

The Significance of School Relationships, Relational Teacher Self-Efficacy and  
Teacher Collective Efficacy to Teachers' Job Satisfaction

by

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## Abstract

This study investigates how teacher-to-student and teacher-to-teacher relationships affect teachers' job satisfaction, and how these relationships might be mediated by teacher self-efficacy and teacher collective efficacy in schools. A structural equation model (SEM) was used to investigate the above relationships using data from the 2013 administration of the Teaching and Learning International Survey (TALIS), particularly data collected from 1773 lower secondary school teachers from Alberta, Canada. The results indicated that teacher-to-student relationships were directly related to teacher job satisfaction and indirectly related to teacher job satisfaction through the mediator variable of teacher collective efficacy. Also, teacher-to-teacher relationships were related to teacher job satisfaction but only through the mediator variable of teacher collective efficacy. The findings are discussed in terms of their practical implications for teachers.

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## Chapter 1: Introduction

Teacher retention is an important issue for school boards across Canada, especially when it comes to new teachers. In Alberta, one in four new teachers leaves the profession within the first five years of teaching (Alberta Education, 2013). A key predictor of retention is job satisfaction (Skaalvik & Skaalvik, 2011). Even though teachers in Alberta express higher than average satisfaction with their work environment, almost one quarter of teachers in Alberta would prefer to change schools and over one third of teachers feel that they did not choose the right profession (Alberta Education, 2014). Furthermore, “only half of Alberta teachers report that teaching is a valued profession in society” (OECD, 2014a). For a teacher, good relations with students and colleagues can be significant factors for increasing job satisfaction (Alberta Education, 2014; Grayson & Alvarez, 2008; Hean & Garrett, 2001; Kington, Reed, & Sammons, 2014; Kremer-Hayon & Goldstein, 1990; Menlo et al., 1990; Van Maele & Van Houtte, 2012). When teachers feel supported, especially when they feel embedded in a supportive environment in relation to other professionals (e.g., teachers, school administration, support staff such as speech language pathologists), then this contributes to building their self-efficacy as teachers and results in greater job satisfaction. Such a supportive team environment (what I call perceived “teacher collective efficacy” in this study) often leads to greater individual teacher self-efficacy and job satisfaction via greater opportunities for enhancement of teaching practice (e.g., modeling, co-teaching, and professional development) and supports for classroom management (Alberta Education, 2014; Caprara, Barbaranelli, Steca, & Malone, 2006; OECD, 2014b). Perhaps even more

important are the relationships that teachers have with their students. When teachers experience the respect, cooperation, and engagement of students, they will certainly experience enhanced feelings of teacher self-efficacy, and, in turn, job satisfaction.

A number of studies have already introduced models in which the relationships between some of the abovementioned constructs have been investigated (Caprara, Barbaranelli, Borgogni, Petitta, & Rubinacci, 2003a; Goddard, Hoy, & Woolfolk Hoy, 2004; Klassen, 2010; Klassen, Usher, & Bong, 2010; Malinen & Savolainen, 2016; Matteucci, Guglielmi, & Lauermann, 2017; OECD, 2014b; Shen, Leslie, Spybrook, & Ma, 2012; Skaalvik & Skaalvik, 2011; Spilt, Koomen, & Thijs, 2011; Voelkel, Jr. & Chrispeels, 2017; Xia, Izumi, & Gao, 2015). However, despite a good deal of research on teacher job satisfaction, there remain notable gaps in the literature. For example, the role of teacher-to-student relationships and teacher-to-teacher relationships with respect to job satisfaction has received less attention in the literature than other variables such as student achievement and teacher remuneration (Spilt et al., 2011). While student achievement and teacher income level are certainly important to teachers' job satisfaction, relationships with both students and colleagues are also critically important to how satisfying the teaching job is. Better relationships with students often make the act of teaching easier because students are often more engaged in their learning when they like their teacher, which then reduces the need for classroom management (Rimm-Kaufman & Sandilos, 2011). Good relationships with students contribute to an overall more stable, pleasant and cooperative classroom environment. Such relationships help

teachers feel that they contribute to their students' development and self-confidence, beyond what they are teaching in their subjects.

Teachers' relationships with each other are important to job satisfaction because when teachers have good relationships with each other, they are more likely to share teaching resources such as lesson plans or tests, which helps reduce an often stressful workload (Shah, 2012). Teachers are also more likely to be more open to discussing students or classes with their colleagues, which contributes to the transfer of knowledge and skills to other teachers. This is especially important for new teachers who are developing their teaching efficacy (Alberta Teachers' Association [ATA], 2012). Furthermore, good relationships between teachers lead to better communication between teachers, which promotes collegiality, caring, and concern amongst teachers. This can help the mental wellbeing of teachers especially because it can reduce feelings of isolation. These relationships also can set a good example for how students should behave with each other as well as with their teachers.

Furthermore, none of the previous studies have looked at the two constructs of perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools within the same model, even though this would have been reasonable since they are considered strongly to influence each other (Goddard et al., 2004). Perceived relational teacher self-efficacy is the level of confidence that teachers have in their ability to form relationships with their students. If teachers have more confidence in their capacity to form good relationships with students, it is more likely that teachers will use their perceived skills in encouraging and motivating the

students to contribute to the formation of such good teacher-to-student relationships, thereby leading to increased job satisfaction for themselves. However, it must also be noted that teachers' encouraging and motivating behaviors may not be sufficient to create good relationships with their students on their own; after all, students' receptivity to such behaviors may vary for a number of reasons. Nevertheless, on its own, a teachers' own sense that they have faith in their capacity to form good relationships with their students can lead to feeling greater satisfaction in their teacher role, because they feel they have the potential to make a difference in student's lives generally, irrespective of the present state of their teacher-to-student relationships.

Perceived teacher collective efficacy in schools is the level of confidence a teacher has with respect to feeling part of an effective team in working with students. Feeling like being part of an effective school team makes teachers feel more satisfied because they feel more support from colleagues, feel less isolated and less pressure because they are not solely responsible for their students. Teachers may also feel they have more power, alongside other teachers, to influence school decisions and can have more opportunities for learning from others in the form of professional development or co-teaching. Teachers who enjoy working together as a team may feel a strong connection with their schools, which may lead to more motivation and commitment to remaining in the teaching profession.

Also, since it seems likely that perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools would constitute parts of teachers' beliefs about their teaching efficacy in general, and there is much evidence to

support a relationship between general teaching self-efficacy and job satisfaction (Caprara, Barbaranelli, Borgogni, & Steca, 2003b; Caprara et al., 2006; Klassen & Chiu, 2010; Viel-Ruma, Houchins, Jolivette, & Benson, 2010), it is important to understand the relationships between all of these variables in predicting job satisfaction. Finally, not many studies have just looked at Alberta junior high school teachers and how they experience these five constructs (i.e., teacher-to-student relationships, teacher-to-teacher relationships, perceived relational teacher self-efficacy, perceived teacher collective efficacy in schools, and teacher job satisfaction). Therefore, in attending to each of these issues, I investigated a set of relationships (see Figure 1) with a view to better understanding the factors and processes relevant to grade 7 to 9 teachers' job satisfaction in Alberta.

Using data from grade 7 to 9 teachers in Alberta who responded to the Organization for Economic Co-operation and Development's (OECD) Teaching and Learning International Survey (TALIS) 2013, I developed a model to identify how relationships between teachers and relationships between teachers and students ultimately lead to the outcome of job satisfaction. I hypothesize that there are direct effects from teacher-to-student and teacher-to-teacher relationships to job satisfaction. I also believe that these direct relationships are mediated by how well teachers feel about their abilities to develop good relationships with students (perceived relational teacher self-efficacy) and the degree to which they feel they are part of an effective school team for supporting students (perceived teacher collective efficacy in schools) (See Figure 1). A mediating variable is a mechanism through which a predictor variable is able to influence an outcome variable. In other

words, a mediating variable explains how or why there is a relationship between the predictor variable and the outcome variable. For example, if you had a study in which there was a positive relationship between students taking notes in class (predictor variable) and students' performance on the final exam (outcome variable), this relationship may be explained by the number of hours that a student spent studying for the exam, which would be the mediating variable.

On the other hand, a moderating variable is a variable that affects the strength of the relationships between the predictor variable and the outcome variable. A moderator can strengthen or weaken the relationship, but without the moderator, the overall relationship between the predictor variable and outcome variable in the model will still hold. According to Baron and Kenny (1986), a moderating variable can be qualitative (e.g., sex, race, and socioeconomic status) or quantitative (e.g., drug dosage or level of reward). Moderating variables are typically an interaction between the predictor variable and outcome variable. For example, in a study in which high student motivation in math (predictor variable) led to higher math test scores (outcome variable), the strength of this relationship could depend on the years of experience of the math teacher, which would be the moderating variable.

As previously indicated, in this study, the two mediating variables are perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools. The reason why mediating variables and not moderator variables were used in this study is that both kinds of teacher relationships were hypothesized to influence teachers' beliefs about their relational self-efficacy and collective efficacy,

and these efficacy beliefs, in turn, were felt to influence teacher job satisfaction.

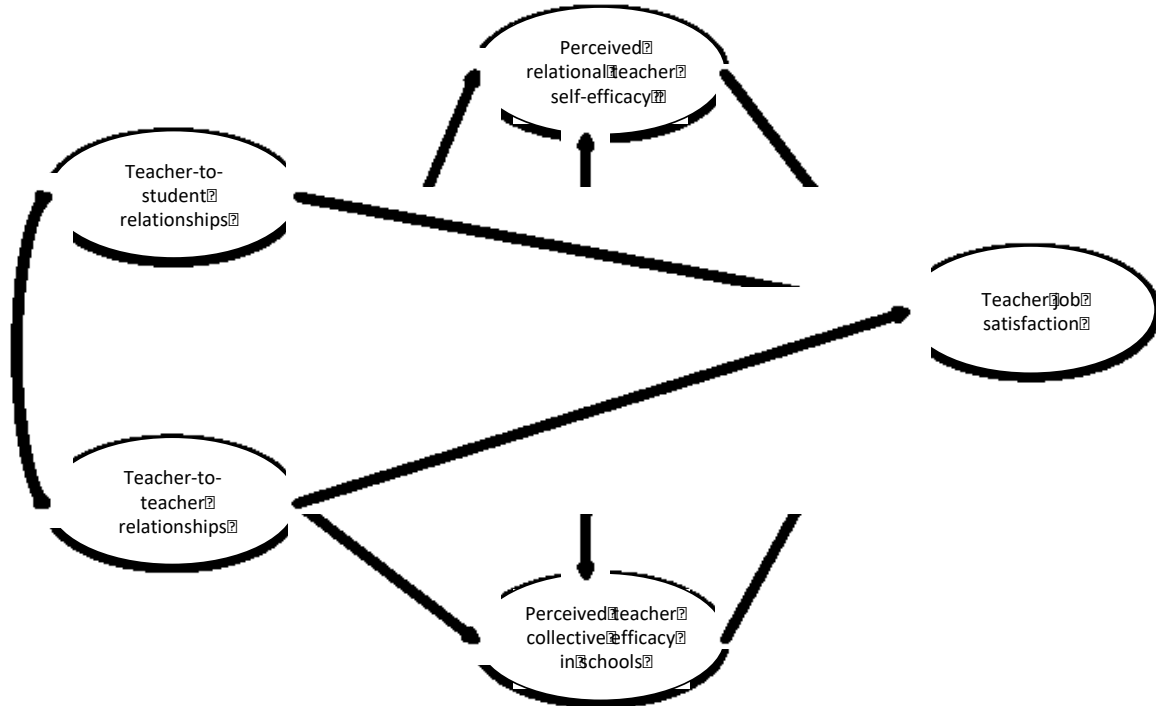


Figure 1. The hypothesized structural equation model defining the relationships between the five constructs of interest in this study.

The conceptual model that underlies this study is Bandura’s theory of efficacy. As one of the most prominent motivation theories, Bandura’s theory of efficacy has been applied to many fields including education, sports, and mental health (Bandura, 1997). According to Bandura, efficacy is about the need to feel effective and capable in one’s abilities to accomplish a particular task or demonstrate certain skills or knowledge (Bandura, 1977). Self-efficacy is defined as “the strength of one’s belief in one’s own ability to complete tasks and reach goals” (Ormrod, as cited in Hassan, Alasmari, & Ahmed, 2015, p. 276). Teacher efficacy includes a number of components. It refers to one’s overall feelings of competence as a teacher as well as the “judgments that teachers feel about their capabilities to

bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Tschannen-Moran, & Woolfolk Hoy, 2001, p.783). It is believed that because efficacious teachers’ feelings of competence, motivation, and sense of autonomy are fulfilled within their teaching position, they experience their job as more enjoyable, engage in their teaching activities with meaning and purpose, and experience greater satisfaction in their teaching as well as being much happier in their work (Barnebé & Burns, 1994; Caprara et al., 2003b; Caprara et al., 2006; Collie, Shapka, & Perry, 2012). Furthermore, “people tend to seek and enjoy activities for which they have high mastery expectations” (Skaalvik & Skaalvik, 2017, p.158). Given the links that Bandura and others suggest occur between teacher relationships, efficacy, and job satisfaction, I have used this theory as a foundation for my model, as discussed below.

The latent (hidden or implicit) constructs in the model (Figure 1) are depicted as ovals and defined by a set of observed items from the TALIS 2013 questionnaire. Path arrows are used to show the expected relationships between the constructs. Teacher-to-student relationships and teacher-to-teacher relationships are hypothesized to affect teacher job satisfaction positively. Both direct relationships and indirect relationships through perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools were assumed. The next chapter will describe the constructs used in the conceptual model in more detail.



## **Chapter 2: Literature Review**

### **Teacher-to-Student Relationships**

Teachers place significant importance on teacher-to-student relationships (Hagenauer, Hascher, & Volet, 2015; Shann, 1998). A positive teacher-to-student relationship is one that can be characterized as reflecting mutual respect, cooperation, and trust (Hagenauer et al., 2015; Veldman, Admiraal, van Tartwijk, Mainhard, & Wubbels, 2016). Students often demonstrate such attitudes towards teachers by being actively engaged in classroom learning and complying with teacher expectations regarding appropriate behavior (Kington et al., 2014). Teachers often demonstrate such attitudes by showing interest in the progress of their students, establishing good rapport with them, using humour, communicating effectively, as well as being interested in them as people (Kington et al., 2014). Grayson and Alvarez (2008) further added that teacher-to-student relationships include characteristics such as fairness to students, teachers offering additional support towards their students, and teachers having a desire to understand and meet the needs of each student in the class. When teachers and students perform in the aforementioned ways, this establishes a reciprocal pattern of interactions that each party finds enjoyable and promotes long-term satisfaction for each of them (Spilt et al., 2011).

### **Teacher-to-Teacher Relationships**

Teachers are often isolated from their colleagues due to working in separate classrooms (Barnabé & Burns, 1994). Furthermore, the teaching day with its extremely busy schedules, course loads and additional administrative duties mean

that it is difficult for teachers to find the time to talk or work with their colleagues (Shah, 2012). Thus, it is important for teachers to establish rapport and collaborate with each other when the opportunity arises, to prevent their isolation from interfering with their feelings of job satisfaction (Hur, Jeon & Buettner, 2016). In the research literature teacher-to-teacher relationships is often referred to as collegiality. Collegiality refers to a positive working relationship among teachers highlighted by a sense of collaboration with and recognition from colleagues (Shen, et al., 2012). Furthermore, Shah (2012) found that a high level of collegiality among staff members was one of the characteristics found most often in successful schools.

Teachers also find support from one another for challenges that they may be experiencing regarding their teaching effectiveness or issues that they may be having with student misbehavior (Cha & Ham, 2012). Team teaching and conferencing regarding students, sharing lesson ideas and resources and otherwise working together to improve student outcomes are some of the ways that teacher-to-teacher relationships alleviate both isolation as well as provide support (Song & Mustafa, 2015).

### **Perceived Relational Teacher Self-Efficacy**

According to Bandura (2000), efficacy beliefs play an important part in human functioning because they affect not only behavior, but also other elements such as goals, aspirations, moods, feelings, attitudes and perceptions of the obstacles and opportunities within the social environment. Bandura (1997) further added that the most important sources of self-efficacy are previous mastery experiences with similar types of tasks, vicarious experiences (e.g., observing other teachers

mastering similar challenges), verbal persuasion (e.g., social support from colleagues and the school administration), and physiological arousal (e.g., a teacher noticing his or her heartbeat when facing a challenge). Research has shown that the self-efficacy beliefs of students play an important role in influencing achievement and behavior, but increasingly, researchers are concluding that teachers' sense of self-efficacy also plays a key role in influencing important outcomes for teachers and students (Ross 1992, as cited in Klassen, Tze, Betts, & Gordon, 2011). Efficacious teachers not only promote learning but also promote personal development, enthusiasm, and responsibility while serving as models of appropriate and successful behaviors (Caprara et al., 2006). As a result, teachers' self-efficacy can positively affect teachers' beliefs about teaching (Skaalvik and Skaalvik 2007, as cited in Klassen et al., 2011).

According to Klassen et al. (2010), teachers' self-efficacy is the beliefs teachers' hold about their personal capabilities to perform their duties in the classroom. One of these duties is the ability to form positive relationships with their students. As a result, it would seem important to look at efficacy beliefs that teachers have in their ability to form relationships with their students. To date research on teachers' relational efficacy beliefs have not been investigated. Perceived relational teacher self-efficacy can be regarded as a special type of teacher self-efficacy. Perceived relational teacher self-efficacy is the belief that teachers have in their ability to form successful relationships with their students in the class. This belief taps into teachers' confidence in their ability to encourage and motivate their students, as well as their confidence in managing student behavior.

## **Perceived Teacher Collective Efficacy in Schools**

Bandura (1997) defined perceived collective efficacy as “a group’s shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments” (p. 477). Further research has expanded on Bandura’s definition of perceived collective efficacy. Caprara et al. (2003b) remarked that collective efficacy beliefs refer to “judgments that people make about a social system (family, team, organization, or community)” (p. 821), as well as about the systems level of competence and effectiveness in specific areas of behavior. Goddard and Goddard (2001) added that a group’s collective efficacy is influenced by past success, observation of other groups’ successes, and encouragement from influential others. As reported by Bandura (2001), “the findings taken as a whole show that the stronger the perceived collective efficacy, the higher the groups’ aspirations and motivational investment in their undertakings, the stronger their staying in power in the face of impediments and setbacks, the higher their morale and resilience for stressors, and the greater their performance accomplishments” (as cited in Caprara et al., 2003b, p. 822).

In addition, a number of research studies have focused on teacher collective efficacy. According to Bandura (1993), teachers’ collective efficacy refers to the beliefs teachers possess in their collective capabilities to influence the lives of their students. Klassen et al. (2010) defined teacher collective efficacy as teacher beliefs that reflect individual teachers’ perceptions about the capabilities of the teaching faculty to which they belong. Other research has defined teacher collective efficacy as teachers’ perceptions that the school staff, as a group, can effectively work

together to improve student learning and behavior (Goddard, Hoy, & Woolfolk Hoy, 2000; Klassen, 2010; Voelkel Jr. & Chrispeels, 2017). However, not only does perceived teacher collective efficacy include teachers' perceptions that they have the teaching skills needed to succeed with all students in the school and believe they can work with all students in the school regardless of student background, family life, and environment but also that the other teachers in the school have the necessary skills and competence to successfully complete their teaching duties (Goddard et al., 2000). Tschannen-Moran and Barr (2004) defined teachers' collective efficacy as "the collective self-perception that teachers in a given school make an educational difference to their students over and above the educational impact of their homes and communities" (as cited in Klassen et al., 2011, p. 188). Caprara et al. (2003a) have added that teacher collective efficacy can be defined as the teachers' beliefs that the school staff as a whole are capable of coping with tasks, difficulties, and problems encountered in the different settings of scholastic activity.

Teacher collective efficacy differs from teacher self-efficacy in that teacher self-efficacy is the evaluation of a teachers' own teaching ability, whereas collective teacher efficacy refers to perceptions about the ability of the entire teaching body in a school to exert a positive influence on students (Goddard & Goddard, 2001, as cited in Malinen & Savolainen, 2016). Furthermore, whereas successful teachers are likely to have a strong sense of their own self-efficacy, successful schools are characterized by teachers' collective beliefs in their school staff's ability to help students develop and learn (Klassen et al., 2011).

In this study, perceived teacher collective efficacy in school refers to the

beliefs that teachers have in regards to being part of an effective unit along with their teaching colleagues in school. According to Bandura (1993), “people who are socially efficacious seek out and cultivate social relationships that provide models on how to manage difficult situations, cushion the adverse effects of chronic stressors and bring satisfaction to peoples’ lives” (p. 134). Given the presence of socially efficacious teachers in schools, teachers operate collectively within an interactive social system (i.e., the collective school environment) rather than in isolation (Bandura, 1993). As a result, the degree of collaboration that teachers perceive that they receive in school is important (Caprara et al., 2003b; Van Droogenbroeck, Spruyt, & Vanroelen, 2014). According to Goddard et al. (2004), a teaching staff’s collective sense of efficacy in their schools can have a significant impact on students’ academic progress.

If teachers have high levels of perceived collective efficacy, they will feel that they are part of an effective team and are viewed as a valuable player on that team. In other words, the teachers will believe that they are an integral part of the team that is making a difference to their students and that their colleagues support them in that collective school-wide goal. In practice, collective efficacy may be reflected through teachers’ feeling of shared responsibility and decision-making as well as group processes that support their teaching and other personal needs (Goddard et al., 2004; Van Droogenbroeck et al., 2014).

### **Teacher Job Satisfaction**

Job satisfaction is the degree to which individuals feel positively or negatively about their jobs (Hean & Garrett, 2001; Song & Mustafa, 2015). Teacher

job satisfaction refers to feelings of contentment in relation to work (Schleicher, Hansen, & Fox, 2011). Caprara et al. (2003b) labeled job satisfaction a “decisive element” (p. 823) that influences teacher’s attitudes and performance. In addition teachers’ job satisfaction has been defined as the perception of fulfillment from day-to-day work activities (Klassen, 2010; Klassen et al., 2010; Shen et al., 2012).

Caprara et al. (2006) further remarked that repeated experiences of success and fulfillment over time leads teachers to make judgments about their job satisfaction. Skaalvik and Skaalvik (2011) conceptualized teacher job satisfaction as “teachers’ affective reactions to their work or to their teaching role” (Skaalvik & Skaalvik, 2011, p. 1030). Shen et al. (2012) added “teachers are happy and satisfied with their job when they experience high levels of concentration, immersion, strength, and control at work” (p. 203). Teacher job satisfaction can also be defined as teachers’ overall satisfaction with work, which is assessed as perceiving the job to be “fascinating, creative, useful and challenging” (Smith, Kendall, & Hulin, 1969, as cited in Van Maele & Van Houtte, 2012, p. 879). Overall, among teachers, job satisfaction involves satisfaction with the role of being a teacher, and their perception of working in a good school environment (i.e., with good colleagues and administrators and students; Caprara et al., 2003a; Klassen, 2010; Klassen et al., 2010).

Furthermore, teacher job satisfaction is important since teachers who dislike their work will not do it well, or may leave the profession altogether (Lambersky, 2016). In this study, I define teacher job satisfaction as the degree to which teachers enjoy working at their specific school, and would recommend their school as an enjoyable place to work.

## **The Association between Teacher-to-Student Relationships and Teacher Job Satisfaction**

There is a direct association between teacher-to-student relationships and teacher job satisfaction in my model since the relationship between teachers and students is critically important to teacher job satisfaction. As explained in the Introduction section, if teachers have good relationships with their students, then they are more likely to be satisfied in their teaching job. Better relationships with students makes teaching easier because students are more engaged in their learning when they like their teacher, which reduces the need for classroom management. Good relationships with students contribute to an overall more stable, pleasant and cooperative classroom environment. This is also consistent with recent research, which notes that pleasant and warm relationships with students form an integral part of teachers' work, which contributes to successful coping in the teaching job. (Day & Gu, as cited in Hagenauer et al., 2015). Having such positive relationships with their students helps teachers feel that they contribute to their students' development and self-confidence, beyond what they are teaching in their subjects.

Kremer-Hayon and Goldstein (1990) found that teacher-pupil relationships have a positive association with teacher job satisfaction and appears to predict teacher job satisfaction in a sample of 325 Israeli secondary school teachers. Amongst several other variables (e.g., pupil progress, collegial support, career advancement, morale) in a multivariate regression analysis, teacher-pupil relationships made the largest contribution to explaining the variance in teacher job satisfaction. The authors suggested that satisfaction is a function of the gap between



the rewards actually received and the rewards an individual thinks he or she deserves or expects. The degree of agreement between the expected rewards and the actual rewards affects the degree of satisfaction an individual will have. So the closer the expected rewards are to the actual rewards the more satisfaction an individual will have. In addition, variables that are intrinsic to teaching are related to satisfaction whereas variables that are extrinsic to teaching are related to dissatisfaction. Hence, with teacher-to-student relationships since this variable is teacher-oriented, bridging the gap between the expected rewards and the actual rewards with respect to job satisfaction depends on the teachers themselves. In other words, since the teacher has more control over the relationships that they have with their students, the gap between the rewards that the teacher actually receives in relation to teacher-to-student relationships and the rewards that the teacher expects from this relationship is entirely up to the teachers themselves. It is up to the teacher if they want better relationships with their students or not so it is the teacher that is in control of the outcome, and thus, it is the teacher that can narrow the gap and have more job satisfaction. In contrast, other attributes (e.g., management morale, workload, and material rewards) depend more on the educational authority and, as a result, there is not much teachers can do to bridge the gap between expected rewards with the actual rewards. This is the reason why the authors believed that teacher-to-student relationships were important for teacher job satisfaction.

Likewise, in Hean and Garrett's (2001) study of Chilean secondary school science teachers, working with students was reported to be the most frequent

source of teacher job satisfaction: 74% of the teachers surveyed said that working with students gave them job satisfaction. Teachers report that the relationships with students were highly relevant to job satisfaction because teachers gain pleasure in their jobs by working with young people and contributing to the development of young people and it is through having good teacher-to-student relationships that teachers can achieve this (Hean & Garrett, 2001). Furthermore, according to Hean and Garrett (2001) teachers look for appreciation and affection in all their working relationships in order to have job satisfaction and teacher-to-student relationships are no different.

Also, Menlo et al. (1990) conducted a cross-national study of secondary public-school teachers in England, Germany, Japan, Singapore, and the United States (Michigan). From a survey that inquired about 16 teaching practices (e.g., planning lessons for different ability levels, giving students feedback, being accessible to students outside of the classroom) the practice of developing warm personal relationships with students was rated as the most important practice for teacher job satisfaction among the five countries. Furthermore, the authors reported that while the correlations were small for US teachers ranging from  $r = .17$  to  $.20$ , it still appeared that the more the teachers were engaged in promoting teacher-to-student relationships, the more satisfied they were at work. The reason for this, according to Menlo et al. (1990), is that teachers see that the relationships that teachers build with their students help to gain student interest and participation in their learning and this impacts the quality of teachers' professional lives.

Grayson and Alvarez's (2008) study on factors related to teacher burnout

also support the notion of a relationship between teacher-to-student relationships and teacher job satisfaction. In this study, teacher-to-student relationships predicted teacher job satisfaction, which in turn predicted teacher burnout. Thus, if teacher-to-student relationships were positive teachers reported more job satisfaction and less burnout. The results also revealed that one of the most predictive school climate components affecting teacher cynicism was teacher-to-student relations. The study found that teachers who were able to keep positive relations with their students were more likely to remain motivated and enjoy the workplace. According to Grayson and Alvarez, teachers understand that their relationships with students are not only based on positive interactions but also on the degree of alignment in values and goals that teachers and students have towards education. For example, teachers understood that they needed to be fair to their students and had an obligation to meet the needs of their students but at the same time they wanted their students to work hard, be interested in learning and understand why they were in school. The authors believed that teachers who recognized that the relationship was bi-directional had more motivation and ultimately enjoyed their job.

Similarly, Veldman et al.'s (2016) qualitative study also supported the importance of teacher-to-student relationships to teacher job satisfaction. The authors conducted a multiple case study design in which questionnaires and interviews were administered to 12 highly experienced (greater than 25 years) Dutch secondary school teachers. The authors found that teachers who had positive relationships with their students believed that their relationships were a major

source of their job satisfaction. Furthermore, those teachers who reported job satisfaction and perceived their relationships with students positively were still teaching full-time. According to Veldman et al. (2016), this occurs because teachers who keep a balance between the personal job demands of creating positive teacher-student relationships and the personal job resources of realizing their aspirations and self-efficacy in the teacher-student relationship had higher job satisfaction. In other words, teachers were satisfied in their teaching job because they managed to keep a balance between the teacher-to-student relationship that they had and the teacher-student relationship that they would like to have. Therefore, those teachers who felt capable of creating their ideal teacher-student relationships (which they defined as having honesty and mutual respect with their student) were satisfied and teachers who did not have this balance were not satisfied in their teaching job.

Although Hagenauer et al. (2015) did not directly investigate the variable of teacher job satisfaction, they did investigate the teacher emotion of joy, amongst other teacher emotions such as teacher anger and teacher anxiety. The authors were interested in how these emotions might be predicted by teacher-to-student relationships. From a survey of 132 Austrian secondary school teachers, teacher-to-student relationships were found to be the strongest predictor for teachers' joy. A reason for this is that positive interpersonal relationships reflect security and so function as an antecedent to teachers' emotional wellbeing. In addition, these interpersonal relationships help teachers cope with their work (Hagenaur et al., 2015). Furthermore, Hagenaur et al. (2015) also found that homeroom teachers experienced more joy and better interpersonal relationships with students

compared to teachers who taught in other subject areas. The reason for this was that homeroom teachers usually spend more time with their students, which creates the opportunity for teachers to get to know their students better and develop positive teacher-to-student relationships.

Gu (2014) explored teacher resilience as a relational concept. The study focused on teachers' relational resilience by exploring how establishing connections with students, colleagues, and principals produces intellectual and emotional capital that stimulates teachers' professional learning and development and enables them to build and develop their capabilities to be resilient. The author conducted a qualitative study using a phenomenological research method to see how teachers interpreted their lived experience and constructed the meanings of their experiences within where they worked. To achieve this the author conducted semi-structured face-to-face interviews from 300 primary and secondary school teachers in England and from this used grounded theory method to see if specific patterns or themes emerged from the data. The author found that teachers believed that teacher-student relations shaped the social and intellectual environments of their respective schools and that this had an influence on teachers' commitment to the job. The study also found that teachers believed that the emotional attachments that teachers had with their students was a primary source of job satisfaction. In other words, positive perceptions of interpersonal relationships between teachers and students in the school were a primary source of teachers' long-term job fulfillment. In addition, the study found that teachers believed that good rapport with the students was central to their sense of fulfillment and commitment to the job. For

example, one in six teachers felt that relationships produced a good dynamic in the classroom with some teachers feeling that the rapport with the students had the greatest positive impact on their motivation. Furthermore, teachers reported that difficult students improved because of the teacher-student relationship. Teachers also reported that the students appreciated the teachers' effort, which added an emotional dimension to their motivation and their feelings of being fulfilled.

According to Gu (2014), the reason why teacher-to-student relationships leads to higher teacher job satisfaction is because when teachers have good relationships with their students, teachers feel an increase in confidence and feel that their hard work is being rewarded and valued by their students which in turn gives them job satisfaction.

### **The Association Between Teacher-to-Teacher Relationships and Teacher Job Satisfaction**

There is also a proposed direct association between teacher-to-teacher relationships and job satisfaction. Teachers who have good relationships with their colleagues are more likely to be satisfied in their teaching job (Kington et al., 2014; Van Maele & Van Houtte, 2012). One of the reasons for this is that when teachers get along well with their colleagues they are more likely to share resources such as tests or lesson plans with each other. As a result, this sharing of resources can reduce the time spent on preparing the lessons, which reduces the workload stress on the teacher (Skaalvik & Skaalvik, 2011). Another reason why teacher-to-teacher relationships leads to teacher job satisfaction is that maintaining good relationships with colleagues can promote discussion about students, classes or student discipline

issues. This can help teachers transfer teaching knowledge and teaching skills to other teachers and problem solve together. Furthermore, having good relationships with teaching colleagues can help the mental wellbeing of teachers by reducing the feeling of isolation. Skaalvik and Skaalvik (2011) in their study of Norwegian elementary and middle school teachers found that positive relationships with colleagues resulted in stronger feelings of belonging and that this stronger feeling of belonging in turn led to higher job satisfaction. In other words, teacher relationships with their colleagues led to higher job satisfaction through the feelings of belonging. Also, younger teachers reported more positive relations with their colleagues. Females reported better relations with colleagues and higher job satisfaction.

Other studies also suggested that collegial relationships are important to both early and late career teachers (Kington et al., 2014; Skaalvik & Skaalvik, 2011; Song & Mustafa, 2015). Kington et al. (2014) in their study of primary and secondary school teachers in England found that for early career teachers, teacher-to-teacher relationships were most important to their commitment to the teaching job. The reason for this was that early career teachers were still developing a teacher identity and trying to find their place within the school teaching team. Early career teachers recognized that they needed to be open to help from colleagues that are more senior to further develop their teaching knowledge and skills. Song and Mustafa (2015) found that for early teachers, support from mentors was related to teacher job satisfaction for high school teachers in Texas. For later career teachers, Kington et al. (2014) found that teacher-to-teacher relationships were the main source of teacher job satisfaction. The reason for this was that later career teachers

felt more respected by other members of the staff and believed that they played more of an advisory role to new teachers, which contributed to their feeling of overall job satisfaction.

The literature also suggested that relationships factors such as teacher trust with colleagues' influences teacher job satisfaction. For example, Van Maele and Van Houtte (2012), in their study of Belgium secondary school teachers found that teachers who perceive colleagues as more trustworthy felt more satisfied in their teaching job. The authors also found that teacher trust between teaching colleagues was more important than trust between teachers and students or between teachers and parents. Furthermore, the study highlighted the importance of the social dimension of teaching, which is often overlooked. Teachers are more satisfied when they perceive other people in their work environment as more trustworthy with trust developing from repeated interactions with colleagues (Van Maele & Van Houtte, 2012). However, the research evidence is not consistent. In a study of Chinese teachers, Weiqi (2007) found that teacher collegial relationships were weakly related to job satisfaction. Weiqi (2007) speculated that this might be due to the different cultural values that teachers in China have relative to those teachers in wealthier nations. For example, the teachers in China are more motivated by external factors such as fringe benefits, remuneration, and the physical working conditions of the school, than the internal benefits of teaching, such as having or nurturing good collegial relationships.

### **The Association between Perceived Relational Teacher Self-Efficacy and Teacher Job Satisfaction**



Relational teacher self-efficacy is a variable I created to capture teachers' sense of competence in developing good relationships with their students. It seems reasonable that the effect of teacher-to-student relationships on job satisfaction could be mediated by teachers' beliefs about their ability to form relationships with students, and not just predicted by the quality of teachers' actual relationships with students. A teacher with high relational self-efficacy may even feel greater job satisfaction than one whose actual relationships with students are strong but may lack the belief that she can develop positive relationships with students, because the belief in one's capacities with students may be a more important contributor to teachers' perceptions of their job satisfaction than actual teacher-student relationships, as the latter are sure to vary from year to year.

While I did not find any articles that had a variable like relational self-efficacy, Matteucci et al. (2017), in their quantitative study of Italian public high school teachers, did suggest that teachers' views about their relationships with their students contributed to their overall teaching self-efficacy which in turn led to job satisfaction. According to Matteucci et al. (2017), relationships with students were important for overall teaching self-efficacy because positive teacher-student relationships allow for teachers to feel good about their ability to teach.

### **The Association between Perceived Teacher Collective Efficacy in Schools and Teacher Job Satisfaction**

Perceived teacher collective efficacy in schools is the level of confidence a teacher has with respect to feeling part of an effective team in working with students. Feeling like being part of an effective school team makes teachers feel

more satisfied because they feel more support from colleagues, feel less isolated and less pressure because they are not solely responsible for their students. Teachers may also feel they have more power, alongside other teachers, to influence school decisions and can have more opportunities for learning from others in the form of professional development or co-teaching. Teachers who enjoy working together as a team may feel a strong connection with the school that they work at, which may lead to more motivation and commitment to remaining in the teaching profession.

Several studies have shown that teachers' collective efficacy predicts teachers' job satisfaction (Caprara et al., 2003b; Klassen et al., 2010). One study that found an association between collective efficacy and job satisfaction surveyed elementary- and secondary-school teachers in Canada (Klassen, 2010). The author was interested in whether collective efficacy mediated the relationships between job stress and job satisfaction. The results suggest that collective efficacy for student discipline mediated the influence of job stress from student misbehavior, meaning that collective efficacy can function as a buffer for job stress from student misbehavior.

In another study by Lambersky (2016), the author found that a principal's behavior influences teacher self-efficacy, teacher collective efficacy, teacher morale, burnout, stress, and commitment. I believe that the last four of these variables pertain to job satisfaction. The author believed that all of the above variables could be influenced through several key principal behaviors, one of which was allowing teachers' voices to be heard, which relates to collective efficacy in schools. Providing teachers with opportunities to participate in school decisions was an item that I

included in my scale for collective efficacy. The author did a qualitative study in which 20 secondary school teachers in Ontario, Canada were interviewed (semi-structured interviews) in order to determine the kinds of emotional and relational effects that principals' behaviors have on teachers. The results of these interviews were that teachers reported that their sense of engagement and commitment to the job as well as their morale improved when principals allowed teachers to have a voice and were empowered by the mere act of being listened to.

Furthermore, Caprara et al. (2003b) investigated how self-efficacy and collective efficacy operate as determinants of teacher job satisfaction. The authors surveyed junior high teachers in Italy. The results found that teachers' collective efficacy beliefs were one of the main determinants of teachers' job satisfaction. When just the teachers within a particular school were surveyed, the impact of perceived collective efficacy was moderate ( $\beta = .19, p < .05$ ). However, when different schools are compared on their overall collective efficacy scores there was more of an effect on job satisfaction. In the between-schools analysis, perceived collective efficacy influences teacher job satisfaction ( $\beta = .70, p = .05$ ). The results show that the direct influence of perceived collective efficacy on job satisfaction is greater between schools than within schools. In other words collective efficacy beliefs contributed to job satisfaction at the school level much more than they did at the individual level. Furthermore, the authors found that self-efficacy beliefs accounted directly only for a portion of individual differences in job satisfaction and that most of the effects on job satisfaction were exerted by perceived collective efficacy. This led the authors to conclude that teachers' collective efficacy plays an

important part in teachers' job satisfaction. According to the authors, collective efficacy influences teacher job satisfaction because teaching is more of an interdependent enterprise where teachers have to depend on things such as the principal's leadership, the school staff's efficacy, families' involvement and collaboration with colleagues. Therefore, job satisfaction depends on the functioning of the whole school as a team and the beliefs that teachers have about the efficacy of the school system, as a whole will influence their feelings of job satisfaction. In other words, attaining job satisfaction depends on the belief that teachers have in the collective efficacy of the group or the system as a whole and teachers' shared belief in their collective power to produce the desired results. Therefore, according to Caprara et al. (2003b) teachers draw their job satisfaction not only from their perceived capacity to meet their individual role obligations, but also from the perceived belief that teachers have in the capacity of the school to pursue its mission and be recognized for its services by its community. As a result actions designed to promote and enhance collaboration and mutual appreciation among the various actors in the school result in job satisfaction for teachers (Caprara et al., 2003b).

**Teacher relationships and their direct effect on perceived relational teacher self-efficacy.** Teacher-to-student relationships and teacher-to-teacher relationships are believed to play a significant role in predicting perceived relational teacher self-efficacy. Teachers' relational self-efficacy beliefs are strongly influenced by teacher-to-student relationships: If teachers are working well with students, this will lead to improving the perception that a teacher has about their ability to

motivate students to learn and form relationships [what I define in my model as perceived relational self-efficacy] raising their [overall] self-efficacy beliefs (Tschannen-Moran & Woolfolk Hoy, 2007). By raising their overall self-efficacy beliefs as teachers, in particular their belief in their capacity to relate well to their students, one's sense of job satisfaction should also increase. In other words, perceived relational self-efficacy should mediate the relationship between teacher-to-student relationships and job satisfaction.

I believe that there will also be an association between teacher-to-teacher relationships and perceived relational teacher self-efficacy given that the interpersonal qualities that contribute to successful relationships between teachers are the same or similar to those that would contribute to beliefs in one's ability to be good at forming relationships with students. Because I created the variable of perceived relational teacher self-efficacy, I did not find any literature to support the associations between these teacher relationships and perceived teacher relational self-efficacy.

### **Teacher Relationships and Their Direct Effect on Perceived Teacher Collective Efficacy in Schools**

The relationships that teachers have with their students in the classroom may have an effect on the teacher's perceived collective efficacy in the school. Teachers may be more likely to want to work with other teachers who have good relationships with their students. This can then lead to the whole staff believing that they are working together as a team, with the common aim of supporting all of the school's students. If teachers believe that they are working together in this common

aim, they are more likely to share resources with each other and work together to solve student problems, creating a sense of camaraderie within the school.

Also, a good relationship between teachers and students creates a less stressful environment in the classroom. When teachers are less stressed, there is a friendlier atmosphere in the school in general. As a result, teachers may be more motivated to work together and deal with issues collectively. This reinforces the perception that the school staff is working together to teach all the school's students.

Although I did not find literature to support the aforementioned association between teacher-student relationships and teacher collective efficacy, there was literature to support the association that I posited in my model between teacher-to-teacher relationships and perceived teacher collective efficacy in schools.

The direct association between teacher-to-teacher relationships and perceived teacher collective efficacy in schools comes from the idea that if teachers have good relations with each other in the school, then they are more likely to share resources with each other, creating a feeling of collective efficacy in the school. Having good relationships among teachers means that there is more potential for teachers to interact with each other and they are more open to helping one other. If a teacher feels that the other teachers in the school are approachable, then if a teacher is having difficulties they are more likely to work with those teachers to solve that problem. Thus, a teacher is more likely to feel supported in their work and hence increase their perception of their collective efficacy, which in turn should lead to increased job satisfaction. In other words, collective efficacy should mediate

the correlation between teacher-to-teacher relationships and job satisfaction.

Voelkel Jr. and Chrispeels (2017) explore the predictive relationship between professional learning communities (PLC) and teachers' collective efficacy (TCE). The authors defined PLC as a school where a group of teachers share and question their teaching practice and where this questioning happens in an ongoing, reflective, collaborative, and inclusive way. The study focused on three PLC variables: collective goals, collective actions, and focus on results. The study also focused on two critical components of TCE: the teaching competence of the group (group competence) and the teachers' perceptions of their efficacy in addressing the needs of students in challenging circumstances (Task Analysis). The authors used a mixed-method research design to explore the relationship between PLC and teacher collective efficacy. The participants in the study were 310 teachers and principals from 16 K-12 schools in California. The results of the study found a significantly positive and high correlation between PLC and TCE ( $r = .55; p < .01$ ) suggesting a positive relationship between teachers' collaboration with colleagues and their level of perceived collective efficacy. The results of the SEM analysis demonstrated adequate model fit (CFI = .90, NFI = .90, GFI = .91) and indicated that PLC is a predictor of TCE and that PLC predicts TCE not the reverse. Furthermore, two key PLC practices (setting collective goals and focusing on results) proved significant in predicting higher group competency ( $\beta = .41, p < .05; \beta = .20, p < .05$ ). Collective goal setting also had a significant effect on Task Analysis ( $\beta = .38, p < .05$ ) indicating that supporting teacher collaboration with colleagues can lead to enhanced collective efficacy. According to the authors, collaboration leads to teacher

collective efficacy because when teachers view themselves as a well-functioning team that works together to set goals and share information with colleagues, teachers improve their own teaching and student learning which in turn gives teachers a greater feeling of confidence that they are helping each other develop as teachers and able to meet the needs of all their students.

### **The Link Between Perceived Relational Teacher Self-Efficacy and Perceived Teacher Collective Efficacy in Schools**

Self-efficacy and collective efficacy are derived from the same four sources of efficacy beliefs: (1) mastery experiences (perceiving one's success at a task), (2) vicarious experiences (observing someone else successfully model a task), (3) social persuasion (experiencing praise or others' confidence in your ability) and (4) affective (mood or body states such as feeling aroused by anxiety or excitement) (Bandura 1977; Goddard et al., 2000, 2004; Malinen & Savolainen, 2016; Tschannen-Moran & Woolfolk Hoy, 2007). The difference between the formation of self-efficacy and collective efficacy is that with collective efficacy, these beliefs are experienced at the group level rather than at the individual level (Klassen et al., 2011). Malinen and Savolainen (2016) indicated that a person's efficacious beliefs are also affected by the conditions under which a given task or skill is carried out. For teachers, relationships with their students and their colleagues result in social and emotional conditions that influence efficacy beliefs. As a result, teacher self-efficacy and teacher collective efficacy can be regarded as individual teacher perceptions that are partly dependent on factors related to the climate of the school (Malinen & Savolainen, 2016).



A similar feature of these two constructs is that they both include a dimension that deals with the perceived relationships that teachers have with their students and their colleagues. Perceived relational teacher self-efficacy is the perception that teachers have about their own capability to form relationships with their students. Perceived teacher collective efficacy in schools refers to the perceptions about the entire teaching body in a school to have effective relationships with students and teaching colleagues (Goddard & Goddard, 2001; Malinen & Savolainen, 2016). Even though perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools are conceptually different latent variables, I believe that there should be a strong connection between these latent variables since empirical findings suggest that a strong connection exists between teacher self-efficacy and teacher collective efficacy (Bandura, 1993; Goddard & Goddard, 2001; Skaalvik & Skaalvik, 2017). This makes sense because Bandura saw collective efficacy in schools as contributing to individual teacher self-efficacy and we would also expect the converse to be true as well (Bandura, 2002). For example, the more that individual teachers feel themselves to have a high degree of their own relational teaching efficacy the greater the likelihood that there would be a higher sense of collective efficacy amongst this teaching group.

**The correlation between teacher-to-student relationships and teacher-to-teacher relationships.** There is a double arrow between teacher-to-student relationships and teacher-to-teacher relationships because the interpersonal qualities and skills of the teachers that make them good at forming relationships with students are probably the same or similar to those interpersonal qualities and

skills that make for good teacher-to-teacher relationships. For example, if teachers demonstrate such qualities as respect for others, concern for fairness, conscientiousness, responsibility to others, caring empathy, or kindness to their students, one expects that they are capable and probably inclined to demonstrate the same qualities towards their fellow teachers. Therefore, both these relationships are influenced by each other.

### **The Objectives of the Current Study**

The present research study has three objectives. The first objective is to examine the direct effect of teacher-to-student relationships and teacher-to-teacher relationships on teacher job satisfaction. The second objective is to investigate the effect of perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools on teacher job satisfaction. The third objective is to study whether or not the two teacher efficacy constructs (perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools) mediate the effect of the teacher-to-student relationships and teacher-to-teacher relationships on teacher job satisfaction. As a result, I hypothesize that the better the relationships that teachers have with their students and colleagues, the more they will possess perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools which in turn should lead to teachers being more satisfied in their jobs.

## **Chapter 3: Methods**

### **Data Source**

This study used data from TALIS 2013 (OECD, 2014d). The TALIS survey sampled grade 7 to 9 teachers. Specifically, the data were collected from 1773 grade 7 to 9 teachers from 182 schools across Alberta, who were selected using a stratified two-stage probability sampling design. In the first stage, a random sample of 200 schools was selected from a target population of 1174 schools in Alberta. Schools were stratified by type of school authority (public, separate, Francophone, charter, and private) and by the level of urbanization (rural or urban). In the second stage, teachers from each of the participating schools were randomly sampled from a list of all the teachers from that specific school. The minimum teacher participation rate was 75% of the selected teachers in participating schools. Of the 200 schools that were sampled, 182 schools participated in the survey for a school participation rate of 94%. Of the teachers who were sampled from these schools, 1773 teachers responded to the questionnaire for a response rate of 93% (OECD, 2014b; OECD, 2014c).

### **Participants**

A sample of 1773 Alberta lower-secondary school (grade 7 to 9) teachers from 182 schools participated in the study. Teachers who did not respond to the questionnaire were excluded from the study. The sample included 1069 (60.3%) females and 704 (39.7%) males. The average age of the participants was 40 years old and the average year of teaching experience was 12.9 years. Of these 1773

teachers, 9.6% had less than 3 years of teaching experience. In the sample 41% of teachers worked in schools where more than 10% of students have a first language that is different from the language of instruction. In addition, 51% of teachers worked in schools with more than 10% of students with special needs. Furthermore, 20% of teachers worked in schools with more than 30% of students coming from socioeconomic disadvantaged homes. The average class size for these teachers is 25.8. Finally, among the 182 participating schools, 121 were public, 45 were separate, 8 were private, 4 were francophone, and 4 were charter schools. Of these schools, 40% were rural and 60% were urban. This reflected a representative cross-sectional sample of Alberta junior high school teachers.

### **Measures**

The items used in this study were taken from the TALIS 2013 questionnaire. Exploratory and confirmatory factor analyses were conducted to determine the psychometric validity of the selected items in relation to their corresponding latent variable.

Initially I chose 25 items, which I believed to best represent the latent constructs of my model. The data for these 25 items were examined to see if they met univariate and multivariate assumptions, such as linearity and normality (Tabachnick & Fidell, 2007). The means, standard deviations, skewness, kurtosis, and histograms for all observed variables were examined to assist in screening the data for univariate outliers and for violations of independence and normality.

Initial screening of the data indicated that the normality assumption might be

violated in the data given the ordinal nature of the items used in the TALIS. As a result, the weighted least square mean and variance adjusted (WLSMV) estimator was used. The WLSMV is more robust to issues of non-normality and non-independence of observations, and more appropriate for the analysis of categorical data than the regular maximum likelihood (ML) method (Muthén & Muthén, 2017).

The likelihood test compares the null hypothesis that the empirical covariance (or correlation) matrix and the matrix estimated based on the model are exactly identical to the alternative hypothesis that the two matrices are significantly different. The following fit indices were used to assess the goodness of fit of the Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA) and the Structural Equation Model (SEM) analyses: the chi-square test, root mean square error of approximation (RMSEA), comparative fit index (CFI) and the Tucker Lewis Index (TLI). Models with a good fit should have a RMSEA < .05 and a CFI or TLI > .95 (Hu & Bentler, 1999). Non-significant values from the chi-square test were considered to be a good fit; however, since chi-square values can be inflated by sample sizes and model complexity (number of degrees of freedom), this can lead to results that are more likely to be significant (Brown, 2015; Kline, 2016). The chi-square values in this study are thus interpreted with caution and more emphasis is placed on the other fit measures that are independent of sample size.

In addition to checking assumptions, some items with low response rates were altered. For items that had response categories with less than 5% response rate, response options were combined with the next available response

option. For example, for the item, “In this school teachers and students usually get on well with each other”, only 0.5% of respondents strongly disagreed with the statement, which represented a Likert score of 1. As a result, these responses were combined with those participants who endorsed “disagree” on the same item, which reflects a Likert score of 2. By combining these two levels of responses, all of the responses are now considered to reflect, “disagree” with the item, and are therefore coded as a Likert score of 2. There was one item that was reversed scored which was the item “I would like to change to another school if that were possible”, that was used to measure Teacher Job Satisfaction. This reverse coding procedure was done to ensure that for all items, higher Likert scores indicate higher teacher job satisfaction.

The issue of missing data is a common challenge in large data sets. In this study, the missing data was coded as 999 and followed the listwise deletion method where if a respondent had missing information at some data collection point the case was automatically dropped from the entire model. The following were the rates of missing data among the latent variables: teacher-to-student relationships (17%), teacher-to-teacher relationships (3%), perceived relational teacher self-efficacy (4%), perceived teacher collective efficacy in schools (4%), teacher job satisfaction (5%). Originally, the sample size was 1773, and 98% of the data was used after removing the missing cases. The final sample size was 1735.

### **Factor Analyses**

Factor analyses were conducted using the *Mplus 7.2* statistical software

package (Muthén & Muthén, 2014). I conducted EFA in order to determine that the items that I selected from the TALIS 2013 questionnaire loaded onto their respective latent constructs that I had defined in my hypothetical model. EFA is an “exploratory or descriptive technique to determine the appropriate number of common factors, and to uncover which measured variables are reasonable indicators of the various latent dimensions” (Brown, 2015).

EFA was performed on each of the latent variables using the CF-Quartimax (oblique) rotation. From this rotation, items loaded on two correlated factors for each of the five latent constructs. I picked the factor that had the most items above a factor loading of .30. The factor loading of an item below .30 considerably affects the content validity of the scale. Consequently, items where the lower boundary of factor loadings was less than .30 were deleted. The EFA resulted in three items being substantially identified with the underlying teacher-to-student relationships factor with statistically significant rotated loadings ranging from .722 to .965. Teacher-to-teacher relationships retained all five items, with statistically significant rotated factor loadings, ranging from .443 to .828. Perceived relational teacher self-efficacy retained three items with significant rotated factor loadings, ranging from .640 to .975. Perceived teacher collective efficacy in schools retained three items with significant rotated factor loadings, ranging from .804 to .946. Finally, teacher job satisfaction retained three items with significant rotated factor loadings, ranging from .739 to .958. All CF-Quartimax rotated factor loadings were significant at the significance level of  $\alpha = .05$ .

Once the EFA was completed, I used CFA to evaluate the suitability of the remaining items in measuring their respective underlying constructs. CFA in the SEM framework has several advantages over other multivariate statistics. It provides a means to assess whether the factors that remain are good representation of the data and assess whether the variables reflect their hypothesized latent constructs. It is also felt that CFA is a stronger way to assess theoretical hypotheses because the observed variables are believed to belong to only one factor (Muthén & Muthén, 2017).

**Teacher-to-student relationships scale.** This variable initially had 5 items that represent the concept of teacher-to-student relationships: 1) “Students in this class take care to create a pleasant learning atmosphere.” 2) “I lose quite a lot of time because of students interrupting the lesson.” 3) “In this school, teachers and students usually get on well with each other.” 4) “Most teachers in this school believe that the students’ well-being is important.” 5) “Most teachers in this school are interested in what students have to say.” The item responses are on a 4-point Likert scale ranging from “strongly disagree” to “strongly agree”. It is important to note that this measure was from the teachers’ perspective of the teacher-to-student relationship. The results from the factor analyses suggest that items 1 and 2 be dropped from the scale.

**Teacher-to-teacher relationships scale.** In order to measure this latent variable, it was important to look at items that strengthened and promoted the relationships that teachers can have with colleagues. For this latent variable, I chose



5 items to measure how often a teacher perceives doing the following: 1) "Teach jointly as a team in the same class." 2) "Exchange teaching materials with colleagues." 3) "Engage in discussions about the learning development of specific students." 4) "Work with other teachers in my school to ensure common standards in evaluation for assessing student progress." 5) "Attend team conferences." Teacher to teacher relationships used a 6-point Likert scale ranging from "never" to "once a week or more". (1: Never, 2: Once a year or less, 3: 2-4 times a year, 4: 5-10 times a year, 5: 1-3 times a month, 6: Once a week or more.) The results from the factor analyses suggest that all items be retained in this scale.

**Perceived relational teacher self-efficacy scale.** Five items were used to measure the latent variable related to how teachers perceived their relational self-efficacy: 1) "Get students to believe they can do well in school work." 2) "Help my students value learning." 3) "Control disruptive behavior in the classroom." 4) "Motivate students who show low interest in school work." 5) "Get students to follow classroom rules." Responses were given on a 4-point Likert scale ranging from "not at all" to "a lot". The results from the factor analyses suggest that items 3 and 5 be dropped from the scale.

**Perceived teacher collective efficacy in schools scale.** Five items were used to measure how teachers perceive collective efficacy in their school: 1) "Engage in joint activities across different classes and age groups." 2) "Take part in collaborative professional learning." 3) "This school provides staff with opportunities to actively participate in school decisions." 4) "This school has a

culture of shared responsibility for school issues.” 5) “There is a collaborative school culture which is characterized by mutual support.” Responses to items 1 and 2 were given on a 6-point Likert scale ranging from “never” to “once a week or more”. (1 = Never, 2 = Once a year or less, 3 = 2-4 times a year, 4 = 5-10 times a year, 5 = 1-3 times a month, 6 = Once a week or more.) Responses to items 3, 4 and 5 were given on a 4-point Likert scale ranging from “strongly disagree” to “strongly agree”. (1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.) The results from the factor analyses suggest that items 1 and 2 be dropped from the scale.

**Teacher job satisfaction scale.** Teacher job satisfaction was measured on a five-item scale. The items asked about the teachers’ satisfaction with their current teaching job: 1) “If I could decide again, I would still choose to work as a teacher.” 2) “I would like to change to another school if that were possible.” 3) “I enjoy working at this school.” 4) “I would recommend my school as a good place to work.” 5) “All in all, I am satisfied with my job.” Responses were given on a 4-point Likert scale ranging from “strongly disagree” to “strongly agree”. Item 2 was reverse scored. The results from the factor analyses suggest that the items 1 and 5 be dropped from the scale.

## Chapter 4: Results

### Data Cleaning Process

Initially 25 items were chosen from the TALIS 2013 study, which I believed to best represent the latent constructs of my model. The data for these 25 items were examined to see if it met univariate and multivariate assumptions, such as independence, linearity and normality (Tabachnick & Fidell, 2007). The means, standard deviations, skewness, kurtosis, and histograms for all observed variables were examined in order to assist in screening the data for univariate outliers and for violations of independence and normality. Item TT2G41C was reversed scored and relabeled TT2G41C and item TT2G46C was reversed scored and relabeled TT2G46C. (Please see the appendices for a legend of the items.)

The issue of missing data is a common challenge in large data sets. Initially from the TALIS data there was 1773 observations; however, of these observations, 38 teachers did not answer any of the 25 items. Consequently, I deleted those teachers from the data set, which left a total of 1735 teachers for the study. The missing data for these observations was then coded as 999. Of the 1735 teachers who completed the TALIS survey, the percentage of missing data on 23 items ranged from 0.3% to 2%. The two remaining items (TT2G41B and TT2G41C) had a missing data percentage of 15%.

Once the missing data had been appropriately coded, I turned to the distribution of the data. Response items with low response rates were altered in the following ways: First, if the number of responses on a specific response category

was less than 50 (representing less than 2%), then I coded the responses as missing (999). Second, for items where the specific response category had a response rate of between 2% and 5%, those response options were combined with the next available response option. As a result, the following items were altered. For teacher-to-student relationships, Likert categories 1 and 2 for items TT2G45A, TT2G45B and TT2G45C were coded as missing, since both of these categories for the items had less than 50 responses each. For the items TT2G41B and TT2G41C, the first category was combined with the second. For teacher-to-teacher relationships item TT2G33E, category 1 and 2 were coded as missing (both categories had 31 and 35 responses respectively). Category 1 for item TT2G33D was combined with category 2. For the variable perceived relational teacher self-efficacy category 1 for items TT2G34A, TT2G34B, TT2G34D, TT2G34E, and TT2G34H were coded as missing since the responses were low, ranging from 1 response to 13 responses. For the variable perceived teacher collective efficacy in schools, category 1 and 2 were combined for items TT2G33H, TT2G44D, and TT2G44E. For the variable, teacher job satisfaction, category 1 was combined with category 2 for items TT2G46B, TT2G46E, TT2G46G, and TT2G46J.

### **Factor Analysis of Individual Scales**

EFA and CFA were completed using Mplus version 7.2 (Muthén & Muthén, 2014). Weighted least squares with means and variance adjusted (WLSMV) estimation was used due to the distribution nature of the items. WLSMV is a robust estimator and does not require an assumption of normally distributed data in the

analysis. As a result, WLSMV is optimal when using categorical data.

As mentioned in the Methods section, EFA was conducted in order to provide initial evidence of the factor structure from the hypothesized model as well as determine how well each of the items loaded onto their respective scales and which items needed to be dropped from the analyses. EFA was performed on each of the latent variables using the CF-Quartimax (oblique) rotation due to correlations among the scales. Items with factor loads less than .40 were deleted. The EFA presented in Table 1 shows the factor loadings of the 17 items that were retained for further analysis. The EFA resulted in three items being substantially identified with the underlying teacher-to-student relationships factor loadings ranging from .722 to .965. Teacher-to-teacher relationships retained all five items, with factor loadings, ranging from .443 to .828. Perceived relational teacher self-efficacy retained three items with factor loadings, ranging from .640 to .975. Perceived teacher collective efficacy in schools retained three items with factor loadings, ranging from .804 to .946. Finally, teacher job satisfaction retained three items with factor loadings, ranging from .739 to .958. All CF-Quartimax rotated factor loadings were significant at the significance level of  $\alpha = .05$ .

Table 1

*Factor Loadings for EFA with CF-Quartimax Rotation.*

Item	Factor 1: Teacher-to- student relationships	Factor 2: Teacher-to- teacher relationships	Factor 3: Perceived relational teacher self- efficacy	Factor 4: Perceived teacher collective efficacy in schools	Factor 5: Teacher job satisfaction
TT2G45A	.722				
TT2G45B	.965				
TT2G45C	.953				
TT2G33A		.443			
TT2G33D		.711			
TT2G33E		.650			
TT2G33F		.828			
TT2G33G		.564			
TT2G34A			.913		
TT2G34B			.975		
TT2G34E			.640		
TT2G44A				.804	
TT2G44D				.946	
TT2G44E				.931	
TT2G46C					.739
TT2G46E					.812
TT2G46G					.958

**Note:** Factor scores below .40 are not listed.

As mentioned in the Methods section, the next step was to conduct a CFA. CFA was used to confirm that the items from the EFA loaded correctly onto their respective variables. A CFA was done on each of the latent variables in order to confirm that the remaining 17 items were associated with their specific latent variable. Correct item fit on their respective latent variables were assessed using a Chi-square goodness of fit test, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA). Table 2 provides the fit statistic values on the five latent variables. Since the chi-square test

is highly sensitive to sample size and can lead to rejection of well-fitting models, the other practical fit indices were emphasized. CFI and TLI values of .95 and above and a RMSEA close to .06 are representative of good fitting models. A CFI of .90 or higher and a RMSEA of .08 or lower are considered a reasonably acceptable model fit.

Table 2

*Model Fit Summary from the Confirmatory Factor Analyses*

Scale	<i>N</i>	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA
Teacher-to-student relationships	1708	2.744	1	1.000	.999	.032
Teacher-to-teacher relationships	1730	139.372***	6	.960	.934	.113
Perceived relational teacher self- efficacy	1717	20.861***	1	.998	.994	.108
Perceived teacher collective efficacy in schools	1714	33.841***	1	.998	.994	.138
Teacher job satisfaction	1719	29.248***	1	.997	.992	.128

**Note:** CFI = comparative fit index; RMSEA = root mean square error of approximation; TLI = Tucker-Lewis index.

\**p* < .05. \*\**p* < .01. \*\*\**p* < .001

As shown in Table 2, according to the CFI and the TLI model fit for the factor structure, the items were acceptable. However, according to the RMSEA, only the teacher-to-student relationship scale had a good fit. The other four scales were all greater than .10. All items showed moderate to high factor loadings. CFA resulted in retaining all the items for each construct that had been determined in the EFA.

**Descriptive Statistics**

Table 3 below shows the reliability (based on the coefficient alpha index introduced by Cronbach,1951), means, and standard deviations for the variables in

the model. All variables showed acceptable evidence of reliability ( $\alpha \geq .7$ ). The variable teacher-to-teacher relationships had the highest mean and standard deviation ( $M = 19.74$ ,  $SD = 4.97$ ) due to the fact that this variable had more items (5). The items from this scale also had a wider range of Likert categories (from 4 to 6) than the other four variables.

Table 3

*Reliability Coefficients, Means and Standard Deviations for the Latent Variables*

Variable	$\alpha$	M	SD
Teacher-to-student relationships	.77	10.52	1.21
Teacher-to-teacher relationships	.69	19.74	4.97
Perceived relational teacher self-efficacy	.83	9.29	1.86
Perceived teacher collective efficacy in schools	.84	8.88	1.72
Teacher job satisfaction	.78	9.67	1.76

### Correlational Analysis

The correlation coefficients between the latent variables are shown in Table 4 below. All correlations between the latent constructs were positive and significant at the significance level of  $\alpha = .001$ . The following relationships had significantly low correlations and hence these relationships were not included in the final SEM analysis: Teacher-to-teacher relationships with teacher job satisfaction ( $\beta = .215$ ), and perceived relational teacher self-efficacy with perceived teacher collective efficacy in schools ( $\beta = .143$ ). Perceived relational teacher self-efficacy with teacher job satisfaction ( $\beta = .187$ ) also had a significantly low correlation and this relationship was set to zero in the structural equation model.



Table 4

*Correlations Between Latent Variables*

Variable	1.	2.	3.	4.	5.
1. Teacher-to-student relationships	-				
2. Teacher-to-teacher relationships	.180	-			
3. Perceived relational teacher self-efficacy	.224	.208	-		
4. Perceived teacher collective efficacy in schools	.451	.293	.143	-	
5. Teacher job satisfaction	.472	.215	.187	.652	-

**Note:** All correlations significant at  $p < .001$

Teacher-to-student relationships with teacher-to-teacher relationships was retained for the final SEM although having a low correlation ( $\beta = .180$ ), since it was believed that teachers who tend to have good relationships with students also tend to have good relationships with their teaching colleagues and vice versa; therefore, allowing them to co-vary would result in a more realistic model. The fit indices of this initial correlation model were  $\chi^2_{(114)}(N = 1735) = 506.298, p < .001$ ; RMSEA = .045; CFI = .989; TLI = .987.

**SEM with All Variables**

The study used a SEM framework to show how the relationships that teachers have with their students and their colleagues might influence their job satisfaction, directly and indirectly through the mediating variables of perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools. SEM is a statistical method that aims to measure the relationships between a set of variables and to assess the causal relationships between the latent constructs in the

model (Byrne, 2012). In other words, SEM examines the construct validity of the conceptual (hypothetical) model. It uses model fit indices to evaluate whether the modeling relationships between these latent variables are a meaningful representation of the data (Kline, 2016).

Table 5 presents the factor loadings for each of the five latent constructs using the full sample. All items have factor loadings higher than .4 and were statistically significant, suggesting that the observed items are all related to the underlying factors that they were hypothesized to measure. Three items were substantially identified with the underlying teacher-to-student relationships factor, with statistically significant standardized loadings, ranging from .84 to .94. Five items were substantially identified with teacher-to-teacher relationships, with factor loadings from .45 to .83. Three items were substantially identified with perceived relational teacher self-efficacy, with factor loadings ranging from .71 to .90. Three items were retained on perceived teacher collective efficacy in schools, with factor loadings ranging from .68 to .83. Teacher job satisfaction retained three items, with factor loadings ranging from .46 to .69.

In the analysis, model goodness-of-fit was evaluated according to the recommendations of Hu and Bentler (1999). That is, a model was deemed to have acceptable fit with a comparative fit index (CFI) equal to or higher than .90 (and an excellent fit equal to or greater than .95) and a root mean square error of approximation (RMSEA) equal to or less than .08 (or less than .05 for an excellent

Table 5

*SEM Factor Loadings*

Items	Factor Loadings
<i>Teacher-to-student relationships</i>	
In this school, teachers and students usually get on well with each other (TT2G45A)	.844
Most teachers in this school believe that the students' well-being is important (TT2G45B)	.930
Most teachers in this school are interested in what students have to say (TT2G45C)	.935
<i>Teacher-to-teacher relationships</i>	
Teach jointly as a team in the same class (TT2G33A)	.453
Exchange teaching materials with colleagues (TT2G33D)	.682
Engage in discussions about the learning development of specific students (TT2G33E)	.662
Work with other teachers in my school to ensure common standards in evaluation for assessing students progress (TT2G33F)	.828
Attend team conferences (TT2G33G)	.583
<i>Perceived relational teacher self-efficacy</i>	
Get students to believe they can do well in school work (TT2G34A)	.881
Help my students value learning (TT2G34B)	.896
Motivate students who show low interest in school work (TT2G34E)	.707
<i>Perceived teacher collective efficacy in schools</i>	
This school provides staff with opportunities to actively participate in school decisions (TT2G44A)	.677
This school has a culture of shared responsibility for school issues (TT2G44D)	.797
There is a collaborative school culture which is characterized by mutual support (TT2G44E)	.826
<i>Teacher job satisfaction</i>	
I would like to change to another school if that were possible (TT2G46C)	.460
I enjoy working at this school (TT2G46E)	.653
I would recommend my school as a good place to work (TT2G46G)	.694

fit). The issue of chi-square has been debated. Traditionally, it has been argued that a non-significant chi-square value should be met; however, as chi-square indices are inflated by sample sizes and model complexity (number of degrees of freedom), they are more likely to be significant when larger sample sizes are used and when the model has a high degree of complexity (Brown, 2015; Byrne, 2012; Kline, 2016).

Therefore, in this study, chi-square statistics are interpreted with caution.

Although the Chi-square value was significant with  $\chi^2_{(112)} = 318.998, p < .001$ , as was expected because of the sample size, the other fit indices indicated a good fit of the model with the data:  $\chi^2/df = 2.848$ , RMSEA = .033, CFI = .994, and TLI = .993. Figure 2 shows the overall structural equation model with standardized beta coefficients that were statistically significant at  $p < .001$ .

The results show that teacher-to-student relationships directly predict teacher job satisfaction ( $\beta = .237, p < .001$ ). Furthermore, the results indicate that as teacher-to-student relationships improved, so did teacher's relational self-efficacy ( $\beta = .215, p < .001$ ). Likewise, as teacher-to-student relationships improved, ratings of teacher's collective efficacy in schools also increased. ( $\beta = .409, p < .001$ ). Also, as ratings of teacher-to-teacher relationships increased, so did teacher's relational self-efficacy ( $\beta = .179, p < .001$ ), and teacher's perceptions of collective efficacy in schools ( $\beta = .236, p < .001$ ). Thus, as expected teacher-to-student relationships and teacher-to-teacher relationships contributed to perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools.

Perceived teacher collective efficacy in schools mediated the relationship between teacher-to-teacher relationships and teacher job satisfaction. This means that as ratings of teacher-to-teacher relationships increase, so do ratings of perceived teacher collective efficacy in schools, which leads to an increase in ratings of teachers' satisfaction with their work. Finally, teacher-to-student relationships and teacher-to-teacher relationships indicated a low correlation ( $r = .191, p < .001$ ).

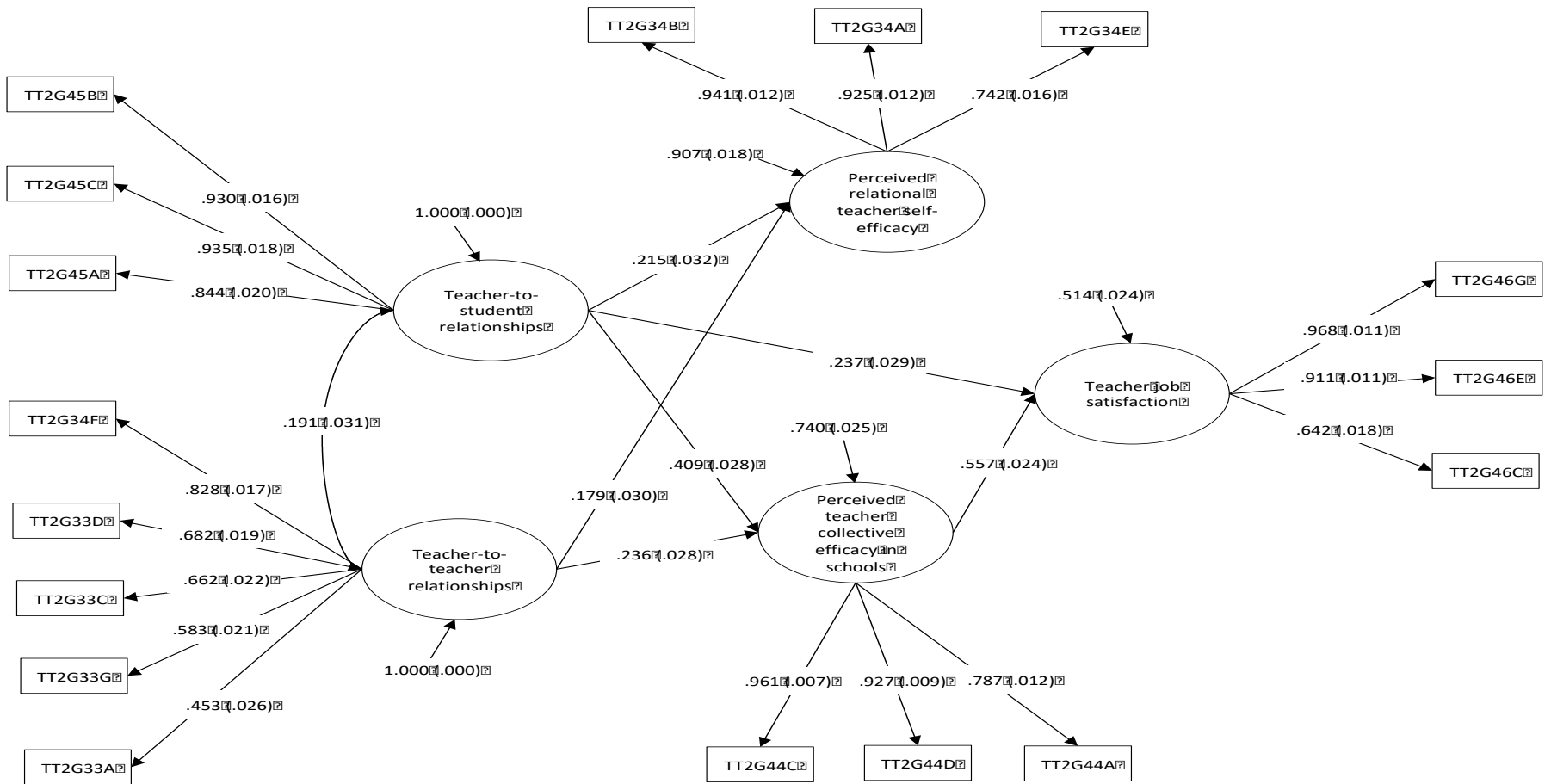


Figure 2. SEM with all variables.

Figure 2 shows the SEM for teacher-to-student relationships, teacher-to-teacher relationships, perceived relational teacher self-efficacy, perceived teacher collective efficacy in schools and teacher job satisfaction. Only significant paths are shown. All coefficients are significant ( $p < .001$ ). Standardized coefficients are reported with standard errors in brackets. For each latent variable  $R^2 = (1 - \text{error variance})$ .  $\chi^2(112, N = 1735) = 318.998$ ; CFI = .994; TLI = .993; RMSEA = .033. Finally, the structural equation model explained substantial variance in two of the latent constructs. The overall model explained 48.6% of the variance in teacher job satisfaction. It also explained 26% of the variance in perceived teacher collective efficacy in schools. The model explained only 9.3% of the variance in perceived relational teacher self-efficacy.

To summarize, the fit indices suggest that the following relationships hypothesized between latent constructs adequately fit the data: Only teacher-to-student relationships had a direct impact on teacher job satisfaction. Only teacher-to-teacher relationships had an indirect effect on teacher job satisfaction. This indirect effect works through only the mediating factor of perceived teacher collective efficacy in schools and not through the perceived relational teacher self-efficacy factor.

## Chapter 5: Discussion

This study investigated how teacher-to-student and teacher-to-teacher relationships affect teachers' job satisfaction, and how these relationships might be mediated by teacher self-efficacy and teacher collective efficacy in schools. The direct effects of teacher-to-student relationships and teacher-to-teacher relationships on teacher job satisfaction were evaluated. Then, the mediating role of the two teacher efficacy constructs (perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools) were evaluated. I hypothesized that the better the relationships that teachers have with their students and colleagues, the more they will possess perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools, which, in turn, should lead to teachers being more satisfied in their jobs. Initially, EFA provided evidence of the factor structure from the hypothesized model. CFA confirmed that the items from the EFA loaded correctly onto their respective variables. Finally, an SEM approach was used to assess whether the relationships that teachers have with their students and their colleagues influence their job satisfaction, directly and/or indirectly through the mediating variables of perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools.

The results indicate that only teacher-to-student relationships was directly associated with teacher job satisfaction. The central role played by teacher-to-student relationships is not surprising given that teachers spend the bulk of their time with students during the school day and cite students as a major motivation for

entering and staying in the profession (Watt & Richardson, 2007).

Contrary to my original hypothetical model, teacher-to-teacher relationships did not directly predict teacher job satisfaction. The relationship between the two constructs was low ( $\beta = .215$ ) and hence was not included in the final structural equation model. One explanation may be that since most of a teacher's time is spent in the classroom with students and less time is spent interacting with colleagues, the relationships that a teacher has with their colleagues may not be as important in influencing teacher job satisfaction. As mentioned in Watt and Richardson (2007), teachers are most interested in helping students, as opposed to their colleagues being their major interest. However, the inconsistency between the lack of correlation between these variables in my study and the support for such a correlation from previous studies may imply a potential measurement issue. For instance, the scales that were constructed for teacher-to-teacher relationships and teacher job satisfaction in my study did not measure these two variables as well as the measurement instruments used in other studies (e.g., Caprara et al 2003b; Skaalvik & Skaalvik 2011), which had more items and higher coefficient alpha values.

Perceived relational teacher self-efficacy did not predict teacher job satisfaction. The belief that we can successfully encourage and motivate the students, towards forming good relationships, may not be the biggest factor in being satisfied with the job of a teacher. This may be because the belief that we can develop good relationships with the students is not a guarantee that these good



relationships will actually develop because, as mentioned previously, this may depend on the students' being receptive to the teachers' good abilities in this area. Therefore, perceived relational self-efficacy was not a mediator between teacher-to-student relationships and job satisfaction, despite the direct relationship that was found between the latter two variables. Also, since perceived relational teacher self-efficacy is a completely new variable that I developed as opposed to already existing in the literature, it is possible that this variable is simply not very meaningful to job satisfaction or that it is being poorly measured by the items that constitute the scale in the study.

Consistent with the literature, perceived teacher collective efficacy in schools predicts teacher job satisfaction (Caprara et al., 2003b; Klassen et al., 2010). Perceived teacher collective efficacy in schools is important to job satisfaction perhaps because when teachers feel that they are mutually supported in the workplace, this promotes a sense of ownership and belonging at the school which enables teachers to utilize instructional practices or strategies from colleagues that they deem suitable or necessary, which in turn helps build a sense of collaboration at the school (Caprara et al., 2003b). Furthermore, when teachers feel that they belong in the school they are more likely to feel that they can influence the decisions that are made at the school and hence will want to work at that school (Lambersky, 2016). In addition, support was found for the mediator role for perceived collective efficacy with respect to job satisfaction. Teacher-to-teacher relationships influenced collective efficacy, which in turn led to job satisfaction, as predicted in the model.

Thus, despite the fact that there was no direct relationship between teacher-to-teacher relationships and job satisfaction, the expected pathway that was hypothesized between these variables, with collective efficacy as the mediator was supported.

As shown in the final structural equation model figure, there is no arrow between the two mediating variables of perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools. This means that teachers' perceptions about believing that they can motivate students does not relate well to teachers' perceived beliefs in their capacity to work in a team. These variables were believed to relate in the model because it was thought that teachers who had strong beliefs in their ability to form good relationships with their students could potentially influence the entire teaching body in the school to believe that they could form good relationships with their students. In other words, the more those individual teachers feel themselves to have a high degree of their own relational teaching efficacy, the greater the likelihood there would be a higher sense of collective efficacy amongst the teaching group as a whole. Similarly, it was believed that the reverse could also be true. A school where there is a strong sense of perceived collective efficacy amongst the teachers could potentially influence a teacher's belief about their own relational self-efficacy. For example, when teachers have strong feelings of support among each other this can potentially carry over to teachers feeling that they are good at fostering strong relationships with their own students, since by seeing other teachers emulate strong relationships building they

too are more likely to also build strong relationships with their own students in their classroom.

However, the low correlation may be explained by the fact that a teacher may have confidence that they are good at motivating their students in the classroom but do not feel that they have to be part of a team or need to fit in with their colleagues at the school. Similarly, a teacher may feel that there is a collaborative school culture but believe that being good at motivating students is not that important because the learning is mostly up to the students themselves in order to do well in school.

However, it is also possible that because I made up the variable of perceived relational teacher self-efficacy, it is this that is responsible for a lack of correlation between perceived relational teacher self-efficacy and all the other variables in the study. As explained previously, perceived relational teacher self-efficacy may not be a meaningful construct in this model or it may not be well measured.

The correlation in the model between teacher-to-student relationships and teacher-to-teacher relationships reflects the belief that teachers who have good relationships with their colleagues will tend to also have good relationships with their students and vice versa. The correlation between teacher-to-student relationships and teacher-to-teacher relationships is low which was unexpected because you would think that the skills that teachers use that make them good at forming relationships with students are similar to the relationships skills that teachers use with their colleagues. Teachers who demonstrate such skills as respect for others, fairness, empathy and kindness to their students usually demonstrate the

same skills to their colleagues. The fact that the correlation is low may have to do with the way the items have been measured for each of the constructs in the model. For example, the items for the construct teacher-to-student relationships measures a belief from “strongly disagree” to “strongly agree” with a Likert score range from 1 to 4, whereas the items for the construct teacher-to-teacher relationships represents a number measuring a point in time from “never” to “once a week or more” with a Likert score range from 1 to 6. Furthermore, the number of items representing each construct was not equal. For example, the construct teacher-to-student relationships had three items, whereas the construct teacher-to-teacher relationships had five items.

Finally, another reason for the low correlation between these two constructs may be due to the fact that the relationships between teachers and students in junior high school is quite different than the relationships that adults have with each other. For example, due to the students’ age and developmental level, the way in which a teacher shows kindness and respect to junior high school students may be quite different to how a teacher would express these same qualities to another teacher. Therefore, there is the potential that you could have a teacher who demonstrates respect well to her fellow teachers but may have difficulty expressing it to junior high school students due to their age and maturity. As a result this may well be the reason that I was unable to find support for this relationship in the literature.

Perceived relational teacher self-efficacy is influenced by both teacher-to-student relationships and teacher-to-teacher relationships. This means that both the relationships that teachers have with their students and the relationships that teachers have with the other teachers in the school influence the perceptions that teachers have in their own ability to motivate students. In other words, when teachers have good relations with their students and their fellow colleagues they are more likely to believe in their ability to relate to students.

Similarly, perceived teacher collective efficacy in schools is also influenced by teacher-to-student relationships and teacher-to-teacher relationships. Teachers who have good relations with their students and colleagues will create an atmosphere in the school that is conducive to working together as part of a team. However, the literature only supports the association between teacher-to-teacher relationships and perceived teacher collective efficacy in schools (Voelkel Jr. & Chrispeels, 2017). A reason for this may be that the variable perceived teacher collective efficacy in schools has more to do with teachers working together than with how teachers work with students.

### **Limitations**

There are some limitations that need to be acknowledged when interpreting the results. Although the structural paths between the latent variables in the hypothetical model may imply causality, given that this was not an experiment, this study only examined correlations, which may or may not be of a causal nature. The model may have omitted latent variables that if included could have improved the

overall model. For instance, critical variables such as teacher-to-principal relationships and teacher-to-parent relationships were not included because the TALIS data examined in the study did not have any items that dealt with these relationships. Furthermore, there could also be other mediators and other unknown models that fit the data as well or better than the final structural equation model described here. In addition, since I was using secondary data from the TALIS 2013 study, I was limited in the choice of items that I could use to measure the latent constructs in my model. As a result, how well the items actually measure the constructs may be an issue since the items in the TALIS 2013 study were chosen for a specific purpose, which was different from the purpose of this study. Moreover, some of the constructs had very few items. In addition, a study that had more questions developed specifically to target Alberta junior high school teachers may have provided results that better fit the model.

All the items in the structural equation model come from self-reported instruments (teacher self-reports which relied on honesty and openness) meaning that there was a risk of single-source bias. The frequency estimates for the items in the study were mostly negatively skewed suggesting that these self-reported measures may have overestimated the prevalence of these constructs among the sample of teachers. In other words, teachers may be overly positive in their reporting of their relationships, perceptions of efficacy and job satisfaction when in reality they may be lower. However, since the efficacy constructs are based on teacher perceptions, teacher self-reporting is not an inappropriate method to use.

Negatively skewed results made it difficult in some cases to get a large enough variation on the distribution of scores; therefore, having more points on the Likert scale may have reduced this skewness. Moreover, in some cases the questions seemed to be leading teachers to a favorable answer. For example, for the item “Most teachers in this school believe that students’ well-being is important”, it was difficult to find teachers on the low end of the scale. In addition, the descriptions on the Likert scale for the construct perceived relational teacher self-efficacy was rather ambiguous. For example, for the item “In your teaching, to what extent can you motivate students who show low interest in school work”, teachers had to choose from: “not at all”, “to some extent”, “quite a bit”, or “a lot”. Different teachers could have very different interpretations of what these responses might mean.

It is difficult to interpret the different aspects of teacher job satisfaction. For instance, the questionnaire asked teachers about aspects of their job satisfaction at the school that they teach at and not from the standpoint of the profession in general. The study also did not look at the subjects that the teachers taught, or the classrooms that the teachers taught in, or the breakdown of the students in a teacher’s specific classroom, where some students may be harder to teach than others and which may have shed more light on a teacher’s job satisfaction.

Finally, the selectiveness of the sample may limit the applicability of the results to the population at large. For instance, the results can be most generalized to Alberta junior-high school teachers but may not be applicable to elementary-school teachers or high-school teachers in Alberta or for teachers in other

geographic areas of Canada or the world. Therefore, researchers should exercise caution when generalizing the result of the study to teachers outside of Alberta, as well as to those teachers in elementary schools or high schools.

Despite these limitations this study helps us define, measure, and understand teacher job satisfaction and its important relationships to teacher-to-student relationships, teacher-to-teacher relationships, perceived relational teacher self-efficacy and perceived teacher collective efficacy in schools. The study helps us to understand the importance of the direct link between teacher-to-student relationships and teacher job satisfaction as well as showing how the mediating variable perceived teacher collective efficacy in schools acts as a pivot to link teacher relationships to job satisfaction. From these results, principals, school boards and university teaching programs may want to consider processes that promote collective efficacy and relationship building between teachers their students if they want teachers to be satisfied in their jobs and improve retention levels for teachers in the profession.

### **Practical Implications**

This study has several important implications for teacher professional development and teacher training. First, as the results of the study showed that teacher-to-student relationships are very important to influencing teacher job satisfaction, it would seem important that teacher professional development programs promote relationship building between teachers and students in order to increase teacher job satisfaction. The advantage of promoting relationship building



is that it is a learnable skill where relatively small changes in responding to students (and colleagues) can create large positive outcomes for teachers (Malinen & Savolainen, 2016). As a result, such knowledge and skills should become a key factor in teacher education programs (Malinen & Savolainen, 2016). There are two ways that this could be done: at the university level where classroom management courses focus on relationship building between teachers and students, and at the school level, where principals and other school leaders work to promote relationships building between teachers and students in their respective schools.

The results also demonstrate that if teachers are to be satisfied in their jobs they not only need to rely on building relationships with their students, but also that they need to believe that they are supported in the school, that there is a perception of shared responsibility between teachers in the school, and that they believe that there are opportunities to participate in school's decisions. Therefore, the second important implication from the study is that a collaborative approach to teaching is essential in order for teachers to be satisfied in their job. Therefore, in addition to providing training that improves relationship building there is also a need to develop programs that promote collaboration and provide opportunities at the school level for teachers to participate in school decisions. This could be done, for example, by offering teachers' adequate teaching resources or incentives that are essential for providing a good collective working environment. Also having teacher input into these collaborative professional development training programs enhances the belief that teachers can influence their own training programs and

therefore will be more invested in the programs. Furthermore, principals and school boards could set up committees with the participation of teachers to decide on the different programs for their particular teachers as well as identify a broader range of options that teachers could do that would promote collaboration in their respective schools. In this way having teachers take part in the decision making of the school will make them feel that they are an integral part of the teaching team. As the results of the study illustrated, increased collaboration in the school will aid in the development of a teacher's perception that they are part of a team and want to be at the school. Although perceived teacher collective efficacy in schools is not the only factor that improves teacher job satisfaction, it helps teachers acquire a belief that they are part of the school and belong there. As a result, one of the future goals for teacher professional development programs should be to help build a robust sense of collective efficacy within the schools.

As mentioned previously, this study suggests that policies and programs that support relationship building and collaboration in schools should be implemented at the teacher training level and at the professional development level for teachers. Observing examples of relationship building and collaboration (vicarious experiences) and encouraging relationship building and collaboration in the school (verbal persuasion) can be important for teachers. Teachers would also benefit from being given emotional support when struggling with the emotions connected to problematic student behavior (somatic and emotional states). Therefore, most of these activities could be carried out in schools (Malinen & Savolainen, 2016).

Finally, there is practical significance to this study since programs that improve teacher-to-student relationships and promote collective efficacy in schools are relatively easy and cheap to implement. Moreover, happy teachers are more likely to stay in the profession thereby improving teacher retention and lessening the need to hire and invest in new teachers, which makes it very cost effective for governments in the long run. Therefore, teacher-to-student relationships, teacher-to-teacher relationships and perceived teacher collective efficacy in schools all need to be taken into consideration because as was pointed out in the study, improving relationships will enhance the belief that teachers have about the collective efficacy in the school, which is significantly associated with higher levels of teacher job satisfaction.

### **Future Research**

The study has shown a greater depth of understanding into the causes of teacher job satisfaction, which is important for teachers to be effective in their teaching and learning and in order to have a healthy workplace environment. In considering the results, there are some areas worth noting and which provide some direction for future research. Although this study attempted to examine multiple aspects of the latent constructs, the selection of the indicators is by no means exhaustive, nor does it necessarily represent the most important elements of those constructs in terms of their associations with teacher job satisfaction. Future researchers may want to develop and include additional indicators that would provide more reliable and valid constructs especially with respect to the mediating

variable perceived relational teacher self-efficacy, whose low correlations with other variables may have been due to the indicators that were used in the study. Furthermore, future models should consider including other indicators of teacher job satisfaction. For example, this study focused on the job satisfaction that teachers had in their specific schools but the study could also focus on job satisfaction as a career or overall as a teacher in the profession. Closer examination of specific types of job satisfaction would provide valuable knowledge for the field and help principals and policy makers tailor their efforts to specific schools or to the overall profession. Furthermore, further research could measure job satisfaction within specific situations (e.g. in math class or in English class) to more precisely isolate aspects of teacher relationships for which it is feasible to intervene and improve these relationships.

Another direction is to carry out intervention studies that aim to build relationships with teachers especially between teachers and students. In addition, as a result of the importance that perceived teacher collective efficacy in schools plays as a mediating variable in the model, further research should look at interventions that promote and build a strong sense of collective efficacy in the schools.

Although teacher-to-student relationships and teacher-to-teacher relationships are the most common measures of teacher relationships since this is whom teachers deal with on a day-to-day basis, there are other important relationships to explore. Future studies should expand on other relationships that

teachers have such as their relationships with principals and with parents.

Furthermore, the model could also include a range of control variables, such as socioeconomic, geographic area and years of experience that could be associated with teacher job satisfaction. Several studies have documented the importance of these variables on teacher job satisfaction (Hean & Garret, 2001; Klassen et al., 2010; Ma, Ma, & Bradley, 2008; OECD, 2014b; Shen et al., 2012; Van Maele & Van Houtte, 2012; Xia et al., 2015).

Finally, future researchers could also examine whether the correlations between teacher relationships and the efficacy constructs may be reversed: For example, the associations could be efficacy → relationships → job satisfaction, meaning that teacher-to-student relationships and teacher-to-teacher relationships could be the mediating variables.

In conclusion, this study was motivated by my interest as a former teacher in what makes teachers satisfied in their jobs and how to keep teachers in the profession. Using TALIS 2013 data from 1773 Alberta lower secondary school teachers, this study investigates how teacher-to-student and teacher-to-teacher relationships affect teachers' job satisfaction, and how these relationships were mediated by teacher self-efficacy and teacher collective efficacy in schools. EFA, CFA and a SEM were used to investigate these relationships. The study found that teacher-to-student relationships was directly related to teacher job satisfaction and was also indirectly related to teacher job satisfaction through the mediator variable of perceived teacher collective efficacy in schools. Furthermore, teacher-to-teacher

relationships was related to teacher job satisfaction but only through the mediator variable of perceived teacher collective efficacy in schools. Overall the study illustrates the importance of positive teacher relationships and collective efficacy in influencing teacher job satisfaction. Teachers who had good relationships with their students were more likely to be satisfied in their jobs. Teachers who had good relations with their students and colleagues are more confident in their belief that they can form good relationships with students and work collaboratively with others. However, it was only through the variable of perceived teacher collective efficacy in schools that teacher relationships of both kinds (student and colleague) led to teacher job satisfaction. In other words, having good relationships with students and colleagues and working together and collaborating with these colleagues are all factors which ultimately lead to teacher job satisfaction.

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## Appendix A

List of Initial 25 Items from TALIS 2013 Teacher Questionnaire	
Teacher-to-student relationships	
TT2G41B	Students in this class take care to create a pleasant learning atmosphere.
TT2G41C	I lose quite a lot of time because of students interrupting the lesson.
TT2G45A	In this school teachers and students usually get on well with each other.
TT2G45B	Most teachers in this school believe that students' well being is important.
TT2G45C	Most teachers in this school are interested in what students have to say.
Teacher-to-teacher relationships	
TT2G33A	On average, how often do you teach jointly as a team in the same class?
TT2G33D	On average, how often do you exchange teaching materials with colleagues?
TT2G33E	On average, how often do you engage in discussions about the learning development of specific students?
TT2G33F	On average, how often do you work with other teachers in the school to ensure common standards in evaluation for assessing student progress?
TT2G33G	On average, how often do you attend team conferences?
Perceived relational teacher self-efficacy	
TT2G34A	In your teaching, to what extent can you get students to believe they can do well in school work?
TT2G34B	In your teaching, to what extent can you help your students value learning?
TT2G34D	In your teaching, to what extent can you control disruptive behavior in the classroom?
TT2G34E	In your teaching, to what extent can you motivate students who show low interest in school work?
TT2G34H	In your teaching, to what extent can you get students to follow classroom rules?
Perceived teacher collective efficacy in schools	
TT2G33C	On average, how often do you engage in joint activities across different classes and age groups in this school?
TT2G33H	On average, how often do you take part in collaborative professional learning in this school?
TT2G44A	This school provides staff with opportunities to actively participate in school decisions.
TT2G44D	This school has a culture of shared responsibility for school issues.
TT2G44E	There is a collaborative school culture, which is characterized by mutual support.
Teacher job satisfaction	
TT2G46B	If I could decide again, I would still choose to work as a teacher.
TT2G46C	I would like to change to another school if that were possible.
TT2G46E	I enjoy working at this school.
TT2G46G	I would recommend my school as a good place to work.
TT2G46J	All in all, I am satisfied with my job.

## Appendix B

Table B1

*Descriptive Statistics of the Items Used in CFA and SEM*

Item	Mean	SD	Skewness	Kurtosis
TT2G45A	3.35	.56	-.26	.24
TT2G45B	3.62	.51	-.96	.54
TT2G45C	3.43	.55	-.34	-.12
TT2G33A	2.47	1.83	.94	-.62
TT2G33D	4.35	1.41	-.58	-.51
TT2G33E	4.98	1.20	-1.20	.99
TT2G33F	3.93	1.57	-.35	-.94
TT2G33G	3.60	1.64	-.09	-1.19
TT2G34A	3.27	.68	-.40	-.77
TT2G34B	3.16	.74	-.29	-1.05
TT2G34E	2.82	.77	.21	-1.07
TT2G44A	2.93	.73	-.73	.86
TT2G44D	2.90	.71	-.60	.66
TT2G44E	2.97	.70	-.62	.79
TT2G46C	3.02	.86	-.63	-.19
TT2G46E	3.38	.61	-.66	.66
TT2G46G	3.25	.70	-.70	.48

Table B2

*EFA Goodness of Fit Statistics*

Variable	<i>N</i>	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA
Teacher-to-student relationships	1726	1.215	1	1.000	1.000	.011
Teacher-to-teacher relationships	1730	26.875***	5	.993	.987	.050
Perceived relational teacher self- efficacy	1717	.680	1	1.000	1.000	.000
Perceived teacher collective efficacy in schools	1733	.247	1	1.000	1.000	.000
Teacher job satisfaction	1719	.031	1	1.000	1.000	.000

**Note:** CFI = comparative fit index; RMSEA = root mean square error of approximation; TLI = Tucker-Lewis index.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$

## Appendix C

### Mplus Syntax

The following are samples of the syntax used in the study. For the complete syntax, please contact the researcher.

#### C1. EFA Syntax

Data:

```
File is TalisAB data.v5.csv;
```

Variable:

Names are

```
TT2G41B TT2G41C TT2G45A TT2G45B TT2G45C TT2G33A  
TT2G33D TT2G33E TT2G33F TT2G33G TT2G34A TT2G34B  
TT2G34D TT2G34E TT2G34H TT2G33C TT2G33H TT2G44A  
TT2G44D TT2G44E TT2G46B TT2G46C TT2G46E TT2G46G  
TT2G46J;
```

Categorical are

```
TT2G41B TT2G41C TT2G45A TT2G45B TT2G45C;
```

Usevariables are

```
TT2G41B TT2G41C TT2G45A TT2G45B TT2G45C;
```

Missing are all (999);

Analysis:

```
Estimator = WLSMV;
```

```
Type = EFA 1 3;
```

```
Rotation is CF-Quartimax (Oblique);
```

## C2. CFA Syntax

Data:

```
File is TalisAB data.v6.csv;
```

Variable:

Names are

```
TT2G41B TT2G41C TT2G45A TT2G45B TT2G45C TT2G33A  
TT2G33D TT2G33E TT2G33F TT2G33G TT2G34A TT2G34B  
TT2G34D TT2G34E TT2G34H TT2G33C TT2G33H TT2G44A  
TT2G44D TT2G44E TT2G46B TT2G46C TT2G46E TT2G46G  
TT2G46J;
```

Categorical are

```
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G;
```

Usevariables are

```
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G;
```

Missing are all (999);

Analysis: Estimator = WLSMV;

Model:

```
F2 by TT2G33F TT2G33D TT2G33E TT2G33G TT2G33A;  
F2@1;
```

### C3. Correlation Syntax

Data:

```
File is TalisAB data.v6.csv;
```

Variable:

Names are

```
TT2G45A TT2G45B TT2G45C TT2G33A TT2G33D TT2G33E  
TT2G33F TT2G33G TT2G34A TT2G34B TT2G34E TT2G44A  
TT2G44D TT2G44E TT2G46C TT2G46E TT2G46G;
```

Categorical are

```
TT2G45A TT2G45B TT2G45C  
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G  
TT2G34A TT2G34B TT2G34E  
TT2G44A TT2G44D TT2G44E  
TT2G46C TT2G46E TT2G46G;
```

Usevariables are

```
TT2G45A TT2G45B TT2G45C  
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G  
TT2G34A TT2G34B TT2G34E  
TT2G44A TT2G44D TT2G44E  
TT2G46C TT2G46E TT2G46G;
```

Missing are all (999);

Analysis: Estimator = WLSMV;

Model:

```
F1 by TT2G45B TT2G45C TT2G45A;  
F1@1;  
F2 by TT2G33F TT2G33D TT2G33E TT2G33G TT2G33A;  
F2@1;  
F3 by TT2G34B TT2G34A TT2G34E;  
F3@1;  
F4 by TT2G44E TT2G44D TT2G44A;  
F4@1;  
F5 by TT2G46G TT2G46C TT2G46E;  
F5@1;
```

#### C4. SEM Syntax

Data:

File is TalisAB data.v6.csv;

Variable:

Names are

TT2G45A TT2G45B TT2G45C TT2G33A TT2G33D TT2G33E  
TT2G33F TT2G33G TT2G34A TT2G34B TT2G34E TT2G44A  
TT2G44D TT2G44E TT2G46C TT2G46E TT2G46G;

Categorical are

TT2G45A TT2G45B TT2G45C  
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G  
TT2G34A TT2G34B TT2G34E  
TT2G44A TT2G44D TT2G44E  
TT2G46C TT2G46E TT2G46G;

Usevariables are

TT2G45A TT2G45B TT2G45C  
TT2G33A TT2G33D TT2G33E TT2G33F TT2G33G  
TT2G34A TT2G34B TT2G34E  
TT2G44A TT2G44D TT2G44E  
TT2G46C TT2G46E TT2G46G;

Missing are all (999);

Analysis: Estimator = WLSMV;

Model:

F1 by TT2G45B\* TT2G45C TT2G45A;  
F1@1;  
F2 by TT2G33F\* TT2G33D TT2G33E TT2G33G TT2G33A;  
F2@1;  
F3 by TT2G34B\* TT2G34A TT2G34E;  
F3@1;  
F4 by TT2G44E\* TT2G44D TT2G44A;  
F4@1;  
F5 by TT2G46G\* TT2G46C TT2G46E;  
F5@1;

F1 with F2;  
F3 with F5 @0;

F3 on F1 F2;  
F4 on F1 F2;  
F5 on F1 F4;