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Teaching towards self-regulation: The impact of stress, self-efficacy, and motivation

by

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Honours Thesis

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Abstract

The present study explores how teacher stress, self-efficacy, and motivation influence teacher's use of practices associated with self-regulated learning (SRL). Data from 87 elementary and highschool school teachers (79 females; Mean Age = 45 years; $SD = 9.64$ years) was employed to explore relationships between teacher self-efficacy, motivation, stress (e.g., time management, work related stressors, professional distress, professional investment, and stress from maintaining student discipline and motivation) along with their individual and combined impacts on the promotion of SRL. An exploratory factor analysis was computed in Mplus (L.K. Muthén & B.O. Muthén, 2012) to examine the underlying structure of the instructional practices associated with SRL questionnaire. Results demonstrated that the measure supported a two-factor model of instructional practices associated with SRL (RMSEA = $<.08$, CFI $>.95$). Pearson product-moment correlations indicated statistically significant and positive relationships between SRL and self-efficacy, as well as between SRL and motivation. Aspects of teacher stress were also found to negatively and significantly correlate with self-efficacy, motivation, and SRL. Results from a multiple mediation analysis of stress predicting opportunities for SRL indicated a partial mediation of both self-efficacy and motivation. The implications of these results are discussed, including suggestions for educational administration regarding the implementation of future learning initiatives, and support for teachers' understanding of SRL.

Teaching towards self-regulation: The impact of stress, self-efficacy, and motivation

In recent years, Canadian teachers have reported increasingly severe and more common signs of stress and burnout associated with their profession (Harris, 2011). These results have been linked to several aspects of the teaching profession which place a significant amount of responsibility and pressure on classroom teachers. Specifically, teachers report unrealistic demands, inadequate resources, new program implementations with little in-servicing or training, curriculum changes or restructurings, insufficient preparation time, perceived pressures to become involved with extracurricular activities outside of regular duties, and long work hours (Harris, 2011). In addition, demands for attention to special education programs, requirements to formulate and follow individualized education plans, special requirements of split grades, and administrative work contribute to teacher stress. Recent research has associated these pressures and stressors with harmful psychological effects which may serve to negatively impact teachers' psychological wellbeing and classroom performance. These effects include depressed mood, fatigue, increased potential for burnout, and depersonalized teaching methods wherein teachers compensate for these overwhelming demands by opting for straightforward content delivery rather than personable instruction with attention paid to individual goals and needs (Steinhardt, Jaggars, Faulk, & Gloria, 2011; Howard & Johnson, 2004; Mearns & Cain, 2003; Collie, Shapka & Perry, 2012). Therefore, there is a need to recognize and formulate solutions for these concerns. This is important not only for teachers and administration, but also for the children whose education is affected.

Self-Regulation and Self-Regulated Learning

In recent years, Canadian school boards have indicated that a primary goal of education is to support learners' development of and engagement in self-regulation (SR) in school (Ontario Curriculum, 2013; Growing Success, 2010; Ontario Ministry of Education, 2014; BC Ministry of Education, 2014). Self-regulation involves the integration of executive functions (i.e., working memory, behavioral inhibition, attention focusing) and higher level cognitive processes (i.e., metacognition, motivation, and strategic action) to respond to features of the environment and attain goals. In Educational Psychology, SR is studied as self-regulated learning (SRL), involving learners' application of metacognition, motivation for learning, and strategic action to learn and achieve in school (Perry, 2013). Students are metacognitive when they analyze the demands of the task in relation to their strengths and weaknesses, and regulate their behaviour accordingly to optimize their learning. Students demonstrate motivation for learning when they value progress and deep understanding, and are willing to attempt challenges to develop their learning. Students show strategic action when effectively implementing a solution selected from a repertoire of strategies to achieve a goal or complete a task (Perry, Hutchinson, & Thauberger, 2008).

Learners' engagement in SRL is associated with a wide range of positive outcomes, including more satisfying relationships with teachers and peers, motivation for learning, and high levels of academic success (Perry, Hutchinson, & Thauberger, 2007; Perry, 1998). However, students who do not engage in SRL are more likely to experience negative academic outcomes (e.g., low motivation for learning, low self-efficacy). Research has indicated that the particular tasks and instructional practices that teachers employ in classrooms have been linked to

children's development of and engagement in SRL in school (Hutchinson, 2013; Moos & Ringdal, 2012; Perry, 1998; Turner, 1995). At least eight features of classroom instruction have been identified as those that can provide opportunities for learners' development of and engagement in SRL. These include opportunities for students to engage in tasks that are complex by design (e.g., providing opportunities to complete tasks that require multiple learning goals, extended timeframes, and/or multiple cognitive processes), make meaningful choices and control challenges (e.g., deciding who in a group is the best person to complete particular tasks for a project), engage in non-threatening self-evaluations (e.g., having the opportunity to reflect on previous work to inform future learning) and receive instrumental support from teachers and peers (e.g., having the opportunity to uninhibitedly ask questions and receive personalized guidance to assist learning; Perry, Hutchinson, & Thauberger, 2008). Moreover, students in classrooms that are highly supportive of SRL typically participate in a classroom culture which places value on being part of a community of learners (e.g., having the opportunity to work in a group and in collaboration with peers; Hutchinson, 2013; Perry, 1998).

For example, Perry (1998) conducted an in-depth study involving 5 classroom teachers and their 94 grade 2 and grade 3 children. The study occurred in three phases over a six month time frame. In phase 1, teachers were observed in classrooms and their tasks and activities were scored to reflect the extent to which they promoted SRL. Specifically, the researchers noted opportunities for students to make choices, have control over challenges, engage in self-evaluation, have opportunities to provide and receive peer support as well as receive proper teacher support. In phase two, the students reported their perceptions of the presence of the activity reflecting the promotion of SRL as listed above. In phase three, the researchers assessed

participating children's SRL. Results indicated that children in high-SRL classrooms reported their acknowledgement of greater support from teachers, comfort in asking for help, their opportunities to make choices, have control over aspects of their education, along with other indicators of the promotion of SRL to a greater degree than did children from low-SRL classrooms (Perry, 1998). In phase 3's assessment of SRL, features of classroom instruction predicted significant outcomes in children's SRL and academic performance. When presented with a writing task, students in high-SRL classrooms children were observed employing effective strategies that helped them to complete a learning task. Children were working independently and appeared comfortable seeking help and support from their teachers. Children in these classrooms also reported a sense of satisfaction in their accomplishments. In contrast, students from low-SRL classrooms showed fewer opportunities for engaging in metacognition, motivation for learning, and strategic action. Children were less focused on self-improvement, reported more concern regarding their grades and their teachers' opinion of them rather than to their own development, and were less comfortable seeking support. Strategies to complete the given task were limited in numbers and diversity, and students had more difficulty implementing an effective approach to complete their work (Perry, 1998).

In a more recent study, Samarapungavan, Patrick, & Mantzicopolous (2011) studied 185 kindergarten students from four schools. Of these schools, two participated in the implementation of an inquiry-based science teaching system, and two did not. This system is part of a larger research initiative, the scientific literacy project (SLP). Within SLP, kindergarten teachers are encouraged to simply guide student inquiry with encouragement positive support, freedom to make choices regarding the direction of learning, and control over these challenges.

In addition, peer interactions, mutual support, self-evaluations, communities of learning, and effective support from teachers are central elements to a successful engagement with SLP (Samarapungavan, Patrick, & Mantzicopolous, 2011).

SLP organizes teaching strategies utilizing several key concepts which equate those promoted in SRL. Results indicate that those who were in the classrooms who utilized SLP made more substantial gains in their scientific knowledge and in the processes of scientific inquiry compared to those who did not. These children developed complex understandings of the material, and developed skills that they were effective at implementing when faced with new problems. In addition, these children expressed greater interest in science, viewed themselves as more competent in the subject, and were more motivated to continue learning (Samarapungavan, Patrick, & Mantzicopolous, 2011). Findings from this study corroborate Perry's (1998) results and demonstrate the academic and cognitive benefits associated with SRL. Altogether, these studies demonstrate that elementary school children benefit from tasks and teaching practices that provide opportunities for SRL to learn in classrooms. However, research is needed to examine how teacher level variables such as experience and stress, may impact teachers' use of features of instruction and practices associated with SRL.

While the findings of the two studies described above (Perry, 1998; Samarapungavan, Patrick, & Mantzicopolous, 2011) are quite promising in terms of endorsing the importance of SRL in classrooms, neither of them consider factors which may have served to inhibit teachers' capacities to provide their students with opportunities to engage in SRL. The present research will work from the understandings of SRL's importance, as established in these studies, to examine teaching variables which may inhibit the promotion of SRL.

Studies (Perry, 1998; Perry & VandeKamp, 2002; Perry, Phillips, & Hutchinson, 2006) have indicated that teachers report having goals to support students' SRL, but are unsure of the tasks and practices that support it. Moreover, the research indicates that teaching towards SRL is demanding of teachers because it requires a highly student-centered and personalized approach to learning and instruction. Teachers who employ SRL strategies in their teaching understand the needs of their learners and have confidence in their expertise (Brown & Campione, 1996; Perry, Phillips, & Hutchinson, 2006). These teachers know and understand which teaching strategies they can employ in their classrooms to meet the individual needs of children and addresses a range of zones of proximal development so they can monitor individual students' progress and intervene when needed. In other words, teachers who promote SRL in their classrooms possess qualities which have been associated with confidence, self-efficacy and motivation to teach. Teachers use features of classroom instruction associated with SRL understand when learners need to take on challenges in their learning independently so students can apply strategies to solve problems effectively. Finally, research has demonstrated that teachers who are effective in supporting SRL employ Vygotskian and neo-Vygotskian models of learning and instruction which provide instrumental forms of support and scaffolding using co-regulation (i.e., opportunities for an teacher or peer with expertise to provide guidance to a learner) and shared regulation (i.e., opportunities for children to work together as learners with shared expertise to complete work) so that learners may accomplish challenging goals (Perry, 2013).

Studies indicate that elementary school teachers report a number of stressors that may impact how effective they are implementing tasks and practices that support students' SRL for classroom learning and achievement. Hence, the purpose of the present study is to examine how

teachers' willingness and comfort using practices associated with SRL is related to and effected by aspects of stress, self-efficacy, and motivation, which are reviewed below.

Teacher Stress

In this study, teacher stress is defined as “the experience by a teacher of unpleasant, negative emotions such as anger, anxiety, tension, frustration, or depression, resulting from some aspect of their work as a teacher” (Kryiacou, 2001). Recent reports have indicated that Canadian teachers report high levels of job stress (Harris, 2011) and this is associated with poor psychological outcomes for teachers. In fact, high levels of chronic and severe teacher stress have been associated with depressive symptoms including depressed mood, feelings of guilt, worthlessness, helplessness, loss of appetite and restless sleep (Steinhardt, Jaggars, Faulk, & Gloria, 2011; Fimian, 1985). Research has demonstrated that increased stress is associated with higher and more prevalent emotional exhaustion and a reliance on more depersonalized classroom teaching strategies (Howard & Johnson, 2004; Mearns & Cain, 2003).

For example, Mearns and Cain (2003) employed self-report data from 86 American school teachers to study how teacher stress is related to teachers' psychological well-being. The researchers administered measures of teacher stress, negative mood regulation expectancies, coping skills, levels of distress, and burnout. Results demonstrated that teacher stress had a statistically significant impact on teachers' efficacy for teaching. Specifically, high levels of stressed were linked to lower levels of student-centered and personalized approaches to learning and teaching. In fact, stress predicted emotion-focused and avoidant coping strategies, manifestations of distress, as well as burnout (Mearns & Cain, 2003). These results suggest that

high levels of teacher stress can reduce teaching efficacy and in turn, reduce teachers' use of student-centered teaching practices, including those that have been linked to SRL.

The effects of stress on the implementation of other teaching styles have been documented. Recently, Collie, Shapka, and Perry (2012), utilized data from 664 teachers from Ontario and British Columbia representing 17 school districts. Participants responded to an online questionnaire which measured work stress, teaching efficacy, job satisfaction, and school climate. In addition, a measure of social-emotional learning (SEL) was conducted, which included measures of teacher comfort and self-efficacy regarding their abilities to implement practices of SEL, their perceptions of encouragement and support for implementing SEL in their classroom, along with their commitment to and motivation for offering opportunities for SEL.

Findings demonstrated that teachers' comfort in teaching SEL was negatively associated with stress relating to student behaviour and discipline. Specifically, teachers who reported lower stress caused by poor student behaviour were more likely to be comfortable teaching SEL. In addition, SEL was shown to be positively associated with teaching efficacy and job satisfaction. Also, findings demonstrated that job support from colleagues showed mixed results. Specifically, when collaboration was implemented in a way where stress from student behaviour was not increased, it was positively associated to teaching efficacy. Results demonstrated that teacher stress was related to job satisfaction and teaching efficacy, in particular in relation to the implementation of SEL (Collie, Shapka & Perry, 2012).

Taken together, these results indicate that some key factors including stress, teaching efficacy, job support, motivation, and job satisfaction influence teachers' comfort and

willingness to promote social and emotional learning skills in Canadian classrooms. Compared to the promotion of SRL, teaching SEL requires similar initiative and motivation to integrate effectively into a classroom. Based on the literature, it is likely that these factors may also be related to teachers' use of tasks and practices associated with SRL. Therefore, the present study examines how variables influencing teaching conditions, including those studied in the context of SEL, will relate to the promotion of SRL. It is expected that many of the same patterns will emerge, specifically those relating to how the effects of stress are mediated by experiences of high self-efficacy and proper motivation.

Teacher Self-Efficacy

The term self-efficacy refers to the manner in which people construct their beliefs about their abilities and competence to perform a given task (Bandura, 1997). Bandura's social cognitive theory demonstrates that one's success in performing a task can be predicted by their perceptions and expectations of efficacy, their confidence in succeeding, and their expectations of the outcome (Bandura, 1977). Self-efficacy has been shown to influence how much effort one puts into a task, their levels of perseverance when the task is challenging, and the amount of distress they experience when a situation is demanding (Bandura, 1997). In relation to the teaching profession, teacher self-efficacy has been positively associated with benefits targeting both teachers and students. Teachers who report higher self-efficacy have been found to employ more effective teaching practices. In addition, their students are more motivated to learn, have greater satisfaction with their learning, and show greater overall academic achievement (Bandura, 1997; Thoonen et al., 2012; Pan, 2014).

These effects are further exemplified in a study by Skaalvik and Skaalvik (2010) wherein the researchers gathered electronic data from 2249 1st-10th grade teachers to measure teacher self-efficacy. They employed their 24-item Norwegian Teacher Self-Efficacy Scale (2007), as well as perceived collective teacher efficacy, perceptions of external control, teacher burnout, job satisfaction, and perceived school context. Results of the study demonstrated that teachers' high self-efficacy was predictive of positive relations with the parents of their students. In addition, high levels of teacher self-efficacy were statistically significantly and negatively associated with aspects of burnout, including emotional exhaustion and depersonalization. Furthermore, self-efficacy was found to be statistically significantly and positively associated with high levels of job satisfaction.

These results indicate that self-efficacy is an important variable to consider within the domain of teaching due to its impact on performance and wellbeing. Also, some research (Klassen, 2010; Howard & Johnson, 2004) has indicated that self-efficacy mediates the relationship between teacher stress and job satisfaction. The negative effects of stress on the job satisfaction for teachers with perceptions of high self-efficacy is less than that of teachers with perceptions of low self-efficacy (Klassen, 2010). Taken together, research indicates that self-efficacy is a vital factor in the consideration of teacher performance in the classroom. Teaching efficacy may also be influential in the promotion of learning skills, including those necessary in the delivery of instructional practices associated with SRL (IPSRL). This study examined teacher self-efficacy as a mediator in the relationship between stress and IPSRL.

Teacher Motivation

Motivation involves goal setting, self-efficacy and contextual attributions (e.g., perceptions of support from colleagues, administrative figures) which combine to influence individuals' pursuit and attainment of goals. Teacher goals to enhance student learning and building a positive educational community also influence motivation (Ames & Ames, 1984). Research has demonstrated that new teachers are motivated to enter the profession for particular reasons, but often the source of these motives change and intensify as teachers continue through their careers (Sinclair, 2008; Sinclair, Dowson, & McInerney, 2006). The sources of motivation of new teachers initiating a career in the field tend to include how successful they imagine being in the job, their attractions to the short hours, summers off, the opportunities to work with children, the chance to be intellectually stimulated, and to fulfill altruistic motivations to teach young children (Sinclair, 2008). New teachers are likely to be motivated by ease of entry into the profession, dissatisfaction with previous jobs, or the financial benefits associated with a reliable occupation (Sinclair, Dowson, & McInerney, 2006). Over time and with more experience, teachers who continue in the profession cite motivation from being able to work with children, from the inherent worth and importance of being a teacher, from being able to help others, and other positive and internally-based motivating factors (Sinclair, Dowson, & McInerney, 2006).

A review of the literature indicates that teachers' motivation is related to their teaching performance. For example, Van Den Berghe and her colleagues (Van Den Berghe et al., 2014) assessed 201 Belgian teachers by an online questionnaire. Four main variables were examined. These include: work-related basic needs satisfaction, self-reported need-supportive teaching (i.e., self-efficacy, job satisfaction, and support from administration and colleagues), burnout, and

motivation to teach. Results of this study demonstrated four distinct domains of teacher motivation pertaining to the quality and quantity of motivating factors (Van Den Berghe et al., 2014). Teachers whose motivation is autonomously based and abundant in its extent were positively related to basic need satisfaction and need-supportive teaching. These teachers' self-reports were also negatively related to aspects of burnout, and reported greater personal accomplishment in their line of work. It was found that in contrast to these types of teachers, those who show poor quality and scarce motivating influences have comparatively worse basic need satisfaction and need-supportive teaching, as well as an increased risk of burnout. In comparing the established teacher profiles, results indicate that the difference in the quality of motivation was more substantial than the difference in quantity of motivation when assessing variables pertaining to teacher performance and wellbeing. Although there was some differentiation, extremely motivated teachers were not significantly superior in their performance and well-being compared to moderately motivated teachers. In contrast, teachers who maintained intrinsically based reasons for motivation were more likely to show greater performance and well-being compared to teachers who were motivated for extrinsic reasons (e.g., financial security; Van Den Berghe et al., 2014). These results demonstrate that the type of motivation an individual gains inspiration from (internal vs external) plays an integral role in their expression of self-efficacy, the effects of stress, and other factors subject to influence.

Also, motivation has implications for teachers' goals to continue in their profession (Skaalvik & Skaalvik, 2011), and their effectiveness in supporting students' classroom learning. A longitudinal self-report questionnaire study of 806 teachers (433 of whom participated in the follow up study; Fernet et al., 2012) measured various environmental factors relating to teachers'

positions at their particular schools, motivational factors which serve to perpetuate their interest in their occupations, as well as aspects of stress and burnout. Results of the study revealed that stress from workload, stress from student behaviour, poor administrative support, and lack of resources are all negatively related to autonomous motivation which in turn predicts emotional exhaustion (Fernet et al., 2012).

Taken together, studies demonstrate that teachers who have low levels of motivation for teaching are likely to experience negative psychological outcomes (Skaalvik & Skaalvik, 2011; Van Den Berghe et al., 2014; Fernet et al., 2012). In turn, these effects have the potential to reduce teaching efficacy, further expose the teachers to the negative effects of stress, and subsequently inhibit student learning opportunities for SRL. In contrast, high levels of motivation are related to positive psychological outcomes for teaching. High self-efficacy has been shown to be a very strong motivating factor for teachers. Teachers with high self-efficacy are more likely to show better planning and organization in the classroom, to be more open and willing to experiment with new teaching methods, to work longer with struggling students, and to intensify their efforts when their performance falls short. Highly motivated teachers are more likely to collaborate with and accept support from colleagues, which is a known predictor of organization, more certainty with novel teaching practices, and more comfort in experimenting with new teaching strategies. These motivated teachers with high self-efficacy are also more likely to engage in professional development to enhance instructional tactics and handling situated, social, and differential learning (Thoonen et al., 2012). From this research, it is likely that motivation will play a mediating role in the relationship between stress and the promotion of self-regulation.

Summary

As indicated in the literature described above, the initiative of teaching towards SRL is beneficial for both the optimal development and engagement of learners, as well as for the effectiveness of teachers in the classroom. Concurrently, teachers face high levels of stress and an abundance of responsibilities which serve to inhibit their capacities to promote SRL. In addition, teachers who report low self-efficacy are less likely to be effective in their teaching styles, which may impact student learning and development. Along with impacts on effectiveness in the classroom, there have also been results that indicate that low self-efficacy is associated with negative impacts on the health and well-being of the teacher, which may in turn magnify the effects of stress and other factors on performance. Similarly, low motivation has been associated with variables which serve to negatively impact teaching performance and teaching efficacy and in turn, inhibit the optimal delivery of IPSRL and other learning skills. To date, research has not linked how stress, motivation, and self-efficacy are implicated in teachers' use of practices associated with SRL. Therefore, the purpose of this study was to explore these relationships and examine the teaching conditions under which SRL can be most effectively promoted in classrooms.

Method

Design

A correlational research design was employed to explore relationships among teachers' reports of their instructional practices associated with SRL, teacher stress, teacher self-efficacy,

and motivation for teaching. Specifically, this study posed two research questions and tested three hypotheses:

1. What are the psychometric properties of the instructional practices associated with the SRL questionnaire?
2. What is the magnitude of the relationships among instructional practices associated with SRL, teacher stress, self-efficacy for teaching, and motivation for teaching?
 - a. It was expected that high levels of teaching stress would be associated with lower levels of self-efficacy for teaching, lower levels of motivation for teaching, and fewer instructional practices associated with SRL.
 - b. It was hypothesized that teachers who reported using more instructional practices associated with SRL would report higher motivation for teaching, and higher self-efficacy.
 - c. It was anticipated that teacher self-efficacy and motivation would mediate the relationship between teacher stress and instructional practices associated with SRL.

Participants

Data were collected from 87 Ontario elementary and high school teachers (79 females; Mean Age = 45 years; $SD = 9.64$ years). Teachers indicated specializations in primary grades (31%; K-Gr. 3), junior (16%; Gr. 4-6), and intermediate grades (16%; Gr. 7-8). In addition, approximately 21% of teachers in this sample held positions in special education, music, or French, or were in supply teaching positions. Participants reported 1 to 36 years of classroom teaching experience (Mean years of experience = 16.6, $SD = 8.85$ years). Approximately 97% of

participants identified their ethnic background as Caucasian, and 3% of participants reported their ethnicity as First Nations, Chinese, or Latin American.

Measures

Qualtrics Survey Tool. Qualtrics Survey Tool is a software program designed to create and distribute electronic questionnaires using the internet. A researcher constructs individual survey items and customizes each response scales so participants can complete the survey. Qualtrics Survey Tool was employed in present study to create and distribute the electronic questionnaire.

Demographic Information Questionnaire. (Appendix A) The demographic information form in this study is comprised of six items. Questions asked participating teachers to indicate their date of birth, grade level taught, sex, number of years of teaching experience, and their ethnicity.

Instructional Practices for Self-Regulated Learning Questionnaire. (Appendix B) The Instructional Practices for Self-Regulated Learning Questionnaire (IPSRL; Hutchinson & Serratore, 2014) is a new 30-item measure that was developed for this study. Questions assess the extent to which teachers feel comfortable implementing instructional practices known to provide opportunities for SRL. The items target six core practices associated with SRL: providing learners with opportunities to complete academic tasks that are complex by design (e.g., “How comfortable are you teaching students to revise their work to build off of previous learning experiences?”; 5 items), make meaningful choices (e.g., “How comfortable are you providing opportunities for students to choose who to work with?”; 4 items), control challenge

(e.g., “How comfortable are you letting students collaborate on a project?”; 3 items), seek teacher and peer support (e.g., “How comfortable are you giving feedback as students are completing tasks?”; 11 items), engage in self-evaluation (e.g., “How comfortable are you letting children evaluate their own learning?”; 6 items), and participate in a community of learners (e.g., “How comfortable are you having class discussions?”; 1 item). Participants rate items using a seven-point Likert response scale with endpoints ranging from 1 (Extremely Uncomfortable) to 7 (Extremely Comfortable). A composite mean score of IPSRL was calculated by summing the scores from all items and dividing by the total number of items.

Teacher Motivation Questionnaire. The teacher motivation questionnaire consists of 20 items. Twelve items were adapted from Klassen & Chiu’s (2010) measure of teachers’ motivation. Items assess participants’ motivation to continue teaching in relation to their confidence in the classroom (e.g., How much can you do to motivate students who show low interest in school work?). Cronbach’s alpha was computed at ($\alpha = 0.85$), indicating a good lower bound estimate of reliability. Participants responded to items using a seven-point response scale ranging from 1 (Next to Nothing) to 7 (A Great Deal).

The remaining eight items were employed to assess intrinsic and extrinsic workplace motivation. These items were drawn from a measure of workplace motivation developed by Moran, Diefendorff, & Zhi-Qiang, (2012). Four items measure intrinsic sources of workplace motivation (e.g., “I am motivated to teach because I personally value helping children to learn”; $\alpha = 0.63$), and four items assess extrinsic workplace motivation (e.g., “I am motivated to teach because of the pay”; $\alpha = 0.61$). These eight items were included in the present study because they have been shown to reliably predict workplace motivation, and add to the breadth of the

theoretical understanding in regards to what motivation refers to in the workplace and in the classroom (Moran, Diefendorff, & Zhi-Qiang, 2012). Cronbach's alpha of internal consistency for overall motivation has been computed at ($\alpha = 0.89$). Participants respond to items using a seven-point response scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). A composite mean score of motivation was calculated by summing all items and dividing by the total number of items.

Teacher Stress Questionnaire. The Teacher Stress Questionnaire includes 30 items repurposed from Fimian's (1984) study assessing six distinct stressors related to the profession of teaching. These include: time management (e.g., "I easily over-commit myself"; 8 items; $\alpha = 0.77$), work related stressors (e.g., "There is too much work to do"; 6 items; $\alpha = 0.87$), professional distress (e.g., "I lack recognition for the extra work I do"; 5 items; $\alpha = 0.80$), professional investment (e.g., "I lack control over decisions made about classroom matters"; 5 items; $\alpha = 0.81$), along with the maintenance of discipline and motivation (e.g., "I feel frustrated because of discipline problems in my classroom"; 6 items; $\alpha = 0.83$). Items were framed as a statement where participants used the seven point response scale to express how noticeable or applicable the statement is in their classroom. The response scale ranged from 1 (Strongly Disagree) to 7 (Strongly Agree). Scores for each of the subscales were computed by aggregating individual items within a subscale and dividing by the number of items in that subscale. A composite mean score of teacher stress was computed by the summing items from each subscale and dividing by the number of items.

Teacher Self-Efficacy Questionnaire. The Teacher Self-Efficacy Questionnaire includes 27 items (Skaalvik & Skaalvik, 2007) which were adapted for this study. The items

measure how effective teachers feel they are at performing their duties, and the level of confidence they have in the classroom. This measure consists of six components which contribute to an overall indication of teacher self-efficacy. Five items measure teachers' perceived ability to provide adequate instruction (e.g., "How certain are you that you can provide instruction to all students, regardless of ability?"; $\alpha = 0.90$). Five items assess teachers' perceptions of their ability to adapt instruction to individual needs (e.g., "How certain are you that you can adapt instruction to the needs of low-ability students while attending to the needs of other students?"; $\alpha = 0.93$). Four items are included to evaluate teachers' self-confidence to motivate their students (e.g., "How certain are you that you can support students to do their best even when working with difficult problems?"; $\alpha = 0.90$). Four items measure perceptions of ability to maintain discipline (e.g., "How certain are you that you can get students with behavioural problems to follow class rules?"; $\alpha = 0.91$). Five items assess teachers' self-confidence in their abilities to cooperate with colleagues and parents (e.g., "How certain are you that you can co-operate effectively with other teachers?"; $\alpha = 0.84$). Finally, four items test teachers' perceptions of their abilities to cope with change (e.g., "How certain are you that you can teach well even if you are told to use instructional methods that would not be your choice?"; $\alpha = 0.85$). Participants use the seven point response scale to indicate how certain they are that they can perform the indicated ability. The response scale ranges from 1 (Not Certain At All) to 7 (Absolutely Certain). A composite mean score of teacher self-efficacy was computed by aggregating individual item scores and dividing by the number of scale items.

Procedures

Ethics approval was granted by Kings University College research ethics board. In addition, the study was appraised by an Ontario based teacher's union. In November 2014, the researcher emailed this union describing this study and asking them to distribute a URL by which teachers may complete the electronic survey. When participants accessed the survey using the URL, their screen displayed an information letter and consent form. This letter described the study and participants involvement in it. Teachers who indicated their willingness to participate in the study submitted this response to the secure server and began the questionnaire. When participants finished completing survey items, they had the opportunity to provide their email address and be entered into a draw to win one of six \$75 gift certificates.

Results

The results of this study are presented in order of the research questions and hypotheses posed at the outset.

What are the psychometric properties of the IPSRL questionnaire?

MPlus version 7.11(L.K. Muthén & B.O. Muthén, 2012) was employed to conduct an exploratory factor analysis (EFA) on the data obtained from the 30-item IPSRL questionnaire. The decision to employ EFA rather than confirmatory factor analysis was based on the purpose of exploring the underlying structure of the measure and allowing the data to provide information about the structure instead of imposing a structure on the data to fit the conceptual distinctions made among the instructional practices linked with SRL. Furthermore, the underlying structure of the IPSRL measure has not been assessed, making EFA a more suitable analysis for this

purpose. Two standard model fit indices (e.g., Root Mean Square Error of Approximation, Comparative Fix Index) were used to compare the fit of a one, two, and three factor model (see Table 1).

Results indicated that the 2-factor model provided an acceptable fit (RMSEA = 0.09 and CFI = .94) of the IPSRL data (Costello & Osbourne, 2005). The rotated factor loadings from the two-factor model are provided in Table 2. Previously established theoretical understandings of self-regulation and SRL were used to judge whether the rotated factor loadings were more reflective of the “Task Design” or “Support and Evaluation” factors. Items were required to have a minimum factor loading value of 0.40 to be included in a factor (Costello & Osbourne, 2005). The first factor, “Task Design”, contained all four items from the core SRL practices of availability for choice, all 3 items from control over challenge, along with two from complex tasks and two from self-evaluation. The second factor “Support and Evaluation” contained all eleven items from the core practices of teacher support, four from self-evaluation, one from communities of learning, and two from complex tasks (see Table 2). Results demonstrate the teachers’ ratings generally distinguish between two main factors/variables reflective of instructional practices associated with SRL.

Table 1

Fit Statistics from The One, Two, and Three Factor Models

Model	RMSEA (90% CI)	CFI
1 Factor	0.13 (0.12- 0.14)	.87
2 Factor	0.09 (0.08-0.10)	.94
3 Factor	0.07 (0.06-0.19)	.97

Note. RMSEA values of less than 0.10 imply an acceptable model fit and values of less than 0.05 imply a good fit. CFI values of 0.9 and higher indicate an acceptable model fit.

Table 2

Factor Loadings from the 2 factor model EFA (N = 83)

Item	Factor 1 Loading	Factor 2 Loading
How comfortable are you...		
1. Providing opportunities for students to choose who to work with?	0.71*	0.00
2. Allowing students to choose where to work?	0.78*	-0.06
3. Allowing students to pick a topic for a project?	0.79*	0.07
4. Letting students independently complete tasks over one class period?	0.91*	-0.21*
5. Letting students collaborate on a project?	0.76*	0.20*
6. Letting students do their own research on a project?	0.76*	-0.07
7. Letting students choose where they work in the classroom?	0.78*	-0.08
8. Allowing students to express their learning in different ways?	0.68*	0.20
9. Using projects to integrate curriculum across various subjects for learning?	0.55*	0.31*
10. Teaching a lesson over a period of 2-3 days?	0.39*	0.58*
11. Teaching students to revise work to incorporate previous learning experiences?	0.41*	0.56*
12. Integrating multiple learning goals within a single project?	0.42*	0.51*
13. Providing individualized support to students to help them with their work?	-0.01	0.67*
14. Prompting children's attention to the task?	0.19*	0.84*
15. Giving hints to kids about strategies to complete tasks?	-0.12	0.90*
16. Giving feedback as students are completing tasks?	0.30*	0.60*

17. Allowing students to work together in partners?	0.47*	0.61*
18. Putting groups of children together to work?	0.34*	0.63*
19. Letting children help their peers?	0.37*	0.52*
20. Teaching children how to provide help to their peers?	0.41*	0.53*
21. Teaching children how to provide feedback to their peers about their work?	0.39*	0.53*
22. Allowing students to share their strategies with other children?	0.19*	0.80*
23. Allowing students to share their ideas with other children?	0.24*	0.77*
24. Letting children evaluate their own learning?	0.44*	0.47*
25. Generating a rubric for children to evaluate their own learning?	0.23*	0.63*
26. Using students' self-evaluations to inform your grading practices?	0.64*	0.16
27. Providing informal feedback to students as they are completing a task?	-0.03	0.91*
28. Using students' peer evaluations to inform your grading practices?	0.56*	0.12
29. Conferencing with students about their learning progress?	-0.09	0.83*
30. Having class discussions?	-0.01	0.74*

Note. ** $p < 0.001$, * $p < 0.05$

Based on the results of the EFA, Cronbach's alpha of internal consistency was computed for the two factors extracted from the IPSRL measure. Cronbach's alpha for "Task Design" ($M = 5.56$, $SD = 0.91$) was calculated at 0.90. For "Support and Evaluation" ($M = 6.13$, $SD = 0.69$), Cronbach's alpha was computed at 0.94. As a complete construct with all items aggregated together, it was found that the measure of IPSRL was quite reliable with a Cronbach's alpha of 0.95.

What is the magnitude of the relationships among instructional practices associated with SRL, teacher stress, self-efficacy for teaching, and motivation for teaching?

The descriptive statistics for the main study variables were computed and appear below in Table 3. A series of Pearson product-moment correlations were computed to examine the magnitude of the relationships among the main study variables (See Table 4). Hypothesis (2a) predicted statistically significant and negative relations between aspects of teacher stress and teacher motivation, self-efficacy, and levels of IPSRL. This hypothesis was fully supported by the data. Results of the correlations indicate that aspects of stress including workplace stressors, professional distress, discipline and motivation, and professional investment are statistically significantly and negatively associated with teacher motivation. This indicates that those who report higher levels of stress are likely to have lower motivation to teach. In addition, all five subscales of teacher stress were found to be statistically significantly and negatively correlated with teacher self-efficacy. These results demonstrate that individuals who perceive high rates of stress are less likely to report high self-efficacy compared to those who experience lower rates of stress. Finally, two aspects of stress including stress from the maintenance of discipline and motivation, and stress from professional investment are statistically significantly and negatively related to rates of IPSRL. These results demonstrate the direct effects wherein teachers who experience less stress are more likely to promote opportunities for SRL in their classrooms. The results discussed above provide full support for hypothesis (2a).

Hypothesis (2b) was also fully supported. SRL and teacher motivation were positively and statistically significantly correlated indicating that teachers who are highly motivated to do their work are more likely to promote opportunities for SRL in their classrooms compared to

those who are poorly motivated. In addition, SRL and self-efficacy were found to be statistically significantly and positively correlated. Teachers who have confidence in their professional abilities and have high self-efficacy are more likely to provide SRL opportunities compared to those with low self-efficacy. As demonstrated by these results, hypothesis (2b) was supported by the data in this study.

In addition to the stated hypotheses, it has been shown that self-efficacy and motivation for teaching strongly correlate in a statistically significantly and positive manner. Teachers who are highly motivated to continue their work are more likely to have high confidence in their abilities and express high self-efficacy compared to those with poor motivation.

Table 3

Descriptive Statistics for the Main Study Variables (N = 83)

Variable	<i>M (SD)</i>	Min to Max
1. Instructional practices for SRL	5.92 (0.70)	3.93-6.97
2. Time management	5.47 (0.91)	2.25-7.00
3. Workplace stressors	5.46 (1.20)	1.00-7.00
4. Professional distress	4.16 (1.33)	1.20-6.60
5. Professional investment	3.92 (1.35)	1.40-6.60
6. Discipline & motivation stress	5.10 (1.21)	1.67-7.00
7. Self-efficacy	4.89 (0.82)	2.00-6.67
8. Motivation	5.22 (0.56)	3.75-6.55

Table 4

Intercorrelations among the Study Variables (N = 83)

Variable	1	2	3	4	5	6	7
1. Time management							
2. Workplace stressors	.79**						
3. Professional distress	.26*	.28*					
4. Discipline & motivation stress	.42**	.63**	.34**				
5. Professional investment	.22*	.41**	.62**	.51**			
6. Motivation	-.12	-.35**	-.33**	-.41**	-.51**		
7. Self-Efficacy	-.29**	-.38**	-.27*	-.39**	-.38**	.61**	
8. Instructional practices for SRL	-.09	-.14	-.18	-.26*	-.26*	.50**	.61**

Note. Effect sizes should be interpreted such that ^a large effect size ($r = .5$), ^b = medium effect size ($r = .3$), ^c = small effect size ($r = .1$), ** $p < .001$, * $p < .05$

Do teacher self-efficacy and motivation mediate the relationship between teacher stress and instructional practices associated with SRL?

A multiple mediation analysis was conducted using SPSS version 22 using the Preacher and Hayes (2008) macro for multiple mediation. The model tested is displayed below in Figure 1. First, the predictor variable of teacher stress is statistically significantly and negatively associated with the criterion variable of IPSRL ($\beta = -0.20, r(81) = -2.29, p = 0.025$). It was also found that teacher stress is negatively related to the mediator variable self-efficacy ($\beta = -0.43, r(81) = -4.72, p < 0.001$). Results demonstrate that self-efficacy is related to levels of IPSRL ($\beta = -0.44, r(81) = 4.26, p = 0.001$). In addition to these effects of self-efficacy, it was also found that the predictor variable of stress was related to a second mediating variable of motivation ($\beta = -0.31, r(81) = -5.02, p < 0.001$). The results indicate that motivation is significantly and positively related to IPSRL ($\beta = -0.30, r(81) = 1.99, p = 0.049$). Because the a-path and b-paths of both mediator variables were significant, mediation analyses were tested using the

bootstrapping method with bias-corrected confidence estimates (Preacher & Hayes, 2008). In this study, the 95% confidence interval of the indirect effects was obtained with 1000 bootstrap resamples. The mediating roles of self-efficacy and motivation in the relation between stress and IPSRL ($\beta = -0.20, r(81) = -2.29, p = 0.025, CI = 0.41 \text{ to } 0.18$) were confirmed by the results of the mediation analysis. In addition, when the mediators of self-efficacy and motivation were controlled for, the direct effect of stress on IPSRL became non-significant ($\beta = 0.08, r(81) = 0.98, p = 0.330$) thus indicating partial, multiple mediation (see table 5).

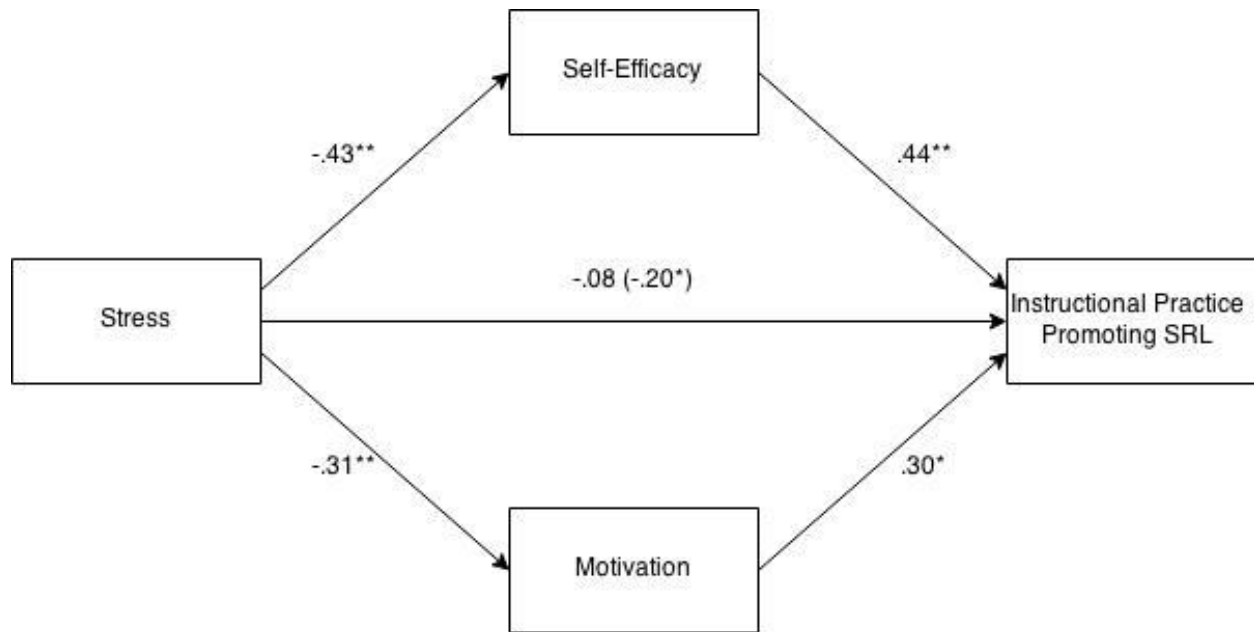


Figure 1. Multiple mediation analysis of stress predicting opportunities for SRL

** $p < 0.001$, * $p < 0.05$

Discussion

The purpose of this study was to examine the direct and indirect relationships among aspects of teacher stress, motivation, and self-efficacy, along with their individual and combined effects on the promotion of SRL in classrooms. The results of the study have found that stress,

motivation, and self-efficacy are all important factors to consider in the assessment of a teachers' capability and willingness to provide opportunities for SRL in their classes.

Results demonstrate that items in the IPSRL questionnaire reflect a 2-factor construct of SRL. In this study, teacher ratings distinguished between two factors: those related to "Task Design" and those related to "Support and Evaluation". In relation to the six core practices in the promotion of SRL, the factor of task design includes items which assess the extent to which teachers offer their students meaningful choice, control over challenges, access to complex tasks, and the chance to have their self-evaluations included in grading practices. This factor is useful in determining what sort of tasks are beneficial for the promotion of SRL, and in what manner the tasks ought to be presented to the students in the effort to provide opportunities for the development of self-regulation. The second factor of support and evaluation was comprised of items focusing on the extent to which students are given support from teachers and peers, opportunities to evaluate their own learning, chances to engage in communities of learning, and access complex tasks which serve to build off of previous learning. This factor focuses on establishing opportunities for children to reflect on previous work and to gain access to proper support in order to apply these reflections to better their future learning. From this exploratory factor analysis, we have found preliminary evidence of good psychometric properties of this measure of IPSRL which is the first of its kind to be found in the academic literature.

These results corroborate findings from Hutchinson (2013) who found that instructional practices associated with SRL are overlapping and often, complementary. For example, for a student to succeed when offered access to a complex task, proper support from a teacher is necessary. Without one or the other, SRL may not be effectively improved in the student. Given

these findings, teachers need to learn how to teach towards SRL and to attend to these practices as a sophisticated set of interrelated teaching skills. The results presented in this study demonstrate that instructional practices associated with SRL overlap to maximize learners' development of sophisticated forms of self-regulation.

These findings uniquely contribute to the academic literature in so far as no other research initiative has established a factor model for the construct of IPSRL. Results from the EFA in this study provide promising evidence supporting the use of the IPSRL questionnaire (Hutchinson & Serratore, 2014) as a unified and reliable tool with good psychometric properties for use in future research. Along with the support from previous research (Perry, Hutchinson, & Thauberger, 2007; Perry, 1998) maintaining the wide-ranging benefits which SRL provides to both students and teachers, the current study provides a reliable method to measure IPSRL for the use of examining where and how teachers are able to promote opportunities for SRL.

Consistent with the stated hypotheses as well as with the findings of previous literature, results of this study illustrate that aspects of teacher stress are statistically significantly and negatively related to levels of self-efficacy (Howard & Johnson, 2004) and motivation to teach (Van Den Berghe et. al, 2014). Those who are highly stressed are likely to report low self-efficacy and poor motivation to teach. This study also found that dimensions of teacher stress are negatively related to levels of IPSRL. Teachers who report higher stress are less likely to promote self-regulated learning in the classroom. Correspondingly, those teachers who report higher levels of IPSRL have been found to report lower levels of stress associated with disciplining and motivating students. This finding exemplifies the benefits of the promotion of SRL not only for students, but for teachers as well. These result reflect the findings of previous

literature which indicate that high stress is related to poorer teacher self-regulatory patterns as well as poorer quality of instruction (Klusmann et. al, 2008). Further results indicate that both self-efficacy and motivation are statistically significantly and positively related to levels of IPSRL and to one another. These results fully support both hypothesis (2a) and (2b) which predicted the direct effects among these variables.

Results of the multiple mediation analysis confirmed that both self-efficacy and motivation partially mediated the relationship between teacher stress and levels of IPSRL, thus fully supporting hypothesis (2c). Those teachers who report high self-efficacy are likely to experience less of an impact on their promotion of SRL by the effects of stress compared to those who have poor self-efficacy. Simultaneously, the promotion of SRL in those who report high motivation to teach is less impacted by the presence of stress than it is for those with poor motivation. This finding is a new contribution to the academic literature and expresses the integral role of stress, motivation, and self-efficacy in the contextual circumstances wherein the promotion of SRL is optimized for teachers. As noted, recent changes to the curriculum structure encourages the integration of SRL practices in classrooms (Ontario Ministry of Education, 2014; BC Ministry of Education, 2014; Ontario Curriculum, 2013; Growing Success, 2010). In implementing these initiatives, the results of the current study cannot be ignored. Teacher stress has been shown to reduce the effectiveness of teachers to promote SRL. Beyond this, being properly motivated to teach and having high self-efficacy have been shown to be protective factors within this relationship. To acquire the desired results in classrooms in terms of the promotion of SRL, educational administration must pay attention to and work towards the

bettering of teacher's levels of stress, motivation, and self-efficacy in order to determine if their initiatives will be effectively and optimally implemented.

Limitations

Some limitations should be acknowledged when interpreting the results of this study. A first limitation includes the sample size and sample characteristics which limit the generalizability of the study's findings. To elaborate, the sample of teachers who participated in this study was small ($N = 87$) and the ethnic composition of teachers may not generalize well to other samples of teachers in urban or rural areas. Second, teachers who participated in this study were self-selected and may have had an unrepresentative interest in promoting SRL, or have been experiencing a high level of stress, so their responses to the measures employed in this study may not be generalizable to a larger population of teachers. A third and final limitation of this study recognizes the plausibility of single-source bias.

Implications

The results found in this study serve to suggest that the psychological outlook of the teacher is vitally important when assessing the potential for SRL to be implemented in the classroom. Practical implications offered by this research include the development of the theoretical understanding of how SRL is delivered, suggestions for educational administration in their implementation of new classroom initiatives, support for teachers and their understanding of SRL, and the establishment of a reliable construct of IPSRL for use in future research. A gamut of information in previous literature indicates the benefits which accompany the implementation of IPSRL, but recognize that teachers are often unable or unprepared to

effectively implement these practices in their classrooms (Perry, 1998; Perry & VandeKamp, 2002; Samarapungavan, Patrick, & Mantzicopoulos, 2011; Perry, Phillips, & Hutchinson, 2006). In terms of practical implications, results of this study serve to validate the assumptions made in previous literature which suggest that mediating variables effecting teachers serve to inhibit the effective promotion of SRL. Beyond this, educational administration can refer to this study to inform their decisions regarding the implementation of new initiatives and programs. Teachers' effectiveness to integrate and promote instructional practices for self-regulated learning is effected by their levels of stress, self-efficacy, and motivation. Future initiatives must take into consideration the psychological competencies of their teachers when evaluating whether the proposed new practice can be effectively implemented, if it will be successful in improving learning, and if it will be hindered by the effects of teacher stress, motivation, and self-efficacy. In addition, future research initiatives can utilize the construct of IPSRL which this study has developed and provided supporting evidence for.

Future Research

The findings presented in this study point to future work on SRL in at least three core areas. The construct of IPSRL developed in this study can be employed to examine changes in teachers' SRL and students' SRL over time. The effectiveness of implementing practices associated with SRL can be measured and evaluated using longitudinal research designs. Secondly, it is recommended that future research initiatives employ mixed method approaches in order to measure children's SRL and teacher's promotion of SRL in classrooms to gain a more comprehensive and definitive understanding of the construct. Finally, there is a need for further psychometric validation studies to be conducted in the assessment of SRL and the instructional

practices associated with the promotion of SRL in order to support these constructs. Since this study is the first to examine the psychometric properties of SRL, further assessments including exploratory factor analyses on larger and more diverse samples, as well as confirmatory factor analyses must be completed in order to establish a reliable and accurate understanding of the construct.

Appendix A

What is your date of birth? (dd/mm/yyyy)

What grade(s) are you currently teaching? If you are currently teaching a split grade, select all grades that apply. (High school teachers please continue to the next question)

- Kindergarten
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Grade 6
- Grade 7
- Grade 8
- I am a substitute teacher
- I hold an alternative teaching position involving multiple grades (Ex. Elementary French teachers, music teachers etc.)
- I am not currently working.

High school teachers, please select the most relevant subject area to your teaching specialization (Elementary school teachers, please skip this question and continue below)

- English (1)
- Math (2)
- History (3)
- Geography (4)
- Science (5)
- Religious studies (6)
- Physical education (7)
- Technologies (8)
- Family studies/Home economics (9)
- Other (please specify) (10) _____

What is your sex?

- Female (1)
- Male (2)
- Prefer not to say (3)
- Other (4)

How many years of experience do you have working as a teacher? _____

How would you identify your ethnic background (check one or more of the following)?

- White (1)
- Aboriginal/First Nations/ Metis (2)
- Chinese (3)
- South Asian (4)
- Black (5)
- Filipino (6)
- Latin American (7)
- Southeast Asian (8)
- Arab (9)
- West Asian (10)
- Japanese (11)
- Korean (12)
- Pacific Islander (13)
- Other (PLEASE SPECIFY) (14) _____

Appendix B

How comfortable are you providing opportunities for students to choose who to work with?

How comfortable are you allowing students to choose where to work?

How comfortable are you allowing students to pick a topic for a project?

How comfortable are you letting students independently manage time to complete tasks over one class period?

How comfortable are you letting students collaborate on a project?

How comfortable are you letting students do their own research on a project?

How comfortable are you letting students choose where they work in the classroom?

How comfortable are you allowing students to express their learning in different ways? (e.g., To write a story, draw pictures, take photos, make posters, etc.)

How comfortable are you using projects to integrate curriculum from across various subjects as the basis for learning?

How comfortable are you teaching a lesson over a period of 2-3 days? (ex. Teach the process of photosynthesis in sections over a number of days)

How comfortable are you teaching students to revise their work to incorporate previous learning experiences?

How comfortable are you you integrating multiple learning goals within a single project? (ex. Social skills, multiple academic learning goals etc.)

How comfortable are you providing individualized support to students to help them with their work and learning?

How comfortable are you prompting children's attention to the task?

How comfortable are you giving hints to kids about strategies to complete tasks?

How comfortable are you giving feedback as students are completing tasks?

How comfortable are you allowing students to work together in partners?

How comfortable are you putting groups of children together to work?

How comfortable are you letting children help their peers?

How comfortable are you teaching children how to provide help to their peers?

How comfortable are you teaching children how to provide feedback to their peers about their work and learning?

How comfortable are you allowing students to share their strategies with other children?

How comfortable are you allowing students to share their ideas with other children?

How comfortable are you letting children evaluate their own learning?

How comfortable are you generating a rubric for children to evaluate their own learning?

How comfortable are you using students' self-evaluations to inform your grading practices?

How comfortable are you providing informal feedback to students about their learning as they are completing a task?

How comfortable are you using students' peer evaluations to inform your grading practices?

How comfortable are you conferencing with students about their learning progress?

How comfortable are you having class discussions?

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