology, 149*(3), 277-302.
- Wang, S. M., Yuan, L. S., Tian, Z. L., & Zhang, X. (2013). The comparative research on the level of regional development of education in China. *Educational Research, 6*, 29–41.
- Ware, H. W., & Kitsantas, A. (2011). Predicting teacher commitment using principal and teacher efficacy variables: An HLM approach. *The Journal of Educational Research, 104*(3), 183–193.
- Wenner, J. A., & Campbell, T. (2017). The theoretical and empirical basis of teacher leadership: A review of the literature. *Review of Educational Research, 87*(1), 134–171.
- Zee, M., & Koomen, H. M. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A synthesis of 40 years of research. *Review of Educational Research, 86*(4), 981–1015.
- Zee, M., Koomen, H. M., Jellesma, F. C., Geerlings, J., & de Jong, P. F. (2016). Inter-and intra-individual differences in teachers' self-efficacy: A multilevel factor exploration. *Journal of School Psychology, 55*, 39–56.