ABSTRACT

Self-regulation involves metacognition, motivation, and strategic action. Children who develop and engage in self-regulation experience positive developmental and educational outcomes. Also, children are more likely to develop and engage in self-regulated learning (SRL) when features of classroom contexts support it. Although research has demonstrated that self-regulation predicts academic achievement, it has not examined; (a) whether teachers distinguish between different aspects of self-regulation, such as emotion regulation (ER), SRL, and socially responsible self-regulation (SRSR); (b) whether and how features of classroom contexts, which have been linked to opportunities for SRL, can also provide opportunities for ER and SRSR; and (c) relationships between individual children’s self-regulation and features of classroom contexts. Therefore, this mixed-method, multi-level study addressed these issues. Data consisted of 19 kindergarten, grade one, and grade 2 teachers’ ratings of 208 children’s ER, SRL, and SRSR and a full day of observations in 17 of the participating classrooms. Quantitative (EFA, HLM) and qualitative (in-depth analysis of classroom observations) analyses were conducted on these data. Results indicated: (a) teachers did not distinguish between the aspects of self-regulation; data converged on a unitary construct of self-regulation; (b) self-regulation predicted academic achievement; (c) older children had higher levels of self-regulation compared to younger children; (d) boys were rated as having lower levels of self-regulation compared to girls; (d) features of classroom contexts provided meaningful opportunities for children’s development of and engagement in ER, SRL, and SRSR; and (e) complex tasks and teacher support were statistically significant predictors of children’s self-regulation—they were implicated in children’s uptake of opportunities to engage in self-regulation during classroom lessons.

Implications of this study are discussed. These include: the benefits of designing a wider range of
measures and including mixed-method and longitudinal studies to examine trajectories of
children’s self-regulation, the low ratings of self-regulation for boys in the early school years,
and the role of complex tasks and teacher support in constructing meaningful opportunities for
children to develop and engage in adaptive and effective aspects of self-regulation.
PREFACE

This research study was approved by The University of British Columbia’s Behavioral Research Ethics Board. Certificate number: H09-00001.
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DEDICATION

This is dedicated to Alexander, Blair, Mom, and Dad.
CHAPTER 1: INTRODUCTION

Overview

Studying Self-Regulation

The study of self-regulation concerns investigations of individuals’ deliberate and effective use of metacognition, motivation, and strategic action in order to attain goals (Butler & Winne, 1995; Muis, 2008; Perry, Thauberger, & Hutchinson, 2010; Perry & Winne, 2006; Schunk & Zimmerman, 2007). Metacognition involves a set of highly flexible cognitive abilities that enable individuals to engage in and monitor reflective, analytical forms of thinking. Motivation for learning involves goal setting, attributions, and self-efficacy which influence individuals’ commitment to and pursuit and attainment of goals. Strategic action is the external manifestation or enactment of one’s metacognition and motivation. Children enact strategic behavior when they are applying math strategies to solve a problem, or when they are tailoring feedback to peers to suit that peer’s learning needs. Findings have consistently indicated that individuals who engage in effective and adaptive aspects of self-regulation experience favorable developmental and educational outcomes, including better perspective taking skills, higher levels of cognitive engagement, motivation for learning, and academic achievement (Azevedo, Cromley, Winters, Moods, & Greene, 2005; Eisenberg et al., 2004; Isaacson & Fujita, 2006; Kochanksa, Coy, & Murray, 2001; Kochanksa, Murray, & Harlan, 2000; Patrick & Middleton, 2002; Perry & Winne, 2006). In fact, self-regulation predicts children’s success in school more powerfully than IQ tests or knowledge of math and reading upon school entry (Blair & Razza, 2007; Diamond, Barnett, Thomas, & Munro, 2007).

By contrast, studies have found that individuals who engage in poor and ineffective aspects of self-regulation experience unfavorable developmental and educational outcomes,
including negative patterns of thinking (e.g., persistent self-blame), externalizing problems, low self-efficacy, poor interpersonal relationships, a lack of motivation for learning, and lower levels of achievement (Hill, Degnan, Calkins, & Keane, 2006; Mueller & Dweck, 1998; Thomas & Gadbois, 2007). Evidence has indicated that children who display poor self-regulation upon school entry tend to have problems adjusting to school, relating to their peers and teachers, and performing academically (Pianta & Stuhlman, 2004; Rimm-Kaufman, Early, Cox, Saluja, Pianta, et al., 2002). These findings warrant studies of young children’s self-regulation and efforts to support it early in children’s educational careers. Therefore, studies that examine how self-regulation develops and how features of context support (or curtail) its development are needed. My study investigates three aspects of self-regulation and whether and how eight features of classroom contexts may support them.

**Three Aspects of Self-Regulation**

Self-regulation theorists in developmental and educational psychology investigate what may be two distinct aspects of self-regulation, emotional regulation (ER) and self-regulated learning (SRL), respectively. Also, these researchers tend to study these aspects of self-regulation with different ages of children (e.g., developmental psychologists tend to study ER with preschool children whereas most of the research on SRL in educational psychology has been conducted with middle school through college age students). A review of the developmental and educational research on prosocial behavior, prosocial regulation, and social responsibility goals suggests that a third potentially distinct aspect of self-regulation, termed socially responsible self-regulation (SRSR) in this study, may exist. This study integrates theory and research from the developmental literature on ER, the educational psychology literature on SRL, and studies on prosocial behavior, prosocial regulation, and social responsibility goals to
examine three potentially distinct aspects of self-regulation at a relatively understudied developmental level — young elementary school children. By examining these aspects of self-regulation, this study will extend the literature revealing: (a) whether empirical distinctions can be made between three aspects of self-regulation in young elementary school children; (b) the magnitude of the relationships between these aspects of self-regulation; and (c) the extent to which each aspect or all aspects of self-regulation are associated with academic achievement.

**Emotional Regulation**

Developmental researchers refer to ER as an individual’s ability to effectively cope with affect in order to pursue goals (Eisenberg & Spinrad, 2004; Eisenberg et al., 2004; Eisenberg, Spinrad, & Smith, 2004; Steege & Terwogt, 2007). The earliest forms of ER emerge around six months of age and mark the onset of children’s abilities to gradually take control of affect in order to enact and maintain behavior (Steege & Terwogt, 2007). The benefits of ER in early childhood are well documented (Rothbart, Posner, & Kieras, 2006). Longitudinal research illustrates that adults’ reports of preschool children’s attentional control (a dimension of ER) predicts socially appropriate and prosocial behavior at school up to six years later (Eisenberg, Fabes, & Murphy, 1995; Murphy, Shepard, Eisenberg, & Fabes, 2004). Moreover, Graziano, Reavis, Keane, and Calkins (2007) found that kindergarten children’s ER was significantly and positively related to teachers’ reports of their academic success, productivity in the classroom, and literacy and math achievement scores.

Research findings illustrate the pitfalls of ineffective forms of ER during early childhood. Results of a recent longitudinal study indicated that between the ages of two to four, poor ER and inattention were significant predictors of externalizing problems for girls, and inattention and SES were significant predictors of externalizing problems for boys (Hill et al., 2006). Also, some
research involving young children has indicated that boys tend to be rated by their teachers as having lower levels of effortful control compared to girls and this impacts the nature of their relationships with their teachers (Rudasill & Rimm-Kaufman, 2009). Results indicate that when very young children have deficits in attention and poor ER, this can significantly impact their abilities to develop effective and adaptive metacognitive, motivational, and behavioral skills that support learning and achievement. Moreover, theories suggest that ineffective approaches to ER interfere with self-regulation by exhausting individuals’ affective, cognitive, motivational, and behavioral resources (Tice, Baumeister, & Zhang, 2004). Altogether, findings demonstrate that children’s development of and engagement in ER has long-term developmental and educational implications. However, very little research explores the relationship between young elementary school children’s engagement in ER and their learning in classroom contexts. Therefore, the present study includes ER as an aspect of young elementary school children’s self-regulation and examines its relationship to learning in classrooms.

Self-Regulated Learning

SRL describes independent and effective approaches to learning (Butler, 2002; Butler & Cartier, 2004; Fuchs et al., 2003; Nesbitt et al., 2006; Perry & Winne, 2006; Perry et al., 2010; Pintrich, 2000; Zimmerman, 2008). Self-regulated learners are cognizant of their learning strengths and weaknesses, and they have a repertoire of strategies they appropriately apply to tackle the challenges learning may present. Self-regulated learners strive for a deep understanding of subject matter, have a high sense of self-efficacy, and hold incremental beliefs about learning (Bong, 2008; Caprara et al., 2008; Dweck, 1998, 2002; Winne & Perry, 2000). Beliefs about learning abilities take shape at a young age. Therefore it is crucial that young children have opportunities to learn in contexts that promote adaptive patterns of affect,
cognition, motivation, and strategic action. These support their engagement in learning and academic achievement (Dweck, 1998, 2002; Fredricks & Eccles, 2002; Mueller & Dweck, 1998; Patrick, Mantzicopoulou, Samarapungavan, & French, 2008).

Researchers contrast SRL with ineffective, defensive approaches to learning. Children who display these learning behaviors report having motivation for attaining academic success but behave in ways that jeopardize opportunities for attaining it (e.g., procrastinating, going out with friends instead of studying). Research has demonstrated that children who engage in defensive approaches to learning disengage from deep levels of cognitive processing on academic tasks and have lower levels of self-concept and academic achievement (Martin, Marsh, & Debus, 2003; Thomas & Gadbois, 2007). Also, children who adopt defensive approaches to learning engage in negative patterns of thinking (e.g., self-blame) and experience negative emotion, such as anxiety, sadness, or anger (Linnenbrink, 2005; Ryan, Ryan, Arbuthnot, & Samuels, 2007; Sideridis, 2005; Zuckerman, Kieffer, & Knee, 1998). Findings suggest a link between ER and SRL whereby children’s ability to cope with negative emotions may support their engagement in SRL. However, no studies have examined young children’s ER and SRL together, and in relationship to, SRSR.

**Socially Responsible Self-Regulation**

In this study, SRSR refers to children’s engagement in self-regulation in social situations. SRSR involves awareness of self and others (metacognition), a desire to support others’ success (motivation), and the application of strategies that instrumentally support self and others’ learning in socially responsible ways. SRSR is believed to contribute to positive interactions and the accomplishment of collaborative classroom goals. For this study, SRSR has been derived from theory and research on prosocial behavior and prosocial regulation as well as social
responsibility goals. Studies report that children who engage in prosocial behavior employ social cognition. They interpret others’ internal states and needs, and relate through empathy and sympathy (Carlo, Knight, Eisenberg, & Rotenberg, 1991; Eisenberg, Fabes, & Spinrad, 2006; Holmgren, Eisenberg, & Fabes, 1998; Wentzel, 1993, 2002; Wentzel, Filisetti, & Looney, 2007). Also, the literature indicates that individuals who engage in prosocial behavior are motivated to behave in ways that support others (Gagne, 2003; Greene-Deemers, Pelletier, & Menard, 1997; Wentzel & Watkins, 2002). Prosocial children are aware of the consequences of poor behavior and its impact on other children (Warden & MacKinnon, 2003).

Longitudinal research has indicated that children’s prosocial behavior in grade three is a statistically significant and positive predictor of their academic achievement in grade eight (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000). In addition, research has indicated that middle school students who pursued social responsibility goals obtained higher grades compared to those who did not (Wentzel, 1991, 1993). Also, Anderman and Anderman (1999) found that children who endorsed more social responsibility goals had a greater focus on learning academic tasks. Their results indicated that learners’ pursuits of social responsibility goals indirectly supported them to develop learning strategies, which are central to definitions of SRL. Finally, research has indicated that young children’s prosocial behavior, prosocial regulation, and social responsibility goals are linked to their social cognitive abilities, and have long-term implications for their learning and achievement in school (Arsenio & Lemerise, 2001; Crick & Dodge, 1994; Sutton, Smith, & Sweetenham, 1999).

SRSR requires metacognition (e.g., thinking about another person’s feelings before offering suggestions on work), motivation (e.g., desire to support peers’ learning in a collaborative group), and strategic action that supports social learning in classrooms (e.g.,
tailoring feedback to suit a peer’s needs or temperament). To date, research has not investigated whether SRSR is a distinct aspect of self-regulation and if young children utilize it to support their own and others’ learning and achievement in school. Also, research has not identified features of classroom contexts that may support young children’s development of and engagement in SRSR.

Summary

A review of the literature in developmental and educational psychology indicates that relationships among young children’s engagement in ER—self-regulating affect, SRL—self-regulating learning, and SRSR—self-regulating in social situations in order to support one’s own and others’ engagement in learning have yet to be examined. Therefore, the present study extends these literatures by studying these potentially distinct aspects of self-regulation simultaneously and in relationship to classroom learning and achievement. Also, the present study examines whether and how eight features of classroom contexts provide opportunities for these three aspects of self-regulation.

Features of Contexts as Opportunities for Supporting Self-Regulation

Studies indicate that self-regulation develops through participation in democratic and autonomy supportive home and school contexts (Baumrind, 1991; Bong, 2008; Schweinle, Meyer, & Turner, 2006; Steinberg, 2001; Walker, 2008). These contexts provide children with opportunities to: (a) reflect on their actions and behaviors; (b) communicate, discuss, and ask questions about issues that have an impact on their lives; and (c) build supportive, caring relationships that help them to learn how to solve problems effectively (Steinberg, 2001; Walker, 2008). Within the educational psychology literature, researchers have found that complex and open tasks, choices, control over challenge, self-evaluation, and teacher and peer support
promote young children’s development of and engagement in SRL and academic achievement
Moreover, these features typically occur in classrooms where children have opportunities to
engage in non-threatening/non-competitive evaluations, and participate in a community of
learners. More clearly, these features of classroom contexts have been found to support
children’s SRL by providing opportunities for metacognitive decision-making, strategy use, and
reflection. Studies need to extend these findings by examining these features of classroom
contexts and their associations with multiple aspects of self-regulation—ER, SRL, SRSR—and
academic achievement. Eight features of contexts are described below and will be elaborated in
Chapter 2.

**Complex Tasks**

Complex tasks are activities (e.g., research projects, novel studies) associated with
opportunities for children to think metacognitively and behave strategically to learn. Tasks that
are complex by design provide children with a framework that integrates opportunities for SRL.
They are intended to be “optimally” challenging rather than overly difficult for learners (Perry,
Phillips, & Dowler, 2004). Complex tasks typically address multiple goals, integrate learning
across subjects, require a variety of cognitive and metacognitive processes, result in the
production of a number of products, and span multiple work periods (Ames, 1992; Blumenfeld,
Mergendollar, & Swarthout, 1987; McCaslin, 2006; Miller, 2003; Samarapungavan,
Mantzicopolous, & Patrick, 2008; Patrick et al., 2009; Perry, 1998; Perry & Winne, 2013;
Turner, 1995). For example, Samarapungavan et al. (2008) constructed complex tasks to study
children’s understandings of monarch butterflies over a 2-month period. The teachers in the
study provided a general framework for children’s learning and also provided children with
additional meaningful learning opportunities (e.g., making choices about topics to explore and what to observe and record) that have been linked to children’s SRL. As children were studying monarch butterflies, they had opportunities to construct, modify, and evaluate their models of the lifecycles of butterflies. Children kept records of the butterflies’ growth and development (e.g., through the use of digital photographs), discussed their learning in small groups, and as a group created a poster to share their learning with their classroom peers.

Academic tasks prompt children’s cognitive and metacognitive engagement when they are designed in ways that foster motivation, autonomy and control, and when they permit real world application, support cooperative and collaborative learning, communicate clear, high and realistic expectations about learning, and provide support for learners to meet learning expectations (Marks, Secada, & Doane, 1996; McCaslin, 2009; Newman, Wehlage, & Lamborn, 1992; Perry, Hutchinson, & Thauberger, 2007; Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). Research indicates that when academic tasks pair opportunities for student autonomy with instrumental support, they can motivate students to take risks in their learning so they can go beyond the requirements of a task, and psychologically invest themselves in learning (Ames, 1992; Blumenfeld et al., 1987; Connell & Wellborn, 1991; Miller, 2003; Newman et al., 1992; Wehlage et al., 1989). Research findings indicate that complex tasks support learners to attain these outcomes and their development of and engagement in SRL. But, research is needed to address whether and how complex tasks may be related to children’s ER and SRSR.

**Choices**

Learners’ engagement in metacognition, motivation, and strategic action for SRL is likely to occur when students have opportunities to make meaningful choices (Flowerday & Schraw, 2003; Hammann, 2005; Kagan, 1989; McCann & Turner, 2004; McCaslin et al., 2006; Perry,
1998; Stipek, Feiler, Daniels, & Milburn, 1995). Studies have indicated that when children receive explicit instruction about how to approach or plan their work, they are more cognitively aware of the impact their choices have on their work (Borkowski, Carr, Rellinger, & Pressley, 1990; Gordon, 1990; Hammann, 2005). Researchers have found that the types of choices provided by teachers are associated with the extent to which children engage in self-regulated learning behaviors, such as persisting at a challenging task, and having a mastery learning orientation (e.g., wanting to improve weaknesses in their knowledge and understanding of a topic or skill) towards their work (Langer, 2001; Pajares, Britner, & Valiante, 2000; Perry, 1998). Research demonstrates that choices support children’s development of and engagement in SRL when they provide opportunities for children to think about task demands in relation to their academic strengths and weaknesses, and the actions they need to take to be successful in their work. Studies are needed to illuminate how choices can provide opportunities for ER and SRSR as well.

**Control Over Challenge**

Control over challenge is a feature of classrooms that provides children with opportunities to modify difficulty on academic tasks to suit their individual learning needs (Corno, 2001; McCaslin & Good, 1996; McCaslin et al., 2006; Miller & Meece, 1997). Children have opportunities to control challenge when they are provided with meaningful choices (e.g., deciding whether to work independently or with another child, choosing a work setting that can maximize their thinking and output). Motivation theories such as volition and self-determination describe the importance of supporting children’s cognitive, motivational and behavioral control, and fulfilling their needs for autonomy (Corno, 2001; Connell & Wellborn, 1991; Deci & Ryan, 1985; McCaslin & Hickey, 2001). When children feel in control of their learning, they report
enjoying challenging academic activities, apply and use more SRL strategies, such as planning, skimming, comprehension monitoring, persist at difficult or boring tasks, and experience higher levels of academic achievement (Perry, Turner, & Meyer, 2006; Pintrich & De Groot, 1990). Questions remain about whether and how opportunities to control challenge give rise to ER and SRSR.

**Self-Evaluation**

Self-evaluation refers to formal and informal opportunities for children to reflect on and evaluate their learning and completion of academic tasks (Black & Wiliam, 1998; Ley & Young, 1998; McCaslin et al., 2006; Perry, 1998; Perry, Hutchinson, & Thauberger, 2008; Perry et al., 2006; Zimmerman & Martinez-Pons, 1986). Examples of self-evaluation include elaborative questioning techniques (e.g., What have you learned about the lifecycles of frogs?) or children generating evaluation criteria or rubrics to assess their progress against standards. It can also involve opportunities for children to explain what they have learned and/or their insights about their abilities and levels of expertise on their academic work. For example, Perry, Thauberger, and Hutchinson (2010) designed a computer-based Learning Kit called “The Lifecycles Learning Kit,” which provides children with opportunities to read and study texts about the lifecycles of frogs. Children read text on the computer and had opportunities to check their understanding and comprehension of the text. They responded to “Do You Know?” questions and rated how sure they were that their answers were correct.

Researchers have demonstrated that self-evaluation can be an instructional tool that supports children’s engagement in SRL (Ley & Young, 1998, 2001; Meyer & Turner, 2002; Zimmerman & Cleary, 2004; Zimmerman & Martinez-Pons, 1986). Moreover, one of the key differences between learners who experience high levels of academic achievement and those that
experience lower levels of academic achievement is engagement in self-evaluation processes (Lan, 1998; Ley & Young, 1998; Zimmerman, 1990). Lan (1998) found that when college students enrolled in a statistics course engaged in recording their study behaviors, they also reported reviewing their previous tests more often than those learners who recorded instructor behaviors and those who did no recording. In other words, learners who engage in more self-regulation take advantage of opportunities to analyze their learning progress. Findings indicate that self-evaluation supports SRL by providing opportunities for children to analyze their strengths and weaknesses as learners. It may also be that self-evaluation provides support for children’s development of and engagement in ER and SRSR in classrooms, but studies are needed to examine this possibility.

**Teacher Support**

Teacher support refers to opportunities for children to receive instrumental support (scaffolding), which assists them with the learning and completion of academic tasks (Corno, 2001; McCaslin & Good, 1996; Meyer & Turner, 2002). Examples of teacher support include modeling, providing hints, and asking open-ended questions to check children’s understanding. In fact, Meyer and Turner’s (2002) study of scaffolding during math instruction indicated that classrooms that included more scaffolded instruction provided learners with more opportunities for SRL. Meyer and Turner (2002) concluded that the scaffolded instruction they observed helped to establish a warm classroom climate, focused on building learners’ perceived competence and maintained personal goals for learning. Furthermore, it provided opportunities for learner autonomy and control over challenge, and supported independent and effective aspects of learning through co-regulation (CR). CR occurs when teachers or peers support learners in ways that lead to their acquisition of learning strategies to function independently in
the future (McCaslin & Good, 1996). Research needs to examine how teachers provide instrumental support for additional aspects of self-regulation.

**Peer Support**

Peer support involves opportunities for children to give and receive instrumental support to and from classmates, respectively (Butler, 1990, 1996; Corno, 2001; McCaslin & Good, 1996; McCaslin et al., 2006). Examples of instrumental peer support include modeling strategies, providing feedback, hinting or giving clues, and collaborating on projects. Researchers have found that when learners participate in instruction by providing peer reviews and feedback, they can support learners’ engagement in metacognition (Alexander & Murphy, 1998; Alexander & Winne, 2006; Englert et al., 2009; Englert, Raphael, Anderson, Anthony, & Stevens, 1991; Whitebread, Bingham, Grau, Pasternak, & Sangster, 2007). That is, peers can provide opportunities for children to acquire new information or revisit existing information to improve their learning. Moreover, studies have found that peer-led or classroom discussions can support learners to ask questions, clarify responses, consider other learning perspectives, and engage in deep levels of possessing about their thinking and learning (Almasi, 1996; Miller & Meece, 1999; Paris, Cross, & Lipson, 1984; Whitebread et al., 2007). Research is needed to understand how peer support may provide opportunities for other potentially distinct aspects of self-regulation for learning.

**Non-Threatening/Non-Competitive Evaluations**

Non-threatening/non-competitive evaluations focus on children’s effort, personal progress and potential for improvement, rather than grades and performance relative to peers (Anderman & Midgley, 1997; Black & Wiliam, 1998; Butler, 1986; Linnenbrink, 2005; Urdan 2004a; Urdan & Mestas, 2006). Examples of non-threatening/non-competitive evaluations
include child led conferences, journals where children keep track of things they have learned and things they need to improve, peer editing, and revising writing drafts. Research has indicated that when teachers utilize non-threatening/non-competitive evaluation methods, children focus on the attainment of mastery goals for their learning and they tend to downplay competitive social comparisons with peers (see Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008 for a review). For example, in her study Butler (1990) assigned five, seven, and 10 year old children to competitive and non-competitive (i.e., standards based) evaluation conditions to examine the effects of children’s evaluations of their learning and their use of social comparisons. Butler found that all ages of children who were in the competitive condition were more likely to compare their work to peers whereas children in the non-competitive condition were more likely to compare and explain their work in relation to the standards for achievement. Moreover, five year olds in the competitive condition were more likely than seven and 10 year old children to make inappropriate types of social comparisons for their work; they were also likely to shift their own evaluations of their work in response to competition. This study found that five year old children in the non-competitive or standards based condition made as accurate and appropriate judgments of their learning as did older children. Results indicate that young children are capable of providing accurate estimates of their work and learning. Moreover, they found that children’s use of standards based evaluations are likely to offer them opportunities to learn how to make realistic evaluations of their work and learning.

Non-threatening/non-competitive evaluations are related to SRL in that they provide learners with opportunities to use metacognition to think about their strengths and weaknesses as learners in relation to a task, respond to constructive feedback with motivation to succeed, and enact adaptive strategies that support their engagement in learning (Butler, 1998; Hammann et
al., 2000; Hammann, 2005; Paris & Paris, 2001; Zimmerman, 2008). These evaluation structures are embedded in day-to-day activities and provide children with many opportunities to improve their learning and succeed over time. Typically, formative assessment methods are non-threatening and non-competitive for learners. They focus on personal achievement (rather than comparisons with others) and support learners to examine their learning progress over time (Zimmerman, 2008). When learners adopt goals that focus on their mastery of subject matter, they also report more adaptive help seeking, more SRL, higher positive affect, lower negative affect, and higher achievement (Linnenbrink, 2005). Altogether, findings indicate that the use of non-threatening/non-competitive evaluations in learning contexts offer children opportunities for developing SRL in school. To date, research has not linked non-threatening/non-competitive evaluation methods to ER and SRSR, despite findings suggesting that evaluations provide opportunities for children’s engagement in them (e.g., Järvenoja & Järvelä, 2009; Stipek, 1981). Investigations are needed to provide links that describe whether and how non-threatening/non-competitive evaluations promote ER and SRSR.

Communities of Learners

Communities of learners refer to classroom cultures that build from a shared knowledge base as well as a socially shared set of values, norms, and expectations (Collins, Brown, & Newman, 1989; Rogoff & Gardner, 1984; Rogoff, Paradise, Arauz, Correa-Chaves, & Angelillo, 2003). Communities of learners couple individual responsibility with group support, encourage children to share ideas and strategies, make allowances for individual differences, nurture relationships between teachers and children, and incorporate familiar participation structures (Battistich, Solomon, Watson, & Schaps, 1996; Brown & Campione, 1994; Crawford, Krajcik, & Marx, 1999; Larrivee, 2000; Wighting, 2006). That is, communities of learners provide
opportunities for learners to: contribute to classroom discussions (e.g., explain their perspectives or insights on a task); collaborate and cooperate with each other on projects; and provide instrumental feedback on tasks, with the goal of supporting one another’s learning and enhancing the learning community. For example, Meyer and Turner (2002) describe how supportive discourse and conversation takes place in Mrs. Robinson’s classroom when children are learning how to factor numbers. The researchers reported that children’s understanding of the concept was “foggy” and Mrs. Robinson realized this when she checked in with children. Instead of penalizing them for not completing their work, Mrs. Robinson worked within the community of learners by supporting children to ask questions, reviewing and re-teaching the material. Further, she provided children with opportunities to practice questions and to work with partners to help to build, share, and clarify their understanding of the topic. Finally Mrs. Robinson gave gradual control over learning to children as she saw them developing expertise. Children took the responsibility for helping, supporting, and coaching others.

Communities of learners are supportive of SRL when they allow learners to share, discuss, model, and enact metacognitive and motivational strategies (Paris & Winograd, 1990). Communities of learners provide children with opportunities to develop their repertoire of SRL skills with the goal of supporting them to use effective social and independent aspects of learning in the future (Beishuizen, 2008; Paris & Winograd, 1990). Although communities of learners have been linked to SRL, research has not examined their relationships with ER and SRSR.

**Summary**

Research has linked features of classroom contexts to children’s development of and engagement in SRL. In particular, complex tasks appear important for supporting SRL. Complex tasks are academic activities that provide opportunities for supporting optimal levels of challenge
for children. They do this by addressing multiple goals, integrating subject matter, requiring learners to engage in a number of cognitive and metacognitive learning processes, allowing learning to be represented through a variety of products, and spanning multiple work periods. Also, complex tasks tend to embed additional features of contexts that provide children with autonomy and support for making meaningful choices and controlling challenge by modifying levels of difficulty on academic tasks to suit their individual learning needs. Finally, complex tasks typically afford children opportunities to engage in non-threatening/non-competitive evaluations and access instrumental support structures that promote learning. These features work together to provide a learning context that supports self-regulation. To date, features of contexts have been linked to SRL but not ER or SRSR. Therefore, the present study is extending the literature by examining relationships between eight features of classroom contexts and three potentially distinct aspects of self-regulation — ER, SRL, SRSR, and to academic achievement. Also, this study is examining whether and how these features provide opportunities for children to develop and engage in the aspects of self-regulation in their classrooms.

**The Present Study**

**Overview and Significance**

This study utilized a mixed-method, multi-level research design to ascertain whether: (a) teachers distinguished between three aspects of self-regulation identified in this dissertation, specifically, ER, SRL, and SRSR; (b) teacher’s ratings of children’s self-regulation were related to academic achievement in school; (c) teacher’s ratings of children’s self-regulation differed by the demographic variables of sex and age, and how (d) eight features of classroom contexts were related to teachers’ ratings of self-regulation and (e) provided opportunities and support for ER, SRL, and SRSR. The sample included 208 primary school children who were attending school in
one of four large suburban school districts. The districts in this study serve the full range of SES communities and diverse cultural groups in British Columbia, Canada. Data included classroom observations of activities in core subject areas (e.g., Language Arts, Math) and teachers’ ratings of children’s self-regulation and achievement. Kindergarten, grade 1 and grade 2 children were selected for this study because the preponderance of research on self-regulation has included preschool children or students in the middle school grades through college. Recent research has indicated the importance of self-regulation in children’s adjustment to elementary school (Calkins, 2010). Therefore, I decided that the literature would benefit from more studies examining young elementary school children’s learning and development of multiple aspects of self-regulation (ER, SRL, and SRSR), and features of classroom contexts that support them.

**Research Questions**

In the present study, five research questions were posed:

1. Do teachers’ ratings distinguish children’s ER, SRL, and SRSR?
2. What are the relationships between teachers’ ratings of children’s self-regulation and their academic achievement?
3. What are the relationships between teachers’ ratings of children’s self-regulation and the demographic variables of sex and age?
4. Are opportunities for self-regulation in classroom contexts associated with teachers’ ratings of children’s self-regulation?
5. How are opportunities for children to engage in self-regulation presented in classrooms?
Organization of the Thesis

Chapter 2 presents a detailed review of the literature on ER, SRL, and SRSR and eight features of classroom contexts believed to support children’s development of and engagement in them. Chapter 3 describes the methods I employed to study the three aspects of self-regulation and the eight features of classroom contexts. Chapter 4 describes my data analyses and the results of my study. Chapter 5 presents the discussion and conclusions that can be drawn from my research, and it discusses theoretical and practical implications and directions for future research.
CHAPTER 2: REVIEW OF LITERATURE

Introduction

The content in Chapter 2 builds on the overview presented in Chapter 1. In the first half of Chapter 2 I expand (a) definitions of ER, SRL, and SRSR and their importance in children’s learning, (b) the methods and measures used to study these aspects of self-regulation with children, (c) the limitations of previous research, and (d) strategies for improving research in the field. In the second half of Chapter 2, I elaborate on the descriptions of the eight features of contexts—complex tasks, choices, control over challenge, self-evaluation, teacher support, peer support, non-threatening evaluations, and community of learners—presented in Chapter 1. Then, I describe their roles in supporting young children’s development of and engagement in the processes of metacognition, motivation, and strategic action for ER, SRL, SRSR.

Emotional Regulation (ER)

What is ER and Why is it Important?

As described in Chapter 1, this study conceptualizes ER as children’s engagement in metacognition, motivation, and strategic action to cope with affect in order to learn and interact successfully with others in the classroom. The goal of adaptive and effective ER is to control the impact of affect on individuals’ thoughts and actions in order to successfully meet their goals. This definition is consistent with the developmental literature on self-regulation indicating that ER requires children to have insight into emotion, or emotional understanding, and the ability to control how emotion influences behavior (Fabes et al., 1999; Saarni, 1999; Saarni, Campos, Camras, & Witherington, 2006).
Table 2.1 provides examples of how metacognition, motivation, and strategic action for ER and the other aspects of self-regulation may manifest in classrooms. These examples are later reflected in the teacher rating scale developed for this study. To elaborate, metacognition for ER is reflected in individuals’ awareness of their internal affective state (e.g., excited, sad, angry) and their control over how affect impacts their behavior. Motivation for ER describes how children manage in situations (e.g., playing competitive games with friends, being putdown by a peer) that evoke positive and negative affect (e.g., excitement, frustration, anger, sadness, shame) to sustain engagement and meet their goals. Strategic action describes how children engage in ER when affectively charged situations arise (e.g., disputes over a rule in game).

Chapter 1 illustrated that the preponderance of the research on ER has been done in developmental psychology. Recent studies in developmental psychology have linked children’s engagement in ER to having supportive relationships with teachers and academic achievement (Blair, Denham, Kochanoff, & Whipple, 2004; Denham, Blair, Schmidt, & DeMulder, 2002; Denham et al., 2003; Eisenberg et al., 2004; Ladd, Kochenderfer, & Coleman, 1996). For example, Graziano et al. (2007) examined ER in kindergarten children and its relationship with teacher-student relationships and early academic success. Researchers obtained teacher ratings of children’s ER, teacher-child relationships, achievement, and behavior problems. Results indicated that children’s ER was positively associated with productivity in the classroom and achievement. Furthermore, children’s ER and the quality of the teacher-child relationship predicted academic outcomes even when children’s IQ was controlled for in the analysis. This study indicated that children’s ER was an important factor in helping children to be productive in class and to achieve in school.
### Table 2.1

**Examples of ER, SRL, and SRSR in the Classroom**

<table>
<thead>
<tr>
<th>Metacognition</th>
<th>ER</th>
<th>SRL</th>
<th>SRSR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Can label and talk about emotions.</td>
<td>- Makes realistic evaluations of his/her performance on a task.</td>
<td>- Recognizes how much support peers need for learning.</td>
</tr>
<tr>
<td></td>
<td>- Expresses emotions appropriately (e.g., is able to control anger or frustration as well as excitement and anticipation).</td>
<td>- Manages a set of directions to complete tasks independently.</td>
<td>- Adjusts feedback and support to suit peers’ particular learning needs.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivation</th>
<th>ER</th>
<th>SRL</th>
<th>SRSR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Has something positive to say about his/her learning, even when s/he is disappointed because s/he does not do well on an assignment.</td>
<td>- Enjoys and/or values learning new things.</td>
<td>- Is committed to including other children in learning activities.</td>
</tr>
<tr>
<td></td>
<td>- Asks for help when tasks are difficult rather than becoming frustrated.</td>
<td>- Is willing to try challenging tasks.</td>
<td>- Enjoys working and learning with others.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Strategic Action</th>
<th>ER</th>
<th>SRL</th>
<th>SRSR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- Asks for help when tasks are difficult rather than becoming frustrated.</td>
<td>- Asks to modify tasks that s/he perceives are too difficult.</td>
<td>- Refers a peer to information/books that can assist that peer with a project or task.</td>
</tr>
<tr>
<td></td>
<td>- Moves to a quiet space to work.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Similarly, Rudasill and Rimm-Kaufman (2009) examined whether teachers’ ratings of preschool children’s characteristics (shyness, effortful control) were related to the quality of teacher–child relationships in grade 1. Findings indicated that children who had lower ratings of ER had higher ratings of conflict with their teachers, and children who had higher ratings of effortful control had higher ratings of closeness with their teachers. Also, results demonstrated that teachers were likely to report that they experienced more conflict in their relationships with
boys and more closeness in their relationships with girls. Together the results of Graziano et al. (2007) and Rudasill and Rimm-Kaufman (2009) indicate that the ER is implicated in successful approaches to learning and having successful relationships with teacher and peers. This seems particularly critical for boys who tend to have more conflict-laden relationships with their teachers.

Research that examines children’s development of and engagement in ER in relation to features of classroom learning contexts is just beginning. Studies in developmental psychology have examined how parenting styles are related to children’s development of ER. For example, Eisenberg et al. (2005) employed three waves of data (T2, T3, T4) to determine how aspects of positive parenting were related to children’s effortful control and externalizing problems. Eisenberg and her colleagues employed observational data from laboratory tasks to assess parenting practices as well as parent and teacher reports of children’s behavior. The main finding from this study was that children’s effortful control at T3 mediated the relationship between parental warmth/positive emotional expressivity at T2 and externalizing problems at T4. Findings indicated that children’s ER is influenced by the interactions they have with their parents. Therefore, it seems likely that teachers’ interactions, like parents interactions, may also provide meaningful opportunities for children to engage in ER while learning in classrooms. Studies can extend previous research by identifying how ER is related to features of classroom contexts (e.g., complex tasks, self-evaluation).

**How is ER Studied?**

In developmental psychology researchers commonly employ: (a) parents’ reports (b) teachers’ and clinicians’ reports and (c) laboratory tasks, to measure children’s ER. ER has been operationalized as parents’ reports of preschool and kindergarten children’s engagement in
effortful control (Eisenberg et al., 2007; Eisenberg et al., 2005; Rothbart, Ahadi, & Hershey, 1994; Spinrad et al., 2006). Parents rate items that assess children’s abilities to focus attention (e.g., “When picking up toys or other objects, usually keeps at the task until it’s done”; Rothbart, Ahadi, Hershey, & Fisher, 2001), shift attention (e.g., “Has an easy time leaving play to come to dinner”; Rothbart et al., 2001), and inhibit or control behavior (e.g., “Prepares for trips and outings by planning things s/he will need”; Rothbart et al., 2001). These measures tend to be lengthy and time consuming for parents to complete. Also, these measures are not designed as teacher reports and do not contain items that situate children in everyday classroom situations.

Studies in developmental psychology assess atypical or clinical forms of ER using teacher’ and clinicians’ reports of problematic and “at risk” behavior. These measures focus on predicting clinical forms of emotional dysregulation rather than typical forms of ER that support all children’s development of and engagement in adaptive and effective aspects of self-regulation in their daily lives (Achenbach, 1991; Graziano et al., 2007; Shields & Cicchetti, 1997, 2001). Items on these measures reflect more extreme behaviors that are not representative of how most children behave and provide poor insight into the typical development of young children’s ER in classrooms.

Also, ER has been operationalized as effortful control scores on tasks that assess delay of gratification and persistence in laboratory contexts (Kochanska et al., 2001; Kochanska et al., 2000). Delay of gratification tasks include: not eating an M &M candy (Koshanska et al., 2000) and persistence tasks involve solving a difficult puzzle task (Eisenberg et al., 2007). In Eisenberg et al., 2007, the researchers placed a puzzle in a large wooden box which masked children’s view of it. Before children started the task, the researchers showed children the puzzle, and covered it up with a cloth. Children were asked to complete the puzzle by placing their arms in the
armholes that extended into the box to manipulate the pieces inside the box. Children were told that if they completed the puzzle task in four or five minutes they would receive points for a prize. A criticism is that the findings for a particular child may not generalize well to classrooms where children’s behaviors associated with metacognition, motivation, and strategic action can be linked to strategies they may use to cope with and regulate emotion in everyday situations (e.g., having a disagreement with another child and trying to resolve the conflict). Therefore, a strategy for understanding children’s persistence on a task in a more authentic fashion is to observe how they interact with classroom learning tasks activities that are likely to require them to regulate affect as part of their day-to-day learning. By examining how children regulate affect as they engage classroom learning, researchers have opportunities to link it to features of classroom contexts. The tools researchers continue to employ to study ER have limitations that need to be addressed to move theory and research forward.

Developmental researchers have examined how aspects of ER are socialized (e.g., Dunn & Brown, 1994; Laible, 2004; McDowell, Kim, O’Neil, & Parke, 2002; Perez & Gauvin, 2005; Rubin, Burgess, & Hastings, 2002). In these studies, researchers have attended to studying conversations and/or interactions between parents and children to understand how parenting practices can influence aspects of children’s ER (e.g., emotional understanding, emotional recognition, controlling negative affect). Rubin, Cheah, and Fox (2001) studied children’s behavioral inhibition in relation to parenting by observing children in three play situations. First, children were observed playing in groups of four during a free time play session without adults. Second, children were observed playing during a free time session with a parent. Third, children were observed as parents guided them through a Lego task. The researchers found that children who were less involved and more shy during peer group play sessions were more
sensitive to negative emotion, and less able to be comforted when upset. Rubin et al. found that mothers’ directive parenting was predictive of children’s shy and socially wary behavior. Findings demonstrated that children who were more sensitive to negative emotion and more shy in their play tended to have fewer opportunities to develop and learn self-coping skills and strategies. Finally, Rubin and colleagues found that parenting that offered little guidance, warmth, and support was related to children’s engagement in socially shy behavior. Rubin et al. suggest that children’s ER develops in contexts that offer autonomy, relational warmth, and supportive guidance for learning. Teachers may provide this kind of context when they employ the features of classroom contexts described below.

Altogether, the developmental and educational psychology literatures can benefit from more research on young children’s ER in school. First, school-based studies should sharpen conceptualizations of ER involving metacognition, motivation, and strategic action. Second, classrooms and schools offer opportunities to study ER in typically developing children and everyday learning situations. Third, mixed-methods research, which combines teacher reports and observational measures to gather data, can reveal the dynamic interplay between opportunities and support for ER and children’s engagement in ER.

**Self-Regulated Learning (SRL)**

**What is SRL and Why is it Important?**

Self-regulated learning (SRL) describes independent, academically effective approaches to learning involving, metacognition, motivation, and strategic action (Azevedo et al, 2005; Fuchs, et al., 2003; Muis, 2008; Perry & Winne, 2006; Sperling, Howard, Staley, & DuBois, 2004; Zimmerman, 1990, 2008). SRL is theoretically different from ER as it reflects individuals’ use of these processes to control learning rather than affect. Table 2.1 provides some examples of
how metacognition, motivation for learning, and strategic action are involved in children’s SRL. Metacognition for SRL is reflected in children’s awareness of themselves as learners (e.g., making realistic evaluations of their performance on a task) and their understanding of how to control their learning (e.g., managing a set of directions to complete tasks independently). Motivation for learning is reflected in children’s personal goals for learning (e.g., enjoys and/or values learning new things), children’s self-efficacy for approaching tasks (e.g., is willing to try challenging tasks), and adaptive attributions linking success and failure to controllable factors. Strategic action is reflected in children’s repertoire of tactics which they efficiently and effectively apply to attain goals for learning (e.g., chooses a quiet space to work if other children are talking).

Children’s capacities for SRL have been largely underestimated (Perry, 1998; Whitebread et al., 2007). Researchers assumed young children were incapable of regulating their learning in a sophisticated fashion and that they were not susceptible to the affective, cognitive, motivational, and behavioral pitfalls (e.g., negative affect, helplessness) that can undermine their engagement in it (Dweck, 2002; Mueller & Dweck, 1998; Perry, 1998; Turner, 1995). To date, studies continue to accumulate empirical evidence demonstrating that young children enact metacognition, motivation for learning, and strategic action to regulate their learning in classrooms (e.g., Perry, 1998; Perry & Winne, 2013; Turner, 1995). They also have the capacities to formulate the patterns of thought that coincide with negative emotion, such as a lack of persistence, self-blame, and having impaired cognitive strategies which undermine their learning and development of SRL (Dweck, 2002; Mueller & Dweck, 1998; Turner, 1995). These findings have prompted researchers to illustrate the importance of studying contexts that support young learners to develop adaptive and effective approaches to their learning. In fact, studies
have demonstrated that classroom features (e.g., types of academic tasks, choice, control over challenge, teacher support, peer support) influence the extent to which SRL is supported in young children’s classrooms, and the extent to which children engage in it (Perry, 1998; Stipek et al., 1995).

Specifically, Perry (1998) used classroom observations and interviews to examine how classroom contexts supported young elementary school children’s engagement in SRL during writing and portfolio activities. Findings indicated that classrooms that supported children’s engagement in SRL during writing tasks offered them opportunities to think and behave like self-regulated learners. That is, children were actively involved in metacognitive activities that included planning, monitoring, revising, and editing their work. Children in these classrooms had choices and retained control over challenges in their learning because they were able to manage how they spent time and how they used materials to help them with their work. Perry (1998) found that children in these classrooms perceived their teachers as collaborators rather than managers of their work. Children sought help when they had difficulties or when they wanted feedback about their work. Results of this study indicate that when children are in contexts that are highly supportive of SRL, they are more likely to engage in it. Furthermore, these contexts supported students to develop the beliefs and skills associated with SRL by supporting effective strategy use and effort to be academically successful in school.

Perry’s program of research continues to accumulate evidence illustrating how teachers can support young elementary school children’s development of and engagement in SRL, and that children’s development of SRL is linked to positive outcomes (Perry & Drummond, 2002; Perry et al., 2004; Perry et al., 2006; Perry & VandeKamp, 2000; Perry, VandeKamp, & Mercer,
However, no studies have applied this body of work to other aspects of self-regulation such as ER and SRSR.

**How is SRL Studied?**

Studies about SRL are of particular interest to researchers in educational psychology. The majority of literature on SRL has involved older students and used survey self-report methods (e.g., Mason, Boldrin, & Ariasi, 2009; Pintrich, Smith, Garcia, & McKeachie, 1993; Thomas & Gadbois, 2007). Self-reports can provide reliable data and they are efficient to administer when studying SRL in older students. These measures provide students with an important voice in research. Unfortunately, self-report measures often pose problems when studying SRL in young children. They require individuals to rely on their memories and interpretations of events and to generalize those events across contexts and time (e.g., Nesbitt et al., 2006; Perry & Winne, 2006; Whitebread et al., 2009; Winne & Perry, 2000). This is a particular problem for young children. Also, they may have limited experience using rating scales and they may find the language used to describe SRL difficult to understand. In addition, items on survey self-report measures do not necessarily reflect the social or co-regulated interactions that researchers stress as central to SRL (Hadwin, Oshige, Gress, & Winne, 2010; McCaslin, 2009; McCaslin & Hickey, 2001). Therefore, an alternative method for studying young children’s SRL may be by employing teacher ratings.

Teacher ratings of children’s behavior have potential for researchers interested in understanding young children’s engagement in SRL. They are as efficient to administer as self-report measures and also allow for data to be gathered about large samples of children. Perry and Meisels (1996) reviewed research on teacher ratings of children’s behavior and achievement and found they are reliable assessments when (a) items reflect events that are general enough to be
observed in all children and (b) they describe behaviors that are easily and reliably observed. However, teacher ratings are also imperfect measures. They may contain a type of cognitive bias known as a halo effect where general impressions of a child are influenced by perceptions of his/her character (e.g., “a good kid”). When halo effects occur, a teacher may rate a child highly on several desirable classroom behaviors but their ratings of that child’s behavior can be inaccurate because of their perception of that child’s character. Addressing the limitations posed by self and teacher report measures to assess young children’s SRL remains a current challenge. Researchers have turned to classroom observations as another method for gathering data to understand young children’s development of and engagement in SRL in classrooms.

SRL researchers have employed observation methodologies to acquire evidence of the ways that features of classroom contexts provide young children with opportunities for their engagement in SRL (Perry, 1998; Perry et al., 2007; Turner, 1995). Observations can allow researchers to experience a day in the life of children in a particular classroom so they gather information about how the classroom operates. Existing research on SRL has indicated that these methods have yielded valid and reliable data by providing important information about how features of contexts promote and curtail young children’s engagement in SRL (Perry & Winne, 2006; Whitebread et al., 2009). Therefore, it seems reasonable that observation methodologies can be extended to examine ER, SRL, and SRSR in relation to features of classroom contexts. Like self-reports and teacher ratings, observation protocols have methodological limitations. First, bias about the construct under study can influence what gets observed. Second, aspects of self-regulation (e.g., metacognition, motivation) are difficult to observe reliably; that is, without asking participants about what they are thinking and doing (Butler, 2002; Perry & Winne, 2006; Winne & Perry, 2000).
Altogether, observational research has demonstrated that young children engage in sophisticated SRL during day-to-day classroom tasks and activities (Perry, 1998; Perry & Winne, 2013; Winne & Perry, 2000). Also, researchers have indicated that reliable teacher ratings of children’s behavior can be obtained when items portray behavior they can readily observe in all children (Perry & Meisels, 1996). However, reliable teacher ratings that measure children’s SRL need to be developed. And, both observational and teacher rating measures have methodological limitations. Therefore, mixed-methods studies that utilize observations and reliable teacher ratings have the potential improve understandings about how children’s SRL is supported through features of classroom contexts (Perry & Winne, 2013; Whitebread et al., 2009; Winne & Perry, 2000).

**Socially Responsible Self-Regulation (SRSR)**

**What is SRSR and Why is it Important?**

This study establishes the construct SRSR from literature on prosocial behavior (e.g., Eisenberg, Wolchik, Golderg, & Engle, 1992; Wentzel et al., 2007), prosocial regulation (e.g., Ryan & Connell, 1989), and socially responsible behavior (e.g., Wentzel, 2002). SRSR is a form of self-regulation that describes ways that children utilize metacognition, motivation, and strategic action in social situations to support learning and collective functioning in the classroom contexts (e.g., when offering and asking for instrumental peer support). Table 2.1 provides concrete examples of how the processes of metacognition, motivation, and strategic action may be represented in children’s development of and engagement in SRSR.

Metacognition for SRSR requires an awareness of one’s skills in relation to others and control over interactions with others; behavior reflects socially competent and responsible ways of interacting. Motivation for SRSR reflects individuals’ goals to nurture another person’s learning
progress, a willingness to include others in learning, and an interest in helping others learn. Strategic action for SRSR is the enactment of socially competent and responsible behavior to support learning. SRSR is different from ER and SRL because it reflects individuals’ self-regulation in social interactions (e.g., understanding how to approach a peer to ask to be part of a collaborative working group) and, it contributes to one’s own and other’s learning. By conceptualizing SRSR using metacognition, motivation for learning, and strategic action, ER, SRL, and SRSR are united, theoretically, to reflect these processes so they can be studied together and in relation to features of classroom contexts.

Studies in developmental and educational psychology have linked metacognitive aspects of social competence and ER, namely, perspective taking and emotional understanding to children’s enactment of behavior that I describe as SRSR (Bukowski & Sippola, 1996; Eisenberg et al., 1996; Eisenberg et al, 1998; Fabes et al., 1999). Also, studies have demonstrated that children who adopt other oriented values and beliefs engage in SRSR (Cheung, Ma, & Schek, 1998; Small, Zeldin, & Savin-Williams, 1981; Wentzel, 2003b). And, when children pursue collaborative classroom goals, as well as mastery goals for learning (a hallmark of SRL), they typically pursue goals for SRSR (Anderman, 1999; Anderman & Anderman, 1999; Hutchinson, Schonert-Reichl, Perry, & Zumbo, 2004; Meece, Anderman, & Anderman, 2005). Finally, children who have supportive peer relationships in school are often the recipients of other children’s SRSR (Crick & Nelson, 1999; Eisenberg et al., 1990; Persson, 2005; Wentzel et al., 2007). Several studies have demonstrated that children’s academic performance in school is related to their engagement in SRSR (Caprara et al., 2000; Welsh, Parke, Widaman, & O’Neil, 2001; Wentzel, 2003a; Wentzel et al., 2007).
In their longitudinal study, Caprara et al. (2000) measured behaviors consistent with what I call SRSR at grade three and found that they were a statistically significant predictor of academic achievement in grade eight. Also, Wentzel (1991) obtained self-reports of early adolescents pursuits of goals for SRSR and their academic achievement. Findings indicated that children’s goals for SRSR were predictive of their academic achievement even when controlling for IQ, sex, ethnicity, and family structure. Similarly, Wentzel (1993) obtained self-reports of middle school children’s engagement in SRSR and their academic achievement. Children’s engagement in SRSR predicted children’s grade point averages. SRSR was found to be a statistically significant predictor of their independent standardized test scores even when controlling for teachers’ preferences for learners and other effects (Wentzel, 1993). Findings from the studies described above indicate that children who report pursuing SRSR are successful in school. However, studies need to answer questions about how SRSR relates to ER, SRL, achievement, and to features of classroom contexts.

How is SRSR Studied?

Studies that examine aspects of SRSR have been of interest to researchers in developmental and educational psychology. However, with the exception of Ryan and Connell (1989), who studied SRSR in elementary school children (grades three to six), the majority of research in developmental and educational psychology has studied children’s enactment of SRSR before school (e.g., Eisenberg et al., 1996; Eisenberg et al., 1990) and in the adolescent years (Fabes, Carlo, Kupanoff, & Laible, 1999; McNamara Barry & Wentzel, 2006; Wentzel, 1991, 1993; Wentzel & McNamara, 1999). Hence, studies about SRSR need to include children who are in the early years of their elementary school education (e.g., kindergarten through grade
This study begins to fill this gap in the literature by exploring the importance of SRSR in this age group.

Previous research indicates that children’s SRSR has been operationalized as scores derived from teacher, parent, and peer reports of their enactment of prosocial behavior, prosocial regulation, or social responsibility goals (see Eisenberg et al., 2004 for a review; Eisenberg et al., 1998; Wentzel, 1991; Wentzel et al., 2007). There are at least three criticisms of current teacher ratings and/or self-report measures that assess SRSR as prosocial behavior, prosocial regulation, and social responsibility goals. Some of these criticisms are similar to those discussed in relation to measures of ER and SRL. First, the majority of teacher rating and self-report measures of SRSR contain items that are not situated within the day-to-day activities and events that transpire in classrooms. This is problematic when asking teachers to report on children’s engagement in SRSR because they have to interpret the contextual meaning of the item and generalize the frequency of the behavior within their classroom. A recent review of research by Eisenberg et al. (2006) and a study by Ianotti (1985) have indicated that prosocial behavior is highly contextually specific. Therefore, researchers need to improve the ways they design measures of SRSR so that items reflect the contextual nature of SRSR and the types of classroom events and activities where SRSR is likely to unfold in young children’s classrooms. In attending to this aspect of research design, measures of SRSR are likely to have higher levels of content validity and will yield data that is likely more representative and generalizable.

Second, researchers have reported ceiling effects with current teacher report measures of children’s SRSR (e.g., Lakes & Hoyt, 2004). This could indicate that the rating scales used in these assessments do not provide enough variability in scores and teachers have difficulty making distinctions between children’s enactment of SRSR. Alternatively, high scores could
indicate the presence of a halo effect, which is a type of cognitive bias that inflates the scores or ratings. Austin and Brunner (2003) have cautioned researchers that Type I errors are more likely when measures yield scores that reflect ceiling effects. Therefore, the rating scales that accompany measures of SRSR need to have enough variability for teachers to make quantitative distinctions in children’s enactment of SRSR. Third, the wording of items on self-report assessments of SRSR as prosocial behavior and prosocial regulation, in particular, are susceptible to social desirably, where respondents answer questions in ways that portray themselves in a positive light (Eisenberg & Mussen, 1989). Self-reports of children’s SRSR ask questions like: “Why do you not make fun of another child for making a mistake?” (Ryan & Connell, 1989), or “How often do you try to be nice to kids when something bad has happened to them?” (Wentzel, 1993). Items from these measures may inadvertently prompt individuals towards a desired response and influence a measure’s reliability and validity. Therefore, items need to be worded in ways that are less likely to guide participants to a “correct” response. In designing items that present situations and events that happen in everyday classrooms, variability in ratings of individuals’ SRSR is more likely to emerge.

Another strategy researchers have deployed to study children’s enactment of SRSR is laboratory observations, which place children in situations where SRSR may be evoked (Hastings & Rubin, 1999; Hastings, Rubin, & DeRose, 2005; Krevans & Gibbs, 1996). For example, Hastings et al. (2005) conducted observations of toddlers and preschool aged children to measure children’s SRSR under two conditions: (a) when a child’s mother pretended to have an injury to her finger, and (b) when an experimenter stumbled into the waiting room where the child was playing and dropped some materials. The researchers coded children’s SRSR in both situations using a rating scale ranging from 1 (absent) to 7 (strong).
A criticism of this type of laboratory simulation is that it provides little insight into understanding how features of contexts support SRSR (e.g., what teachers say and do to scaffold children towards socially responsible ways of thinking and behaving). It also provides little information about ways that children enact metacognition, motivation, and strategic action for SRSR when teachers provide them with tasks that challenge their engagement in it. For example, when a child is asked to collaborate with peers on a complex task, how does the child react to other children in his/her group when the task is not going well? Does the child pose potential solutions to the group (e.g., dividing up some sections of the project based on strengths/weaknesses)? Does s/he offer instrumental support to assist other children with learning? These kinds of questions are unlikely to be answered through the laboratory task described above. Instead, a solution is to observe children’s SRSR in naturalistic settings, like classrooms, in order to understand ways that children develop and engage in it.

Altogether, my literature review demonstrates that research about young children’s SRSR is rare. However, SRSR has been related to learners’ social competence and academic achievement. Teacher ratings that assess young children’s SRSR need to be developed so that studies can illuminate how SRSR is related to ER, SRL, and features of classroom contexts.

Summary

Researchers in developmental and educational psychology typically study two aspects of self-regulation: (a) ER – applying self-regulatory processes to cope with affect (Eisenberg & Spinrad, 2004) and (b) SRL – engaging metacognition, motivation, and strategic action while learning (Perry & Winne, 2013). In this study, SRSR is a third aspect of self-regulation I derived from research on prosocial behavior, social competence, and social responsibility (Eisenberg et al., 2006; Wentzel et al., 2007). SRSR refers to how children self-regulate in social interactions
to support their own and others’ learning. SRSR requires self and other awareness and motivation to see others succeed, as well as knowledge and appropriate use of tactics and strategies to support one’s own and others’ learning. Within the developmental psychology literature, children’s ER has been assessed using clinical measures designed to identify children “at risk” for atypical emotionality and problem behavior (Achenbach, 1991; Calkins, 2010; Shields & Cicchetti, 2001). Items on these measures do not situate children’s self-regulation in everyday classroom events and activities where more typical forms of ER develop. Furthermore, studies of SRL and SRSR often rely on self-report measures, which are problematic when administered to young children (Pintrich et al., 1993; Wentzel, 2002). But, teacher-ratings of easy to observe behaviors in regularly occurring classroom situations have proven reliable. This study examined empirical distinctions between ER, SRL, and SRSR and their relationships with academic achievement using a teacher-rating instrument (described in Chapter 3). Also, I utilized observations to examine whether and how features of classroom contexts provided opportunities for young children’s engagement in ER, SRL, and SRSR in classrooms.

Features of Classroom Contexts

Studies in developmental and educational psychology indicate that authoritative and autonomy supportive family and school contexts are associated with children’s development of and engagement in self-regulation (Baumrind, 1991; Epstein, 1996; Maccoby & Martin, 1983; Walker, 2008). These contexts are characterized as both warm and demanding. They provide opportunities for children to engage in meaningful decision making and invite children to take control over learning, but also offer children high levels of emotional support and scaffolding to ensure their success (Steinberg, 2001; Walker, 2008). Within the last 15 years, research on SRL
in educational psychology has expanded its focus to study how individual aspects of SRL are related to social and contextual factors and how these factors support or curtail SRL (Butler, 2011; Perry & Rahim, 2011; Perry & Winne, 2013). The review presented below elaborates on the features of contexts described in Chapter 1. Also, evidence illustrating how the eight features of classroom contexts known to provide opportunities for SRL—complex tasks, choices, control over challenge, self-evaluation, teacher support, peer support, non-threatening/non-competitive evaluations, communities of learners—may also provide opportunities for children’s ER and SRSR, which remains an empirical question.

**Complex Tasks**

Features of tasks have been considered essential elements in efforts to support children’s SRL. In particular, *open tasks* (Tuner, 1995) and *complex tasks* (Perry, 1998) are academic tasks known to provide opportunities for children to develop and engage in SRL. Turner (1995) described open tasks as those that focus on organizing activities around themes or topics of interest. They allow for autonomy and collaboration, and they are motivating in that they provide moderate amounts of challenge to learners. Complex tasks are academic activities designed in ways that integrate content from across school curricula, require learners’ sustained attention over a period of time, involve learners in a number of metacognitive and cognitive processes, and result in children producing evidence of their learning in a variety of ways (Perry, 1998; Perry et al., 2006; Perry & VandeKamp, 2000).

As described in Chapter 1, this study builds from the Perry’s program of research to define academic tasks that support SRL as complex tasks (Perry, 1998; Perry et al., 2006; Perry & VandeKamp, 2000). Complex tasks have four defining features. First, they address *multiple goals* for children’s learning (e.g., learning how to make predictions, share ideas, collaborate
with peers). Second, they purposefully integrate school subjects for children’s learning (e.g., language arts and science). Third, complex tasks engage children in a wide range of learning processes (reading, writing, gathering data). Fourth, they enable children to create a number and variety of products as evidence of their learning (e.g., drawings, stories, plays). Finally, complex tasks engage learners over multiple periods of work time.

Complex tasks have captured the interest of educational psychology researchers who study SRL. They set up the cognitive conditions of the classroom context, that is, the ways learners know, understand, and process information (Butler & Winne, 1995; Doyle, 1981; Miller, 2003; Winne & Hadwin, 1998; Perry, 1998; Turner, 1995). Complex tasks are designed to challenge children within their zones of proximal development (ZPD). Vygotsky (1978, p. 86) defined the as the distance between a child’s actual developmental level, evidence by independent problem-solving, and his level of potential development, evidenced by problem-solving with support from teachers or more capable peers. As such, children usually require some form of scaffolding or CR from teachers that can serve as external feedback about how they have applied their skills on the task to support their regulation of learning. Researchers have stressed that feedback is critical for supporting SRL (Butler & Winne, 1995; Clifford, 1988; Turner, 1995; Turner & Meyer, 2004). Complex tasks have been linked to learners’ SRL, motivation, self-efficacy beliefs, and academic achievement (Blumenfeld, 1992; Bromme, 2005; Brophy, 1987, 1998; Butler & Winne, 1995; Perry, 1998; Rivet & Krajcik, 2007; Turner, 1995; Winne & Hadwin, 1998).

For example, Blumenfeld et al. (1987) gathered data to examine qualitative differences between the types of academic tasks and practices employed in what they referred to as high and low challenge classrooms. In the classroom that offered high challenge academic tasks, learners
were observed constructing phrases they could use to help them remember their spelling words. They had opportunities to make choices about a unit of study they would be working on for a 3-week time frame that integrated learners’ skills in reading and science. In this classroom, the teacher showed learners how to organize their report for the project, and provided them with models of reports they could use to help themselves organize their reports. Learners in this classroom engaged in collaborative work to construct predictions about a story they were working on and their assigned homework built from their collaborative in-class work. Overall, these researchers concluded that this classroom provided learners with opportunities to engage in deep, reflective cognitive processes, sustain motivation to learn, and to enact strategic behavior for learning.

In the classroom that offered learners low challenge academic tasks, Blumenfeld et al. (1987) observed learners completing seatwork where they were matching words to definitions, and copying capital letters from an overhead. Learners were seen submitting their work to the teacher for marking, and then proceeding to a spelling task; there was little evidence that learners in this classroom had opportunities to reflect on their learning. Findings indicated that the teacher in this classroom typically introduced academic tasks but gave learners assigned homework that was different from their classroom learning. In this classroom, learners spent time copying examples from a language arts text, and completing worksheets. The types of academic tasks and practices observed at the beginning of the week in this classroom were consistent throughout the week.

Findings indicated the academic tasks and practices employed in the high and low challenge classrooms presented children with differing opportunities for their learning and engagement in SRL (Blumenfeld et al., 1987). Academic tasks in the high challenge classroom
were child centered and contained some of the characteristics that made them complex by design (e.g., learning took place over an extended period of time and integrated curricula). Also, the high challenge academic tasks provided more opportunities for children’s development of and engagement in SRL. They embedded opportunities to make choices and control challenge (e.g., choosing a topic for a unit study), engage in peer support, and they offered children instrumental support from the teacher for learning.

Similarly, Turner (1995) examined the ways that open and closed tasks supported children’s motivation for learning. In classrooms that offered open tasks, Turner observed that children had opportunities to devise a variety of solutions for problems, and this was linked to their persistence and volitional control while learning. Moreover, open tasks were designed in ways that supported learners to individualize learning. For example, if learners were having difficulty, they had ways of modifying the task to make it more manageable. In fact, Turner observed one child making more than 25 attempts to arrange words in a sentence he was working on to determine whether or not it made sense. Also, this child made use of teacher hints and strategies to complete the task successfully. By contrast, classrooms that offered closed tasks rarely provided children with opportunities to enact their motivational and volitional control. Closed tasks were not constructed in ways that permitted children to assess their thinking and strategy use while learning. Such tasks did not challenge children to focus on their learning. Turner indicated that children in classes where closed tasks were utilized appeared bored or tended to assume automatic, less effortful ways of engaging in learning. That is, children were observed spending more time coloring worksheets than completing them, and children did not seem to work carefully and use knowledge to enhance their thinking. Turner’s findings
underscore the importance of complex or open academic tasks in providing children with opportunities to engage in sophisticated aspects of SRL.

Together, research findings indicate that complex tasks and open tasks offer more opportunities for children’s development of and engagement in SRL than tasks without these features. They embed other features of contexts, such as choice and control over challenge, that have been associated with motivation and SRL. The studies reviewed above also provide insights about how academic tasks may provide opportunities for different aspects of self-regulation. For example, complex academic tasks provide opportunities for learners to manage affect and social interactions when they challenge learners and give them opportunities to share knowledge or collaborate with peers. In collaborative activity, children have opportunities to discuss challenges with peers, which may alleviate anxiety, or share problem-solving strategies. This study examined how complex tasks were linked to autonomy promoting features of classroom.

**Choices**

Choices can provide children with opportunities to learn how to manage their autonomy, and they can promote an internal locus of control (Deci & Ryan, 1985). Providing children meaningful choices presents opportunities for children to gain insight into the ways their decisions about academic work are linked to their academic achievement (Cordova & Lepper, 1996; Blumenfeld et al., 1992; Perry, 1998; Walker, 2008). Consistent with previous research, choices refer to opportunities for children to make meaningful decisions that impact their learning (Perry, 1998). Some examples of meaningful choices include decisions about who is a good partner to work with on a task or project, what topics to write about, when to devote time to particular tasks, where to work to avoid distractions, and how to represent learning.
Research findings have indicated that meaningful choices provide opportunities for children’s development of and engagement in SRL when coupled with instrumental teacher support (Blumenfeld et al., 1987; Miller, 2003; Meyer & Turner, 2002; Perry, 1998; Stefanou, Perencevich, DiCinto, & Turner, 2004). In fact, Stefanou et al. (2004) claim providing opportunities for children to make choices may not create conditions needed for academically effective aspects of self-regulation unless they are accompanied by scaffolding — cognitive and metacognitive support to guide decision making process so that the implications of those decisions are considered (e.g., a set of criteria for choosing suitable peers for a long-term group project). However, with scaffolding in place, offering children choices about modifying academic tasks, where to work, and what topics to choose for a long-term research project may also provide opportunities for children’s development of and engagement in ER and SRSR. For example, choices can provide opportunities for children to manage affect by presenting them with opportunities to modify learning tasks so they are optimally challenging.

**Control Over Challenge**

Consistent with previous research (e.g., Miller & Meece, 1997; Perry, 1998), this study refers to control over challenge as opportunities for children to modify or tailor academic tasks to support their learning (e.g., get books or resources to help them, work with other people). Certainly, children have opportunities to control challenge through meaningful choices (e.g., deciding whether to work independently or with another student). Research has demonstrated that providing children with opportunities to control challenge can support their SRL and academic achievement (Ames, 1992; Connell, 1985; deCharms, 1976; Pintrich, 1999; Pintrich, Roeser, & De Groot, 1994; Zimmerman, 1995; Zimmerman & Paulsen, 1995).
In their study, Eshel and Kohavi (2003) examined the extent to which teacher and student control impacted sixth grade children’s engagement in SRL strategies, self-efficacy, intrinsic motivation, and mathematics achievement. Children reported utilizing more SRL strategies when they had higher perceptions of learner control. They reported fewer SRL strategies when they perceived that learner control and teacher control were of the same magnitude. Children who rated their teachers as providing fewer choices also reported fewer strategies for SRL. Results indicate that when children have opportunities to make choices they also have opportunities to control challenge. Also, these results indicate that when learners perceive more control over their learning, they engage in more of the strategies associated with SRL.

Also, Kramarski and Revach (2009) found differences between mathematics teachers who were trained to teach towards SRL and those that were not. Teachers trained to teach towards SRL guided rather than directed children’s learning. They provided children with more opportunities to exert control over decisions, pursue learning interests, and deepen their understanding of material, than those teachers who were not trained to teach towards SRL. Similarly, Stipek et al. (1995) explored motivation and achievement differences between child-centered and teacher-directed classrooms. Child-centered classrooms had many of the characteristics associated with contexts where self-regulation is supported. These classrooms provided considerable autonomy in that they allowed children to choose tasks and control challenge in their learning. Results indicated that children in the child-centered classrooms engaged in more meaningful tasks and were more willing to try moderately challenging tasks than children in teacher-directed classrooms. These children displayed more positive affect and enjoyment for learning, preferred challenging academic tasks, and relied less on adults for their learning than did children in teacher-directed classrooms.
Taken together, results from Kramarski and Revach (2009) and Eshel and Kohavi (2003) demonstrate that when children are provided with opportunities to exert control over their learning, this supports their engagement in SRL. Results from these studies, and Stipek et al. (1995), suggest that giving children control over challenge may also provide opportunities for their ER and SRSR. For example, control over challenge may also present opportunities for children to manage negative affect by allowing them to modify a task that is too challenging or frustrating rather than abandoning the task. Control over challenge may provide opportunities for honing their skills to interact with others by allowing children to work collaboratively on aspects of tasks that are difficult so that they can learn how to manage the task independently in the future. This study investigated how opportunities to exert control over challenge in classrooms were related to children’s ER, SRL, and SRSR. Also, this study explored whether and how opportunities to control challenge were related to opportunities to engage in self-evaluation.

**Self-Evaluation**

Chapter 1 described self-evaluation practices as learner-centered assessments that provide children with opportunities to share responsibility for reflecting upon and evaluating their learning and understanding (Rolheiser, 1996; Ross, Rolheiser, & Hogaboam-Gray, 1998; Stipek, 1981; Stipek, Recchia, & McClintic, 1992). Examples of self-evaluation include responses to metacognitive questions (e.g., What did you learn about yourself as a reader today?), or application of rubrics to gauge the extent to which they have met criteria for an assignment (Ciardiello, 1998; Fuchs et al., 2003; Hillyer & Ley, 1996; Jacobs & Paris, 1987; Schraw, 1998; Zimmerman & Dibenedetto, 2008). Research has found that self-evaluations are linked to children’s affect, SRL, and to their achievement (Schunk 1996, 2003; Stipek et al., 1992; Perry, 1998; Schunk & Zimmerman, 2008).
For example, Stipek et al. (1992) found that positive self-evaluations supported children to set higher goals for their learning and to commit more personal resources to learning, whereas negative self-evaluations were linked to ineffective approaches to learning. Stipek and colleagues demonstrated that young children’s appraisals of their learning as either positive or negative influences their engagement in it. Similarly, Hillyer and Ley (1996) triangulated data from interviews, observations, and children’s stories to examine how grade two children’s self-evaluations of their writing portfolios were related to their perceptions of themselves as writers throughout the school year. Results indicated that children’s self-evaluations were linked to cognition and metacognition for SRL. Almost all children perceived that they had made progress in their writing and nearly all children demonstrated an improved ability to recognize strengths and weaknesses in their writing. Findings demonstrated that children’s self-evaluations were linked to improvements in their motivation for learning and strategic action. That is, children wrote higher quality and longer stories, they reported enjoying writing more and they put forth more effort in their writing over the year.

Finally, Perry and VandeKamp’s (2000) study extends the research findings reported above. They investigated the ways that children interpreted feedback and engaged in self-evaluation about their writing within contexts that supported SRL. Their results indicated that some children experienced negative affect when they were asked to make changes to their work, but they report that the negative affect did not appear to have a lasting impact on their learning. That is, children coped with the negative affect (ER) effectively by incorporating the feedback into their writing. In fact, their findings indicated that after children made changes to their stories, they evaluated their writing positively. Results indicated that classrooms which provided
opportunities for self-evaluations for SRL also provided opportunities and support for children’s engagement in ER.

To date, the educational psychology literature has not studied children’s ER in relation to self-evaluation opportunities in young children’s classrooms. The findings reported above provide evidence indicating that children experience affect when they engage in it. Also, the studies reviewed above indicate that opportunities for self-evaluation are linked to children’s SRL. Perry and VandeKamp’s (2000) research demonstrated that contexts that supported SRL also supported ER so children could cope with the affect elicited by the self-evaluations and engage in SRL. Therefore, research that examines how young children’s opportunities for self-evaluation are linked to ER seems promising. A question raised by the research above is whether and how opportunities for self-evaluation may be linked to SRSR. For example, self-evaluations may provide opportunities for SRSR when a child is unhappy with his/her evaluation and that child needs help or support from a peer for help to devise a strategy for improving it. If the child is having difficulty identifying how to improve his/her work, s/he may engage in SRSR to ask the peer for help about ways to improve it and the peer may engage in SRSR to support him/her.

The present study identifies how opportunities for self-evaluation support ER, SRL, and SRSR. Also, the present study examines how self-evaluation is related to teacher and peer support.

**Teacher Support**

Teachers are instrumental to children’s learning. They make critical decisions about the types of academic tasks and activities that take place inside classrooms. Teachers also determine whether these activities provide both the autonomy and support children need to effectively regulate their engagement in learning. Scaffolding and CR can be described as support that enables learners to work within their ZPD and to internalize adaptive approaches to learning.
(McCaslin & Hickey, 2001; Perry & Winne, 2013). Schunk and Zimmerman (1997) describe how other regulation supports the development of SRL in four stages: observation, imitation, self-control and finally the enactment of self-regulation. Scaffolding and CR from teachers decreases as learners develop the skills and strategies needed to work effectively and independently. Teachers provide scaffolding and CR for children when, for example, they model metacognitive and cognitive skills, utilize elaborative, critical, or peer questioning techniques, or offer children cognitive hints or clues that may help them complete a task (Beyer, 1997, 2008; Perry et al., 2008). Consistent with previous research, this study refers to teacher support as instrumental support (scaffolding and CR) from teachers to assist students with the various aspects of self-regulation with a goal of enhancing self-regulation and learning (Lutz, Guthrie, & Davis, 2006).

Studies have demonstrated that teacher scaffolding is critical for children’s development of and engagement in SRL (Newman, 1998, 2000, 2002). To elaborate, children benefit from metacognitive scaffolding and CR from teachers that provide hints or clues to assist in their learning and, when teachers pose questions that support children to articulate their understanding of tasks and strategies for learning (Chi, 2000; Conner, 2007; Franke et al., 2009; Merrill, Reiser, Merrill, & Landes, 1995). When teachers utilize CR and scaffolding they afford children opportunities to rehearse and internalize ways of thinking and learning so they can work independently and effectively in the future.

Together, studies indicate that teacher support in the form of scaffolding and CR has a positive impact on children’s development of and engagement in SRL. This study examines how teachers provide support for children’s ER, SRL, and SRSR. Also, it examines how teacher support is related to other features of contexts (e.g., choices and control over challenge,
communities of learners). For example, teachers who model metacognitive skills or provide hints or clues for handling difficulties may support children’s ER so they can manage negative emotion they may experience when facing challenging academic tasks. Teachers may provide opportunities for SRSR when they prompt children to seek out discussions with their peers to check their understandings of subject material. In turn, this can support children’s academic learning by deepening their personal knowledge and learning of a topic, building their repertoire of independent learning strategies, and strengthening their cooperative and collaborative learning skills. Finally, teachers make important decisions about the roles that peers may play in other children’s learning. As described below, peers, like teachers, can be an instrumental source of support for children’s learning in the classroom.

**Peer Support**

Consistent with the literature, my study defines peer support (e.g., modeling, providing hints, clues, sharing learning strategies) as instrumental support (scaffolding and CR) classmates provide to engage in learning. Peers can provide children with meaningful interactions (e.g., dialogues and discussions) that support effective forms of help-seeking, cooperation and collaboration, CR and shared forms of regulation to support learning (Karabenick & Newman, 2006; McCaslin, 2009; Newman, 2000; Palincsar, 1998; Palincsar & Brown, 1988). Research has linked effective forms of peer support such as help-seeking, self, other, and shared forms of regulation, and collaboration to effective forms of learning.

Children who engage in SRL are likely to use effective help seeking strategies as a form of peer support to overcome difficulties in order to regulate their learning (Karabenick, 2001; Marchand & Skinner, 2007; Nelson-Le Gall, 1990; Newman, 1990, 1994, 2000). However, the extent to which children do this is (in part) influenced by features of classroom contexts such as,
the design of academic tasks, and opportunities to make meaningful choices and control challenge in their learning (Newman, 2000). Children who engage in effective help-seeking know what help is needed, where and how to access help, and they evaluate whether help, once received, was useful (Newman, 2002). Newman’s (2002) research suggests that help-seeking may support ER and SRSR. To elaborate, effective help-seeking can support ER so that a child can get help to illuminate their understanding of a task and its objectives in order to sustain their learning. Also, effective help-seeking can promote SRSR so that children learn about one another’s learning strengths and weaknesses (i.e., including whether children are effective help givers) which can be used by a child in future learning to, for example, select peers to work with on collaborative projects. In addition to help-seeking, peer support may also take the form of CR and shared aspects of regulation for learning, which are implicated in the research studies described below.

In their recent study, Whitebread et al., (2007) collected data to gather evidence about 3-5 year old children’s engagement in self-regulation, CR or other regulation, and shared regulation (i.e., all members of a group are perceived as equal regulators of learning) of learning when they worked individually, in pairs, in small groups, and as a class. Results indicated that when children took up opportunities to engage in collaborative activities in pairs or small groups, they showed behavior reflective of high levels of metacognition and regulation for learning. Children who worked individually were found to exhibit more regulation of affect and motivation than all of the other groups. Also, when the researchers compared the behavior of children working in unsupervised groups to that of supervised groups, they found that unsupervised groups of children showed more evidence of behavior reflective of shared and other regulation of learning. These findings suggest that peer support in the forms of shared and other regulation is likely to
emerge when children are engaged in collaborative learning activities. In turn, these situations are likely to require children’s engagement in ER and SRSR to support learning. For example, collaborative learning situations may produce some conflict between children. Before they can resolve the conflict, children may need to engage in ER to control their feelings and behavior. Then they may need to focus on a solution using other and shared aspects of regulation which can prompt SRSR to help them further learning. Finally, these findings seem to suggest, that for young children, individual learning situations tend to require high levels of SRL and ER. For some young children it may be that collaborative tasks help them regulate learning by distributing both the affective and cognitive load of tasks.

In fact, Järvenoja and Järvelä (2009) studied self, co, and shared regulation of affect during collaborative learning tasks. Their goals were to identify: (a) affective challenges learners perceived when involved in collaborative learning situations, (b) students’ self-regulation, CR, or shared regulation for managing affect in collaborative learning, and (c) learners’ perceptions of the challenges they perceived as a group and group differences in the aspects of regulation utilized. Findings demonstrated that learners faced social and emotional challenges related to teamwork and collaboration, and these challenges increased as tasks progressed. However, students’ reports of affective challenges related to work and communication, and personal challenges decreased as they engaged in the tasks. Also, results indicated that students reported using self and shared regulation more than CR when they were in affectively challenging situations. Finally, results demonstrated that students perceived they engaged in shared regulation of learning as well as self-regulation of learning while engaged in the tasks, and that individuals reported their attainment of personal goals while sharing the regulation of learning on a collaborative task (Järvenoja & Järvelä, 2009). These findings demonstrate that collaborative
learning tasks provide opportunities for learners’ development of and engagement in multiple potentially distinct aspects of self-regulation (ER, SRL, SRSR), particularly when learning tasks are affectively challenging. As reported earlier in this chapter, complex tasks have been linked to SRL, and they are likely to support learners’ engagement in ER because they are moderately challenging. Also, these findings suggest that these kinds of collaborative tasks require peer support as co- and shared regulation which can support SRSR (e.g., negotiating how to divide up a task, how to present the learning including what “counts” as evidence of learning) so that personal and collaborative learning goals are attained.

Finally, Chiu and Khoo (2003) examined the dynamics of successful and unsuccessful groups who were engaged in solving math problems. In successful groups, learners employed shared regulation strategies such as deferring questions to more knowledgeable group members, and having discussions when disagreements arose. Learners in unsuccessful groups responded to group members with rudeness, which reduced the groups’ ability to agree upon and solve problems, and withheld important knowledge that had implications for group achievement. The findings reported above implicate ER and SRSR in learning. Behavior that reflects poor ER and SRSR such as rudeness and negativity can curtail learning. Instead, groups that engage in effective ER and SRSR demonstrate they can solve problems effectively, and know when and how to ask for help when difficulties arise in order to learn.

Altogether, research indicates that contexts which provide opportunities for peer support through help-seeking, other, and shared regulation, and collaboration tend to provide opportunities for children’s ER, SRL, and SRSR. Opportunities for peer interactions support children to share ideas, formulate plans and strategies, monitor one another’s progress, help one another cope when faced with challenges, articulate difficulties that arise during task
engagement, and learn the skills needed to work effectively with others. A question raised by the research reviewed above is how peer support is related to other features of contexts, such as non-threatening and non-competitive evaluations and communities of learners. It may be that peer support is evident in classrooms where non-threatening and non-competitive evaluations are used to support children to regulate learning and achievement.

**Non-Threatening/Non-Competitive Evaluations**

The present study describes non-threatening/non-competitive evaluations as those that focus on children’s mastery and understanding of a topic, effort and improvement, and optimism for future learning rather than grades and social comparisons (Ames, 1992; Anderman & Midgley, 1997; Lau & Nie, 2008). Non-threatening/non-competitive evaluations provide children with feedback about their learning that is tailored to their interests, goals and personal learning needs. These evaluations highlight positive aspects of the task with aspects that can be improved with persistence and effort in the future (Linnenbrink, 2005; Pintrich, 2000; Urdan 2004a, 2004b; Urdan & Mestas, 2006; Zimmerman & Dibenedetto, 2008). Within the literature, researchers have linked non-threatening/non-competitive evaluations to formative versus summative evaluation methods, mastery versus performance goal structures, and positive versus negative social comparisons.

In their work, Zimmerman and Dibenedetto (2008) distinguish between two types of evaluation practices, namely formative evaluation and summative evaluation. Formative evaluation practices (e.g., self-evaluation) are characterized as non-threatening, learner-centered, and criterion-based. They actively engage children in tracking their learning growth and progress. In contrast, summative evaluation practices (e.g., end of unit tests) tend to be more threatening and competitive for children because they tend to compare children’s performances
and make grades public (Zimmerman & Dibenedetto, 2008). Formative evaluations can promote ER and SRL because they often provide concrete and explicit criteria for evaluating learning. Often when children are involved in setting criteria (perhaps as part of their community of learners), this helps them to understand how their work will be evaluated so they can actively monitor their engagement in their learning and their progress towards a goal (SRL). Also, when formative evaluations use explicit evaluation criteria, children may have opportunities to engage in ER to manage anxiety about the learning task. When formative evaluations are non-threatening this can help children (a) control potential anxiety about being evaluated (ER) and (b) having their learning compared to their peers (ER) which may make them more likely to assist others with learning by engaging in SRSR (e.g., offering strategies to improve writing for a story a child is writing). The types of evaluation practices present in classrooms are often reflective of classroom level mastery and performance goal structures.

Classroom level mastery and performance goal structures have been linked to effective and ineffective approaches to learning, respectively. Mastery goals at the classroom level are described as those that emphasize understanding and improving skills and knowledge. Research has demonstrated that classrooms that focus on promoting mastery goals support children’s engagement in effective and adaptive approaches to learning (Meece & Miller, 2001; Nolen, 1988, 2001; Nolen & Haladyna, 1990; Roeser, Midgley, & Urdan, 1996; Wolters, 2004). In contrast, classroom level performance goal structures refer to those that emphasize high ability, competing for grades, and academic performance. Studies have indicated that classroom level performance goal structures are linked to children’s pursuits of performance goals, and these are linked to negative affect (e.g., anxiety, low self-efficacy and self-esteem) for some groups of
children (e.g., low achieving children), which can manifest in academically maladaptive forms of learning (Ames, 1992; Linnenbrink, 2005; Patrick, Anderman, Edelin, & Midgley, 2001).

Linnenbrink (2005) examined mastery approach, performance approach, and mastery and performance approach classroom goal structures in relation to pre-test and post-test measures of children’s motivational goal orientations, emotional well-being, help seeking, cognitive engagement, and math achievement. Results indicated that children in classrooms that emphasized either mastery approach or mastery approach/performance approach goals engaged in more adaptive forms of help-seeking and did better academically than did children in the performance approach classroom. Children who reported pursuing mastery goals during the pretest reported higher levels of positive affect and lower levels of negative affect. Findings indicated that classroom and individual level mastery goals promoted children’s development and engagement in ER and SRL. They are likely to foster peer support (i.e., help-seeking) which in turn may promote SRSR. Children’s perceptions of classroom goal structures are likely to influence the way they use evaluations to make social comparisons to make inferences about their learning.

Social comparison theory stipulates that individuals are motivated to understand themselves compared to others. However, individuals can hold beliefs about themselves that are inaccurate or unrealistic (Buunk & Gibbons, 1999). In education, learners’ beliefs about themselves are (in part) shaped by the evaluation practices present in classrooms. Non-threatening/non-competitive evaluation methods are likely to provide children with a realistic and tangible measurable basis for evaluating their learning constructively (e.g., through the use of explicit criteria). They can provide children with accurate external feedback so they can understand the development of their personal progress in relation to similarly skilled peers.
(Chanal, Sarrazin, & Bois, 2005; Coleman, 1985; Dumas, Huguet, Monteil, Rastoul, & Nezlek, 2005). Especially, external feedback that focuses on personal development has been found to mitigate negative social comparisons (Meece & Miller, 1997; Patrick et al., 2001). In fact, social comparisons can help children sustain their motivation for completing a task, and set higher goals for their learning (Blanton, Buunk, Gibbons, & Kuyper, 1999). Based on these findings, it seems reasonable that non-threatening evaluations can provide adaptive social comparisons that promote children’s ER and SRL. They can support ER when children learn strategies for coping constructively with shame and sadness they may feel when getting feedback on a task. They can promote SRL when children learn how to identify strengths and weaknesses in their work and learning. This research also has implications for SRSR. Non-threatening evaluations can illuminate children’s understandings of others’ learning and when children have opportunities to collaborate on a task, they can use the information gleaned from adaptive social comparisons to make informed choices about, for example, who to collaborate with on tasks. To date research has not examined the relationships between non-threatening/non-competitive evaluation methods to ER and SRSR, but such a focus seems promising. Children seem likely to make adaptive social comparisons and participate in non-threatening evaluations when they perceive they are part of a community of learners.

Communities of Learners

The construct “communities of learners” resides within sociocultural perspectives of learning. It situates children in a classroom culture of thinking and learning that involves the active participation of all individuals (Brown, 1997; Brown & Campione, 1994; Collins et al., 1989; Mitchell & Sackney, 2001; Rogoff et al., 2003; Staples, 2007; Wighting, 2006). Researchers have linked communities of learners to collaborative, cooperative, and inquiry based
approaches to learning, and to learners’ development of and engagement in SRL (Guthrie et al., 1998; Klingner & Vaughn, 1999; Palincsar & Brown, 1984; Staples, 2007). Consistent with Brown and Campione (1994) and Crawford et al. (1998), the present study describes communities of learners in terms of four characteristics.

First, communities of learners couple individual responsibility for learning with group support. Classrooms may accomplish this by providing children with outlets for receiving instrumental scaffolding (e.g., teachers and peers) or providing students with explicit expectations about appropriate classroom behavior (e.g., waiting for a turn to speak). Second, they encourage children to share ideas and strategies for learning. Classrooms sometimes give students opportunities to work cooperatively and collaboratively on tasks and projects so they can plan and discuss their ideas about the project and how they will approach it. Also, when children complete individual work, they may be encouraged to teach each other about aspects of their learning (e.g., types of strategies used, where they looked for information) and how they enacted strategies to accomplish their learning goals. Third, communities of learners make allowances for individual differences. These classrooms provide children with opportunities and support to adjust their work and learning so that it is optimally challenging for them. This is critical for developing SRL so that learners develop increasingly effective and sophisticated learning strategies and are motivated by challenging tasks. Fourth, they nurture relationships between children and the teacher. The relationships in communities of learners can be characterized as warm and supportive where teachers and students communicate care for each other (e.g., they are comforting or kind when a student is hurt or upset).

Research has linked communities of learners to meaningful academic tasks, opportunities for learners to exert control over their learning, peer support, and to learners’ development of and
engagement in SRL (Beishuizen, 2008; Crawford et al., 1998; Staples, 2007). Also, research findings have associated features of communities of learners with collaborative tasks requiring self-regulation, other regulation or CR, and shared regulation of learning (Järvenoja & Järvelä, 2009; Whitebread et al., 2007). For example, Whitebread et al. (2007) found that children who engaged in extensive collaborative tasks supported one another’s learning through CR and shared regulation. Similarly, Järvenoja and Järvelä (2009) concluded that affectively challenging learning tasks provided opportunities for learners to enact self-regulation, CR, and shared regulation to attain individual learning goals as well as collaborative goals. When learners have opportunities to collaborate on challenging tasks, this can support the development of a community of learning because these tasks can help learners to build relationships by working together, and to pursue individual learning with support from their group.

Staples (2007) conducted an in-depth longitudinal case study to examine the roles of a teacher, learners, and instructional practices in shaping the development of a community of learners in mathematics. Results indicated that the teacher nurtured the development of a community of learners by supporting students to make contributions to the community (e.g., eliciting input from children that would support them to explain their ideas to the class and allow others access to the ideas), scaffolding learners’ thinking (e.g., engaging learners in elaborative questioning to deepen their thinking), and modeling the metacognitive processes involved in learning. Furthermore, the teacher helped to support the community of learners by covering requisite knowledge, providing children with opportunities to modify tasks, and by keeping the purposes for learning collaboratively salient. Findings indicated that the community of learners had a positive impact on learners’ perceptions of themselves, and the over the school year, learners took on more responsibility for managing their learning.
Similarly, Crawford et al. (1998) triangulated data from videotapes, interviews, teacher journals and electronic correspondence to examine the ways in which a middle school teacher supported the development of a community of learners in science. Observational data indicated that communities of learners were supported when the teacher integrated the use of learner-centered, authentic, project-based tasks, and employed teaching practices that provided children with opportunities to control their learning, enact cooperative and collaborative approaches to learning, elicit teacher support (e.g., asking for some help on decision making) and peer support (e.g., dialogue, sharing learning). The research found that children were cognitively and metacognitively engaged in their learning, motivationally committed to their learning, and they utilized cooperative and collaborative strategies to carry out their learning.

Altogether, the research described above provides evidence linking communities of learners to children’s development of and engagement in different potential aspects of self-regulation—SRL, as well as ER and SRSR. Communities of learners may provide opportunities for ER by enabling learners to overcome negative self-perceptions to complete their work, and they may lessen the anxiety a child experiences when they are working through a challenging task. Communities of learners may provide opportunities for SRSR by encouraging learners to view one another as instrumental to their thinking and learning. Research which focuses on exploring the ways that communities of learners are related to other features of contexts, and how they provide opportunities for children to develop and learn the ER and SRSR is needed.

Summary

Research has demonstrated that teachers can support children’s SRL by presenting them with opportunities to engage in complex tasks, make meaningful choices, exert control over challenge, and collaborate with peers, and by providing instrumental support for SRL through,
for example, non-threatening evaluation practices and creating communities of learners (Perry, Nordby, & VandeKamp, 2003). However, less research is available about how teachers employ features of contexts to support ER and SRSR, even though developmental research has demonstrated the critical role of ER and social competence in young children’s adjustment to and success in school (Diamond et al., 2007). Altogether findings warrant studies of young children’s self-regulation and efforts to support it early in children’s educational careers. Therefore, studies that examine how self-regulation develops and how features of contexts support (or curtail) its development are needed. My dissertation examined ER, SRL, and SRSR and how eight features of classroom contexts provided opportunities for children’s engagement in them. Next, I review the research methodology that was employed to carry out this study.
CHAPTER 3: RESEARCH METHODOLOGY

Method

Design

This study utilized a mixed-method, multi-level research design to address five research questions:

1. Do teachers’ ratings distinguish children’s ER, SRL, and SRSR?
2. What are the relationships between teachers’ ratings of children’s self-regulation and their academic achievement?
3. What are the relationships between teachers’ ratings of children’s self-regulation and the demographic variables of sex and age?
4. Are opportunities for self-regulation in classroom contexts associated with teachers’ ratings of children’s self-regulation?
5. How are opportunities for children to engage in self-regulation presented in classrooms?

Sample

Data were collected in 20 primary grade classrooms (kindergarten, grade 1, and grade 2) in 14 elementary schools during the Spring and Fall of 2010 and Winter of 2011 (see Table 3.1 for the classroom demographics). The mode for class size was 18, but class sizes ranged from 18 to 24 children. Classrooms were equally distributed across the full range of Socio-Economic Status (SES) neighborhoods. Some classrooms included children in more than one grade. The average participation rate across classrooms was 56% (range = 15% to 100%). In total, 19 teachers (19 females; 0 males) provided data on 208 children (see Table 3.2 for participating children’s demographics). The average age of children was 6.31 years old ($SD = .84$ years). Teachers reported that approximately 30% of children who participated in the study spoke
Table 3.1

Demographic Characteristics of Participating Teachers’ Classrooms (N = 20 Classrooms)

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade</th>
<th>Total children per class</th>
<th>Total participating children per class</th>
<th>Participating children</th>
<th>Children with a special needs designation</th>
<th>Children who have an ESL designation</th>
<th>Children from visible minority backgrounds</th>
<th>Classroom SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Christine</td>
<td>1/2</td>
<td>22</td>
<td>7</td>
<td>Boys</td>
<td>Girls</td>
<td>(n)</td>
<td>(n)</td>
<td>(n)</td>
</tr>
<tr>
<td>2. Cara</td>
<td>1/2</td>
<td>22</td>
<td>10</td>
<td>7</td>
<td>3</td>
<td>0</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>3. Teresa</td>
<td>K</td>
<td>18</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4. Tammy</td>
<td>1</td>
<td>20</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>5. Trish*</td>
<td>K</td>
<td>20</td>
<td>13</td>
<td>9</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>6. Leigh</td>
<td>1</td>
<td>21</td>
<td>16</td>
<td>7</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>7. Jessie</td>
<td>1</td>
<td>19</td>
<td>15</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>8. June</td>
<td>K</td>
<td>19</td>
<td>14</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>9. Jasmine</td>
<td>K</td>
<td>20</td>
<td>14</td>
<td>8</td>
<td>6</td>
<td>1</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>10. Samantha</td>
<td>2</td>
<td>21</td>
<td>20</td>
<td>13</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>11. Brandy</td>
<td>K</td>
<td>18</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>14</td>
<td>18</td>
</tr>
<tr>
<td>12. Michaela</td>
<td>K</td>
<td>19</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>13. Nancy</td>
<td>K</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>14. Kim</td>
<td>K</td>
<td>16</td>
<td>15</td>
<td>8</td>
<td>7</td>
<td>0</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>15. Gwen</td>
<td>K</td>
<td>18</td>
<td>14</td>
<td>4</td>
<td>10</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>16. Stephanie</td>
<td>K/1</td>
<td>19</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>17. Mandy</td>
<td>1/2</td>
<td>19</td>
<td>15</td>
<td>6</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>18. Leslie</td>
<td>K/1/2</td>
<td>22</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>19. Doris</td>
<td>K</td>
<td>16</td>
<td>16</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>20. Cory</td>
<td>K</td>
<td>15</td>
<td>14</td>
<td>6</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note. All teacher names are pseudonyms.* Data provided by this teacher were incomplete and removed for data analysis.
Table 3.2

Demographic Characteristics of Participating Children

<table>
<thead>
<tr>
<th>Grade</th>
<th>N</th>
<th>Sex</th>
<th>Age</th>
<th>Visible minority status</th>
<th>ESL designation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Caucasian</td>
<td>Other</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>119</td>
<td>56</td>
<td>63</td>
<td>5.56</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>1</td>
<td>43</td>
<td>26</td>
<td>17</td>
<td>6.96</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>46</td>
<td>24</td>
<td>22</td>
<td>7.69</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>208</td>
<td>106</td>
<td>102</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
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<td></td>
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<td></td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

English as a Second Language, and approximately 47% of children were from a visible minority (non-Caucasian) background. All children who participated in this study were attending school in one of four school districts outside Vancouver, British Columbia, Canada. The school districts in this study serve the full range of SES and include children from diverse cultural and linguistic backgrounds, so children in the study were representative of students in the districts as a whole. No participating children were excluded from the study because they were formally identified by their teachers as having a special education designation.

Assessments and Measures

Teacher report questionnaires were used to gather data about children’s backgrounds and self-regulation. Classroom observations were conducted to examine whether and how opportunities for engaging in self-regulation were extended to children in their classrooms.

Classroom Demographic Form

I collected classroom demographic information using the form in Appendix A. This form asked teachers to indicate: their classroom’s overall SES (i.e., teachers’ general perceptions of classroom parents’ education, employment, and housing location) the number of boys and girls
in their classroom, how many children were from visible minority backgrounds, how many children spoke English as a second language, and children with a special education designation.

**Self-Regulation In School Inventory**

The Self-Regulation In School Inventory (SRISI) is a 27-item teacher-report measure, designed for this study. It provides an indirect measure of children’s ER, SRL, SRSR, and academic achievement (see Appendix B). Classroom teachers completed one SRISI for each participating child. At the top of the questionnaire, teachers typed the participating child’s first name and provided five ratings of his/her achievement: a global rating of classroom achievement and then domain specific ratings of achievement in language arts, math, social studies, and science. Teachers rated children’s overall academic achievement using a 7-point Likert scale where 1 = not yet meeting expectations, 3 = approaching expectations, 5 = meeting expectations, and 7 = exceeding expectations. These criteria correspond to the BC Ministry of Education’s grading standards. No other standardized achievement data are available for students in BC before grade 4.

The remaining 22 items are statements that describe behaviors associated with ER, SRL, and SRSR. Teachers rated how accurate, or true, each statement was for a child using a 7-point scale with endpoints ranging from 1 (never true) to 7 (always true). A 7-point response scale was used to introduce more continuous variability in teachers’ ratings than is typically seen in self and teacher report scales in this domain, to decrease the likelihood of floor and ceiling effects in the items, and to increase the accuracy of teachers’ ratings (Cook & Beckman, 2008). Within the literature, researchers indicate that the internal consistency of scales should be at least .70 to justify the summation of scales (Huck, 2008). Cronbach’s alpha for the entire set of self-
regulation items was computed at .97 with a 95% CI of .96 to .98, indicating a high level of internal consistency amongst the total scores.

**Emotional regulation.** The SRISI assesses children’s ER with seven items that ask teachers to rate children’s ability to control or adaptively cope with affective experiences in the classroom. Two items assess behaviors associated with children’s engagement in metacognition for ER (e.g., “Can express/communicate needs and desires”), two items reflect behavior associated with motivation for coping with affect (e.g., “Has something positive to say about his/her learning progress even when he/she is disappointed because he/she does not do well on an assignment”), and three items describe behaviors associated with strategic action for controlling emotion (e.g., “Engages in positive self-talk or other productive strategies when faced with challenging or upsetting situations, rather than letting negative emotions get in the way”). It is important to realize that several of the existing ER measures (e.g., Shields & Chicchetti, 2001) target children “at risk” for atypical development of ER. The SRISI items are designed to represent more typical forms of ER applied to regularly occurring classroom activities. Cronbach’s alpha for the ER items was .91 with a 95% CI of .89 to .93, which demonstrates a high level of consistency amongst the scores.

**Self-regulated learning.** Nine items on the SRISI are used to measure SRL. Each of these items asks teachers to rate behaviors associated with children’s engagement in independent, effective approaches to learning. Three of the items assess behaviors associated with metacognition (e.g., “Is aware of how much time it takes him/her to complete academic tasks”). Three items assess behaviors associated with motivation for SRL (e.g., “Is willing to try challenging tasks”). Finally, three items examine children’s behaviors associated with strategic
action for SRL (e.g., “Can manage a set of directions to complete tasks independently”). Cronbach’s alpha for the SRL items was .94 with a 95% CI of .93 to .95.

**Socially responsible self-regulation.** Children’s engagement in SRSR was assessed with six items that describe behaviors associated with children’s cooperative/collaborative functioning in the classroom. Three items assess behaviors associated with children’s metacognition for SRSR (e.g., “Recognizes how much support peers need for learning”). One item examines behavior associated with children’s motivation for SRSR (e.g., “Appears genuinely interested in and committed to including other children in learning activities”). Finally, two items assess behaviors associated with children’s strategic action for SRSR (e.g., “Offers instrumental support to peers who are struggling with academic tasks”). Cronbach’s alpha for the SRSR items was .91 with a 95% CI of .90 to .93.

**Scoring the SRISI.** As discussed above, teachers rated SRISI items on a 7-point scale between 1 (never true) and 7 (always true). A mean score of SR (self-regulation) was computed by averaging the individual item scores, equally weighted.

**Instrument development.** The development of the SRISI spanned two years and consisted of four core test development strategies. Application of the instrument development strategies was iterative and recursive to make the SRISI as conceptually and psychometrically sound as possible. First, over 200 observations from Perry’s previous research were reviewed to generate a behavior context matrix. The matrix was used to identify behaviors associated with ER, SRL, and SRSR in classroom contexts and then to generate items reflecting metacognitive, motivational, and strategic aspects of these aspects of self-regulation. This strategy was critical to the development of the SRISI to ensure that items were representative of easy to observe self-regulatory behaviors that occur in classrooms as children complete regularly occurring classroom
tasks and activities. However, I acknowledge that the focus on observable behaviors limits the kinds of self-regulatory processes teachers rate (i.e., some self-regulatory processes are not easily observed). Second, SRISI items were compared to the literature on ER, SRL, prosocial behavior, and social responsibility. Third, the SRISI items were compared with existing measures of ER, SRL, prosocial behavior, and social responsibility, including the Early EDI, the Temperament in Middle Childhood Questionnaire (TMCQ; Simonds & Rothbart, 2004), and the Social Goals Scale (Wentzel, 1999). Fourth, six elementary school teachers were recruited to pilot the measure. Each teacher rated two students’ self-regulation using the SRISI, and provided feedback about the items (see procedures). Finally, three experts reviewed the SRISI items for representative content, structure, and wording to ensure items accurately represented the three aspects of self-regulation described in this study.

**Early Development Instrument**

The EDI is a 104-item teacher report measure that assesses children’s readiness to learn. The EDI measures five domains of children’s functioning: physical health and well-being; social competence; emotional maturity; language and cognitive development; general knowledge and communications skills (Janus & Duku, 2007). Sixteen subscales reside within these five domains. The EDI has been used to gather data from over 40,000 Canadian children from a full range of SES and cultural backgrounds and each of the subscales have demonstrated good internal consistency and test-retest reliability for this purpose (Janus & Duku, 2007). I used three subscales (21 items; see Appendix C) from the EDI that describe behaviors associated with children’s self-regulation in school: the “Approaches to Learning,” “Readiness to Explore,” and “Responsibility and Respect” subscales. Typically, teachers rate items on the EDI subscales using a 5-point scale (Guhn, Gadermann, & Zumbo, 2007). I extended this scale to
seven points, ranging from 1 (never true) to 7 (always true) to match the SRISI scale. Teachers completed the EDI items using the adapted scale.

The Approaches to Learning subscale contains nine items (e.g., “Is able to solve day-to-day problems by him/herself”). Cronbach’s alpha for this subscale was computed at .94 in my study with a 95% CI of .93 to .95, indicating a high level of internal consistency amongst the scores on these items. The Readiness to Explore New Things subscale contained four items (e.g., “Is eager to play with/read a new book”). Cronbach’s alpha for this subscale was .79 in my study with a 95% CI of .74 to .84, demonstrating that scores displayed a moderate level of internal consistency. Finally, the Responsibility and Respect subscale contained eight items (e.g., “Demonstrates self-control”). Cronbach’s alpha for this subscale was .94 in my study with a 95% CI of .93 to .96. Altogether, the three EDI subscales demonstrated moderate to high levels of internal consistency and these lower bound estimates of reliability are considered acceptable (Huck, 2008).

The EDI subscales were included in my study as a measure of concurrent validity for the SRISI. These subscales were included in my study for three reasons. First, they were selected because the content of the 21 items reflect behaviors that are consistent with more lengthy measures of children’s self-regulation. Second, these subscales have demonstrated high internal consistency and test-retest reliability in previous studies (Janus & Duku, 2007). Third, teachers who complete the subscales are rating concrete statements about behaviors that occur regularly in young children’s classrooms and that are relevant to all children in the primary grades (Magdalena Janus, personal communication, October 20, 2007). This is important for ensuring that teachers’ ratings of children’s behaviors are accurate, fair, and reliable assessments of children’s self-regulation (Meisels, Bickel, Nicholson, Xue, & Atkins-Burnett, 2001; Perry &
Meisels, 1996). Teacher ratings of children’s learning and behavior were selected as a source of data to address some of the limitations associated with gathering self-report data from young children (e.g., positive response bias, difficulties distinguishing intentions from actions, difficulties generalizing behavior across contexts). I hypothesized that the EDI subscale scores from the Approaches to Learning, Readiness to Explore New Things, and Responsibility and Respect subscales would correlate positively and reliably with total scores of self-regulation as measured by the SRISI.

**Scoring the EDI subscales for self-regulation.** A mean score was computed for each of the subscales by averaging the item scores that comprise each subscale, equally weighted.

**Classroom Observation Instrument**

The classroom observation instrument was adapted from Perry (1998) and contains three sections (see Appendix D). The first section provides information about the classroom that is being observed, including the ID number of the observation, date of the observation, name of the school, name of the teacher, grade level of the children, name of the observer, and both the type/domain and duration of the lesson. The second section provides space for a detailed description, or running record, of the activities that take place during the classroom observation, including verbatim dialogue between teachers and children. The third section is a table of conceptual categories that map onto the eight features of classroom contexts believed to support self-regulation. Column 1 contains the list of features: complex tasks, choices, control over challenge, self-evaluation, teacher support, peer support, non-threatening/non-competitive evaluations, and communities of learners. Column 2 provides examples how the conceptual categories may manifest themselves in classrooms. In this study, it is important to note that the conceptual categories and their characteristics are not mutually exclusive (e.g., choices can
provide children with opportunities to control challenge) and that each category may provide support for more than one aspect of self-regulation. As data were analyzed, these categories and characteristics were qualitatively validated to consider how they aligned with categories in the literature and how accurately they represented the contexts from which data were gathered (Strauss & Corbin, 1997). Also, this method of qualitative analysis allowed for adding categories to those listed on the current protocol if they emerged from these data.

**Checking observation protocols for features of contexts.** The checklist in Section 3 of the classroom observation instrument was used to make judgments about the running record. The checklist was used to identify whether features of classroom contexts believed to promote self-regulation were in evidence during an activity and the extent to which they provided meaningful opportunities for young children’s engagement in self-regulation. Column 1 lists the eight classroom features (complex tasks, choices, control over challenge, self-evaluation, teacher support, peer support, non-threatening/non-competitive evaluations, communities of learners). Also, column 1 lists four characteristics of complex tasks (multiple goals, integrates subject matter, engages students in several processes, results in a number of products), five characteristics of choices (who, what, when, where, how), and four features of communities of learners (couples individual responsibility with group support, encourages students to share ideas and strategies, makes allowances for individual differences, supports relationships – child to child and teacher to child) that elaborate on the main categories/features.

Column 3 of the checklist was used in this study to identify whether the main features of classroom contexts were instrumentally supportive of children’s engagement in self-regulation (no, not instrumentally supportive = 0; yes, instrumentally supportive = 1). For example, if I reviewed a running record and identified evidence of children having opportunities to make
meaningful choices in the classroom (e.g., “who” to work with on a project, choices about “what” the topic of the project would be), I indicated that the choices provided in the classroom were instrumental opportunities for self-regulation; that is they should promote metacognition, motivation, and strategic action (see Appendix D).

To elaborate, choices about “who” can prompt metacognition if they require children to consider their strengths and weaknesses in relation to a task (e.g., what could be sources of challenge) and then consider who is an appropriate helper for them (e.g., who is working on a similar topic or has some needed skills? Can they work well with that person?). Choices about “who” can support SRSR when they encourage children to think about information or skills they have that could support others to be successful on a task (e.g., sharing information that is relevant to a peer’s project).

**Inter-rater reliability for the classroom observations.** A graduate research assistant and myself were the two raters in this study. We observed thirteen of the 80 (16%) activities and then the graduate assistant audited six more classroom observations that I conducted and scored independently (i.e., she reviewed and scored the running records, but was not present for the observation). In total, we reviewed 24% of the classroom observations. Agreement about the presence of instrumental opportunities for self-regulation was the measure of reliability with Cohen’s Kappa used to determine the level of agreement beyond chance. Inter-rater agreement was 90%. Kappa was .71 ($p < .001$, $95\% \ CI = .32$ to 1, $SE = 0.2$). This calculation indicates substantial agreement between raters.

**Aggregating judgments across activities.** In addition to observing what instrumental opportunities for self-regulation were available in each activity, I judged how consistently these opportunities were offered across activities. Specifically, I judged whether particular classroom
features were present rarely, sometimes, or almost always as an indication of how characteristic features were in each classroom’s practices. These qualitative ratings were translated to quantitative codes for the multi-level analysis described in Chapter 4 (1 = rarely observed, 2 = sometimes observed, and 3 = often observed). Five of the main categories—complex tasks, teacher support, peer support, non-threatening/non-competitive evaluations, and communities of learners had ratings or scores that ranged in score from 1 (rarely observed) to 3 (often observed). Although each of the ratings from 1 (rarely observed) to 3 (often observed) for the remaining three categories—choice, control over challenge, and self-evaluation, were rated separately, multicollinearity was detected amongst these features during the Hierarchical Linear Modeling (HLM) analysis described in Chapter 4. To reduce multicollinearity amongst these features, the 1-3 ratings for choice, control over challenge, and self-evaluation were summed to form the higher-level category of autonomy. The ratings or total scores for the autonomy category could range from 1 (rarely observed) to 9 (often observed).

Procedures

Piloting the SRISI. In March 2009, six teachers field-tested the SRISI to determine how long, on average, teachers took to complete the measure for each child. Teachers reported spending an average of four minutes to complete the SRISI for each child. Also, teachers reported the items were clearly worded and they could use the 7-point scale to rate them.

Ethics approval, participant recruitment, and informed consent. The University of British Columbia’s Behavioral Research Ethics Board and the four participating school districts approved the study. Their approval indicated that the study measures and procedures met their ethical guidelines for the treatment of young children as research participants. Two main recruitment strategies were employed in this study. First, I emailed school administrators in the
participating districts to describe the study, including teachers’ and children’s role in it. I asked administrators to forward the study information to classroom teachers and those teachers who were interested in participating contacted the researcher to enroll in the study. Second, I described the study at the Playful Possibilities Institute in July 2010, which was hosted by one of the participating school districts and included teachers from several school districts in British Columbia. Teachers who were interested in enrolling their class in the study provided me with contact information so I could formally invite them to participate in the study in the fall of 2010. In the spring and fall, I contacted teachers who were interested in participating in the study and provided them with consent forms for themselves as well as class sets of consent forms for children (see Appendix E for consent forms). Teachers distributed the consent forms to children approximately three weeks prior to data collection. To increase participation rates in fall 2010, children who returned their consent forms received a fancy school pencil. I collected the majority of consent forms for teachers and participating children when I conducted classroom observations. Due to the distance of one of the districts from the research site (UBC), two teachers mailed the consent forms to me via Canada Post. Observations were not conducted in their classrooms.

**Administration of EDI and SRISI.** Questionnaire data were collected electronically over an 8 week period in the spring of 2010 (April-May), fall of 2010 (mid-October to mid-December), and winter of 2011 (January – February, 2011). The EDI and SRISI data were collected concurrently, using Web Questionnaire (described below). Prior to distributing the questionnaires, I reminded participating teachers that they required Internet access to complete the questionnaires; consent forms also provided this information. I provided teachers with a list of unique login names and passwords for participating children, and an Internet link to access
Web Questionnaire forms for participating children. When teachers logged in to access Web Questionnaire, they began the questionnaire by typing in the first name of a participating child at the top of the questionnaire and proceeded to complete the achievement ratings, EDI and SRISI items. Teachers completed one set of the EDI and SRISI items for each participating child in their classroom. I recommended to teachers that they complete a maximum of one form per day to minimize fatigue in rating children and increase the validity of the reports provided.

**Web Questionnaire.** Web Questionnaire is a Canadian website with a secure server based at Simon Fraser University, allowing the creation and administration of electronic questionnaires to participants using the Internet. In Web Questionnaire, I created an electronic questionnaire template and entered the questionnaire items. After each item was entered, I customized the response scale (e.g., open ended response, sliding scale, Likert-type) for each item on the questionnaire. When the questionnaire was completed, it was “published” and I generated individual login accounts for the research participants so they could access and complete the questionnaire for children who participated in the study.

**Classroom observations.** I observed a total of 80 activities in 17 of the 19 participating classrooms. I spent one day in each classroom (an average of 3.5 hours), observing activities across curricula rather than observing 1 subject area multiple times. Language arts and math were observed in all participating classrooms. Observations of other domains (e.g., science, social studies) were more variable. The beginning and ending of each activity was marked on the running record. Classroom demographic data were collected on the same day that I visited to conduct classroom observations.

Observations were conducted using Perry’s protocol (Perry, 1998; Perry et al., 2006; Perry & VandeKamp, 2000). I positioned myself in the classroom to see and hear what teachers
and children said and did without being intrusive. I recorded events and actions as well as verbatim samples of teachers’ and children’s speech. When an observation was complete, I reviewed and annotated the running record to ensure a complete and accurate representation of classroom activities was obtained. Then, I examined the running records for evidence of the features listed in Section 3 of the observation instrument (as described above in the section that describes the observation instrument).

**Teaching a second rater to conduct and score classroom observations.** During March 2010, I taught a graduate student to be a second rater in this study. The second rater observed an activity or subject from beginning to end in a randomly selected subset of classrooms. In total, the second rater observed 13 of the 80 lessons the researcher observed (16%). The second rater observed lessons in language arts and math. After the first observation, the researcher and the second rater met to review the content of the observation and the coding process. All the observations were coded independently using the coding guidelines described previously (see Appendix D). At the end of data collection, I met with the second rater to review the observations we conducted together, and to reach consensus for discrepancies in coding.

**Remuneration for teachers.** All participating teachers were mailed a thank you card and a $15 gift card to a local coffee shop as a token of appreciation for participating in the study.

**Data Analyses**

Chapter 4 presents the results of my dissertation. The quantitative data described in Chapter 4 were derived from two data sources described above: (1) administration of the electronic questionnaire to teachers, which contained the SRISI, achievement, and EDI items; and (2) numerical codes from analyzing the running records. My qualitative data sources were the full day, in-depth observations I conducted in participating classrooms using the observation
protocol described in this chapter. I conducted preliminary analyses on the SRISI and EDI quantitative data to explore their characteristics and suitability for linear analyses. Next, I performed a maximum likelihood exploratory factor analysis on the SRISI data to examine its psychometric properties. A multiple regression analysis, a one-way ANOVA, and a bivariate regression analysis examined the relationships between the study variables of self-regulation and academic achievement, self-regulation and sex, and self-regulation and grade, respectively. Then, I conducted a qualitative analysis of the classroom observation data to: (a) understand how often the eight features of classroom contexts were observed; and (b) provide detailed descriptions of two lessons from two classrooms that participated in this study. Finally, I utilized quantitative data—the SRISI data and the numerical codes from the observational data—to perform a HLM analysis, which examined the relationships between teachers’ ratings of children’s self-regulation and the eight features of classroom contexts.
CHAPTER 4: RESULTS

Overview

Chapter 4 presents the results of this study. The chapter begins with a discussion of the preliminary analyses conducted in this study. Then, results are presented according to the five research questions posed at the outset of the study.

Preliminary Analyses

To investigate the suitability of linear analyses for these data, preliminary analyses were conducted to examine the psychometric properties of the SRISI, EDI, and academic achievement items. Distributions of the variables were examined through visual inspection of histograms, which indicated that the variables were approximately normally distributed.

To examine whether the SRISI and achievement items satisfied the conditions of linear analysis, four assumptions were tested. To investigate the assumption of linearity, I constructed a scatterplot graph of the standardized residuals from a multiple regression analysis whereby academic achievement was predicted using the SRISI items, and the sex and grade variables. Visual inspection of the scatterplots revealed no curved patterns in these data, and satisfied this assumption. The assumption of independence was examined by computing the Durbin-Watson statistic. Researchers indicate that when error terms are independent, the Durbin-Watson statistic should be approximately 2 and the value computed for this study was 1.53. Residuals from the multiple regression analysis were used in constructing a box plot and normal probability plot to test for normality. Both graphs indicated there were two outliers in these data. However, a decision was made to retain these cases because they did not alter the overall pattern of results that emerged from these data. To investigate the assumption of equality of error variances (homoskedasticity) the variance inflation factor (VIF) was computed and values were less than 2.
Also, the maximum leverage value was 0.04, and was within Huber’s (1981) safe range.

Together, results indicated that linear analyses were appropriate for these data.

**Do Teachers’ Ratings Distinguish Children’s ER, SRL, and SRSR?**

To investigate whether teachers’ ratings distinguish ER, SRL, and SRSR as separate aspects of self-regulation, the raw scores from the 22 items that comprise the SRISI were analyzed using a maximum likelihood (ML) exploratory factor analysis (EFA). This method of factor analysis was chosen to align with my research purpose, namely to investigate the underlying structure of these data, and to label and interpret the factors extracted from this analysis. Fabrigar, Wegener, MacCallum, and Strahan (1999) and Costello and Osborne (2005) advocate four criteria be used to guide the decisions of the MLEFA: (a) visual inspection of the scree plots whereby the number of factors extracted need to show a clear break from the other factors; (b) items need to produce factor loadings of at least .40; (c) simple structure is achieved whereby items loading high on one main factor and cross-loading patterns are minimized, and (d) approximately 60% of the variance among the variables is explained through the analysis.

Table 4.1 reports the factor loadings from the MLEFA. The results indicate that one main factor, “Self-Regulation,” was extracted from these data. It had an Eigenvalue of 13.48 and accounted for 59.81% of the variance among the variables. A visual inspection of the scree plot indicated the extraction of one component with factor loadings were between .6 and .8 (i.e., all items loaded high on the extracted factor). Pearson’s chi-square goodness-of-fit index was calculated, \( \chi^2 = 727.77, df = 209, p < .001 \), and indicates a poor fit between these data and the model. However, the problems associated with this particular goodness-of-fit test are well documented. This test in particular is sensitive to sample size, correlations between items, and distributions that deviate from normality (Costello & Osborne, 2005; Kenny, 2011). A second
factor was considered in the analyses; however, it had an Eigenvalue less than 1 and accounted for just 4.5% of the variance. Therefore, one factor was retained. Overall, these results indicated that teachers did not distinguish ER, SRL, and SRSR in their ratings of children’s self-regulation. These data supported the use of the one-factor model of self-regulation for subsequent analyses in this study. Hence, the unidimensional variable of self-regulation was used as the measure of children’s self-regulation in this study. Table 4.2 presents the descriptive statistics of the self-regulation, EDI, and academic achievement variables.

Table 4.1

Factor Loadings from the Principal Components Analysis of the SRISI Items: One Factor Self-Regulation Model (22 Items)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Makes realistic evaluations of his/her performance on a task.</td>
<td>.80</td>
</tr>
<tr>
<td>2. Offers to refer a peer to information/books that assist that peer with a project or task.</td>
<td>.73</td>
</tr>
<tr>
<td>3. Enjoys and/or values learning new things.</td>
<td>.68</td>
</tr>
<tr>
<td>4. Recognizes how much support peers need for learning.</td>
<td>.79</td>
</tr>
<tr>
<td>5. Is able to talk about feelings or describe emotions.</td>
<td>.78</td>
</tr>
<tr>
<td>6. Is willing to try challenging tasks.</td>
<td>.79</td>
</tr>
<tr>
<td>7. Communicates an accurate understanding of others' ideas and perspectives when discussing a group project/task.</td>
<td>.81</td>
</tr>
<tr>
<td>8. Takes responsibility for learning successes and failures by attributing them to factors s/he can control (e.g., working harder, trying a new strategy).</td>
<td>.88</td>
</tr>
<tr>
<td>9. Appears genuinely interested in and committed to including other children in learning activities.</td>
<td>.66</td>
</tr>
<tr>
<td>10. Is aware of how much time it takes him/her to complete academic tasks.</td>
<td>.74</td>
</tr>
<tr>
<td>Item</td>
<td>Factor Loading</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>11. Can express/communicate needs and desires.</td>
<td>.81</td>
</tr>
<tr>
<td>12. Applies appropriate learning strategies to complete assignments/tasks.</td>
<td>.80</td>
</tr>
<tr>
<td>13. Offers instrumental support to peers who are struggling with academic tasks (e.g., takes on another peer's classroom responsibilities when that peer needs more time to catch up on academic tasks).</td>
<td>.77</td>
</tr>
<tr>
<td>14. When the child becomes overwhelmed with a difficult academic task, he/she adjusts his/her expectations for learning success.</td>
<td>.80</td>
</tr>
<tr>
<td>15. Understands what is required to &quot;meet expectations&quot; for academic tasks.</td>
<td>.80</td>
</tr>
<tr>
<td>16. Negotiates task parameters (e.g., picking a familiar top to research), when tasks are difficult rather than becoming frustrated or overwhelmed.</td>
<td>.76</td>
</tr>
<tr>
<td>17. Retains confidence in his/her learning skills and abilities even after making mistakes.</td>
<td>.80</td>
</tr>
<tr>
<td>18. Adjusts feedback and support to suit peers’ particular learning needs.</td>
<td>.78</td>
</tr>
<tr>
<td>19. Can manage a set of directions to complete tasks independently.</td>
<td>.76</td>
</tr>
<tr>
<td>20. Chooses a quiet space to work if other children are talking.</td>
<td>.68</td>
</tr>
<tr>
<td>21. Has something positive to say about his/her learning, even when s/he is disappointed because s/he does not do well on an assignment.</td>
<td>.79</td>
</tr>
<tr>
<td>22. Engages in positive self-talk or other productive strategies when faced with challenging or upsetting situations, rather than letting negative emotions get in the way.</td>
<td>.79</td>
</tr>
</tbody>
</table>

Concurrent validity was examined by computing a series of Pearson product-moment correlations to examine the relationships between the self-regulation and EDI variables: Approaches to Learning, Responsibility and Respect, and Readiness to Explore New Things. Results of the correlations and the corresponding effect sizes (Cohen, 1992) are presented in Table 4.3. The second column of Table 4.3 indicates that statistically significant and positive relationships were observed between the self-regulation and EDI variables,
Table 4.2

**Descriptive Statistics for the Self-Regulation, Approaches to Learning, Responsibility and Respect, Readiness to Explore New Things and Academic Achievement Variables (N = 208)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>Min to Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-regulation</td>
<td>4.96 (0.97)</td>
<td>2.3-7.0</td>
</tr>
<tr>
<td>2. Approaches to learning</td>
<td>5.32 (1.07)</td>
<td>2.2-7.0</td>
</tr>
<tr>
<td>3. Responsibility and respect</td>
<td>5.57 (1.06)</td>
<td>1.9-7.0</td>
</tr>
<tr>
<td>4. Readiness to explore new things</td>
<td>6.10 (0.73)</td>
<td>3.8-7.0</td>
</tr>
<tr>
<td>5. Academic achievement</td>
<td>4.79 (1.10)</td>
<td>1.0-7.0</td>
</tr>
</tbody>
</table>

Table 4.3

**Intercorrelations among the Self-Regulation, Approaches to Learning, Responsibility and Respect, and Readiness to Explore New Things Variables (N = 208)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-regulation</td>
<td></td>
<td>-.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Approaches to learning</td>
<td>.87**♥</td>
<td>-.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Responsibility and respect</td>
<td>.74**♥</td>
<td>.80**♥</td>
<td>-.</td>
<td></td>
</tr>
<tr>
<td>4. Readiness to explore new things</td>
<td>.59**♥</td>
<td>.52**♥</td>
<td>.42**♠</td>
<td>-.</td>
</tr>
</tbody>
</table>

*Note.* Effect sizes should be interpreted such that ♥ = small effect size (r = .1), ♦ = medium effect size (r = .3), and ♠= large effect size (r = .5). **p < .001

Corresponding to large effects. In other words, children who teachers judged able to manage a set of directions to work independently, communicate emotions, and offer help to peers on the SRISI were also reported to adjust to changes in classroom routines, exhibit curiosity in reading a new book, demonstrate self-control, and behave in a respectful manner to teachers and peers on the EDI subscales.
Overall, data gathered by the SRISI in this study support a unidimensional model of self-regulation. Also, the self-regulation variable, as measured by the SRISI in this study is highly related to the Approaches to Learning, Responsibility and Respect, and Readiness to Explore New Things subscales, which are from the previously validated measure of children’s readiness for school, namely the EDI.

What are the Relationships Between Teachers’ Ratings of Children’s Self-Regulation and Academic Achievement?

To answer the second research question, children’s average scores on the self-regulation variable were calculated, and a multiple regression analysis was employed. Specifically, I examined whether self-regulation predicted academic achievement when sex and grade were controlled for in the analysis. Results indicated that self-regulation was a statistically significant predictor of academic achievement, when controlling for sex and grade, $F (3, 204) = 25.73, p < .01$, adjusted $R^2 = .26$, corresponding to a Cohen’s $f = 0.6$, indicating a large effect size, and 26% of the variance was accounted for by self-regulation, sex, and grade (see Table 4.4). This finding is consistent with previous research indicating that self-regulation is related to children’s success in school (Blair & Razza, 2007; Calkins, 2010; Diamond et al., 2007).

Table 4.4

<table>
<thead>
<tr>
<th>Model</th>
<th>$b$</th>
<th>$T$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>-.07</td>
<td>-.50</td>
<td>.62</td>
</tr>
<tr>
<td>Grade</td>
<td>-.06</td>
<td>-.78</td>
<td>.44</td>
</tr>
<tr>
<td>Self-regulation</td>
<td>.61</td>
<td>8.51</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

*Multiple Regression Analysis of Self-Regulation Predicting Academic Achievement when Controlling for Sex and Grade Level (N = 208)*
What are the Relationships Between Teachers’ Ratings of Children’s Self-Regulation and the Demographic Variables of Sex and Age?

Next, the teacher ratings were employed to ascertain whether there were statistically significant effects of the demographic variables of sex and age on the self-regulation variable. To examine the relationship between sex and self-regulation, a one-way ANOVA was computed. Table 4.5 illustrates that there was a statistically significant effect of sex on the self-regulation variable, $F(1, 206) = 17.83, p < .01, \eta^2 = .07$, corresponding to a medium effect size. Specifically, girls were rated by their teachers as displaying behavior indicative of higher levels of self-regulation ($M = 5.24, SD = .85$) compared to boys ($M = 4.69, SD = 1.01$). In other words, girls were rated as more likely to communicate and express their emotions, persist on academically challenging tasks, and offer to refer a peer to materials to help them with learning. This finding aligns with current research, which indicates teachers rate boys less ready for school on dimensions of behavior indicative of lower levels of self-regulation, such as poor attention focusing, fewer cognitive readiness skills, and poor social skills (Konald & Pianta, 2005). Also, teachers have reported having more conflicting relationships with young boys in school (Hamre, Pianta, Downer, & Mashburn, 2008) and experiencing more problem behaviors with boys, which are used as behavioral indicators of lower levels of self-regulation. A bivariate regression analysis was conducted to examine the relationship between age and self-regulation. Results indicated a statistically significant relationship, $F(1, 206) = 12.69, p < .01, \eta^2 = .005$, corresponding to a small to medium effect size. Older children demonstrated higher levels of self-regulation (e.g., willingness to try challenging tasks) compared to younger children.
Table 4.5

*Effects of Sex and Age on the Self-Regulation Variable (N = 208)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>$F$</th>
<th>$\eta_p^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>17.83</td>
<td>.07</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Age</td>
<td>12.69</td>
<td>.005</td>
<td>.022</td>
</tr>
</tbody>
</table>

*Note.* A Bonferroni corrected Type I error rate of $p = .025$ was used to interpret the statistical significance of the findings.

In sum, results indicated teachers’ reports of children’s self-regulation and academic achievement were statistically significantly and positively related. Children who controlled their emotions and behavior, appeared motivated to learn, and included other children in learning activities were likely to meet or exceed the learning expectations for academic achievement in their classrooms. Also, results indicated teachers perceived higher levels of self-regulation in (a) older children compared to younger children and (b) females compared to males in the early primary grades.

**How Are Opportunities for Children to Engage in Self-Regulation Presented in Classrooms?**

To examine whether and how opportunities for children to engage in self-regulation were present in classroom contexts, observations were conducted in each of the 17 classrooms that participated in the observation portion of the study. The purpose of conducting the classroom observations was to capture a school day in the life of participating children and to understand what opportunities for self-regulation were afforded to them on that day. Participating teachers were told that when I visited their classroom, I was interested in observing what goes on in their classroom on a typical day. Table 4.6 summarizes the observational data gathered after a day
### Table 4.6

**Checking For Features of Contexts As Opportunities for Self-Regulation Across Classroom Observations**

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<tr>
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<tr>
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<td>✓</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>Kim</td>
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<td>Cut Glue LA</td>
<td></td>
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<td>✓</td>
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<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td>Kim</td>
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<td>Calendar</td>
<td></td>
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<td>✓</td>
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<td>✓</td>
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<td>Kim</td>
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<tr>
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<td>Story</td>
<td></td>
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<td>✓</td>
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</tr>
<tr>
<td>Kim</td>
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<td>Math Buddies</td>
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</tr>
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<td>Calendar</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Gwen</td>
<td>2</td>
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<td>✓</td>
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</tr>
<tr>
<td>Classroom</td>
<td>Observation number</td>
<td>Subject/Topic</td>
<td>Days in Class</td>
<td>Complex Tasks</td>
<td>Choice</td>
<td>Control Over Challenge</td>
<td>Self-Evaluation</td>
<td>Teacher Support</td>
<td>Peer Support</td>
<td>Non-Threat. Evals.</td>
<td>Comm. of Learners</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------</td>
<td>----------------------</td>
<td>---------------</td>
<td>---------------</td>
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<td>-----------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Gwen</td>
<td>3</td>
<td>Drawing Journals</td>
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<td></td>
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<td>✓</td>
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<td>✓</td>
</tr>
<tr>
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<td>Math</td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Stephanie</td>
<td>1</td>
<td>Calendar/Quite Reading</td>
<td>1</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stephanie</td>
<td>2</td>
<td>Story</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stephanie</td>
<td>3</td>
<td>Dragon Dance</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stephanie</td>
<td>4</td>
<td>Centers</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandy</td>
<td>1</td>
<td>Carpet Sharing</td>
<td>1</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Mandy</td>
<td>2</td>
<td>Calendar</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandy</td>
<td>3</td>
<td>LA Books</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandy</td>
<td>4</td>
<td>Spelling/Directed Drawing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note.** The checkmarks in the cells represent whether a feature was present at a level judged instrumental to self-regulation for a given teacher’s lesson. The shading across cells represent whether a feature was often, sometimes or rarely observed as characteristic of the teacher’s classroom (i.e., across lessons). Complex tasks were concluded to exist if most of the characteristics associated with them were evident in the running records. Similarly, communities of learners were concluded to exist if most of the characteristics were evident in the running records. *Indicates there was a half-day spent in this classroom because it was a kindergarten class that children attended in the morning only or the teacher only taught a half day in the classroom.

**Legend**

- **Blue** = Often observed
- **Green** = Sometimes observed
- **Pink** = Rarely observed
spent in each classroom. Column 1 lists teacher pseudonyms and column 2 shows the number of distinct tasks observed in each class. Observations were numbered to reflect the beginning and ending of activities in classrooms across the day (e.g., on the day I visited Christine’s classroom, I observed 5 activities). Column 3 lists the subject/topic observed and columns 5 through 12 list the conceptual categories that were referred to when assessing each running record for evidence of opportunities for children to engage in self-regulation. The presence of a checkmark in a cell under a conceptual category/feature indicates that category/feature was present in a way that should provide opportunities for children to engage in self-regulation. The checkmarks mirror the 0/1 coding scheme described in Chapter 3. Blank cells should be interpreted to mean that evidence of a category/feature was not present in the classroom in a way that would provide opportunities for self-regulation. For example, for the first activity observed in Christine’s classroom, I recorded evidence of opportunities for children to engage in complex tasks, making choices, and controlling challenge. Also teacher support that was instrumental to self-regulation was provided.

Table 4.6 answers yes to the research question: “Were there opportunities for children to engage in self-regulation in classrooms?” The shading that accompanies the checkmarks in Table 4.6 was completed to provide a global qualitative assessment of how characteristic each of the eight conceptual categories/features (e.g., complex tasks, choice) was in children’s experiences on the day I visited a classroom. These global qualitative ratings were completed because there were an unequal number of lessons observed in each classroom. Blue shading should be interpreted such that a category/feature was often observed in the classroom on the day I visited (i.e., characteristic), green shading indicates a feature was sometimes observed on the day I visited, and pink shading signals that category was rarely observed on the day I visited the

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Distinct Tasks</th>
<th>Subject/Topic</th>
<th>Conceptual Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christine</td>
<td>5</td>
<td>Math</td>
<td>Complex tasks, choice, controlling challenge</td>
</tr>
<tr>
<td>John</td>
<td>7</td>
<td>Science</td>
<td>Decision making, collaboration</td>
</tr>
<tr>
<td>Mary</td>
<td>4</td>
<td>Language</td>
<td>Communication, turn-taking</td>
</tr>
</tbody>
</table>

The table shows that Christine provided opportunities for self-regulation in her classroom, whereas John and Mary did not provide as many opportunities.
classroom (not characteristic). For example, data for Cara’s class in Table 4.6 indicates that complex tasks, choices, control over challenge, self-evaluation and teacher support were often observed on the day I visited, but peer support, non-threatening evaluations, and the features of communities of learners were rarely observed. The shading in the table creates a holistic picture of tasks and practices observed in each classroom and reveals differing profiles of classroom practices.

Overall, results indicated that children had opportunities to engage in complex tasks in most of the classrooms. In fact, ten of 17 classrooms often employed complex tasks on the day I observed. The tasks observed in these classrooms afforded children opportunities for metacognition, motivation and strategic action. Tasks in these classrooms supported children to pursue multiple learning goals, integrate subject matter (e.g., science, and language arts), and engage in a variety of learning processes, and represent learning by creating different products. There was only one class where complex tasks were rarely seen on the day I observed.

Results indicated that 14 of the 17 classrooms often offered children opportunities to make meaningful—self-regulating—choices (e.g., who to work with, where to work) and exert control over challenge on the day I visited. It is important to note that when children had opportunities to make choices that provided opportunities for self-regulation, they typically had opportunities to exert control over challenge. Also, 12 of 17 classrooms often provided opportunities for children to engage in self-evaluation whereby teachers provided children with questions or prompts that could promote metacognitive reflection about themselves or other learners, task demands, as well as the resultant learning. Four classrooms provided some opportunities for children’s engagement in self-evaluation, and there was one classroom where
opportunities for children to engage in this process were rarely observed on the day I visited the classroom.

Instrumental teacher support was often observed in 14 of 17 classrooms whereby teachers scaffolded children’s learning by providing hints, or metacognitive support for strategies children could utilize in their work and learning. Instrumental peer support was often observed in eight classrooms but was sometimes or rarely observed in nine classrooms. Specifically, I sometimes saw opportunities for children to engage in meaningful peer support where they were, for example, collaborating on tasks or teachers’ scaffolding helped them to consider how they might support or help their peers. Non-threatening evaluations were often observed in six classrooms but sometimes or rarely observed in 11 classrooms. In classrooms where non-threatening evaluations were observed, children used criteria to evaluate their learning, or generated criteria with their teachers about gauging their learning with others. In other classrooms, teachers themselves tended to carry out most of the evaluations of learning.

Finally, in nine of the 17 classrooms, children’s participation in a community of learners was often evident (e.g., individual learning was matched with group support, children were encouraged to share ideas and strategies and appreciate individual differences). However, in eight of the participating classrooms, communities of learning were not a prominent feature. In other words, the features of communities of learners were inconsistently implemented in the classroom lessons I observed. Children sometimes had opportunities to collaborate on a project, but when the time allocated for that lesson was up, children were expected to work independently and to refrain from engaging in collaborative strategies, such as help seeking or sharing information/ideas that would be typical of a community of learners.
Are Opportunities for Engaging in Self-Regulation in Classrooms Associated with Teachers’ Ratings of Children’s Self-Regulation?

Multi-level data (i.e., individual ratings of children’s self-regulation, and observations of classrooms) were collected in my study and therefore HLM was used to analyze a two level data structure where children (level-1) were nested within classrooms (level-2). As researchers have indicated, Ordinary Least Squares (OLS) regression estimates are inaccurate when the units of analysis, in this case, children nested in classrooms, are imprecisely specified during data analysis (Heck & Thomas, 2000). HLM provides a robust estimate of effects compared to OLS. For example, it handles violations of independence through the use of restricted or residual maximum likelihood (REML), which has been used in building the models described in the analyses below. Also, HLM is advantageous because it allows for the analysis of group means to ensure adjustments for unequal group sizes (e.g., different numbers of children in classrooms), and it accounts for random effects in each unit when estimating standard errors. Additional descriptions of the advantages of HLM have been documented in the literature (Raudenbush & Byrk, 2002).

The multi-level models tested in my study allow for examining the relationship between teachers’ ratings of individual children’s self-regulation (level 1) and the observations conducted in classrooms (level 2). Recall, the observational data for these analyses utilize the coding scheme described in the methods section whereby each of the tasks and practices observed in classrooms were quantitatively coded as 1 = rarely observed, 2 = sometimes observed, and 3 = often observed. Also, this coding scheme is reflected in the shading that accompanies Table 4.6.

In this study, four models were examined, each building on the previous model to understand the relationship between the outcome variable, self-regulation, and the level 1 (sex, grade) and level
variables, and how variables at these levels contribute to each of the models. It is important to note that the variables representing the three features of choice, control over challenge, and self-evaluation were grouped into a higher order feature of autonomy because multicollinearity was detected among those features and it is known to be problematic for constructing multi-level models. Also, in models that included the level 1 variables of sex and grade, sex was coded such that males were the reference group (e.g., 0 = male, 1 = female). For the grade variable, Kindergarten was the reference group (coded as 0). The results of the analyses described below appear in Tables 4.7 to 4.14.

Model 1 was the base model or intercept-only model. It was tested to decompose the variation in teachers’ ratings of children’s self-regulation – the outcome variable. The equation that corresponds with model 1 is represented by the equation $\textit{SELFREGULATION}_{ij} = \gamma_{00} + u_{0j} + r_{ij}$. To decompose the variance in the self-regulation variable, I computed the intra-class correlation coefficient (ICC) using the equation: \( \text{ICC} = \frac{\tau_{00}}{\tau_{00} + \sigma^2} = 0.24 / (0.24 + 0.64) = 0.27 \). Results indicated that that 27% of the variance in the self-regulation scores was between-classes and 73% was at the child-level. As proportions of variance existed at both levels of the data structure, predictors were added at each level in testing subsequent models. The model indicated statistically significant variability in the means of self-regulation across classrooms, $\chi^2 = 74.07$, $df = 15$, $p < .001$ (see Tables 4.7 and 4.8).
Table 4.7

Model 1 Random Effects: Unconditional Model Self-Regulation as Outcome With No Level 1 and Level 2 Predictors

<table>
<thead>
<tr>
<th>Random effects</th>
<th>df</th>
<th>( \chi^2 )</th>
<th>( p )</th>
<th>( \sigma^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept, ((\mu_0))</td>
<td></td>
<td>74.07</td>
<td>&lt;.001</td>
<td>0.64</td>
</tr>
<tr>
<td>Level -1, ( r )</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.8

Model 1 Fixed Effects: Unconditional Model Self-Regulation as Outcome With No Level 1 and Level 2 Predictors

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Coefficient ((SE))</th>
<th>( t )-ratio</th>
<th>df</th>
<th>( p )</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-regulation ((\beta_0))</td>
<td>4.98 (0.14)</td>
<td>36.71</td>
<td>15</td>
<td>&lt;.001</td>
<td>0.77</td>
</tr>
<tr>
<td>Intercept ((\gamma_{00}))</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Model 2, the means-as-outcomes model, was fit using the equation: 

\[ \text{SELFREGULATION}_{ij} = \gamma_{00} + \gamma_{01} \times \text{CLASSSES}_j + u_0 + r_{ij} \]

The purpose of constructing this model was to determine whether classroom level SES (grand mean centered) predicted the outcome variable, specifically, children’s self-regulation. Results indicated that the model was statistically significant, \( \chi^2 = 69.82, df = 14, p < .001 \), but that the level 2 predictor of classroom SES was not a statistically significant predictor of children’s self-regulation (see Tables 4.9 and 4.10).

Table 4.9

Model 2 Random Effects: Means-As-Outcomes Model with Classroom SES (Level 2) Predicting Self-Regulation (Level 1)

<table>
<thead>
<tr>
<th>Random effects</th>
<th>df</th>
<th>( \chi^2 )</th>
<th>( p )</th>
<th>( \sigma^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept, ((\mu_0))</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level -1, ( r )</td>
<td>14</td>
<td>69.82</td>
<td>&lt;.001</td>
<td>0.64</td>
</tr>
</tbody>
</table>
Table 4.10

Model 2 Random Effects: Means-As-Outcomes Model with Classroom SES (Level 2) Predicting Self-Regulation (Level 1)

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Coefficient (SE)</th>
<th>t-ratio</th>
<th>df</th>
<th>p</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept 1 ($\beta_0$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept 2 ($\gamma_{00}$)</td>
<td>4.98 (0.13)</td>
<td>37.49</td>
<td>14</td>
<td>&lt;.001</td>
<td>0.77</td>
</tr>
<tr>
<td>Classroom SES ($\gamma_{01}$)</td>
<td>0.09 (0.12)</td>
<td>0.68</td>
<td>14</td>
<td>0.47</td>
<td>0.78</td>
</tr>
</tbody>
</table>

To examine whether the classroom SES variable reduced any of the within class variance, I subtracted the sigma squared value obtained in model 2 from the sigma squared value obtained in model 1, expressed as: \([(0.64-0.64)/0.64] = 0\). The result indicated there was no additional explanation of the proportion of variance attributable to the classroom SES variable. Then, to examine the proportion of between class variance attributable to the classroom SES variable I subtracted the tau value in model 2 from the tau value in model 1 and divided by the tau value in model 1, expressed as: \([(0.24 – 0.25)/(0.24)] = -0.04\). Results indicated that although the model was statistically significant, there was no additional explanation of the proportion of between variance in the children’s self-regulation that was attributable to the level 2 classroom SES variable. Overall, results indicated that classroom SES did not explain between class variability and hence is not statistically significantly related to children’s self-regulation.

Model 3 was constructed such that the demographic variables of sex and grade were added as level 1 predictors of children’s self-regulation. The equation fit for model 3 was:

$$SELFREGULATION_{ij} = \gamma_{00} + \gamma_{01}^{*}CLASSSES_j + \gamma_{10}^{*}GRADE_{ij} + \gamma_{20}^{*}SEX_i + u_{0j} + r_{ij}$$

Results demonstrated that model 3 was statistically significant, $\chi^2 = 85.74$, df = 14, $p <.001$. In other words, grade and sex were predictors of children’s self-regulation. Specifically, grade was positively and statistically significantly related to self-regulation, with older children showing
more evidence of self-regulation than younger children. Sex also was positively and statistically
significantly related to children’s self-regulation, with girls showing more evidence of self-
regulation than boys (see Tables 4.11 and 4.12).

Table 4.11

_Model 3 Random Effects: Random Coefficients Model with Grade and Sex as Level
1 Predictors and Classroom SES as A Level 2 Predictor_

<table>
<thead>
<tr>
<th>Random effects</th>
<th>df</th>
<th>χ²</th>
<th>p</th>
<th>σ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept, (μ₀)</td>
<td>14</td>
<td>85.74</td>
<td>&lt;.001</td>
<td>0.57</td>
</tr>
<tr>
<td>Level -1, r</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.12

_Model 3 Fixed Effects: Random Coefficients Model with Grade and Sex as Level 1 Predictors
and Classroom SES as A Level 2 Predictor_

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Coefficient</th>
<th>t-ratio</th>
<th>df</th>
<th>p</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept 1 (β₀)</td>
<td>4.56 (0.13)</td>
<td>34.17</td>
<td>14</td>
<td>&lt;.001</td>
<td>0.81</td>
</tr>
<tr>
<td>Intercept 2 (γ₀₀)</td>
<td>0.02 (0.14)</td>
<td>0.13</td>
<td>14</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>Class SES (γ₀₁)</td>
<td>0.28 (0.15)</td>
<td>1.91</td>
<td>155</td>
<td>.006</td>
<td></td>
</tr>
<tr>
<td>Grade slope (β₁)</td>
<td>0.51 (0.15)</td>
<td>3.39</td>
<td>155</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Sex slope (β₂)</td>
<td>0.27 (0.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The proportion of within class variance explained by the level 1 variables of sex and
grade was computed by subtracting the value of sigma squared in model 3 from the value of
sigma squared in model 2 and dividing by the value of sigma squared in model 2, expressed as
[(0.67 - 0.57)/0.67] = 0.10. These results indicated that using sex and grade as level 1 predictors of
self-regulation reduced the within class variance by 10%. The proportion of between class
variance explained by these variables was computed by subtracting the value of tau in model 3
from the value of tau in model 2, expressed as: [(0.25 – 0.27)/(0.25)] = -0.08. Results indicated
that the level 1 variables of sex and grade did not reduce the proportion of between class variance in the model.

The final model, model 4, answers the research question posed above. Unlike the previous models, this one added the variables from the classroom observations to construct the classroom level variables—complex tasks, autonomy, teacher support, peer support, non-threatening evaluations, and communities of learners—to understand the relationship between the classroom level variables, classroom level demographics, child level demographics, and the outcome variable, self-regulation. The equation fit for this model was: 

\[
\text{SELFREGULATION}_{ij} = \gamma_{00} + \gamma_{01} \times \text{CLASSSES}_j + \gamma_{02} \times \text{COMPLEXTASKS}_j + \gamma_{03} \times \text{AUTONOMY}_j + \gamma_{04} \times \text{TEACHERSUPPORT}_j + \gamma_{05} \times (\text{PEERSUPPORT}_j) + \gamma_{06} \times \text{NONTHREATENINGEVALUATIONS}_j + \gamma_{07} \times \text{COMMUNITIESOFLEARNERS}_j + \gamma_{10} \times \text{GRADE}_{ij} + \gamma_{20} \times \text{SEX}_i + u_0j + r_{ij}
\]

Results indicated that the model was statistically significant, \( \chi^2 = 26.40, df = 8, p = .01 \) (see Table 4.13). Specifically, complex tasks, teacher support, and communities of learners were statistically significant predictors of children’s self-regulation.

Table 4.13

**Model 4 Random Effects: Self-Regulation Predicted By Level 1 Sex and Grade and Level 2 Classroom SES, Complex Tasks, Autonomy, Teacher Support, Peer Support, Non-Threatening Evaluations, and Communities of Learners (Grand Mean Centered)**

<table>
<thead>
<tr>
<th>Random effects</th>
<th>df</th>
<th>( \chi^2 )</th>
<th>( p )</th>
<th>( \sigma^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept, (( \mu_n ))</td>
<td>8</td>
<td>26.40</td>
<td>.001</td>
<td>0.57</td>
</tr>
</tbody>
</table>
Table 4.14

Model 4 Fixed Effects: Self-Regulation Predicted By Level 1 Sex and Grade and Level 2 Classroom SES, Complex Tasks, Autonomy, Teacher Support, Peer Support, Non-Threatening Evaluations, and Communities of Learners (Grand Mean Centered)

<table>
<thead>
<tr>
<th>Fixed Effects</th>
<th>Coefficient (SE)</th>
<th>t-ratio</th>
<th>df</th>
<th>p</th>
<th>Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept 1 ($\beta_0$)</td>
<td>4.64 (0.12)</td>
<td>39.62</td>
<td>8</td>
<td>&lt;.001</td>
<td>0.70</td>
</tr>
<tr>
<td>Intercept 2 ($\gamma_{00}$)</td>
<td>0.02 (0.11)</td>
<td>0.2</td>
<td>8</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>Class SES ($\gamma_{01}$)</td>
<td>0.63 (0.14)</td>
<td>4.50</td>
<td>8</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Complex tasks ($\gamma_{02}$)</td>
<td>0.03 (0.07)</td>
<td>0.46</td>
<td>8</td>
<td>0.66</td>
<td></td>
</tr>
<tr>
<td>Autonomy ($\gamma_{03}$)</td>
<td>0.53 (0.17)</td>
<td>3.17</td>
<td>8</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Teacher Support ($\gamma_{04}$)</td>
<td>0.27 (0.13)</td>
<td>2.04</td>
<td>8</td>
<td>0.08</td>
<td></td>
</tr>
<tr>
<td>Non-threatening evaluations ($\gamma_{05}$)</td>
<td>-0.13 (0.10)</td>
<td>-1.39</td>
<td>8</td>
<td>0.20</td>
<td></td>
</tr>
<tr>
<td>Communities of learners ($\gamma_{06}$)</td>
<td>-0.53 (0.12)</td>
<td>-4.47</td>
<td>8</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Grade slope ($\beta_1$)</td>
<td>0.17 (0.07)</td>
<td>2.35</td>
<td>155</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Intercept 2 ($\gamma_{10}$)</td>
<td>0.52 (0.15)</td>
<td>3.48</td>
<td>155</td>
<td>&lt;.001</td>
<td></td>
</tr>
<tr>
<td>Sex slope ($\beta_2$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept 2 ($\gamma_{20}$)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.14 shows the results which indicated that sex and grade variables maintained statistical significance and that after controlling for sex and grade at level 1 and classroom SES at level 2, high ratings of self-regulation were observed in classrooms where children had opportunities to engage in complex tasks and received instrumental support from their teachers. Interestingly, lower ratings of communities of learners were associated with higher ratings of self-regulation. This result may reflect the relationship between definitions of communities of learners in this study and the items on the SRISI. Specifically, the majority of items on the SRISI focused more on rating children’s individual behavior rather than their participation in a classroom community. Also, the way that communities of learners were coded in classroom
observations required children’s sustained participation in the community of learners framework. This was not evident in many classrooms on the day I visited. Another explanation for this result may be that children who carry out strategies for engaging in independent and effective aspects of self-regulation do not require as much support from their community of learners.

To examine the proportion of variance attributable to the level 2 variables of complex tasks, autonomy, teacher support, peer support, non-threatening evaluations, and communities of learners variables, I examined the proportion of variance attributable to level 2 variables in reducing the proportion of between class variance by subtracting the value of tau in model 4 from the value of tau in model 3 and dividing by the value of tau in model 3: \[ \frac{(0.27-0.14)}{0.27} = 0.48 \]. Results indicated the level 2 variables of complex tasks, autonomy, teacher support, peer support, non-threatening evaluations, and communities of learners explained approximately 48% of the variation in children’s self-regulation. I subtracted the value of sigma squared in model 4 from the value of sigma squared in model 3 and divided by the value of sigma squared in model 3, expressed as \[ \frac{(0.57-0.57)}{0.57} = 0.0 \]. These results indicate that the level 2 variables did not further reduce the within-class variance.

In sum, results of the HLM analysis indicated that the level 1 demographic variables of sex and grade were statistically significantly related to teachers’ ratings of self-regulation. These results confirmed the correlations reported above. Results align with previous research which has indicated that relationships between self-regulation and the demographic variables of sex and grade exist (Matthews et al., 2009). The results of the HLM extend previous research. They demonstrated that the features of classrooms examined in this study, specifically, complex tasks, teacher support, and communities of learners were statistically significant predictors of children’s self-regulation because they explained a significant proportion of variation in
individual children’s self-regulation scores. Figure 4.1 displays the importance of complex tasks and teacher support as central to setting up the learning context and the opportunities presented for children’s development of and engagement in self-regulation. Next, I examined differences between classrooms in terms of the features and describe the opportunities they presented for children’s engagement in metacognition, motivation, and strategic action for self-regulation.

How do classrooms differ in terms of opportunities presented for children to develop and engage in self-regulation? Table 4.6 (above) lists the pseudonym of each teacher and the lessons I observed in his/her classroom when I visited. It is important to note that the observational data showed considerable variability in the tasks and other features observed across classrooms. To address this question, I elaborate on two observations in kindergarten classrooms to meaningfully contrast the ways in which the teachers supported self-regulation in their classrooms the day I observed.

The Volcano Task in Teresa’s Classroom. I spent one morning in Teresa’s kindergarten classroom in May 2010 and observed two tasks/activities. Figure 4.2 indicates all eight features of classroom contexts were present at a level judged instrumental to self-regulation in both tasks. Here I focus on describing “the volcano task,” and opportunities embedded in it for ER, SRL, and SRSR. These opportunities are summarized in Table 4.15. The volcano task met the criteria for complex tasks. It was part of a larger unit of study on nature that had been taking place in Teresa’s classroom for approximately four weeks prior to this observation. Children were learning about features of different landscapes/terrains (e.g., deserts, mountains, volcanoes, jungles), insects, and animals in nature and the volcano task was one of the extensions of their learning on terrains. That is, children were extending their prior knowledge and understanding of volcanoes by having a “hands on” opportunity to simulate a volcanic reaction.
Figure 4.1. Features of contexts identified in the HLM analysis as predictors of children’s self-regulation. The statistically significant predictors of children’s self-regulation are denoted by their different circle colors - complex tasks (blue circle), teacher support (purple circle) and communities of learners (pink circle). Non-threatening evaluations, autonomy and peer support are in the yellow circles, and they were not statistically significant predictors of children’s self-regulation.
Figure 4.2. Tasks and practices in Teresa’s classroom on the day of the observation.

Table 4.15

Opportunities for Self-Regulation Presented Through the Volcano Task

<table>
<thead>
<tr>
<th>Opportunity</th>
<th>ER</th>
<th>SRL</th>
<th>SRSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Control over challenge</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Teacher support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Peer support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Non-threatening evaluations</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Communities of learners</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Teresa wanted children to: (a) hone their reading skills; (b) learn how to follow directions; (c) practice collaboration and social skills; (d) learn about some aspects of the
scientific method (e.g., materials, procedures for carrying out the experiment); (e) generate hypotheses (predictions) based on their prior knowledge of volcanoes; and (f) describe with pictures and writing what they observed when they carried out the volcano experiment.

Completing the volcano task required children to use knowledge and skills from a variety of subject areas. For example, they read some instructions that had been composed on a Bristol board by Teresa, which explained how to conduct the experiment. Children measured the ingredients to ensure they had the amounts required to simulate a volcanic reaction. In addition to addressing academic goals for reading, science, and math, this task presented opportunities for children to hone skills for collaborating and solving problems with peers. Finally, children demonstrated their learning from this task by creating the volcanoes as products of their learning and by summarizing their understandings of the volcano task in their learning journals, which they composed towards the end of the morning.

Teresa and the children began the volcano task after recess. Teresa provided children with an opportunity to choose who to work with and whether to work independently or collaboratively on the volcano, saying, “You can decide if you want to work by yourself or with friends.” The majority of children chose to work collaboratively with peers, but some children worked independently to construct their volcanoes.

This choice supported children’s engagement in ER, SRL, and SRSR. For example, children could manage anger (ER) if they felt overwhelmed by aspects of the task (e.g., reading, building, measuring) by having a peer who could help. It also presented an opportunity for children to analyze the demands of the task in relation to their skills, knowledge and strategies (an aspect of SRL) to determine if working collaboratively would benefit them. Finally, selecting peers with knowledge, academic, and social skills that were likely to complement their own
skills and support learning is an example of SRSR. Children were observed taking up this opportunity. Evidence indicates that children engaged in SRSR when they invited others to help them build the volcano saying, “Whoever wants to, can help build.” As children began working collaboratively on the volcano activity, they engaged in SRL and SRSR when they were negotiating how to build the volcano, deciding who might be in charge of measuring the ingredients and who would carry out the steps of the volcano experiment.

As children made choices and controlled challenge, Teresa circulated to monitor how children were collaborating during the volcano building process. When a child approached her to convey her frustration with the task, specifically the difficulties she was having working alongside a peer, Teresa responded to the child by asking, “How could you [approach the peer to] say how you feel?” After discussing some ideas for “getting along” with the peer, Teresa said “See if you can solve the problem on your own.” In this example, the child demonstrated awareness of her emotions and expressed them appropriately to Teresa (ER). Teresa’s support further promoted ER and SRSR by asking the child to consider effective, prosocial ways of communicating negative affect and solving the problem with her peer. Productive collaboration on the volcano activity and SRL were the outcomes. The child was observed approaching her peer to tell him that she was upset because she wanted to be more involved in the construction of the volcano and negotiating what she could do to participate more.

Following the discussion with this child, Teresa took time to stand back and observe all children’s behavior while collaborating on the volcano activity. When she noticed that one child was behaving in ways that were less supportive of effective collaboration (e.g., taking over another child’s work on the volcano, not sharing tools, shoveling sand onto a peer), Teresa went over to the child and offered instrumental support to prompt self-evaluation so the child could
consider his behavior relative to his peers saying, “What do you notice about [the behavior of] other children [when they are working together]?” This provided the child with an opportunity to engage in self-evaluation for SRSR. He took up Teresa’s support by offering another child some time to work with the shovel he was using to build the volcano.

Teresa continued to check in with children and offered her support as they finished building their volcanoes and prepared the ingredients for the experiment. For example, she offered prompts about the need to engage in peer support by: (a) sharing the tools in order to collaborate on the volcano building (e.g., “If we’re not using the shovel, can someone else use it?”); and (b) considering the learning needs of other children (e.g., “We’re almost out of baking soda so we should leave some for people who haven’t had a chance [to try out the volcano experiment]”). These opportunities to engage in peer support, in particular, provided opportunities for SRSR. By prompting children to think about the tools that their peers needed and the amount of ingredients left for conducting the experiment, children had the opportunity to think and behave in ways that were supportive of others’ learning needs.

Teresa also promoted children’s engagement in their community of learners by encouraging them to borrow ideas from others while finishing the construction of their volcanoes saying, “Did you notice some people were making channels down the side of their volcanoes? If you want to borrow [building] ideas, you can.” Sharing ideas and knowledge is a feature of a community of learners and borrowing and building on ideas is a productive strategy for SRL. Children took up this opportunity and borrowed ideas that other children used in constructing their volcanoes.

Just before children conducted their experiments, Teresa asked children to predict, “What do you think will happen [when the baking soda and vinegar are mixed]?” This opportunity
provided children with an opportunity to engage in SRL so they could apply their prior knowledge of volcanoes, specifically the eruption of lava, to their experiment and generate a hypothesis for the experiment.

After children conducted their experiments, it was time for them to clean up and document their work in their learning journals (self-evaluation). Children had a choice of what information to summarize in their learning journals; that is, what aspects of their learning they wanted to describe. Specifically, Teresa said, “Tell me what you learned today?” Some children responded by offering metacognitive insight into what they learned about themselves as learners and others offered more concrete and factual information about their learning (e.g., “I learned it takes a lot of baking soda to get the reaction”). Teresa also offered children another choice, specifically, how to present the information they learned (e.g., through writing, drawing, digital pictures). Teresa followed up these choices by offering instrumental support so children could make wise choices by saying, “You can write down what you did or draw pictures or a bit of both … [or] if you would like to take a picture of what you built, you can do that.”

These choices offered children the opportunity to control challenge and, in turn, supported ER, SRL, and SRSR. Specifically, by providing the non-threatening evaluation with the choice of what to information to include in their learning journal and how to represent it, children could overcome potential anxiety by choosing to convey their understanding through pictures rather than relying on writing. Expressing thinking through writing can be a particularly challenging task for young children. Especially, the mechanical aspects of writing require considerable cognitive effort at this stage in their literacy development. The evaluation practice coupled with the choices supported SRL because it required children to consider which features of learning were important and to represent their individual learning experience, as not all
children were able to simulate the volcanic reaction. These choices and this evaluation practice were supportive of SRSR because they did not focus on social comparisons and “the right” answer. They allowed children to explain their learning as a result of their collaboration and to share their learning experiences with their peers.

Making decisions about whether to write, illustrate, or take a picture of their learning and deciding how much detail to include in their pictures or writing potentially provided opportunities for children to regulate emotion and learning. Children were observed sharing their work and the results of their experience doing the volcano task with their peers (SRSR). After children completed their learning journals they handed them into Teresa and lined up to go home.

In sum, children in Teresa’s class were provided with opportunities to make meaningful choices such as who to work with, whether to work independently or collaboratively, and how to present the information they learned. These choices provided opportunities for children to control challenge by, for example, choosing peers who had knowledge (e.g., understanding of how to build a “good” volcano), skills (e.g., good reader), and personal qualities (e.g., cooperative) that would support their learning. Teresa included non-threatening evaluations and supported students to work as a community of learners in her classroom and these opportunities promoted ER, SRL, and SRSR. In this classroom, the teacher balanced attention to ER, SRL, and SRSR using the eight features of classroom contexts and children were observed taking up opportunities to engage in all aspects of self-regulation.

The Math Task in Nancy’s Classroom. I also spent a full day in Nancy’s kindergarten classroom in December 2010 where I observed a total of six lessons (approximately 3.5 hours). Figure 4.4 indicates that three of the classroom features—choices, control over challenge, and
some instances of teacher support—were present at a level judged instrumental to self-regulation across the six tasks/activities observed. The math lesson in Nancy’s classroom was selected to contrast Teresa’s science lesson and show how opportunities for ER, SRL, and SRSR were presented (see Table 4.16).

*Figure 4.3.* Tasks and practices in Nancy’s classroom on the day of the observation.
Table 4.16

*Opportunities for Self-Regulation Presented Through the Math Task*

<table>
<thead>
<tr>
<th></th>
<th>ER</th>
<th>SRL</th>
<th>SRSR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Control over challenge</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Self-evaluation</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Teacher support</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Peer support</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-threatening evaluations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communities of learners</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the week of the classroom observation, children were learning some math skills, which included counting, pattern recognition, and math problem solving. The math lesson that was observed was one of the last lessons before children’s winter holiday break. There were three types of materials children were using to engage in their math learning (e.g., math blocks, pattern blocks, math cards.) Although this task met some criteria for a complex task, it was not deemed a complex task because it was not part of a larger unit of study nor did it fit with a theme of learning in the classroom. There was potential for meeting multiple goals related to (a) counting, problem solving, and pattern recognition, and (b) the development of social skills, but these required more instrumental support from the teacher than what was observed. There were different products that resulted from children’s learning (e.g., elastic board designs, block structures, and block patterns), but the math task itself did not show evidence of children creating products for a larger purpose or integrating ideas and skills across subjects or activities.

Prior to the observation, Nancy had set up the classroom so that children worked in small groups (desks in sets of four) and Nancy indicated that she had purposely rearranged children’s desks so children would have the opportunity to work near different peers. Nancy believed this was important because she thought children were getting too comfortable working near the same peers and wanted them to try out a different seating arrangement.
Nancy introduced the math task after lunch as a set of three activities (math blocks, pattern blocks, math cards) and children could choose one of those activities to complete during the 45 minute block of time allocated for math. Nancy began the lesson by announcing to children that they would be completing their math learning, so she took out the materials to set up the different activities, and then indicated to children, “… you’ll have to choose what to do – math blocks, pattern blocks, or math cards.” She asked children if they had remembered seeing the math cards and held one up to show children the math problem that was on it. Nancy explained to children that some of the math cards were designed to be more challenging, saying, “[… some cards are] kind of like puzzles … tricky … make you have a challenge.” Nancy repeated the choices and asked children if they had any questions about what they were to do before allowing children to select their tasks and engage in work. The choice of what to work on afforded children an opportunity to engage in ER and SRL. This choice supported ER and SRL as children had the opportunity to select a math activity they enjoyed at an optimal level of challenge rather than a task that may have been overly difficult (e.g., a math problem or series of math problems that they did not understand). Children had the opportunity to consider several different tasks and their personal strengths/weaknesses in relation to each. Also, children had the opportunity to control challenge through this choice, which created opportunities for ER and SRL to occur.

Children were observed making choices about what math task to complete and one child checked back with Nancy to ensure he understood the parameters of the choice asking, “… we can make [with the pattern blocks] whatever [pattern] we want to make?” Nancy replied, “Yes.” Children were observed moving around the classroom to select where to work, and whether they wanted to work alongside a peer on their independent tasks. These choices provided an
opportunity for SRSR to occur. In this observation there was no instrumental teacher support observed to help children to determine where to work and whether to work alongside a peer. The opportunities to do this appeared characteristic of the classroom. One child was observed making choices and controlling challenge while solving some of the math card problems. Specifically, he was observed reviewing the math cards and selecting the math cards he wanted to complete. Also, he separated what he believed were the more challenging math cards saying to himself, “… this card is a challenge one.” By sorting the cards, the child appeared to be regulating affect and learning by managing: (a) the number of math cards he wanted to complete; (b) the order in which he completed the math cards; and (c) whether he wanted to attempt some challenging math problems.

As children worked on their math tasks, Nancy conducted one-on-one assessments of children’s learning on other subjects (e.g., language arts) with tasks she had designed to provide information for report cards, periodically stopping to observe what children were doing as they worked. However, Nancy presented no opportunities for children’s engagement in non-threatening evaluations on the math lesson during the observation. Also, there was no evidence indicating Nancy supported children’s engagement in self-evaluation or peer support during the math task. As children completed their math task a group of children joined together to begin building a block structure – their goal was to ensure the block structure ran the length of the classroom. Soon after children began this, disagreements between children arose when one child said to another, “… hey, you’re copying me, stop it!” Although children in this classroom had successfully recruited peers to join in on the task, indicating that they understood how to engage in SRSR, they would likely have benefitted from instrumental support in order to sustain it. As more children began to join in on the block structure task, it became more disorganized and more
disagreements between children arose (e.g., children began throwing blocks, some children took other children’s blocks). As the time allocated for the math lesson ran out, the goal of running the block structure the length of the classroom was in jeopardy. Some children appeared to join in on building the block structure without completing their math tasks.

In this task, there was the potential for supporting a community of learners in that the task made some accommodations for individual differences, and created opportunities for productive collaborations among children to occur. However, Nancy’s instrumental participation in supporting and promoting these features was limited, both at the start of the lesson and when children began having problems in the block-building task. As a result, the productive aspects of ER, SRL, and SRSR either deteriorated or were not in evidence at all. As the lesson time expired, Nancy announced to children that they had two minutes to clean up. Children put away their materials and got ready to celebrate a classmate’s birthday.

In sum, the math task observed in Nancy’s classroom provides evidence that there were opportunities for children to make meaningful choices and control challenge. The activity provided some opportunities for children’s engagement in ER, SRL, and SRSR but children needed more instrumental support from Nancy to sustain productive forms of self-regulation to effectively regulate affect, learning, and collaborative interactions. The math task was not complex by design, and there was no explicit support for children’s self-evaluation or peer support observed for the math task. Children appeared to have an understanding of how to engage in SRSR (e.g., children recruiting others to join in on the building, share which parts they built, which blocks were used) when some began building a block structure after they had completed their math tasks. However, SRSR appeared difficult for children to sustain as the end
of the lesson approached and as more children joined in on the task. Children may have benefitted from Nancy’s instrumental support to be able to sustain their regulation of learning.

Teresa’s and Nancy’s classroom tasks and profiles differed in terms of what features of classroom contexts were observed and the opportunities they presented for children to develop and engage in ER, SRL, and SRSR. Specifically, in Teresa’s classroom and the “volcano task”, she employed all eight of the classroom features (complex tasks, choices, control over challenge, self-evaluation, teacher support, peer support, non-threatening evaluations, and communities of learners) in ways that were instrumentally supportive of ER, SRL, and SRSR. In particular, she provided instrumental scaffolding and support for the three aspects of self-regulation. Children in Teresa’s classroom were seen taking up several of the opportunities presented to engage in ER, SRL, and SRSR. Nancy’s classroom profile shows that she rarely utilized complex tasks, self-evaluation, peer support, and non-threatening evaluation practices. Nancy sometimes employed communities of learners, and frequently provided opportunities for children to make meaningful choices and control challenge. Although teacher support was a feature of her classroom profile, her “math task” (described above) did not include that particular feature. Specifically, in the “math task” Nancy presented opportunities for self-regulation by inviting children to make choices and control challenge, but she did not offer opportunities for children to engage in complex tasks, self-evaluation, peer support, non-threatening evaluations, or to create a community of learners. Importantly, she did not provide instrumental support for children’s learning and collaborations when it was needed for productive SRL and SRSR. In these ways, children’s opportunities to engage in ER, SRL, and especially SRSR differed between classrooms.
Summary

Chapter 4 presented the results of the five research questions posed in this dissertation. First, it was found that teachers’ ratings did not distinguish ER, SRL, and SRSR. Second, self-regulation was a statistically significant predictor of academic achievement when controlling for the effects of sex and grade. Third, there was a statistically significant effect of sex on the self-regulation variable whereby the boys in this study received lower ratings of self-regulation compared to girls; a statistically significant and positive relationship between self-regulation and age was found. Fourth, the eight features of classroom contexts provided opportunities for ER, SRL and SRSR and the teachers in this study provided varying opportunities for them. Fifth, complex tasks and teacher support were statistically significant predictors of children’s self-regulation. In Chapter 5 I present a general discussion of these findings along with the future directions and implications of the results for researchers, educators, and policy makers.
CHAPTER 5: DISCUSSION

Overview

The present study employed a mixed-method and multi-level research design to examine five research questions:

1. Do teachers’ ratings distinguish children’s ER, SRL, and SRSR?
2. What are the relationships between teachers’ ratings of children’s self-regulation and their academic achievement?
3. What are the relationships between teacher’s ratings of children’s self-regulation and the demographic variables of sex and age?
4. Are opportunities for self-regulation in classroom contexts associated with teachers’ ratings of children’s self-regulation?
5. How are opportunities for children to engage in self-regulation presented in classrooms?

This chapter begins with a discussion of the findings for each of the five research questions including their relevant limitations, implications, and future directions. It ends with a discussion of some more general limitations, future directions, and implications for researchers, educators, and policy makers to consider.

Discussion of Research Questions

Data Collection Summary

Data consisted of teachers’ ratings of (a) children’s ER, SRL, SRSR, and academic achievement using the SRISI, a measure I developed and tested as part of this dissertation, and (b) items from the three EDI (Janus & Duku, 2007) subscales: Approaches to Learning, Responsibility and Respect, and Readiness to Explore New Things. Also observational data were gathered by extending Perry’s (1998) classroom observation protocol. The observations provided
information about the types of academic tasks and activities that took place in classrooms during a full day in participating classrooms. Together, these data were employed to address the five research questions.

**Do Teachers’ Ratings Distinguish Children’s ER, SRL, and SRSR?**

Results of this study indicated that ER, SRL, and SRSR may be distinguished theoretically but teachers in this study did not distinguish them empirically through their judgments about children’s behaviors at this age level. Although teachers did not distinguish these aspects of self-regulation, important conceptual differences between them exist. It may be that these aspects of self-regulation become more differentiated for children with increasing age and education. For example, Wigfield et al. (1997) conducted a three-year longitudinal study of children in grades 1, 3, and 6 to examine changes in children’s competence beliefs in the domains of: math, language arts, sports, and instrumental music. They found children’s perceived competence for these subject domains became more differentiated over time. Harter (1993, 1999) also demonstrated that children have broad conceptions of their self-concept (e.g., “smart” vs. “dumb”) when they are young but their understandings of their self-concept become more refined and include different domains (e.g., social acceptance, scholastic competence, athletic competence) as they age. Whether particular aspects of self-regulation become more or less differentiated during the school years, and why, remains an empirical question for future research. Studies designed to answer this question could provide information leading to a more nuanced view of children’s development of self-regulatory processes during elementary school.

Teacher’s ratings on the SRISI in this study demonstrated good psychometric properties. They were found to be statistically reliable, reflected a unidimensional construct of self-regulation in exploratory analyses, and demonstrated concurrent validity as they had statistically
significant and positive relationships with the previously validated EDI subscales (Janus & Duku, 2007). These findings are promising for self-regulation researchers. With continued testing and development, the SRISI may be a reliable and valid tool for measuring young children’s self-regulation. Its teacher report design addresses some of the key limitations associated with young children’s self-reports (e.g., children have difficulty generalizing their behavior across contexts and over time and have not yet mastered the vocabulary to describe their self-regulation). Also, it asks teachers to rate typical and easy to observe regularly occurring behaviors in their classrooms, which has been associated with both accuracy and reliability in research on teacher judgments (Llosa, 2008; Perry & Meisels, 1996). Finally, it is brief compared to many clinical measures, which makes it an efficient tool for teachers to use. This is a valuable contribution to the literature.

It is important to recognize that one of the limitations of using the SRISI in this study was that teachers completed it for all participating children in their classrooms. A limitation of teacher ratings tools is that data may reflect a horn or halo effect- a negative or positive response bias, respectively. This can happen when teachers are asked to provide ratings of their students and their judgments reflect their biased perceptions of children’s characters. In this study, the teacher’s ratings of children’s self-regulation had normal properties. The self-regulation variable was approximately normally distributed, and had a modal value and a mean score of self-regulation that fell toward the middle of the values in the response scale (i.e., 4.9). Also, these data were examined for floor and ceiling effects by examining the frequencies of the number of children who received the minimum and maximum scores (i.e., 1 and 7). In this sample, no children received the minimum score and only one child received the maximum score. These
data do not provide conclusive evidence about teacher bias, but suggest that teachers were willing to consider how the items related to individual children.

To further address the possibility of negative and positive response bias in teacher ratings future research should continue with the development of the SRISI. Future research may include training teachers to consider the contributions of ER, SRL, and SRSR in their classrooms in a more discriminatory fashion. Also, future studies can focus on collecting other kinds of student data, such as observations, and triangulating them with teacher’s ratings to enhance reports of the SRISI’s psychometric properties. These studies may demonstrate that the SRISI is a reliable and valid alternative to self-reports as well as a valuable addition to observations of whole class or individual children’s self-regulation. It may address some of the methodological challenges researchers currently face studying young children’s self-regulation.

**What are the Relationships between Teachers’ Ratings of Children’s Self-Regulation and Academic Achievement?**

Findings from this study indicated that teachers’ ratings of children’s self-regulation predicted their academic achievement even when controlling for the demographic variables of sex and grade. That is, children rated high on emotion and behavior control, independent and adaptive learning, and socially responsible strategies for engaging with others were likely to meet and exceed academic achievement expectations. These results confirm findings in developmental psychology, which have indicated that self-regulation is a positive and statistically significant predictor of academic achievement (Blair & Razza, 2007; Diamond et al., 2007). Also, these results may indicate that achieving in the early grades is linked to teachers’ judgments that children are engaging in adaptive social behaviors. To elaborate, this study asked teachers to provide ratings of children’s self-regulation, such as whether they can talk about
feelings or describe emotions, are willing to try challenging tasks, and tailor feedback and support to suit peers’ learning needs. Ratings of these types of behaviors are consistent with ways school readiness is measured and defined as children’s abilities to use language to communicate needs, and whether they are curious and enthusiastic in approaching new activities (Rimm-Kaufmann, Pianta, & Cox, 2000). These kinds of behaviors are considered integral to children’s social adjustment to kindergarten and early school success (Rimm-Kaufman, 2004). Future research should continue to address the extent to which early self-regulation contributes to academic achievement over the long term.

**What are the Relationships Between Teachers’ Ratings of Children’s Self-Regulation and the Demographic Variables of Sex and Age?**

Results demonstrated that teachers gave statistically significantly higher ratings of self-regulation to girls than boys. This finding corroborates previous research indicating teachers’ perceive girls enact more of the behaviors associated with self-regulation than boys, at least in the early years of elementary school (Calkins, 2010; Matthews et al., 2009). This finding has implications for theory, practice, and future research. First it invites theory and research that addresses the role of biological factors (e.g., brain development, temperament) in boys’ and girls’ development of self-regulation at an early age. For example, research generally indicates that boys’ brains develop at a slower pace than girls’ brains, and that the prefrontal cortex, which is associated with executive functions and self-regulation, matures later in boys than girls (Berger, 2003). More research about the implications of this is needed to inform self-regulation theories and illustrate why differences occur and what these differences can mean for boys’ and girls’ success in school.
Second, this finding raises more questions about the possibility of bias in teachers’ ratings of self-regulation. Are boys, in fact, less self-regulating than girls in the early years? Or do criteria teachers use to judge self-regulation at this age give an advantage to girls? Perhaps current measures of self-regulation do not capture enough of the events and activities where boys’ are likely to enact high levels of metacognition, motivation, and strategic action for ER, SRL, and SRSR. It is also possible that early years curricula may not incorporate activities (e.g., physical and team activities) that support for boys’ development of and engagement in productive aspects of ER, SRL, and SRSR. Perhaps, early elementary school classrooms are not meeting boys’ unique developmental needs for self-regulation.

The issues of measurement bias, teacher bias, and curricular bias need to be addressed through future research. Therefore, future research should focus on developing items that capture a wider range of activities that reflect children’s engagement in self-regulation (e.g., follows rules in organized games or structured play with peers; demonstrates good sportsmanship in organized games and structured activities with peers). Curricular and teacher bias can be addressed by continuing research that focuses on understanding whether and how complex academic tasks can be designed to support boys’ development of and engagement in self-regulation (e.g., by including subjects and tasks that draw on boys’ strengths to support their self-regulation). Also, longitudinal research designs may prove helpful for examining potential differences in the social and academic self-regulation profiles of children when their teachers are mentored to develop complex tasks that are designed to support children’s self-regulation. Together, these kinds of studies can reveal the kinds of tasks that are related to boys’ and girls’ self-regulation and achievement trajectories over time.
Consistent with previous research (e.g., Zimmerman & Martinez-Pons, 1990), this study found that age had a statistically significant relationship with self-regulation. Researchers should continue to investigate age-related differences in self-regulation, how self-regulation changes across the early years of school, and whether the differences across age groups reflect higher levels of ER, SRL, and SRSR.

In sum, these results highlight important avenues for future research. In particular, research that illuminates: (a) whether the differences in ratings between boys’ and girls’ self-regulation reflect real or perceived deficits in boys’ self-regulation; and (b) how boys may be at a disadvantage or potentially “at risk” in school if they are actually less self-regulating than girls and if teachers perceive them as less self-regulating than girls over the long-term is warranted. Studies have indicated that low ratings of children’s self-regulation in kindergarten predict low achievement and poor relationships with teachers and peers throughout elementary school (Split, Hughes, Wu, & Kwok, 2012; Rimm-Kaufmann, Pianta, & Cox, 2000; Rudasill & Rimm-Kaufmann, 2009). Specifically, low ratings of self-regulation in early elementary school need to be examined carefully as they may portend problematic long-term outcomes concerning regulation, motivation, achievement, and social relationships for boys.

**Are Opportunities for Self-Regulation in Classroom Contexts Associated with Teachers’ Ratings of Children’s Self-Regulation?**

The present study found that complex tasks and teacher support were statistically significant and positive predictors of children’s self-regulation. Consistent with previous research, this study found evidence that complex tasks provided opportunities and support for children’s development of and engagement in self-regulation (Perry, 1998; Perry et al., 2006; Patrick et al., 2008; Samarapungavan et al., 2008; Turner, 1995). As suggested by the literature,
this may be because complex tasks are likely to challenge children to some degree (i.e., within their ZPD) and they are likely to embed additional features of classrooms (e.g., choices, self-evaluation) that call upon metacognition, motivation, and strategic action for learning success. Also, the findings in this dissertation indicated that teachers’ tasks frame the kinds of learning opportunities provided in their classrooms. That is, when teachers presented opportunities for learning through children’s engagement in complex tasks, they were likely to set children up with additional meaningful opportunities for their engagement in sophisticated aspects of self-regulation. This study confirmed previous research, which has found that complex tasks present rich opportunities for children to develop and engage in self-regulation (Perry, 1998; Perry et al., 2007 Perry & Winne, 2013).

The finding that instrumental forms of teacher support predicted children's engagement in self-regulation is also consistent with previous research, which has demonstrated the important roles of CR and socially shared regulation in scaffolding learner's development of and engagement in self-regulation (Hadwin & Järvelä, 2011; Hadwin & Oshige, 2011; Järvelä & Järvenoja, 2011; Zimmerman & Schunk, 2011). Children's participation in learning contexts that afford opportunities for CR and socially shared regulation are likely to support their development of metacognition, motivation for learning, and enactment of effective learning strategies for success in the classroom. Together, the results of this study indicate that complex tasks must include opportunities for instrumental teacher support, if they are to promote children’s development and engagement in self-regulation for learning.

The finding that communities of learners were negatively associated with children’s self-regulation is counter-intuitive. Theory and previous research led me to hypothesize students’ participation in communities of learners in their classrooms would provide opportunities for CR
and, specifically, scaffolding of the metacognition, motivation, and strategic action associated with children’s development of and engagement in self-regulation (Crawford et al., 1998; Staples, 2007). I interpret this finding in two ways. First, the negative relationship between the communities of learners feature and children’s self-regulation could reflect error. Perhaps this feature was under or over represented in classrooms due to (a) qualitative coding of the classroom observations and (b) the number of tasks observed in each classroom. Second, this finding may reflect teachers’ perceptions that self-regulation is an individual, independent, and isolated process. They may not associate self-regulation with children’s need for instrumental interactions, such as those that accompany peer support and a community of learners. Finally, most of the items on the SRISI reflected the more independent aspects of regulating learning which, when correlated with the community of learners feature, could yield a negative relationship. Future research is needed to examine how the social supports, such as the community of learners feature, are related to children’s self-regulation and to teachers’ perceptions of self-regulation.

The finding that the variables of autonomy, peer support, and non-threatening/non-competitive evaluations were not statistically significantly related to children’s self-regulation is intriguing. The classrooms in this study provided uniformly high levels of autonomy to children. However, the educational psychology literature has demonstrated that high levels of autonomy do not ensure children’s engagement in self-regulation. Instrumental support from teachers and peers is a necessary complement for autonomy opportunities (Stefano et al., 2004). The matching of teacher support with opportunities to be autonomous distinguished classrooms where children were judged to be more self-regulating.
The finding that peer support and non-threatening evaluations were not statistically significantly related to self-regulation reflects that these features were less prominent in participating classrooms. Simply, teachers may not include opportunities for instrumental forms of peer support (e.g., peer assessment) if they do not understand how to structure them and how they can contribute to children’s development of and engagement in self-regulation. Also, they may not implement non-threatening evaluation practices if they do not believe children will be able to use the feedback generated from them as a strategy to improve their learning. Research has demonstrated that teachers’ beliefs about feedback as a useful learning strategy is related to their use of feedback practices (Brown, Harris, & Harnett, 2012). These findings raise questions for future research. In particular, more research is needed to explore teachers’ perceptions and beliefs about how self-regulation develops and what features of contexts support it.

In sum, the HLM analysis indicated that the contextual variables explained a substantial proportion of the variance in children’s self-regulation scores, even when adjusting for the demographic variables of sex and SES. Primarily, opportunities to engage in tasks characterized as complex by design with instrumental support from teachers were associated with individual children’s demonstrations of self-regulation in classrooms. These results begin to build a theoretical framework for identifying some of the essential elements that afford opportunities for sophisticated forms of children’s self-regulation to emerge. Moreover, results of this study suggest a hierarchical relationship between features of contexts, such that the presence of one feature (e.g., complex tasks) may subsume other features (e.g., autonomy). Therefore, theories should explain the relationships between features and identify whether complex tasks and teacher support assume a potential hierarchy. Attention to these and other features of contexts should continue in future research.
How are Opportunities for Children to Engage in Self-Regulation Presented in Classrooms?

A limitation of the current study is that the classroom observations took place during a single day. Classrooms were observed in this fashion to get a sense of a “day in the life” of the learners, rather than focusing on a specific subject over several days. I explained the goal of the observations to teachers and worked with them to glean the most realistic portrait of their classroom and children’s experiences in it. However, I acknowledge that the classroom observations in this study are not necessarily representative of a teacher’s instructional practices during a school year.

The volcano task in Teresa’s classroom and the math task in Nancy’s classroom were chosen to illustrate how complex tasks and teacher support factor into children’s opportunities for and engagement in ER, SRL, and SRSR. Two main findings emerged from the in-depth analysis of these classroom observations. First, results indicated that the eight features of classroom contexts previously associated with SRL (Perry, 1998) were used to provide opportunities for ER and SRSR in the classrooms in this study. This extends previous research on SRL, which indicates the presence of particular features of classroom contexts create opportunities for self-regulation to occur (Perry et al., 2003). The observations reported here demonstrate how Teresa utilized all eight of the features in her volcano task and created a context where productive aspects of self-regulation occurred — ER, SRL, and SRSR. Nancy implemented a more limited set of features in her classroom during the math task and as a result children had difficulty managing their learning. In particular, there was limited support for children’s ER and SRSR.
Second, this study confirmed previous research, which has indicated that both complex tasks and instrumental support (e.g., metacognitive prompts and questions, classroom discussions) are critical for supporting children’s engagement in and uptake of opportunities for self-regulation (Perry, 1998; Perry et al. 2002; Stefanou et al., 2004). Tasks that were complex by design provided an overarching framework for children's learning and embedded additional features of contexts to promote ER, SRL, and SRSR. Also, they created opportunities for children's engagement in metacognition (e.g., knowing when, where, and how to implement strategies that would further their learning), tested children’s motivation, and necessitated instrumental forms of support that helped children develop independent, effective and strategic approaches to learning.

These findings have implications for educational practice. Results indicated that teachers’ design of tasks and activities in their classrooms and the support they embed in task environments (in part) determine whether: (a) there are meaningful opportunities for self-regulation for learning; and (b) children enact tactics and strategies to regulate their learning. Therefore, efforts to support teachers to design and implement complex tasks and instrumental forms of teacher support are especially important for promoting children’s engagement in self-regulation for learning. Along these lines, teacher preparation programs and professional development seminars need to address the responsibilities teachers have in supporting young children's self-regulation for learning. In particular, how do tasks and instrumental forms of support promote (or curtail) various aspects of self-regulation. Research has shown how teachers benefit most when they participate in professional learning contexts that support them to engage in reflection, discussion, and collaboration with their colleagues on aspects of their practice (Butler, Laucher, Jarvis-Selinger, & Beckingham, 2004; Perry et al., 2006; Perry, Walton, &
Calder, 1999). In these contexts, teachers are likely to identify teaching methods and strategies they can tailor for use in their classrooms to best support their students’ learning. These professional learning contexts have similar characteristics to those that provide opportunities for their students’ engagement in SRL. Therefore, supporting teachers to engage in professional learning communities that promote reflective forms of teaching and learning are essential if a goal of education is to prepare children to regulate learning for success in life.

**General Discussion**

In closing, I address some additional limitations, four future research directions, and their implications for researchers, educators, and policy makers.

**Limitations**

In addition to the limitations already mentioned, some others should be acknowledged. First the sample size and the sample characteristics limit the generalizability of the findings. To elaborate, the ethnic composition of the sample may not be representative of other school districts in rural or urban areas. Therefore, the findings reported in this study may not generalize as well to other samples that include children from different ethnic backgrounds or school districts. In this study, teachers were asked to judge the overall SES of families in their classrooms (teachers were asked to base these judgments on parents’ levels of education, employment, and families’ housing locations) and indications of ethnicity based on children’s visible external characteristics. Discussions about how to improve measures of SES and ethnicity are discussed in other literatures (Kaufman, Cooper, & McGee, 2007; Oakes & Rossi, 2003). Some recommendations include generating multiple items to assess education, family income, and employment. Second, teachers and children who participated in the study were self-selected. Teacher participants who enrolled in this study may have had an interest promoting
self-regulation, or greater access to professional development regarding self-regulation and hence their teaching may not be representative of all teachers. Children whose parents agreed for them to participate in this study may have higher levels of self-regulation compared to children who did not participate or children in other regions, districts, or schools where self-regulation receives less attention. A third limitation of the present study is that teachers’ ratings of children’s self-regulation may reflect the presence of a halo effect whereby teachers may overgeneralize the characteristics of the children they are rating from one domain to another (e.g., rate children high on self-regulation based on judgments about academic achievement).

Finally, the children and teachers who participated in this study were sampled at different points in the school year which may reflect lower or higher levels of individual children’s self-regulation and opportunities for it at that particular point in time.

**Future Directions**

The findings presented in this dissertation point to future work on self-regulation in four core areas. First, research should continue with the development of innovative tools (e.g., observation and interview protocols) to measure young children’s self-regulation in classroom contexts (Perry & Winne, 2013; Turner & Patrick, 2008). Second, future work should involve more mixed-methods studies that make use of innovative tools and that triangulate multiple sources of data (e.g., teacher reports, interviews, and traces of children’s behavior) to provide in-depth understandings of self-regulation in classrooms. Third, future research should include longitudinal studies to examine growth trajectories and profiles of children’s self-regulation (Perry & Winne, 2013; Turner & Patrick, 2008). The recommendations for mixed-method and longitudinal research allows for classroom-based research about self-regulation to be conducted on a much larger scale than in previous research (e.g., Perry, 1998; Turner, 1995). Fourth,
researchers, educators and policy makers should continue collaborations so that the information provided in teacher education programs and professional development seminars provides a deeper understanding of children’s self-regulation and the tasks and features of contexts that can promote it in classrooms.

**Implications**

The four recommendations for future work have implications for researchers, educators, and policy makers. Researchers can benefit from the development of more and enhanced research tools to understand young children’s self-regulation in classrooms. These tools can generate different types of data, which can be triangulated in mixed-method and longitudinal studies. Mixed methods studies are needed to provide in-depth knowledge of how the events and activities that unfold in classrooms interact with individual children’s self-regulation and shape their subsequent engagement in self-regulation. Longitudinal studies are needed to examine: (a) how children’s self-regulation develops as they move through the early elementary school grades; (b) different profiles of self-regulation (e.g., the number of boys and girls who have low, average, and high self-regulation), including the identification of children who may be “at risk” in their development of self-regulation.

For educators, the four directions have the potential to provide increased insight into understanding what self-regulation is, how it develops, and how the tasks and activities in classroom contexts may promote or curtail its development. In particular, the qualitative data derived from future studies can be used to provide descriptions of specific educational contexts and individuals’ behavior in those contexts. These descriptions can be used to design teacher education curricula and professional development opportunities that help them understand the essential roles and responsibilities they have in promoting self-regulation in school.
Finally, policy makers can benefit from these directions for future work. Larger scale longitudinal studies can help policy makers to identify strengths and weaknesses in their educational goals and mandates concerning support for self-regulation in the early grades and beyond. Large scale studies can provide the evidence needed to garner support for directing funds toward curriculum and teacher professional development in this regard.
REFERENCES


Anderman, L. H. (1999). Classroom goal orientation, school belonging and social goals as predictors of students’ positive and negative affect following the transition to middle school. *Journal of Research and Development in Education, 32*(2), 89-103.


APPENDIX A: CLASSROOM DEMOGRAPHIC FORM

Classroom Teacher ID:  

School & Grade:  

Classroom SES Rating (choose one):
Low    Low-Middle    Middle    Middle-High    High  

Number of children in the class:  

Number of Boys In Class:  

Number of Girls In Class:  

Number of children from visible minority backgrounds (children who are not Caucasian):  

Number of children who speak English as a second language:  

Special Education Designation

<table>
<thead>
<tr>
<th>Child’s First Name</th>
<th>Special Education Designation</th>
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<tbody>
<tr>
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## APPENDIX B: SELF-REGULATION IN SCHOOL INVENTORY ©

### Achievement Items

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall, what is this child’s achievement level in terms of provincial expectations?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What is this child’s achievement level in terms of provincial expectations for language arts?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What is this child’s achievement level in terms of provincial expectations for math?</td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>What is this child’s achievement level in terms of provincial expectations for social studies?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>What is this child’s achievement level in terms of provincial expectations for science?</td>
<td></td>
<td></td>
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</tbody>
</table>

### Self-Regulation Items

<table>
<thead>
<tr>
<th></th>
<th>Process</th>
<th>Aspect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Metacognition</td>
<td>SRL</td>
</tr>
<tr>
<td>2</td>
<td>Strategic Action</td>
<td>SRSR</td>
</tr>
<tr>
<td>3</td>
<td>Motivation</td>
<td>SRL</td>
</tr>
<tr>
<td>4</td>
<td>Metacognition</td>
<td>SRSR</td>
</tr>
<tr>
<td>5</td>
<td>Metacognition</td>
<td>ER</td>
</tr>
<tr>
<td>6</td>
<td>Motivation</td>
<td>SRL</td>
</tr>
<tr>
<td>7</td>
<td>Metacognition</td>
<td>SRSR</td>
</tr>
<tr>
<td>8</td>
<td>Motivation</td>
<td>SRL</td>
</tr>
<tr>
<td>9</td>
<td>Motivation</td>
<td>SRSR</td>
</tr>
<tr>
<td>10</td>
<td>Metacognition</td>
<td>SRL</td>
</tr>
<tr>
<td>11</td>
<td>Metacognition</td>
<td>ER</td>
</tr>
<tr>
<td>12</td>
<td>Strategic Action</td>
<td>SRL</td>
</tr>
<tr>
<td>13</td>
<td>Strategic Action</td>
<td>SRSR</td>
</tr>
<tr>
<td>14</td>
<td>Strategic Action</td>
<td>ER</td>
</tr>
<tr>
<td>15</td>
<td>Metacognition</td>
<td>SRL</td>
</tr>
<tr>
<td>16</td>
<td>Strategic Action</td>
<td>ER</td>
</tr>
<tr>
<td>17</td>
<td>Motivation</td>
<td>ER</td>
</tr>
<tr>
<td>18</td>
<td>Metacognition</td>
<td>SRSR</td>
</tr>
<tr>
<td>19</td>
<td>Strategic Action</td>
<td>SRL</td>
</tr>
<tr>
<td>20</td>
<td>Strategic Action</td>
<td>SRL</td>
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<tr>
<td>Self-Regulation Items</td>
<td>Process</td>
<td>Aspect</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>--------</td>
</tr>
<tr>
<td>21. Has something positive to say about his/her learning, even when s/he is disappointed because s/he does not do well on an assignment.</td>
<td>Action Motivation</td>
<td>ER</td>
</tr>
<tr>
<td>22. Engages in positive self-talk or other productive strategies when faced with challenging or upsetting situations, rather than letting negative emotions get in the way.</td>
<td>Strategic Action</td>
<td>ER</td>
</tr>
</tbody>
</table>
## APPENDIX C: EDI ITEMS

<table>
<thead>
<tr>
<th>EDI Items</th>
<th>Subscale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Listens attentively.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>2. Follows direction.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>3. Completes work on time.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>4. Is able to solve day-to-day problems by him/herself.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>5. Is able to adjust to changes in routines.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>6. Works independently.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>7. Is able to follow task instructions by him/herself.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>8. Is able to follow one-step instructions.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>9. Is able to follow class routines without reminders.</td>
<td>Approaches to Learning</td>
</tr>
<tr>
<td>10. Is curious about the world.</td>
<td>Readiness To Explore New Things</td>
</tr>
<tr>
<td>11. Is eager to play with a new toy.</td>
<td>Readiness To Explore New Things</td>
</tr>
<tr>
<td>12. Is eager to play with/read a new book.</td>
<td>Readiness To Explore New Things</td>
</tr>
<tr>
<td>13. Is eager to play a new game.</td>
<td>Readiness To Explore New Things</td>
</tr>
<tr>
<td>14. Follows rules and instructions.</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>15. Respects the property of others.</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>17. Takes care of school materials.</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>18. Demonstrates self-control.</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>19. Accepts responsibility for actions.</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>20. Shows tolerance to someone who made a mistake (e.g., when a child gives a wrong answer to question posed by the teacher).</td>
<td>Responsibility and Respect</td>
</tr>
<tr>
<td>21. Demonstrates respect for other children.</td>
<td>Responsibility and Respect</td>
</tr>
</tbody>
</table>
APPENDIX D: CLASSROOM OBSERVATION INSTRUMENT

(Adapted From Perry, 1998; Perry, VandeKamp, Mercer, & Nordby © 2000)

Section 1: Running Record

ID_____________
Teacher_________________________ Observer__________________________
Grade__________________________ Time Start__________________________
Date___________________________ Time Stop__________________________
School________________________ Time Total__________________________

Description:
## Section 2: Examples of Classrooms Supporting Young Children’s Engagement in ER, SRL, and SRSR

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex Tasks</td>
<td>The teacher creates meaningful tasks/activities (e.g., class discussion time on writing outlines, how to effectively brainstorm/creating concept maps, guidelines for creating writing summaries) that provide opportunities for children to attain multiple learning goals (e.g., goals to develop skills of how to construct a writing outline, to engage in creative writing, to learn how to work with other students in the classroom). The teacher provides tasks/activities (e.g., supporting all students to keep a personal science log with terminology, diagrams, things children have learned during the unit) that presents students with opportunities to employ skills from across subjects (e.g., writing, art, science) to support learning. The teacher creates tasks/activities (e.g., shared reading activities, experiments) that provide opportunities for children to engage in a number of processes and support children’s learning (e.g., predicting, analyzing, reasoning, remembering). Classroom activities and tasks (e.g., creating math problems based on children’s understanding of probability) provide opportunities for children to showcase their learning in different ways (e.g., pictures, writing, building a game).</td>
</tr>
<tr>
<td>Choice</td>
<td>Children have choices about who they can work with.</td>
</tr>
<tr>
<td></td>
<td>Children have choices about where to work (e.g., library, hall, or to another area to work quietly – free of distractions).</td>
</tr>
<tr>
<td></td>
<td>Children make decisions about when they work on tasks and activities (e.g., students prioritize when they will work on reading, writing, math).</td>
</tr>
<tr>
<td></td>
<td>Children decide what they will work on during a class time (e.g., writing or science or a bit of both).</td>
</tr>
<tr>
<td>Control Over Challenge</td>
<td>Children suggest two of their favorite topics (e.g., polar bears, the ocean) as ideas for a group project.</td>
</tr>
<tr>
<td></td>
<td>Children are supported to ask for guidance for learning from a teacher or peer.</td>
</tr>
<tr>
<td></td>
<td>Children are supported to use resources (e.g., books, internet) when they are having difficulties finding information about topics they are researching.</td>
</tr>
<tr>
<td></td>
<td>Children are supported to negotiate with others when they have disagreements about a task or project they are working on with other children.</td>
</tr>
<tr>
<td>Student Self-Evaluation</td>
<td>Children have a large discussion with the class about what they have learned.</td>
</tr>
<tr>
<td></td>
<td>Children have conferences with the teacher about their learning progress on a science project.</td>
</tr>
<tr>
<td></td>
<td>Students use rubrics or checklists to evaluate their learning (e.g., evaluation criteria set by the class).</td>
</tr>
<tr>
<td></td>
<td>Students keep journals about what they have learned in a subject using notebooks they review with the teacher.</td>
</tr>
<tr>
<td>Teacher Support</td>
<td>Teachers provide hints when work is difficult (e.g., what could you do if you can’t spell a word?).</td>
</tr>
<tr>
<td></td>
<td>Teachers model strategies for cooperating with others (e.g., how would you ask Julia if you wanted to borrow her pencils? What could you say if you have another idea for the group project?).</td>
</tr>
<tr>
<td>Category</td>
<td>Examples</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Teachers model thinking strategies so students can work independently (e.g., If I get stuck spelling a word in my head, what strategy could I use to help me figure out how to spell it?). Teachers anticipate students’ needs by scaffolding positive conflict resolution prior to task engagement (e.g., What are some things we can do we do if there is a disagreement between classmates?).</td>
<td></td>
</tr>
<tr>
<td>Peer Support</td>
<td>Peers show other children how they have solved a task. Peers ask other children to work collaboratively. Peers volunteer information that can help another child with her/his project. Peers remind classmates to stay on task while working together.</td>
</tr>
<tr>
<td>Non-Threatening/Non-Competitive Evaluations</td>
<td>Teachers support children to focus on their personal learning progress (rather than comparing him/herself to peers). Teachers encourage children to view feedback as opportunities for them to improve their learning (rather than as competition). Teachers provide children with support that allows them to learn how to give constructive feedback to other children so that they help each other accomplish learning.</td>
</tr>
<tr>
<td>Communities Of Learners</td>
<td>Teachers and children meet to discuss progress on individual tasks (e.g., what’s involved, what materials are needed, who to ask for expertise). Teachers lead a large discussion so that all children have opportunities to share their ideas and strategies for learning with other classmates. Teachers provide children with support (e.g., strategies student can use to help themselves make their learning more interesting based on their interests) that is tailored to an individual child’s needs for learning, emotional support/warmth, and guidance. Individual children are supported by their classmates and teachers when they recognize they need help from someone else to complete work.</td>
</tr>
</tbody>
</table>
## Section 3: Observation Checklist for Examining Features of Classroom Contexts

*Directions:* When analyzing a lesson for the each of the categories/features of contexts e.g., Choice, Control Over Challenge etc) please indicate (with a checkmark) whether a category is (a) present, and (b) supports self-regulation.

<table>
<thead>
<tr>
<th>ID</th>
<th>Lesson Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Category</th>
<th>Present</th>
<th>Supports Self-Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Complex Tasks</td>
<td>No (0)</td>
<td>Yes (1)</td>
</tr>
<tr>
<td>(* )Multiple Goals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Integrate Subject Matter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Engage Students in Several Processes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Result in a Number of Products</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choices</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About “Who”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About “What”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About “When”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About “Where”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About “How”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control Over Challenge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Self-Evaluation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Threatening Evaluations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communities Of Learners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Couple Individual Responsibility with Group Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Encourage Students to Share Ideas and Strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Make Allowances for Individual Differences</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(* )Support Relationships-Student-Student &amp; Teacher-Student</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

How Many Main Features of Classrooms Does This Lesson Incorporate (Out of 8)?

<table>
<thead>
<tr>
<th>How Many Main Features of Classrooms Does This Lesson Incorporate (Out of 8)?</th>
<th></th>
<th></th>
</tr>
</thead>
</table>
Dear Teacher,

My name is Lynda Hutchinson and I am a doctoral student at the University of British Columbia (UBC) in the Department of Educational and Counselling Psychology, and Special Education in the Faculty of Education. I am conducting a research project titled “Self-Regulation In School” to fulfill the requirements for my Ph.D. at UBC. My project has received funding from a UBC Faculty of Education Research Grant. My advisor, Dr. Nancy Perry, is the principal investigator overseeing this study, which has been approved by your school district. I am writing because I would like to invite you and your students to be part of it.

My research project is examining an important area of study called self-regulation. The goal of my study is to understand the extent to which young children manage emotion, learning, and interactions with others so that they can complete their school work and experience academic success. This study is meaningful because researchers and educators know very little about how the day-to-day activities that take place inside young elementary school students’ classrooms support children to manage emotion, learning, and interactions with others. I would be grateful if, after reading this information, you would give your consent to participate in my study by signing the accompanying consent form and returning it to me.

There are two phases of this study. In the first phase of this project, you will be asked to access the Internet to sign in to a secure server at Simon Fraser University to access a program called “Web Questionnaire”. I will provide you with electronic account information (login name, password) and a link so that you can access Web Questionnaire. When you sign into Web Questionnaire, you will be asked to complete a 57-item questionnaire for each of the participating students in your classroom. It is expected that completing questionnaires for all the participating children in your class will take approximately 4 hours, which can be spread across two weeks. Teachers who have completed this questionnaire find that it helps them to consider whether and how individual children’s academic skills are developing.

In the second phase of this study, I would like to observe in your classroom with another graduate researcher for one full day so that I can develop an understanding of how your classroom operates on a day-to-day basis. This observation does not require you to do any
additional work for your teaching and planning, and the observations are not evaluative in any way. I am simply interested in seeing how your classroom operates on a day-to-day basis. While observing, I will position myself to be on the periphery of the room to minimize my presence inside your classroom. I will be recording the events and actions that take place, including verbatim speech between you and your students. In total, you are being asked to devote approximately 4 hours to this study over an 8-10 week period.

Participation in my research project is voluntary and you may withdraw from participation at any time without any negative consequences. Your identity and that of your students will be kept confidential in any reports or presentations that result from my study. If you would like more information about this project, or your role in it, please contact Dr. Nancy Perry by phoning [insert] or Lynda Hutchinson by phoning [insert] or by email [insert] Should you have concerns about your rights as a research participant you may contact the research subject information line at 604-822-8598.

Sincerely,

Lynda Hutchinson

I have read and understand the attached letter regarding the study entitled “Self-Regulation In School”. I have kept a copy of the letter describing the study and this permission slip.

________ Yes, I agree to participate.

________ No, I do not agree to participate.

Teacher’s Signature/Date__________________________________________________

Email Address:___________________________________________________________

I have read and understand the attached letter regarding the study entitled “Self-Regulation In School”. I have also kept the letter describing the study and this permission slip.

________ Yes, I agree to participate.

________ No, I do not agree to participate.

Teacher’s Signature/Date__________________________________________________

Email Address__________________________________________________________

Please provide an email or permanent address to receive a summary of results.
Email/ Permanent Address:
Dear Parent,

My name is Lynda Hutchinson and I am a doctoral student at the University of British Columbia (UBC) in the Department of Educational and Counselling Psychology, and Special Education in the Faculty of Education. I am conducting a research project titled “Self-Regulation In School” to fulfill the requirements for my Ph.D. at UBC. My project has received funding from a UBC Faculty of Education Research Grant. My advisor, Dr. Nancy Perry, is the principal investigator overseeing this study. I am writing because I would like to invite your child to be part of it.

My research project is examining an important area of study called self-regulation. The goal of my study is to understand the extent to which young students manage emotion, learning, and interactions with others so that they can complete their school work and experience academic success. This study is meaningful because researchers and educators know very little about how the real day-to-day activities that take place inside young elementary school students’ classrooms support children’s emotion management, learning, and classroom interactions to complete their school work. I would be grateful if, after reading this information, you would give your consent to your child’s participation in my study by signing the accompanying consent form (page 3 of 3) and returning it to your child’s teacher.

There are two phases in this study. In the first phase of this study, your child’s teacher will be asked to access the Internet and sign into a program called “Web Questionnaire”, which is housed on a secure server at Simon Fraser University. When your child’s teacher accesses Web Questionnaire, they will be asked to complete an electronic questionnaire about your child’s behavior while learning. The electronic questionnaire that teachers complete will have your child’s first name on it but no other personal information (e.g., birth date, age, school) about your child will be contained on the electronic questionnaire. No personal information about your child will distributed using the Internet. In the second phase of this project, I am going to be observing in your child’s classroom with another graduate researcher for one full day. These observations will help me to develop an overall understanding of how your child’s classroom operates on a day-to-day basis. This observation does not require anything from your child and these observations are not evaluative in any way. As I observe in your child’s classroom, I will position myself to be on the periphery of the room to minimize my presence inside your child’s classroom. As I observe, I summarize the activities that take place inside your child’s classroom – I do not interact with children nor do I include their names in my observations.
Participation in my research project is voluntary and you may withdraw your child’s participation at any time without any negative consequences. Your identity and that of your child will be kept confidential in any reports or presentations that result from my study. If you would like more information about this project, or your role in it, please contact Dr. Perry by phoning [insert] or Lynda Hutchinson by phoning [insert] or by email [insert]. Should you have concerns about your rights as a research participant you may contact the research subject information line at 604-822-8598.

Sincerely,

Lynda Hutchinson

I have read and understand the attached letter regarding the study entitled “Self-Regulation In School”. I have explained this study to my child and I have kept a copy of the letter describing the study and this permission slip.

________ Yes, I agree to participate (please complete the information below).

________ No, I do not agree to participate.

Parent’s Signature/Date________________________________________________________

My child’s name is (print):____________________________________________________

Her/his birth date (month/day/year) is (print): ________________________________

Please provide an email or permanent address to receive a summary of results.

Address or Email:

I have read and understand the attached letter regarding the study entitled “Self-Regulation In School”. I have explained this study to my child and I have kept a copy of the letter describing the study and this permission slip.

________ Yes, I agree to participate (please complete the information below).

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Parent’s signature __________________________________________________________

Date ____________________________________________

My child’s name is (print):____________________________________________________

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