YOUNG CHILDREN'S SELF-REGULATED LEARNING AND SUPPORTIVE
TEACHER-CHILD INTERACTIONS: AN EXPLORATORY STUDY

by

Sarah Daily
A Dissertation
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Master of Education
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Dedication

This dissertation, the culmination of my educational studies, is dedicated without any equivocation to my mother and father. From infancy to adulthood you have guided and inspired my educational journey and have showed me that good things come from hard work. You have selflessly volunteered to be my cheerleaders, my sounding board, my editors, and my mentors. There is not a day that goes by that I am not reminded of how lucky I am, and reminded of how important it is to celebrate victories big and small. You are my greatest teachers and I am eternally grateful for your love, laughter, and support.

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Table of Contents

List of Tables

List of Figures

List of Abbreviations

Cambridge Independent Learning Coding Scheme .... C.Ind.Le

Classroom Assessment Scoring System .... CLASS

Self-Regulated Learning .... SRL

Abstract

YOUNG CHILDREN'S SELF-REGULATED LEARNING AND SUPPORTIVE TEACHER-CHILD INTERACTIONS: AN EXPLORATORY STUDY

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An individual's ability to engage in self-regulated learning (SRL) is associated with positive self-beliefs and academic achievement. Yet research suggests that very young children are not capable of engaging in SRL. The purpose of this study was to examine the emergence of young children's self-regulated learning behaviors and identify practices teachers may utilize to support SRL development. Two preschool teachers in a child care center and the 43 four-year-old children in their classrooms participated in this study. Children, teachers, and teacher-child interactions were videotaped. Data were analyzed three ways: using open coding, the Cambridgeshire Independent Learning coding scheme, and the Classroom Assessment and Scoring System. The results of this exploratory study suggest that preschool-aged children are capable of engaging in SRL, though aspects of goal-setting and self-reflection were less evident. In addition, the teachers in this study primarily assisted children with task completion and rarely engaged young children in a way that supported their engagement in SRL. Expanding our understanding of how preschool teachers can foster SRL may help support young

children in taking an active role in their own learning at an earlier age. Educational

implications and limitations of the study are also discussed.

Chapter 1: Introduction

The first few years of life prior to school entry are a critical period during which children develop the cognitive, physical, linguistic, social, and emotional skills that are fundamental to school success (Duncan et al., 2008; Entwisle & Alexander, 1999; Hart & Risley, 2003; McDevitt & Ormrod, 2004; Shonkoff & Meisels, 2000; Shonkoff & Phillips, 2000). Developmental science demonstrates that positive and enriching experiences that occur early in life can have a substantial impact on brain development, which has increasingly gained the attention of national and state policymakers interested in strategies to address the achievement gap (Shonkoff & Meisels, 2000; Shonkoff & Phillips, 2000). Despite the challenging fiscal climate, in his 2013 State of the Union address, President Obama proposed, "working with states to make high-quality preschool available to every single child in America." (WhiteHouse.gov, 2013). In fact, many states have recognized the contribution of high-quality early care and education experiences to children's school readiness. In the 2011-2012 school year, 40 states allocated over $6 billion dollars to enable 1.3 million three- and four-year-old children to enroll in state-funded pre-kindergarten programs (National Institute for Early Education Research, 2012). Calling it the "pre-k solution," policymakers and researchers see investments in early childhood education as a successful strategy for preventing achievement gaps that emerge later in life (Meisels, 2006, p. 6).

In the 1960's through the early eighties, three seminal studies of four-year-old American children were launched that demonstrate the importance of preschool for positive long-term academic outcomes for young children. The High/Scope Perry Preschool study, launched in 1962, randomly assigned four-year-old children to either a treatment or control group. Children in the treatment group attended a high-quality preschool program. For 36 years following the experiment, data was collected on both the treatment and control groups. Compared to the control group, children who attended preschool had significantly more positive gains throughout their life in areas related to education, income, crime, socio-emotional well-being, and health (Schweinhart, Montie, Xiang, Barnett, Belfield, & Nores, 2005). Two additional studies that were started in the 1970's and 1980's (the Abecedarian project and the Chicago Child-Parent Centers study) used similar longitudinal randomized control designs. The results of these studies indicated that decades after participants were enrolled in the study's preschool programs, children in the treatment group were more successful academically, were more likely to attend college, obtain higher incomes, steady employment, and had substantially lower rates of substance abuse and crime (Campbell, Ramey, Pungello, Sparling, & Miller-Johnson, 2002; Reynolds, Temple, Ru, Arteaga, & White, 2011).

The individual children who participated in these studies were not the only ones to benefit from enrollment in a preschool program. Economists have analyzed data on cost savings associated with reduced crime, higher earnings, and other beneficial outcomes that resulted from the Perry, Abcedarian, and Chicago studies. Federal Reserve Bank of Minneapolis economists Grunewald and Rolnick (2003) determined:

"investments in early childhood development programs bring a real (that is, inflation adjusted) public return of 12 percent and a real total return, public and private, of 16 percent…[W]e are unaware of any other economic development effort that has such a public return" (p. 1).

While there is strong evidence to support investments in preschool programs, there is less agreement about the most effective way to maximize the preschool year. Some research suggests that emphasis should be placed on the quality and nature of teacher-child relationships (Pianta, Howes, Burchinal, Clifford, Early, & Barbain, 2005; Howes, Burchinal, Bryant, Early, & Clifford, et al., 2008). Others emphasize a focus on specific instructional practices and the content of effective preschool curriculum (Schweinhart &Weikart, 2002). The present study does not attempt to take a position on this debate, but instead suggests that a combination of these two factors is important, and as a result, will examine both.

Teacher-child relationships and the interactions that define those relationships encompass several different dimensions. These may include the teacher's sensitivity and responsiveness to children's needs, how teachers support concept development and scaffold children's learning, and the strategies teachers use to keep children engaged in learning (Mashburn, Pianta, Hamre, Downer, Barbarin, Bryant, Burchinal et al., 2008). Positive teacher-child interactions in preschool have been associated with children's cognitive gains in reading and mathematics in kindergarten and their academic achievement in third grade (Mashburn et al.; Pianta, Belsky, Vandergrift, Houts, Morrison, & The National Institutes of Child Health and Human Development Early

Childhood Research Network, 2008), social competence (Rudasill & Konold, 2008), and children's greater self-control (Rimm-Kaufman, Curby, Grimm, Nathanson, & Brock, 2009).

Most preschool curricula emphasize the development of early literacy and numeracy skills (Scott-Little, Kagan, & Frelow, 2006). However, this narrow focus may not cater to the comprehensive skills and abilities children need to be successful when they reach kindergarten (Daily, Burkhauser, & Halle, 2010). Important skills and abilities such as engagement, motivation, task persistence, and children's interest may be critical for successful school readiness, but are attributes that are not well understood in young children (Hyson, 2008, p. 2). One important dimension of children's approaches to learning and the focus of this study is self-regulated learning (SRL).

Social cognitive theory maintains that, "children can be described as self-regulated learners to the degree that they are metacognitively, motivationally, and behaviorally engaged in their own learning" (Zimmerman, 1989a, p. 4). Metacognitive processes include a child's ability to set goals, monitor progress, make adjustments to their strategies, and evaluate the outcomes (Zimmerman). Motivation includes attitudes such as self-efficacy for learning, or a child's beliefs about their capability to successfully complete specified tasks (Pajares, 2008). Behavioral self-regulation includes a child's ability to regulate their behavior and attention towards a specified goal (Smith-Donald, Raver, Hayes, & Richardson, 2007). These beliefs and abilities are fundamental to children's ability to engage in the process of becoming a self-regulated learner (Zimmerman, 2000; Zimmerman & Schunk, 2011).

4

Fostering the development of self-regulated learning behaviors can benefit children by empowering them to take ownership over the learning process (Schunk & Ertmer, 2000). Unlike other theories of self-regulated learning, the social cognitive theory asserts that children can in fact become self-regulated learners with proper instruction of specific strategies (Zimmerman, 2000). Specifically, interactions with teachers and peers that enforce the use of SRL skills can play a strong role in SRL development. However, to successfully self-regulate one's own learning, a student must possess some degree of metacognitive awareness, an ability to adapt and control their behavior, and the motivation to engage these abilities toward a specified outcome (Zimmerman, 1989b; Zimmerman, 2008).

Statement of the Problem

To date, research on self-regulated learning has primarily focused on school-aged children (Perry, 1998). Far less is known about how and if children under the age of five are capable of engaging in SRL. This may be due in part to the lack of consensus about the degree to which young children possess metacognitive awareness, as summarized by Zimmerman (1989a),

> Most assume that very young children cannot self-regulate during learning
> in any formal way...Constructivists of a Piagetian orientation assume
> young children's cognitive egocentrism is a critical factor limiting self-
> regulation, whereas Vygotskians stress the importance of young children's
> inability to use language covertly to guide functioning. Constructivists
> who favor Flavell's view (1979) tend to emphasize limitations in young

5

children's metacognitive functioning as the primary factor for their

incapacity to self-regulate during learning. (p. 5)

Little has changed over the past 20 years since Zimmerman made this statement.

Flavell, who in the late 1970's coined the term "metacognition," has continued to assert

that young children are not capable of metacognitive awareness (Flavell, Green, &

Flavell, 1995). In more recent years, researchers interested in the development of literacy

and reading comprehension have also supported this notion (Baker, 2008). Though

metacognition is not the only skill necessary for self-regulated learning, other

fundamental skills, such as motivation and behavioral engagement have seldom been

studied in children under the age of five in isolation, or in relation to self-regulated

learning.

The lack of research on the development of self-regulated learning among young

children may be closely linked to the inherent challenges in studying and measuring

metacognition, motivation, and behavioral control. Verbal and self-report methods of

assessment that 'publicize' cognitive thoughts used with older children and adults are not

as easy to adapt for young children for many reasons. According to Piaget's stages of

cognitive development, between the ages of two and seven language is in the early stages

of development, and children may not yet be able to formulate thoughts beyond concrete

reality (McDevitt & Ormrod, 2004). Since language is only emerging during early

childhood, verbally assessing pre-school-aged children about their thoughts may place

unnecessary and excessive cognitive demand on the child's ability to articulate their

thoughts and beliefs. Instead of interviewing young children about their cognitive

processes, observational techniques may be better suited for exploring this topic with young children (Azevedo, 2009; Whitebread et al., 2009).

Despite the lack of research on young children's ability to self-regulate their learning, research is clear that the earlier teachers can help children cultivate self-regulatory learning strategies, the more successful children will be in their academic endeavors (Pajares, 2008; Zimmerman & Martinez-Pons, 1986). Defining what SRL "looks like" in early childhood can help early childhood educators better identify and foster young children's SRL development. If young children are capable of employing self-regulatory learning behaviors, then educators need to be knowledgeable about the right types of interactions and instructional practices that can support SRL development. New insights on this topic may inform professional development opportunities for early childhood and early elementary school educators.

Purpose

The purpose of this exploratory qualitative study was to examine four-year old (preschool) children's SRL capabilities and the interactions teachers (explicitly or implicitly) engaged in to support SRL among young children. Drawing from the social-cognitive perspective of self-regulated learning, this study focused on the personal, behavioral, and environmental attributes that influence young children's ability to engage in self-regulated learning. The findings of this study may help to inform our understanding of the emerging behaviors and capabilities young children possess that contribute to their development as self-regulated learners and how early childhood educators can best foster SRL development.

Research Questions

      This study responded to a gap in the literature that demonstrates a lack of understanding about the degree to which young children can engage in self-regulated learning and how teachers can best support SRL development in the early years. A child's ability to self-regulate their learning includes their ability to develop interests and motivational beliefs for specific learning tasks, shape learning goals, maintain active engagement, monitor and evaluate their progress, and employ strategies to adapt their behavior to meet goals. This study explored young children's self-regulated learning behaviors and the teacher interactions that support SRL development by focusing on the following research questions:

    RQ#1: What self-regulated learning behaviors and capabilities do four-year-old children demonstrate?

    RQ#2: How do teachers' interactions with young children support the development of self-regulated learning?

Study Overview

      This study used observational methods to explore these research questions. Two classrooms of four-year-old children were videotaped both during student-centered and teacher-centered instructional times. Videotapes were coded using one measure of young children's engagement in self-regulated learning, and one classroom level measure that assessed teacher-child interactions. As an exploratory study, emic analysis strategies (i.e., open coding, memos, matrices) were utilized to enable new understanding of the

development of self-regulated learning and teacher's supportive practices. This study also utilized etic analysis strategies, primarily through the use of *a priori* coding schemes, to better understand how the collected data aligned with pre-existing definitions of young children's self-regulated learning.

Definition of Terms

The following terms and definitions are used throughout this study.

Preschool-aged children. This study took place in a private child care center that enrolled 120 children ages two to five. The children who were recruited to participate in this study were allowed to enroll in the preschool classrooms of this child care center at four years of age. Often the term "young children" is used to describe the four-year-old children in this study.

Self-regulated learning. Social cognitive theory maintains that "children can be described as self-regulated learners to the degree that they are metacognitively, motivationally, and behaviorally engaged in their own learning" (Zimmerman, 1989a, p. 4). Self-regulated learning includes three key phases: forethought, performance, and self-reflection. Forethought includes activities and attributes such as goal-setting, planning, and self-motivational beliefs. Performance includes behaviors such as self-control, attention focusing, and self-observation. Self-reflection includes self-evaluation, causal attribution, and self-satisfaction (Zimmerman, 2000).

Teachers. Two teachers who led the classroom activities for the four-year-old children in this study were the primary participants in this study. However, the teaching assistants in each classroom also played a role in this study because they interacted with

the children during data collection. Throughout this dissertation the term "teachers" is meant to be inclusive of both the lead teacher and the teaching assistants. When necessary, the adults identified in the results section are indicated as either the teacher or teaching assistant.

Teacher-child interactions. These include the behaviors and attitudes teachers possess that enable them to build a warm and responsive learning environment, particularly for young children. These attributes and behavioral indicators are defined by the Classroom Assessment and Scoring System (CLASS; Pianta, LaParo, & Hamre, 2008). This classroom observation coding scheme includes the following three dimensions and associated subscales:

- *Emotional Support.* Positive climate; negative climate; teacher sensitivity; and regard for student perspectives.

- *Classroom Environment.* Behavioral management; productivity; and instructional learning formats.

- *Instructional Support.* Concept development; quality of feedback; and language modeling.

Young children's self-regulated learning capabilities. Young children's self-regulated capabilities include motivational, metacognitive, and behavioral attributes as defined by the Cambridgeshire Independent Learning coding scheme (C.Ind.Le; Whitebread et al., 2009). This observational coding scheme identifies the following capabilities and associated behavioral indicators:

- *Metacognitive knowledge*. Knowledge of persons, self, and others; knowledge of tasks; and knowledge of strategies.

- *Metacognitive regulation.* Planning; monitoring; control; and evaluation.

- *Emotional and motivational regulation*. Emotional/motivational monitoring; and emotional/motivational control.

Chapter 2: Literature Review

The purpose of this literature review is to establish the absence of substantial research on the development of self-regulated learning among four-year-old children, and therefore the relevance of this study. While there is a significant volume of research related to self-regulated learning and effective instructional practices in early childhood education, few if any studies have explored these two topics together. This review is organized into two parts. The first part of the review explores research on the impact of preschool education on the long-term outcomes of four-year-old children, and demonstrates why the year prior to school entry presents a critical opportunity to engage young children in their own learning. Then, research on the evolution of self-regulated learning as a fundamental learning skill is reviewed.

The second part of the review aims to make connections between literature on self-regulated learning and early childhood. First the social-cognitive theory is established as the theoretical framework for this study. Within this framework, Bandura's (1986) triadic analysis model of self-regulated learning is used to organize the remaining portion of the review. The triadic analysis model explains self-regulated learning as both an influence on and influenced by personal, behavioral, and environmental attributes. These three attributes are closely examined in this study. For the purposes of this study, personal attributes include metacognition and motivation. Behavioral attributes include children's observable actions and behaviors. Environmental attributes include teacher-

child interactions and effective early educational instructional practices. Existing literature relevant to these three attributes and young children are reviewed in detail.

Emergence of Preschool in the American Education System

In the United States, children typically enter the public school system at age five when they enroll in kindergarten (Bush, 2011). Prior to age five, many parents place their child in a family-based or center-based child care arrangement so that they can attend school or work. While child care can be thought of largely as a work support for parents, the quality of the experiences and interactions children have in these settings can have an impact on their preparedness to enter kindergarten (American Academy of Pediatrics, 2005). It is important to briefly review the evolution of preschool programs in the United States to demonstrate the importance of pre-schooling experiences for children's academic success. Preschool became a significant part of the education landscape beginning in the 1960's with the emergence of two major developments: (1) Head Start was created and funded, and (2) findings from longitudinal studies on the benefits of preschool were released.

The 1960's marks the beginning of a steady increase of state and federal investments in publicly-funded high-quality early childhood programs. A product of President Lyndon Johnson's War on Poverty, Head Start was created in 1965 as a national program aimed to provide early comprehensive services to disadvantaged children and families. Today the program serves close to one million three- and four-year-old children. Based on a "whole child" approach, Head Start promotes school readiness by providing a cognitively stimulating and emotionally supportive learning environment for children

ages three to five, and by addressing children's health needs with nutritious meals and snacks, health screenings, and opportunities for exercise and rest. Significant emphasis is also placed on the involvement of families. Head Start programs engage parents in their children's learning and help them make progress toward their own educational and employment goals, often connecting families to other services available from community partners (U.S. Department of Health and Human Services, 2011a, 2011b). Continued investment in Head Start over the last thirty years is one indication of the success of the program and its value to participants.

The 1960's also marked the launch of the first of three longitudinal studies of American preschool children designed to understand if and what long-term benefits children can gain from one year of preschool. These three seminal studies are briefly reviewed here to convey the critical opportunity preschool education presents for young children. The High/Scope Perry Preschool study (Perry) was launched in 1962 in Ypsilanti, Michigan, with a sample of 123 low-income African-American three- and four-year-old children who were determined to be at high risk of school failure. The assessment of risk included factors such as low socioeconomic status, low IQ (between 70 and 85), and/or low performance on developmentally appropriate assessments. Fifty-eight children in the sample were randomly assigned to a treatment group, the remaining 65 children were assigned to a control group (Schweinhart et al., 2005). Children in the treatment group attended a preschool program five days a week for two and a half hours in the year prior to kindergarten entry. Teachers in the Perry program had a bachelor's degree, were certified to teach preschool, and maintained a small child to teacher ratio of

14

six to one. The curriculum used in the Perry Preschool program emphasized active

learning, which was designed to help children with decision making and problem solving.

Teachers also provided weekly one and a half hour home visits to engage parents in their

child's learning (Perry Preschool Project, n.d.).

Since 1962 data have been collected on both the treatment and control groups

annually from ages three through 11 and again at ages 14, 15, 19, 27, and 40. Throughout

the study, the treatment group has demonstrated significant positive outcomes compared

to the control group in domains such as education, income, crime, socio-emotional well-

being, and health. For example, participants in the treatment group significantly

outperformed their peers in aspects such as mental impairment, grade retention, and

graduation from high school, and attitudes towards learning. From age 27 to 40

significantly more participants who attended the Perry Preschool Program were

employed, had higher median incomes, and had significantly fewer incidents of arrest or

incarceration due to drug, property, or violent crimes (Schweinhart et al., 2005).

While the small sample size of the Perry study may be a limitation, the results of

this study have been replicated in two separate longitudinal randomized control studies of

preschool programs conducted in the 1970's and 1980's. The Abecedarian project

(Abecedarian) was similar to the Perry program in that it studied the benefits of early

childhood education for low-income children, however, it employed an intervention from

infancy through the age of five (as opposed to a half-day program for just one year). In

this study, four cohorts of 28 infants from low-income families living in North Carolina

were enrolled in the study between 1972 and 1977 (n = 111). Children randomly assigned

to the treatment group participated in a full day early childhood program from about four months of age until kindergarten entry. While the Abecedarian curriculum included activities to bolster cognitive and motor development, social and self-help skills, particular emphasis was placed on language development and pre-literacy skills (Campbell & Ramey, 1995). Children's progress was monitored over time with follow-up studies conducted at ages 12, 15, and 21. At age 12, children in the treatment group scored significantly higher on tests of mathematics and reading than the control group. By age 21, children in the treatment group demonstrated significantly higher performance on assessments of cognitive skills, reading, and mathematics, and were more likely to attend college (Campbell et al.).

The Chicago Child-Parent Centers study (Chicago), the third of three seminal studies mentioned above, was started in 1985. In this longitudinal randomized control study, 1,539 low-income children and their parent(s) were provided with comprehensive educational and family-support services from preschool through the third grade. The Chicago model emphasized four program features: early intervention, parent involvement, a structured language-based instructional model, and alignment between the preschool and early primary grades (Reynolds, 1999). Data was collected at multiple time points from age four through age 30 to track participants' developmental progress. When compared to the control group, the 25-year follow up study reported that children who participated in the Chicago Child-Parent centers obtained higher levels of educational attainment, higher incomes and steady employment, and lower rates of substance abuse and incarcerations (Reynolds et al., 2011).

16

Though these three studies (Perry, Abcedarian, and Chicago Child-Parent Centers) focus primarily on low-income or children considered to be at-risk for school failure, the benefits of preschool have been documented for children from a variety of backgrounds. For example, Oklahoma currently provides state-funded pre-kindergarten programs to 70% of all four-year old children in the state (NIEER, 2011). Evaluations of the Oklahoma program have consistently demonstrated positive benefits for children from a range of racial, ethnic, and socio-economic backgrounds (Gormley, Gayer, Phillips, & Dawson, 2005; Gormley, Phillips, & Gayer, 2008). Similar pre-kindergarten evaluations in New Mexico (Hustedt, Barnett, Jung, & Figueras-Daniel, 2009); South Carolina (Lamy, Barnett, & Jung, 2005a); and West Virginia (Lamy, Barnett, & Jung, 2005b) have demonstrated similar results.

While the Perry, Abecedarian, and Chicago studies each provide compelling data on the importance of preschool education, perhaps the most convincing evidence is demonstrated through the increase of state investments in preschool over the past decade. In 2003 the National Institute for Early Education Research (NIEER) began tracking the number of states investing in public preschool programs and the quantity of those investments. The inaugural report indicated that during the 2001-2002 school year, 38 states provided publically funded preschool to approximately 700,000 children (15% of the U.S. population of four-year-olds at that time) for a total investment of 2.4 billion dollars (NIEER, 2003). In 2012, the annual NIEER pre-kindergarten report indicated that during the 2011-2012 school year 40 states funded preschool programs, which enrolled 1.3 million children (nearly one-third of the U.S. population of four-year-olds) for a total

investment of over $6 billion dollars. The doubling of enrollment and public investments in preschool programs over the past decade is a significant indicator that policymakers and the public value the importance of preschool. The increase in state investments is also significant given the economic recession that started in 2008 (Borbelly, 2009). While states continue to incorporate preschool programs into their education systems, policymakers will want to see the benefit of their investments. As a result, it is important to explore the quality of the educational experiences young children receive as part of their preschool programs.

In order to hold early care and education programs accountable for providing high-quality learning experiences to young children, the federal government led an effort in the past decade to help define benchmarks for what young children should know and be able to do by the time they reach school entry. In turn, these benchmarks help to define what a high-quality learning environment should look like. In 2002, President George Bush's *Good Start Grow Smart* initiative required states to develop voluntary early learning guidelines that specify the key skills and abilities young children need to demonstrate in language, literacy, and mathematics skills (National Child Care Information Center, 2009). Currently, all states and the District of Columbia have early learning guidelines for preschool children (Daily, et al., 2010). Most state early learning guidelines focus on similar domains of development (i.e., language development, literacy, mathematics, science, creative arts, social and emotional development, approaches to learning, and physical health and development). But they are voluntary, and there is wide variation with respect to the depth and breadth of the learning standards

and how they are implemented across states (Scott-Little, et al., 2006). For example, some states place equal emphasis on each of the developmental domains identified above, while others place more emphasis solely on mathematics and literacy (Daily, et al., 2010). While early numeracy and literacy are important developmental domains, focusing on these to the exclusion of others such as social-emotional development and children's approaches to learning may have negative consequences for children's academic success (Raver, 2002).

'Approaches to learning' is one area of development that describes "the motivation, attitudes, and behaviors that children display when participating in educational activities" (Hyson, 2008, p. 2). The term 'approaches to learning' first emerged as part of the work of the Education Goals Panel in the 1990's, in which one of the resultant reports indicated, "of all the school readiness domains, approaches to learning is the least understood, the least researched, and perhaps the most important dimension" (Kagan, Moore, & Bredekamp, 1995, p. 22). As a domain of child development that has not been widely researched, understanding how to effectively foster a young child's approach to learning may be a critical component of providing a high-quality preschool experience, and one that merits further attention. Approaches to learning include behaviors such as a child's motivation to learn, engagement, persistence, planning, and focus (Hyson). Each of these attributes are key dimensions of a process defined by educational psychologists as self-regulated learning (SRL), which is the focus of this study.

Social Cognitive Perspective of Self-Regulated Learning

Self-regulated learning research first emerged as a concept in educational psychology in the late 1960s. Behaviorist research, the predominant paradigm at that time, was challenged by research that emphasized the individual's role in their cognitive processes, as opposed to explaining actions as reactions to environmental attributes outside of one's control (Schunk & Zimmerman, 2006). New understanding about the role of self-beliefs and how they influence processes such as learning, motivation, self-regulation, and achievement gave rise to a number of theoretical frameworks that continue to influence education research today such as, achievement motivation theory, attribution theory, social cognitive theory, and self-determination theory (Schunk & Zimmerman). Albert Bandura, (1986) the principal architect of the social cognitive theory, discussed human behavior as a reciprocal interaction between an individual's behaviors, personal factors (such as beliefs and cognition), and their environment. This assertion was illustrated through Bandura's (1986) model of triadic reciprocality, in which individuals are both the producers and recipients of their environment (Schunk & Zimmerman).

An important aspect of the social cognitive theory, as compared to other theories of cognition and learning such as achievement motivation theory or self-determination theory, is that social cognitive theorists believe self-regulated learning is a skill that individuals can acquire by learning (Zimmerman, 1989a). Other theories of self-regulated learning emphasize the role of attributes outside of the individual's control as the major influence on the adoption, or lack thereof, self-regulated learning. For example, the

20

operant perspective focuses on behavioral monitoring and reinforcement as key pathways to acquire SRL (Zimmerman). The volitional perspective associates an individual's self-control and will as key to their ability to self-regulate (Zimmerman). The social cognitive view of self-regulated learning supports the belief that children can learn to be self-regulated learners through social interaction and instruction (Zimmerman, 2000). This theoretical framework is best suited for the present study as teacher-child interactions are a particularly important component of early childhood development and instruction (Hamre & Pianta, 2001).

According to Bandura's (1986) triadic analysis model, SRL is influenced by the interaction of personal, behavioral, and environmental attributes (see Figure 1 below). Personal attributes include internal factors such as metacognition and motivation. Metacognitive processes include a child's ability to set goals, monitor progress, make adjustments to their strategies, and evaluate the outcomes (Zimmerman, 1989a). Motivation includes attributes such as goals, interests, self-efficacy for learning, and outcome expectancy (Pajares, 2008; Schunk & Zimmerman, 2008). Environmental factors include both physical surroundings that are conducive to SRL and social interactions with peers and adults. Behavioral attributes include a child's ability to regulate their behavior and attention towards a specified goal (Smith-Donald et al., 2007). Any exploration of SRL from the social cognitive perspective must incorporate these three key influences.

Figure 1. The triadic model demonstrates how the interaction between personal, environmental and behavioral attributes inform a child's engagement in SRL. Adapted from "Social-foundations of thought and action: A social cognitive theory." by A. Bandura, 1986, Englewood Cliffs, NJ: Prentice Hall. Copyright 1986 by Prentice Hall.
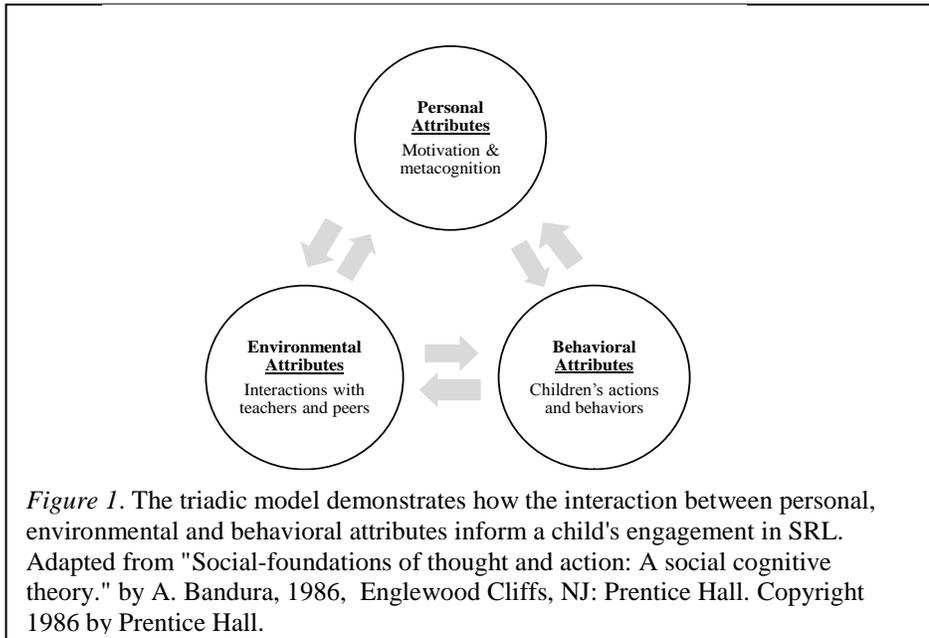
Self-regulated learning describes an individual's ability to plan and implement a set of strategies towards a specified learning goal. According to the social-cognitive theory of SRL, to successfully regulate one's own learning, a child must possess some degree of (1) metacognitive awareness, (2) the ability to adapt and control their behavior, and (3) the motivation to engage these abilities toward a specified outcome (Zimmerman; Schunk & Zimmerman).

Self-regulated learning is a cyclical process that, according to the Zimmerman (2000) model, includes three key phases: forethought, performance, and self-reflection. The first phase, forethought, involves two processes: task analysis and self-motivation. Task analysis includes actions such as setting goals and planning. Self-motivation includes children's beliefs about their ability to do something, or beliefs about an

22

expected outcome. Performance processes include self-control and self-observation. Self-control refers to the use of specific methods or strategies and the ability focus one's attention. Self-observation includes methods of monitoring progress towards a goal. The final phase of SRL, self-reflection, includes two types of processes: self-judgment and self-reaction. Self-judgment includes comparison of one's own performance to another, or causal attribution, which includes a child's belief about why they failed or succeeded. Self-reaction includes statements of self-satisfaction or statements about adaptations that will be made in the future. The Zimmerman (2000) three-phase model is summarized in Table 1 below as each phase is referenced frequently throughout the remainder of this study.

Table 1

Self-Regulated Learning Phases and Processes

SRL Phase	Key Processes
Forethought	Task analysis: goal-setting and planning
	Self-motivation: beliefs about one's ability to do something or the expected outcome
Performance	Self-control: focus and attention setting
	Self-observation: monitoring progress towards a goal
Self-Reflection	Self-judgment: self-evaluation and causal attribution
	Self-reaction: statements of self satisfaction, adaptation

Note. Adapted from "Attaining self-regulation: A social-cognitive perspective." by B. J. Zimmerman, 2000, In M. Boekaerts, P. Pintrich, & M. Seidner (Eds.), Self-regulation: Theory, research, and applications (pp. 13–39). Copyright 2000 by Academic Press.

When a child self-regulates their own learning, they develop a sense of personal agency and awareness of their role in learning, which in turn can empower them to take ownership over the learning process (Schunk & Ertmer, 2000). The types of goals children set (i.e., performance, outcome) and their ability to employ effective strategies to reach those goals are associated with higher levels of performance and academic achievement than children who cannot engage these strategies (Locke & Latham, 2002; Zimmerman & Kitsantas, 1997). Presented as a cyclical feedback loop, the more success a child has during one round of self-regulated learning, the more likely they are to develop positive motivational and efficacious beliefs about their abilities and their desire to learn.

Beyond the benefits to the individual learner who is highly self-regulated, SRL also benefit teachers as a framework for instruction. For example, a teacher who is aware of the key phases of self-regulated learning and attuned to the abilities of her students may be better equipped to provide them with support during the self-regulated learning process. This benefit is evidenced in the emergence of numerous intervention studies and the development of instructional techniques that focus specifically on supporting children in grades two and above through key phases of self-regulated learning. These include studies that have explored effective instructional techniques in reading and writing (e.g. Graham, Harris, & Mason, 2005; Paris, Cross, & Lipson, 1984; Pressley, Almasi, Schuder, Bergman, & Kurita, 1994), cognitive engagement (e.g. Turner, 1995; Connell & Wellborn, 1991) and supporting children's self-assessment skills (e.g. Paris & Ayres, 1994; Paris & Paris, 2010; Tierney, Carter, & Desai, 1991). The remainder of this review

explores how the three fundamental attributes of self-regulated learning (personal, behavioral, and environmental) have been studied in young children, and will demonstrate that little is known about how these attributes develop or interact to support SRL in early childhood.

Personal Attributes

For the purposes of this study, personal attributes includes exploring young children's metacognitive awareness and their motivation for learning.

Metacognition. Metacognition is a foundational skill necessary for self-regulated learning. Yet, there is some debate among researchers about young children's metacognitive awareness and their ability to self-regulate their learning. Some suggest that young children (third grade and below) know substantially less about their own thinking than older students (Baker, 2008; Flavell, Green, & Flavell, 1995; Garner, 1987; Schraw & Moshman, 1995; Zimmerman, 1989a). For example, Flavell, Green, and Flavell (1995) reviewed 14 studies conducted with three- to five-year-old children that explored one or more of the following topics: (a) what young children think thinking is and is not; (b) when young children think others are thinking and what they may be thinking about; and/or (c) their ability to detect their own thinking. As a result of this review, the authors conclude that preschoolers know that thinking is an internal activity and that they are sometimes able to make accurate observations about what another person maybe thinking when situational cues are clear and apparent. However, the authors also determined that preschool aged children are generally incapable of determining when they, or others, are thinking and the content of those thoughts (Flavell

25

et. al.). The findings of this review are significant for the field of educational psychology since Flavell (first author of this study and others on the development of metacognition) is credited for coining the term "metacognition" in a 1976 article and is considered one of the foundational researchers on the topic (Flavell, 1976; Hartman, 1998).

More recently, Baker (2008) conducted a review of over two dozen studies conducted between 2000 and 2007 on the relationship between metacognition and reading comprehension, which included longitudinal studies, intervention studies, descriptive, and correlational research. At the conclusion of the review, Baker (2008) suggested that young children only have enough "processing capacity" to decode language as they read, and that it is not until they are older that then can combine decoding skills with monitoring and comprehension skills that are characteristic of metacognitive awareness.

Though research demonstrating young children's lack of metacognitive awareness is more common, some studies suggest children in kindergarten through third grade may in fact be capable of thinking about their own cognition (Cross & Paris, 1988; Kinnunen, Vauras, & Niemi, 1998; Palinscar & Brown, 1984; Perry, VandeKamp, Mercer, & Nordby, 2002). For example, Kinnunen and colleagues (1998) explored metacognitive awareness through the use of reading comprehension activities with 132 first graders. The authors argue that in order for young children to be able to monitor the accuracy of their reading, they must possess some degree of metacognitive awareness, and vice versa. Using a progressively more challenging online reading program, the authors examined

the reading patterns of participating children, specifically looking for their use of self-correction techniques such as looking back and re-reading.

Kinnunen and colleagues (1998) were surprised to find that first graders' ability to monitor the accuracy of their reading was higher than expected. That is, participants were largely successful in monitoring their comprehension of simple sentences and more successful than anticipated in detecting contradictions in sets of sentences designed to confuse the reader. While the authors supported the notion that younger children were capable of possessing metacognitive awareness in the context of reading comprehension, they also found that more advanced readers were more successful monitors than less advanced readers who demonstrated less fluency in their reading. The authors suggested that the demand on working memory less advanced readers needed in order to simply read the sentence preoccupied their ability to engage in more complex monitoring processes. These findings suggest that in order to explore children in the early stages of SRL development, it may be important to engage them in tasks that are interesting, yet not so challenging that they compromise a child's ability to engage in SRL.

Research on children in kindergarten through third grade also indicates that social interaction plays an important role in supporting children's use of metacognitive learning strategies. For example, the Reciprocal Teaching method (Palinscar & Brown, 1984) and the Informed Strategies for Learning (Cross & Paris, 1988) fostered talkative environments, which provided teachers an opportunity to monitor student understanding and in turn be able to better assess how to support their learning. Social interaction among students was also found to promote children's collective reasoning skills, which

27

forced students to develop a clear understanding of newly learned content and provided opportunities for students to scaffold each other's learning (Schraw, 1998; Schraw & Moshman, 1995). Supportive social environments that encourage discussion, social modeling, and risk-taking can foster metacognitive growth (Lin, 2001). These findings are important for the purposes of this study, which seeks to expand upon our understanding of the specific interactions that support self-regulated learning, and in turn, metacognitive awareness in preschool children.

Only one study explored the metacognitive awareness and self-regulatory learning abilities of children between the ages of three to five in an effort to develop and validate an observational measure of SRL to be used with young children. Over the course of two years, Whitebread and colleagues (2009) collected nearly 100 hours of video observations of 1,440 three- to five-year-old children in 32 preschool classrooms in the United Kingdom. From this video data, the researchers isolated 196 events, lasting about two to three minutes each, that exemplified young children's engagement in SRL processes such as metacognitive knowledge, metacognitive regulation, and motivational regulation. The 60 events that 'best' exemplified one or more of these processes were then coded using a coding scheme developed by the authors, the Cambridgeshire Independent Learning (C.Ind.Le) coding scheme. The authors concluded that the data they were able to gather provided evidence of both verbal and nonverbal indicators of three- to five-year-old children's metacognitive and self-regulated learning abilities. The C.Ind.Le coding scheme will be one of two *a priori* coding schemes used for data analysis in this study.

The study by Whitebread and colleagues (2009) also provides a rationale for conducting an observational study. The lack of research on metacognitive development in young children may be closely linked to the inherent challenges associated with studying and measuring metacognition and metacognitive awareness. Research on self-regulated learning has predominantly relied upon survey methods of SRL measurement (Perry et al., 2002).Verbal and self-report methods that 'publicize' cognitive thoughts among older children and adults are not as easy to adapt for young children for many reasons (Jacobs & Paris, 1987). Since language is only emerging during early childhood, verbally assessing pre-school-aged children about their thoughts may be developmentally inappropriate. Not only does it place unnecessary and excessive cognitive barriers on child's performance, it may not be possible to differentiate between a child's lack of metacognitive awareness and his or her ability to verbalize that awareness (Garner, 1987). Further, self-report methods tend to gather generalized beliefs and perceptions of one's SRL engagement, and fail to provide a detailed account of SRL in *real* time (Perry et al.).

Instead of interviewing young children about their cognitive processes, observing their behavior may be more insightful (Azevedo, 2009; Zimmerman, 2008). Advantages to observational methods include: (a) observations record actual behaviors as opposed to reported behaviors; (b) enable the researcher to understand the context of the learning situation; (c) do not depend on language abilities; (d) capture both verbal and nonverbal behaviors; and (e) enable the researcher to understand the social context and processes associated with SRL (Whitebread et al., 2009). The proposed study will draw upon these

29

insights by using an observational measure of children's behavior, described in more detail in Chapter 3.

Motivation. Motivation is a broad term that encompasses constructs such as goal orientation, interests, self-efficacy, outcome expectancy, and values, to name a few. Motivation is fundamental to SRL as it can serve as a precursor, mediator, concomitant, or primary outcome of self-regulated learning (Zimmerman & Schunk, 2008). Similar to research on metacognition, there are few studies of four-year old young children's self-motivational beliefs. This also may due the challenges of using self-report assessment strategies with young children. Many presume that young children are naturally motivated, curiosity, and tend to overestimate their abilities, which makes it difficult to obtain accurate information from self-report strategies (Perry, et al., 2002). However, a few studies of children in the first through third grades demonstrate that when assessment measures are administered in developmentally appropriate ways, young children can articulate their motivational beliefs, and that these beliefs are related to successful academic outcomes (Wilson & Trainin, 2007; Kim & Lorsbach, 2005; Stipek, Feiler, Daniels, & Milburn, 1995). These studies provide important insights on how best to examine young children's motivational beliefs.

The Early Literacy Motivation Survey (ELMS), evaluated the relationship between first graders' motivation and their academic achievement in reading, writing, and spelling (Wilson & Trainin, 2007). The authors found that young children are capable of accurately describing their motivational beliefs when they are able to directly engage in developmentally appropriate and motivating tasks prior to the assessment of their

motivation. For example, the authors presented young children with a hands-on literacy task immediately before they administered each motivation subscale. Providing young children with an academic task in close proximity to asking about their motivation for that task provided them with a direct experience they could draw upon to accurately respond to the motivational assessment (Wilson & Trainin). This finding provides support for observing children engaged in learning tasks in *real* time so that children's motivational attributes can be closely linked to the context of their surroundings and the academic task at hand instead of generalized over time.

Another study conducted on kindergarten and first grade students also demonstrated that children were able to describe their motivational beliefs for literacy tasks (Kim & Lorsbach, 2005). The authors emphasized that future measures that assess young children's motivational beliefs not over emphasize the use of young children's verbal or written responses as this may unnecessarily complicate children's ability to communicate their beliefs and abilities. Instead, the authors suggested using qualitative assessment techniques that examine young children's emergent use of language, their actions, and attitudes. Similar to the challenges in measuring metacognition in young children, any exploration of young children's motivation must be developmentally appropriate. Measures that rely more upon observing children's behaviors and their emergent use of language, as proposed in this study, may be more informative than interview style assessment techniques.

A third study compared the motivational beliefs and their academic achievement of 227 low-income young children (ages four to six) in a child-centered classroom and a

teacher-centered classroom (Stipek, Feiler, Daniels, & Milburn, 1995). Using a combination of classroom observations, parent and teacher questionnaires, and direct child assessments, the authors found there were no clear differences between teacher-centered and child-centered classrooms that would favor the use of one style over the other in regard to children's academic achievement. Children in didactic classrooms performed better than children in child-centered classrooms on reading assessments, but not in mathematical assessments. Children in child-centered classrooms performed better in mathematics but not reading. However, children in classrooms that prioritized a child-centered instructional approach had higher levels of self-efficacy and motivation to learn. These findings reinforce Bandura's (1986) triadic analysis model, which suggest that environmental attributes such as the teacher's pedagogy and instructional approach influence young children's motivational beliefs as they relate to self-regulated learning.

In sum, there are few studies that examine the personal attributes of four-year-old children's metacognitive awareness, motivational beliefs, and how these attributes are associated with self-regulated learning. However, the few studies that do exist on four-year-old children, or slightly older children (kindergarten through third grade) provide insight into the existence of these traits in young children, and can help to inform the design of future studies on these topics. The few studies reviewed that explored young children's metacognitive awareness or motivational beliefs suggest three important implications for the design of the current study.

First, the nature of the activities children are engaged in that may elicit opportunities to understand their metacognition or motivation need to be developmentally

appropriate. Activities that place too much demand on children's working memory or language skills may interfere with an accurate understanding of the metacognitive awareness or motivation. Second, these studies suggest that the best way to assess young children's personal attributes is through the use of observational techniques that can take place in *real* time to examine children's actions, behaviors, and attitudes in addition to their emergent use of language. Finally, context and environment influence children's motivation and metacognition, suggesting that an exploration of young children's SRL need to take into account teacher's attitudes, beliefs, and instructional approaches.

Behavioral Attributes

For the purposes of this study, young children's behavioral attributes, the second pillar of Bandura's (1986) triadic analysis model are explored in this review through a developmental psychology lens. In recent years, developmental psychologists have made great strides in exploring the development of behavioral self-regulatory processes in early childhood, which may help to inform studies on the development of self-regulated learning. From this perspective, behavioral self regulation includes key constructs such as a child's ability to inhibit or sustain their behavior through effortful control, and executive functioning skills such as focusing and shifting attention and accessing working memory (Smith-Donald et al., 2007). Effortful control describes a child's ability to suppress a dominant behavior in favor of a subdominant one and is a key predictor of children's ability to self-regulate their behavior (Rothbart, Ellis, Rueda, & Posner, 2003). Attention describes a child's ability to engage, maintain, and eventually shift focus. Working memory describes a child's ability to maintain information while processing

33

new information (Cameron Ponitz, McClelland, Jewkes, Connor, Farris, & Morrison, 2008). Each of these fundamental functions are still developing in early childhood, and may in fact be antecedent abilities that impact a child's ability to regulate both their cognitive and physical behavior in a way that is conducive to SRL.

Developmental psychologists have been able to demonstrate numerous positive associations between behavioral self-regulation and successful learning outcomes (Bierman, Nix, Greenberg, Blair, & Domitrovich, 2008; Blair & Razza, 2007; Espey, McDiarmid, Kwik, Stalets, Hamby, & Senn, 2004; Liew, McTigue, Barrois, & Hughes, 2008; McClelland, Cameron, Connor, Farris, Jewkes, & Morrison, 2007). For example, Blair and Razza (2007) conducted a study of nearly 200 low-income three- to five-year-old children in which they explored the relationship between executive function (defined as attention shifting, working memory, and inhibitory control) and effortful control (defined as focus, task persistence, and engagement) and academic performance in literacy and mathematics. Children's levels of effortful control and executive function were assessed through parent and teacher surveys and direct child assessments during the preschool year. Their mathematics and literacy skills were assessed a year later, through direct assessments when the children were in kindergarten. The authors found that all elements of effortful control and one element of executive function (inhibitory control, or a child's ability to control their impulses), in preschool were moderately correlated with children's academic ability in kindergarten.

The results of the Blair and Razza (2007) study were echoed in another longitudinal study of over 700 first-graders, in which developmental psychologists

34

explored the relationship between children's effortful control and executive function in first grade to their academic outcomes and self-efficacy beliefs (a key motivational attribute) in the second and third grades. Interestingly, in this study, the authors make an explicit connection between effortful control (a cognitive construct) and self-efficacy (a social cognitive construct; Liew, McTigue, Barrois, & Hughes, 2008). Here the authors clarify that effortful control describes an individual's *ability* to override a dominant influence in order to activate a secondary response (for example, ignoring a loud distraction in order to accomplish a specific task), whereas self-efficacy describes an individual's *belief* in their ability to inhibit a dominant response in order to achieve their goal. While these two constructs are indeed different, the authors found that these two attributes are highly correlated. Effortful control not only contributed to reading achievement in third grade, but also to students' positive self-efficacy beliefs in second grade.

However, this is the only study identified in this review that attempts to make a connection between developmental psychologists' definitions of executive function and effortful control and educational psychologists' definitions of self-regulated learning. Elements of effortful control may be closely related to or *lead* to children's developing self-motivational beliefs. Similarly, executive function may be a necessary foundational skill that leads to a child's developing ability to select and utilize specific task strategies. Effortful control and executive function, may in fact be antecedent attributes that lead to children's ability to demonstrate the 'classic' SRL attributes such as goal-setting,

planning, task engagement and strategy selection, monitoring, and evaluation that are more characteristic of older children's demonstration of SRL.

While such insights have both increased attention and understanding of young children's self-regulation, research in this area has not been able to explain *why* increased self-regulation leads to positive learning outcomes. Considering these findings from a social cognitive perspective of self-regulated learning may be beneficial, as these studies have not focused on other aspects such as children's learning goals, strategy selection, motivation, or other self-regulated learning attributes. These may be key processes that lead to positive academic outcomes. Further, most studies conducted by developmental psychologist do not take place in a natural setting. The present study not only examines how children self-regulate their behavior, attention and emotions, but will explore how behavioral self-regulation operates in concert with motivation and metacognitive awareness, i.e., self-regulated learning in a classroom setting.

Environmental Attributes

The third pillar of Bandura's (1984) triadic analysis model incorporates the environmental attributes that influence children's SRL. From a social cognitive perspective, examining the learning context is critical for understanding SRL. The social cognitive perspective of self-regulated learning incorporates an ecological perspective of child development, which articulates that children develop in an environment of relationships. In early childhood, children interact most directly with the physical, social, and symbolic features of their environment in settings such as the home or schools (Bronfenbrenner, 1979). Therefore, children, even at an early age, both influence and are

influenced by the adults and caregivers in their immediate surroundings. While the ecological framework takes into account numerous relationships and influences in a child's immediate environment, this study will focus specifically on teacher-child interactions, and to some extent, peer-to-peer interactions.

For the purposes of this study, teacher-child interactions includes the behaviors and attitudes teachers possess that enable them to build a warm and responsive learning environment, particularly for young children. These interactions are defined by the observational measure used in this study, the Classroom Assessment and Scoring System (CLASS; Pianta, LaParo, & Hamre, 2008). The CLASS defines and assesses three dimensions of teacher-child interactions: emotional support, classroom organization, and instructional support. Emotional support includes the teacher's ability to foster a positive learning climate, maintain awareness of individual children's needs, and their ability to plan activities that incorporate a range of teaching modalities and topics to engage student's interest. Classroom organization includes how the teacher influences the classroom environment, through the use of a behavior management approach that is developmentally appropriate for four-year-old children. It also includes preparation and the ability to plan activities that enable children to be productive throughout the day. The instructional support dimensions assess the degree to which teachers foster children's concept development through connections between daily activities and events to the real word, their ability to model the use of advanced language skills and vocabulary, and their ability to provide feedback to children that helps extend learning and understanding.

Early childhood researchers have found warm and nurturing teacher-child interactions foster positive outcomes for young children (Birch & Ladd, 1997; Byrant, Burchinal, Lau, & Sparling, 1994; Howes & Hamilton, 1992). In a study of over 200 kindergarten children, teacher-child closeness emerged as a strong correlate of children's ability to adjust to school, their academic performance, school attitude, and engagement (Birch & Ladd). Young children who had a strong relationship with their teacher received additional time, energy, and instructional support from their teacher (Pianta, Steinberg, & Rollins, 1995). The benefit of teacher-child closeness in early childhood may also have long-term effects. In a longitudinal study of over 200 kindergarteners, Hamre and Pianta (2001) found that kindergarten teachers' perception of their relationship with individual children was a "unique predictor of [that child's] behavioral and academic outcomes in early elementary school with mediated effects through middle school" (p. 634).

Investigations into the relationship between self-regulated learning and teacher-child interactions have focused primarily on children in kindergarten through third grade. For example, a teacher's ability to use modeling, prompts, and guided practice to ensure gradual transfer of ownership of a learning strategy to the student were found to be effective in promoting self-regulated learning among third graders (Cross & Paris, 1988). Translating ownership of the learning process may be a particularly important attribute for teachers who want to foster self-regulated learners, as overly teacher-centered instruction can undermine children's intrinsic motivation for learning and foster a dependency on adult instruction (Stipek & Byler, 2004). Further, Perry and colleagues (2010) found what teachers say and do is related to children's self-regulated learning.

Specifically, children were more likely to engage in self-regulated behaviors in classrooms where teachers offered choices, shared ownership over learning tasks with children, and offered opportunities for children to evaluate their efforts and others in a safe and supportive environment (Perry et al., 2010).

Exploring young children's self-regulated learning capabilities and the strategies teachers engage in to support SRL development may be critical for informing future professional development in this area. Fostering self-regulated learning abilities in early childhood may also be more beneficial to young children than waiting until later in elementary school. Additionally, new understanding of the development of SRL may help to move the debate away from a discussion about whether young children do or do not possess self-regulated learning capabilities and towards more productive discussions about how to support young learners.

Summary of Insights from Previous Research

The goal of this literature review was to first highlight seminal studies related to the importance of both preschool education and separately, self-regulated learning, then explore research conducted to date on the development of preschool-aged children's development of self-regulated learning. Findings from the studies reviewed here lend important insights into the rationale and design of the current study.

Evidence from studies such as Perry Preschool, Abcedarian, and the Chicago Child-Parent Centers demonstrated that participation in a high-quality preschool setting can set children on a trajectory of success that can be measured even decades later in the form of academic achievement, increased earnings, participant health, and well-being

(Schweinhart et al., 2005; Campbell et al., 2002; Reynolds et al., 2011). The results of these studies have motivated numerous states to invest in preschool programs, and simultaneously, these investments have inspired new research on the specific components that contribute to a high-quality preschool experience. While there continues to be some debate about what is more important, teacher-child relationships or the instructional emphasis and support provided to four-year-old children, the current study adopts the view that both are important components of quality and thus evaluated both.

In separate research and academic circles, numerous studies have demonstrated the benefit of self-regulated learning for children's performance and academic achievement (e.g. Locke & Latham, 2002; Schunk & Ertmer, 2000; Zimmerman & Kitsantas, 1997; Zimmerman & Schunk, 2011). Yet few studies have explored the development of self-regulated learning among children prior to school entry. Using the triadic analysis model of self-regulated learning (Bandura, 1986) as an organizational framework, the remainder of the review examined what is currently known about fostering young children's self-regulated learning in the context of children's personal attributes, behaviors, and their learning environment.

A review of the few studies that explored how children's personal attributes (specifically their metacognitive awareness and self-motivational beliefs) contributed to self-regulated learning suggested that young children were capable of these attributes, if they were engaged in activities and then assessed in developmentally appropriate ways. These studies suggested that young children's metacognitive awareness and motivational

beliefs are best assessed through observational techniques as opposed to self-report or survey measures.

Though no studies were identified that explored how young children's behaviors directly influenced their use or development of SRL, studies of executive function and effortful control in early childhood provided the closest proxy for understanding how young children's behaviors influence the development of their SRL capabilities. This body of research provided two important insights that have helped to shape the current study. First, young children's display of effortful control and executive function may be precursors to more formalized expressions of SRL that may develop later in children's education and development. Therefore, while understanding if young children can demonstrate specific SRL behaviors such as goal-setting, monitoring, and evaluation is important, understanding what the cognitive and physical antecedents of these behaviors look like in early childhood may be important for a study of preschool-aged children's demonstration of SRL. Second, while developmental psychologists have demonstrated a causal relationship between effortful control, executive function, academic outcomes, and motivational beliefs later in children's schooling, they have not been able to understand *why* this relationship may exist. The development of self-regulated learning skills may provide an important link between this relationship.

Finally, teacher-child interactions were established as an important element of the environmental attributes that influence SRL. However, few studies have explored how preschool teacher-child interactions can or do support SRL. As a result, SRL is typically not introduced to students until they reach the second or third grade when they have a

41

firm command of the language and literacy skills that are thought to be essential for successful SRL. Little is known about the current practices preschool teachers engage in to support SRL development among four-year-old children. However, literature on effective SRL teaching practices in early elementary grades may provide a set of strategies that can be adapted for use in the preschool classroom. It was not possible to determine through previous studies if preschool teachers' current practices support young children's SRL development or present a missed opportunity to foster these skills among young children.

Research Questions

This study was designed in response to a gap in the literature that demonstrated a lack of understanding about the degree to which young children can engage in self-regulated learning and how to best support SRL development in the early years. A child's ability to self-regulate their learning includes their ability to develop interests and motivational beliefs for specific learning tasks, shape learning goals, maintain active engagement, monitor and evaluate their progress, and employ strategies to adapt their behavior to meet goals. If young children are capable of employing self-regulatory learning behaviors, then educators need to be equipped with strategies to foster the development of these capacities. The purpose of this study was to explore young children's self-regulated learning behaviors and the teacher practices that support SRL development by exploring the following research questions:

RQ1: What self-regulated learning behaviors and capabilities do four-year-old children demonstrate?

42

RQ2: How do teachers' interactions with young children support the development

of self-regulated learning?

Exploration of the first research question involved observing young children in an early care and education learning environment. The goal of the first research question was to identify what each phase of the SRL cycle 'looks like' for young children, which would include some degree of goal-setting, strategy selection, performance, and self-reflection. Given the importance of teacher-child relationships in early childhood education, the second research question focused specifically on the implicit or explicit strategies teachers used to help children engage in SRL behaviors. Similarly, I wanted to explore any teacher behaviors that potentially inhibited children's ability to engage in SRL.

Chapter 3: Method

This study aimed to yield a richer understanding of young children's self-regulated learning (SRL) capabilities and the teacher-child interactions that support SRL development. Based on the social-cognitive perspective of self-regulated learning, this study focused on the personal, behavioral, and environmental attributes that influence young children's ability to engage in self-regulated learning. The goal of this chapter is to describe the (a) research design, (b) site selection criteria and recruitment strategies; (c) setting and participants (d) data collection procedures, (e) observational coding schemes, (f) data analysis, (g) role of the researcher's identify, and (h) how the pilot study informed the design of this dissertation study.

Research Design

As described above, the goal of this study was to develop an understanding of young children's self-regulated learning capabilities and the teacher-child interactions that support SRL development. Since this topic has not been widely researched with young children, this study was designed to be exploratory in nature. With this goal in mind, a qualitative design was best suited to address the research questions. A qualitative research design enabled an exploration of the relationship between the learning environment context and key processes that relate to specific SRL events and behaviors between and among young children and their teachers (Maxwell & Mittapalli, 2007).

Since this study included research with very young children (four-year-olds), observational data collection was the primary method of data collection. Data collected from each observation produced two units of data analysis: (1) SRL behaviors identified through direct observation of children; and (2) explicit and implicit behaviors and strategies teachers used to support children's engagement in the SRL process. Observational data collection methods have several advantages when working with young children (Azevedo, 2009; Zimmerman, 2008). For example, observations: (1) record actual behaviors as opposed to reported behaviors; (2) enable the researcher to understand the context of the learning situation; (3) do not depend on language abilities; (4) capture both verbal and nonverbal behaviors; and (5) enable the researcher to understand the social context and processes associated with a specific trait or behavior (Whitebread et al., 2009).

In addition to these methodological advantages, observational data collection methods have several practical benefits. Observations can be scheduled during children's regular daily activities, which may help to reduce any burden placed upon both teacher and child participants. Observations can also yield large quantities of data (i.e., videos, video transcriptions, field notes, drawings, photos) that can all be used for data analysis. There are however also some limitations to observational data collection methods. For example, the mere presence of a researcher-observer has the potential to influence how participants act (Creswell, 2008; Maxwell, 2005). Reactivity and other threats to the validity of this study are addressed in more detail at the end of this chapter.

As exploratory research, this study was designed to understand patterns in the data that do or do not fit existing frameworks of SRL development and supportive teacher-child interactions (Patton, 2002). Therefore, both an emic and etic perspective were sought throughout data collection and analysis. Selected portions of relevant video data were transcribed and coded using children's direct quotes and actions to understand SRL from an emic perspective. In order to gain an etic perspective, this study utilized two *a priori* coding schemes to analyze the observational data, which are described in more detail below (Patton). Exploring the data with existing coding schemes was important for identifying any alignment between the collected data and prior conceptualizations of SRL and supportive teacher-child interactions.

Site Selection Criteria and Recruitment

A purposeful sampling strategy was used to identify the selected child care center and participating teachers. In order to yield the most "information rich" setting this sampling strategy was based on three predetermined criteria (Patton, 2002, p. 230). First, the site was to be a non-school based early care and education center, as this type of setting was most likely to have the largest number of four-year-old children attending one location. The goal of this criterion was to select a child care center that had at least 25 four-year old children who could participate in classroom observations. The selected center had two pre-kindergarten classrooms with approximately 20 four-year-old children in each class. Based on a prior qualitative study I conducted that explored three teachers' perceptions of young children's metacognitive awareness, I anticipated that two teachers would provide both enough variability and data to address the specified research

46

questions, but also not too much data that the study would become unmanageable. Second, I did not want to select a child care center at which I had a previous relationship with any of the staff or families. I did not want participants to have any preconceived notions about the specific focus of my study. The goal of this criterion was to help reduce participant bias. Finally, teachers in their first year of teaching were not eligible to participate in an effort to reduce burden on a potential participant during their first year of teaching.

Child care center recruitment. When a site was identified that met the criteria listed above, I contacted the center director by phone to describe the purpose of my study. I provided her with an overview of the study and the activities that would involve the director, teachers, children and parent participants. The center director provided initial verbal approval of the study, which was followed by a typed letter of consent signed by the director the following week. After receiving consent from the site, I submitted all the necessary paperwork to the George Mason University Human Subjects Review Board (HSRB). After approval was given to conduct my study by HSRB, I provided the director with a letter to distribute to all the four-year-old classroom teachers at the center. This letter described the general purpose and key procedures involved in the study (see the Appendix for the Teacher Recruitment Letter and Informed Consent Form). I then scheduled a meeting with the director and the potential teacher participants to describe my study and answer questions.

Teacher recruitment. I used three primary recruitment strategies to engage teachers in this study. First, I focused on building a relationship and rapport with the

47

child care center director (Weiss, 1994). As the "gatekeeper" the director helped establish

my credibility with both the classroom teachers and parents (Creswell, 2002, p. 219).

Second, I communicated my flexibility to coordinate my observations around the

teachers' schedules in order to minimize disruption and participant burden. Finally, I

provided a small financial incentive (a $50.00 gift card) to the two participating teachers,

Jane and Marissa. In addition to being an effective recruitment strategy, the gift cards

were offered as a small token of appreciation for any inconvenience my study presented

to the teacher participants.

Parent/guardian recruitment. The parents/guardians of every child within the

participating teachers' classrooms received a letter that explained the parameters of the

study and requested parent consent for children to be observed as part of the classroom

study (see the Appendix for the Parent/Guardian Recruitment Letter and Informed

Consent Form). I also asked parents for their permission to videotape their children

engaging in normal classroom activities. All the parents of children in both Jane's

classroom and Marissa's classroom provided consent for their children to participate in

the study. However, two parents in Marissa's classroom did not provide consent for their

children to be videotaped. Marissa had a follow up conversation with both of these

parents to determine how they would like to proceed with the study. For example, she

asked if they would prefer for their child to move to another classroom during my visits,

or if she should organize alternative activities for them so they were out of the view of

the camera. Both parents indicated that they were comfortable with my videotaping while

48

their children were present, but asked that I keep their children out of the view of the camera as much as possible.

Setting

This study took place in a child care center in Hammond County, a suburban county that has a population of just over one million people located in a mid-Atlantic state. In 2009, the median household income of Hammond County was $122,600, which was double that of the national median household income ($61,521; U.S. Census Bureau, 2011). The racial and ethnic makeup of Hammond County is slightly more diverse as compared to national averages (Humes, Jones, & Ramirez, 2011). Caucasians comprise the majority (66%), followed by Asian and Pacific Islander (17%), Hispanic (15%; any race), Black (9%), and multi-racial individuals (7%). The demographics of the selected child care center was proportionally similar to that of the surrounding community. While the income of the families attending the selected child care site was not obtained, the children who participated in this study were likely to live in households that were more affluent than the average U.S. household. This assumption is based on both the income data obtained for Hammond County and information provided by the participating teachers during a pre-observation interview.

Participants

The two participating teachers were both female. Jane, a Caucasian woman in her early forties, had 13 years of experience teaching preschool and kindergarten and a bachelor's degree in elementary education. Marissa, a Caucasian woman in her late twenties, had four years of experience teaching preschool who also had a bachelor's

49

degree in elementary education. Jane had 22 children, Marissa had 21 children in their respective classrooms (n = 43). The majority of the children were Caucasian (68%; n = 28), followed by Asian/Pacific Islander (24%; n =10), Hispanic (5%, n = 3), and children who identified with more than one race (2%; n =2). The primary language and socio-economic status of participants were not collected. However, nearly all participants were children of university employees.

In addition to the two lead teachers, the teaching assistants in each classroom played a role in this study because they also interacted with the children during data collection. Marissa's classroom had two assistants, Samia and Rob. Samia appeared to be in her mid-forties and was of Middle Eastern descent. Rob, a Caucasian male, appeared to be in his mid-twenties and mentioned in passing that he was a graduate student at the university affiliated with the child care center. Jane's classroom had one teaching assistant, Angele, who appeared to be a Latina woman in her mid-forties. No other information about the teaching assistants was known as they were not interviewed as part of this study. Throughout this dissertation the term "teachers" is used and is inclusive of teaching assistants. When necessary, the adults identified in the results section are indicated as either the teacher or teaching assistant.

Data Collection Procedures

After the two participating teachers were identified and consent was obtained the data collection procedures began with one pre-observation meeting with both teachers. The primary goal of this 45 minute meeting was to build rapport with the teacher participants, provide them with more information about the goals and procedures of my

study, and answer any questions they had (Weiss, 1994). During this meeting I asked about the teacher's typical daily schedule in an effort to identify blocks of time during the day when children were most likely to be engaged in a mix of teacher-directed and child-directed activities. This information helped inform the dates and times during which the classroom observations took place. Given the importance of peer-to-peer and teacher-child interactions (Hamre & Pianta , 2001), it was important to identify when these interactions were most likely to take place.

      Classroom observation procedures. To better understand the SRL behaviors and abilities of young children (RQ1), and to better understand how teachers' interactions with children support the development of SRL (RQ2), two preschool classrooms were videotaped during normal daily activities. At the teachers' request, my observations were always scheduled in the mornings between the hours of 8:30 a.m. and 11:30 a.m. This time was suggested by both teachers as a window of time during which they believed I would have the best opportunity to observe children engaging in a mix of both child and teacher directed activities.

      Prior to beginning data collection I scheduled two one-hour visits to each classroom. Though I carried my Flip® handheld video camera with me, I did not videotape any observations during these initial visits as they were designed to familiarize the children with my presence and the video camera. While it was difficult to be a non-participant observer with very young children, since they were naturally curious about my presence, the goal of these pre-observation visits was to help minimize participant reactivity. My role as a researcher while videotaping was that of a nonparticipant

51

observer (Creswell, 2008). I was not involved in any classroom activities and interacted with the children as little as possible so that I could maximize the opportunity to videotape children interacting with their peers or with their teacher, not reacting or interacting with me. When possible, I tried to simply move without talking to the child, but in some instances this was not possible. On one other occasion a boy made an attempt to exit the classroom out the back door, in which case I intervened to stop him and called for a teacher to help redirect the child to another activity. I believe these few occasions had little impact on the data collected, which I discuss further in the section below regarding the threats to the validity of my study.

The two coding schemes used in this study (described in more detail below) required different subjects to be the focus of my observations, which had important implications for the procedures related to videotaping and data collection. Teachers and teaching assistants are the focus of the Classroom Assessment and Scoring System (CLASS; Pianta, LaParo, & Hamre, 2008). The CLASS coding manual indicates that, "the CLASS codes are derived based on the behavior of *all* adults in the room during a given [observation] cycle." Therefore, the interactions among children, teachers, and teaching assistants were given equal weight during coding (Pianta, LaParo, & Hamre, p. 11). The CLASS requires data to be collected and coded on six separate 20 minute observation intervals. As described in the coding manual, these coding intervals are preferably conducted when the teacher is directly interacting with the children either through teacher-centered instruction or when a teacher is involved in child-directed activities, but not during outdoor play or times when the teacher's role is more

52

supervisory than instructional (Pianta, LaParo, & Hamre). The coding manual also indicates that when there is a teaching assistant present, the observer is to consider their behaviors according to the number of students with whom they are working and the amount of time they spend with the students (Pianta, LaParo, & Hamre). The teaching assistants in both classrooms interacted with children as consistently as the lead teacher, therefore their interactions were given equal weight and consideration when coding the CLASS. When the six coding intervals were completed, the scores for each of the interval were averaged to determine the final CLASS score for that classroom. Since I primarily focused on videotaping while observing, my ability to take field notes during each observation was limited. Instead, immediately after each classroom session (within one hour of the visit), I made some notes which included reactions and insights I had during the observations.

Over the course of eight weeks of data collection, five (5) two-hour observations were conducted in the two preschool classrooms for a total of ten hours of videotaped observations per classroom or 20 total hours of video data. Over the course of the data collection period, six 20 minute segments were focused explicitly on the teacher, teaching assistants and their interactions with children in order to be able to use the CLASS coding scheme. See Table 2 for an overview of the data collection process.

Table 2

Sequence of Site Selection and Data Collection Procedures

Activity
1. Identify potential child care sites.
2. Contact and/or meet with the Center Director of potential site(s) to explain goals and procedures of my study.
3. Child care center signs letter approving participation in the study.
4. Submit paperwork for Human Subjects Review Board (HSRB) approval process.
5. HSRB approval received. Center Director distributes Teacher Letter to all four-year-old classroom teachers.
6. Two four-year-old classroom teachers agree to participate in study and sign Teacher Informed Consent Form.
7. Schedule two visits to meet with teacher participants individually. The goal of this meeting is to review the goals and procedures of my study. Teachers distribute Parent/Guardian Letter and Informed Consent Form to all parents. Schedule tentative dates and times for classroom observations with teachers, to be scheduled after receipt of all parent/guardian consent forms.
8. Schedule two one hour pre-observation visits to each classroom with the video camera so that the children are familiar with my presence.
9. Conduct five (5) two-hour classroom observations in each classroom (n = 2).

Note. See the Appendix for a copy of the Teacher Recruitment Letter, Teacher Informed Consent Form, Parent/Guardian Recruitment Letter and the Parent/Guardian Informed Consent Form

Observational Coding Schemes

Cambridgeshire Independent Learning (C.Ind.Le) coding scheme. Each

classroom video was coded using a coding scheme developed in the United Kingdom

designed to examine young children's SRL through classroom observations (Whitebread

et al., 2009; see Appendix). Using the social-cognitive model as a theoretical framework,

the Cambridgeshire Independent Learning coding scheme (C.Ind.Le) was recently

developed and tested on over 1,400 three- to five-year-old preschool children. It consists

of three categories and nine indicators (see Table 3). The developers of the C.Ind.Le

addressed validity threats by collecting data in a naturalistic setting, using member

checks, and by videotaping observations to enable a richer understanding of social

context during analysis. The level of inter-rater reliability among coders was 75 percent

(Whitebread et al., 2009). The developers of the C.Ind.Le created a training video, which

I purchased and completed in the fall of 2011.

Classroom Assessment Scoring System. Classroom videos were also coded using

the Classroom Assessment Scoring System (CLASS; Pianta, LaParo, & Hamre, 2008; see

the Appendix). The CLASS measure is designed to evaluate preschool through third

grade classroom quality by observing teacher-child interactions. The CLASS includes

three domains and seven dimensions (see Table 4). The CLASS has been validated in

over 3,000 early care and education classrooms and the average inter-rater reliability is

reported as 87 percent (Halle, Vick-Whittaker, & Anderson, 2010). In August 2010, I

completed an initial two-day CLASS training (16 total hours) with a certified CLASS

trainer. This training involved reviewing the specific dimensions of CLASS in detail and

then watching, coding, and discussing 20-minute teaching segments. I then successfully

completed a CLASS reliability assessment. In October 2011 and October 2012, I

completed recertification training provided by the CLASS developer to ensure that I

continued to be reliable on the measure. The recertification process consisted of

completing a reliability assessment, which involved watching and coding without

discussion five teaching segments and consistently scoring within one point of the master

codes at least 80% of the time.

Table 3

Verbal and Nonverbal Categories, Indicators, and Descriptions of Self-Regulated Learning According to the C.Ind.Le Coding Scheme

Metacognitive Knowledge

Self	Comments about strengths or weaknesses of self
Others	Comments about strengths or weaknesses of others
Universals	Talks about general ideas about learning
Tasks	Compares/contrasts tasks; makes a judgment about the difficulty of a task; rates a task based on pre-established criteria or previous knowledge
Strategies	Defines, explains, teaches how s/he has done something; explains procedures involved in a particular task; evaluates the effectiveness of strategy(ies) in relation to the task or context

Metacognitive Regulation

Planning	Sets or clarifies task expectations; allocates roles; sets goals decides how to proceed with task; seeks and collects resources for task
Monitoring	Self commentates on progress; reviews progress; rates effort or performance; checks behaviors or performance, detects errors; self-corrects; checks/corrects performance of a peer
Control	Changes strategies as a result of monitoring; suggests and uses strategies to solve task more efficiently; applies previously learned strategy to a new situation; repeats strategy in order to check accuracy of outcome; seeks help; uses nonverbal gesture to support cognitive activity (pointing); helps another child use strategy
Evaluation	Reviews own learning or explains task; evaluates strategies used rates the quality of performance; tests the outcome of strategy in achieving goal (rotates scissors)

Emotional and Motivational Regulation

Monitoring	Awareness of positive or negative emotional experience of a task; monitors emotional reactions while on task
Control	Focused, resists distraction or returns after momentary distraction; self-encourages/encourages others; persists despite difficulty or without help

57

Table 4

Classroom Assessment Scoring System (CLASS) Coding Scheme Domains, Dimensions, and Indicators

CLASS Domains and Dimensions	Indicators
Emotional Support	
Positive Climate	Relationships; positive affect; positive communication; respect
Negative Climate	Negative affect; punitive control; sarcasm/disrespect; severe negativity
Teacher Sensitivity	Awareness; responsiveness; addresses problems; student comfort
Regard for Student Perspectives	Flexibility and student focus; support for autonomy and leadership
Classroom Environment	
Behavior Management	Clear behavior expectations; proactive; redirection of misbehavior; student behavior
Productivity	Maximizing learning time; routines; transitions; preparation
Instructional Learning Formats	Effective facilitation; variety of learning models; student interest; clarity of learning objectives
Instructional Support	
Concept Development	Analysis and reasoning; creating; integration; connections to the real world
Quality of Feedback	Scaffolding; feedback loops; prompting thought processes; providing information; encouragement and affirmation
Language Modeling	Frequent conversations; open-ended questions; repetition and extension; self- and parallel talk; advanced language

Note. Adapted from "The Classroom Assessment Scoring System Manual Pre-K," by R. C. Pianta, K. M. LaParo, B. K. Hamre, 2008, Baltimore, MD: Brookes Publishing. Copyright 2008 by Paul H. Brookes Publishing Co., Inc.

Data Analysis

The research questions presented in this study lent themselves to two different units of analysis: the child (RQ1) and the teacher-child interactions (RQ2). Given my interest in understanding the data I collected from the perspective of both my selected *a priori* coding schemes and in a way that will enable new understanding of SRL development in young children, I analyzed the video data multiple ways. On one hand, I wanted to map an existing social-cognitive theoretical perspective onto the data I collected to see how closely young children's potential demonstration of SRL 'fit' with existing knowledge and definitions of SRL. As discussed below, this "etic" or deductive interpretation of the data enabled me to explain the behaviors and abilities I observed in young children in terms of a current understandings and definitions of SRL (Patton, 2002, p. 453).

Yet, at the same time, this study aimed to explore if and how SRL development emerges in early childhood, a topic that is not well understood, thus I expect it to 'look' different than and perhaps 'exist' outside current definitions of SRL. In an effort to prevent limiting my understanding of the data by basing my interpretation only on existing definitions of SRL, I also incorporated an "emic" interpretation of the data (Patton, 2002, p. 453). To achieve this balance, both inductive and deductive data analysis techniques were needed, which are described below in relation to each research question. There were four steps of data analysis.

Open Coding RQ#1. After data collection was completed, I watched each video and took notes using a three column coding matrix: (1) coding category; (2) description

of video segment; and (3) notes. I first evaluated the videos for examples of what

Zimmerman (2000) described as two types of forethought processes: task analysis and

self-motivation. Task analysis includes actions such as setting goals and planning. Self-

motivation includes children's beliefs about their ability to do something, or beliefs about

an expected outcome (Zimmerman). During open coding I established the following

coding criteria to determine if and when an observed behavior or statement made by a

child would get coded as an example of the forethought phase of SRL: the observed event

needed to demonstrate some aspect of: (1) goal-setting, (2) planning, and/or (3) a child's

verbal expression of a self-motivational belief (Zimmerman).

Once I identified that a child or children were engaged in the forethought phase of

SRL, I evaluated the verbal exchanges and nonverbal actions that followed to determine

if the child(ren) then engaged in the performance phase of SRL. Performance processes

include: self-control and self-observation (Zimmerman, 2000). Self-control refers to the

use of specific methods or strategies and the ability focus one's attention. Self-

observation includes methods of monitoring progress towards a goal. The observed event

needed to include some aspect of children's verbal or nonverbal: (1) strategy selection

and use; and/or (2) monitoring of progress or ability in order to be coded as engagement

in the performance phase.

The final phase of SRL, the self-reflection phase includes two types of processes:

self-judgment and self-reaction (Zimmerman, 2000). Self-judgment includes a child's

evaluation of the results or a comparison of one's own performance to another. Self-

judgment also includes causal attribution, a child's belief about why they failed or

60

succeeded. Self-reaction includes statements or beliefs of self-satisfaction or statements about what the individual might do differently in future attempts towards their goal. For an observed behavior or statement to be coded as evidence of a child's engagement in the self-reflection phase, it needed to demonstrate a child's: (1) statement about their success, failure, or future adaptations; (2) comparison to another model or performance; and/or (3) a statement or demonstration of self-satisfaction.

Open Coding RQ#2. The open coding described above resulted in the identification of nine video segments of children engaging in aspects of the SRL processes that lasted between 30 seconds and 20 minutes. These video segments were clipped from the longer observation videos and saved as individual files for easy retrieval and analysis. Open coding included analyzing these video segments to understand how teachers' interactions with young children supported their engagement in self-regulated learning. I re-examined each video segment however, this time, I focused on the adults in the classroom and how they helped or inhibited children in engaging in SRL. I again used a three column coding matrix: (1) coding category; (2) description of video segment; and (3) notes to analyze segments of video that depicted teachers supporting (or missed opportunities to support) young children in engaging in any or all phases of SRL. I was particularly interested in identifying sequences of interactions that led to a child's ability to demonstrate SRL. After watching each video I developed a short memo to record emerging themes that spanned across individual video segments.

A Priori **Coding RQ#1.** Using the full 20 hours of video data (as opposed to only the video segments identified above), I evaluated the videos according to the C.Ind.Le

coding scheme (Whitebread, et al., 2009). I used a matrix similar to the one used during

open coding, I recorded descriptions of events that aligned with any of the indicators

specified by the C.Ind.Le. Inter-rater reliability was established through the use of an

independent researcher who double-coded two of the nine SRL events or about 20% of

the events that were identified for coding according to the C.Ind.Le. Inter-rater reliability

between my coding and the double coder was 60%, which was comparable to the level of

agreement achieved by the C.Ind.Le developers during the instrument development

(66%; Whitebread et al.).

   A Priori **Coding RQ#2.** As indicated in the data collection procedures above, six

20-minute segments during the visits in each classroom were coded using the CLASS

(Pianta, LaParo, & Hamre, 2008; see Appendix). During data analysis I watched these

twelve video segments (six in each classroom) and analyzed the data according to the

CLASS constructs. The CLASS has a specific template for recording observational notes

and scoring teachers according to each CLASS dimension. These templates were used for

each 20-minute segment to produce CLASS scores. Inter-rater reliability was established

through the use of two independent coders. Since the CLASS requires coders to be

trained to reliability, two certified CLASS researchers double-coded two of the six 20

minute CLASS segments collected from each classroom, as recommended by the

developers (Pianta, LaParo, & Hamre). Inter-rater reliability between my coding and the

CLASS double-coders was 80%, which is the recommended range for reliability

according to the developers (80-100%; Pianta, LaParo, & Hamre).

Role of the Researcher's Identity

As the primary researcher conducting a qualitative study it is important to acknowledge how my academic and professional experiences have influenced my researcher identity, and the implications these attributes have on my study. My professional experiences in evaluation research have encouraged me to take a pragmatic and objective approach to research, which has largely been driven by the non-profit, non-partisan nature of the three organizations with which I have worked over the past 12 years. In my academic and professional experiences, I have found that research methods should be both driven and informed by the goals of the research study (Maxwell, 2005).

Though I have not been a teacher, nor do I work closely with children on a daily basis, I have developed personal beliefs about child development. I believe that children develop an awareness about their skills and abilities very early in life, which influences their motivation to pursue certain endeavors, and in turn, if, when, and how they develop self-regulated learning abilities. However, I also believe that the explicit instruction of self-regulated learning strategies does not typically occur until much later in a child's academic career, typically between third and fifth grade when children have a good command of language and literacy skills (i.e.,speaking, writing, reading). These beliefs are based on my graduate work in elementary education and the opportunities I have had to complete field placements in elementary classroom settings. I have also developed these personal insights from a prior qualitative research study conducted in my doctoral program that focused on kindergarten and first grade teachers' perceptions of young children's metacognitive awareness and their ability to self-regulate their own learning,

63

and the results of my pilot study for this dissertation study, which is described in more detail below. What I perceive to be a gap between when children develop motivational beliefs and academic aspirations and when they are taught how to harness those beliefs and abilities towards specific learning goals has motivated my interest in this study.

Pilot Study

Just as my researcher identity influenced the current dissertation study, I also conducted a pilot study that informed the research design and my initial understanding of SRL. The pilot study design and results are summarized below, followed by a discussion of how the pilot informed the design of this dissertation study.

Purpose. Similar to the current study, the purpose of the pilot study was to examine young children's SRL capabilities and the practices teachers (explicitly or implicitly) engage in to support SRL. The pilot study included one classroom of four-year-old children and one classroom of three-year-old children. I videotaped children and teachers during their normal morning activities twice for approximately one hour during a time period that included a mix of teacher-centered and center-based learning activities. As a nonparticipant observer, my role was to watch and observe children and their interactions with their classroom teacher. I kept any interactions with participants to a minimum during observation periods.

Setting and participants. The pilot study was conducted with two teachers in a private child care center in a suburban county in a mid-Atlantic state and the 13 three- to five-year-old children in their classrooms. Beth, a Caucasian female in her mid-thirties had been an early childhood educator for four years. Lisa, an African American female in

her mid-twenties had been teaching in the child care center for two years after working as a nanny for two years. Both teachers had bachelor's degrees in education. Since most parents selected to enroll their children in the child care center part-time, the child participants in each classroom fluctuated over the course of the study. Beth's classroom typically had five children (n = 5), one Caucasian, three Asian, and one Hispanic, who were all four-years of age. Lisa's classroom of three-year-olds typically included eight children, six Caucasian and two Asian children (n = 8).

Data analysis. In total, four and a half hours of video were collected, a minimum of two hours in each classroom. Data were analyzed first using the Classroom Assessment Scoring System (CLASS; Pianta, LaParo, & Hamre, 2008) to assess the quality of the teacher-child interactions. Then, the four and a half hours video data were coded using the Cambridgeshire Independent Learning coding scheme (C.Ind.Le; Whitebread et al., 2009). Inter-rater reliability was established through the use of two independent coders. The final stage of data analysis involved examining relationships that emerged across the collected data.

Pilot study results. The major findings of the pilot study are summarized below as they relate to each research question.

Pilot study RQ#1: What self-regulated learning behaviors and abilities do children ages three to five demonstrate? The four and a half hours of video data yielded six SRL events that lasted between five and sixteen minutes. Within the six SRL events, 62 individual SRL behaviors were identified by the C.Ind.Le coding scheme. Of the six events, five were identified in the four-year-old classroom and accounted for 48 coded

SRL indicators. One event was identified in the three-year-old classroom, which accounted for 14 of the coded SRL indicators. Of the 62 individual behaviors, children were most frequently engaged in planning or monitoring behaviors that took place during the forethought and performance phases of SRL. Examples of children's engagement in the forethought phase included verbal and nonverbal goal or objective setting, selecting or discussing strategies to move forward with the task, or gathering materials to complete a task. Examples of the performance phase of SRL included verbal and nonverbal monitoring such as commenting on their progress on a task, checking their progress against that of a model, detecting and self-correcting errors, or comparing their performance to that of a peer. Demonstrations of children's metacognitive knowledge were least frequently identified. That is, children infrequently made comments about their strengths and weaknesses or the abilities of others, or rarely defined or explained the procedures involved in a task.

Children who participated in the pilot study demonstrated both verbal and nonverbal indicators of SRL as defined by the C.Ind.Le, which supports literature suggesting that observational measures are best suited for studying SRL in young children (Azevedo, 2009; Zimmerman, 2008). In addition, the pilot study results highlighted that emotional regulation may be difficult for young children. Young children are developing their ability to regulate emotions, but until they are better able to regulate their emotions, it may be difficult to simultaneously engage in SRL. These results lend support to my belief that young children are capable of engaging in SRL and provide a rationale for pursuing further exploration into this topic.

Pilot study RQ#2: How do teachers' interactions with children support the development of self-regulated learning? Both the teacher of the four-year-old classroom and the three-year-old classroom received similar average scores, 4.5 and 4.1, respectively on the CLASS teacher-child interaction assessment measure. Since the CLASS score provides a global measure of classroom quality, teacher's ratings on the subscales of the CLASS were evaluated individually. Both teachers provided high levels of emotional support in the classroom, which included maintaining a positive climate through warm and caring relationships, being sensitive to the developmental needs of their students, and providing a mix of activities, many of which provided opportunities for student choice and independence. However, both teachers scored low on the instructional support subscale. A low rating on this subscale indicated that they did not frequently extend concepts or children's understanding, provide specific supports to children to scaffold their learning, or introduce and explain a wide range of new vocabulary through conversations. Though both teachers received mid-range CLASS scores, Beth demonstrated several instances in which she scaffolded children in a way that helped her students engage in phases of the SRL cycle. In particular, this teacher supported children by asking questions, probing, labeling, and providing supportive cues to help children them through the phases of planning, monitoring, and evaluation. This finding also supports the importance of examining the teacher's role in children's ability to engage in SRL.

While the pilot study was designed to explore teacher-child interactions, two other types of interactions proved to be important for supporting young children's engagement

67

in SRL. Of the six identified SRL events, two events were facilitated through teacher-child interactions, one event was facilitated through computer-child interactions, and three events were initiated through child to child interactions. Since none of the six events involved one child independently engaging in SRL, social interactions played an important role in supporting young children's engagement in SRL.

Pilot study implications for the present dissertation study. The process of implementing the pilot study and analyzing the results helped to shape the design of the present dissertation study and provided some initial insights into young children's SRL capabilities and teacher's supportive practices. In regard to methods, only four-year-old children were included in the current study since very few examples of SRL were identified in the three-year old classroom. To help address reactivity, I incorporated two one-hour visits in each classroom prior to collecting data so that the children would be familiar with my presence and seeing the video camera, and would be less inclined to react to me or try to engage me in conversation. The pilot study also helped inform the data analysis plan for the current study. In the pilot study I only used *a priori* coding schemes, the success of which reinforced my use of these instruments for this dissertation. In addition, I added open coding as a first step for the dissertation study. Open coding was added to provide the study with a balance of both an emic and an etic interpretation of the data. The results of the pilot study also helped to shape my own understanding of how young children engage in aspects of SRL, how teachers do and do not support young children in this process, and how frequently a researcher might observe SRL taking place during normal classroom activities.

Chapter 4: Results

The goal of this study was to explore the extent to which preschool-aged children demonstrate self-regulated learning behaviors or capabilities (RQ#1), and if so, how early childhood teachers may (or may not) support young children in engaging in SRL (RQ#2). Since little research has been conducted on SRL in early childhood, this study was designed to be exploratory in nature and therefore adopted a qualitative design. Over the course of eight weeks of data collection, five (5) two-hour observations were conducted in two preschool classrooms for a total of ten hours of videotaped observations per classroom or 20 total hours of video data. The resultant data were analyzed two ways to address each research question. First, open coding analysis was used to identify: (1) examples of children engaging in SRL, and (2) how teacher's interactions helped or failed to help children engage in SRL. Then two *a priori* coding schemes were used to address each research question: the C.Ind.Le coding scheme to evaluate children's engagement in SRL and the CLASS to evaluate teacher-child interactions.

The following chapter is organized into three sections. The first section provides the reader with a description of the classroom setting. The second section reports the findings from open coding and the C.Ind.Le coding scheme that address RQ#1 and is followed with an overall summary of the RQ#1 results. The third section reports the open coding and CLASS results that address RQ#2 and is also followed with a summary of RQ#2 findings.

The Classroom Setting

Since the goal of this study was to explore SRL in children's natural preschool setting, the following section is intended to provide a brief description of the classroom environment and class schedule. Both classrooms were long rectangular shaped rooms in which small low tables and chairs occupied half the room and the other half of the room was carpeted for morning meetings and various other activities. Both classrooms were well stocked with blocks, Legos, art supplies, books, soft toys, a pretend kitchen, easels, a door to an outside recess area, bathrooms, sinks, and napping cots. Artwork adorned all the walls, along with alphabet and number posters, and pictures of the children with their families. With anywhere from 15-22 children in attendance each day, one classroom teacher, two to four teaching aides and myself, both rooms felt crowded and loud when more than a few children were talking at one time.

There was no official start time for the school day, so parents were able to drop their children off generally anytime between 8:30 a.m. and 9:30 a.m. During this time both classrooms typically had two or three activities set up for the children as they arrived, for example, a table with coloring activities, Legos, a book corner, or puzzles. On a typical day during this hour, teachers and aides welcomed children as they arrived and prepared materials for other activities, presumably for use later in the day. In both classrooms, around 9:30 a.m. each teacher welcomed children to the carpet and engaged in a morning meeting. Morning meetings were run differently in each classroom. In Jane's classroom morning meetings were very short, primarily consisting of a quick attendance check, a good morning song, and a short activity. It appeared that behavior

management was a challenge in Jane's classroom so it was difficult for most children to focus on morning meeting for more than five to ten minutes. Marissa did not start morning meeting until the entire group of children was quiet and sitting "criss cross applesauce" on the carpet. If a child wanted to talk, they raised their hand and waited to be called on. Children in Marissa's classroom had weekly roles assigned to them that dictated their participation in morning meeting and the sequence of events and "script" was always consistent (i.e., "Good morning class, Arlene is our calendar helper today, Arlene can you tell us what day it is today? That's right today is Thursday!"). After the calendar and weather activities, Marissa had an activity or book prepared that was connected with the theme of that week's curriculum (i.e., good hygiene, modes of transportation, thanksgiving). After a 15 to 25 minute morning meeting children in both classrooms were given a snack, then put into groups by the teacher and given instructions on which of three or four learning centers they were to attend in the classroom. In both classrooms the centers included a mix of activities that were either entirely led by the child (i.e., Legos, matchbox cars, book corner) or led by the teacher/aides (i.e., cutting and pasting activities, picture/concept matching, writing activities). Around 11:30 a.m. both classrooms went outside for recess, at which point I ended my observation period.

RQ#1 Findings: Preschool Children's Demonstration of SRL

Open coding. The goal of open coding the video observations first was to apply Zimmerman's (2000) definition of self-regulated learning to the everyday behaviors to determine if SRL was naturally occurring in a preschool setting. If examples emerged, the goal of open coding was to then describe how the four-year-old child(ren)'s actions or

71

statements fit Zimmerman's (2000) model. Open coding was used to provide an overall description of what an SRL cycle might look like in a preschool classroom.

To address RQ#1: *What self-regulated learning behaviors and capabilities do four-year-old children demonstrate?* I watched each video looking for examples of children engaging in the phases of SRL, according to Zimmerman's (2000) three-phase model and summarized in Table 1. Throughout this analysis the terms "event" and "example" are used interchangeably to describe a segment of video that included aspects of a child engaging in SRL. The observed event needed to demonstrate some aspect of: (1) goal-setting, (2) planning, and/or (3) a child's verbal expression of a self-motivational belief in order to be coded as forethought. To qualify as an example of performance, the observed event needed to include some aspect of children's verbal or nonverbal: (1) strategy selection and use; and/or (2) monitoring of progress or ability. For an observed behavior or statement to be coded as evidence of a child's engagement in the self-reflection phase, it needed to demonstrate a child's (1) statement about their success, failure, or future adaptations to their approach; (2) comparison to another model or performance; and/or (3) a statement or demonstration of self-satisfaction.

Open coding results. The three SRL "events" described below were selected because they provided the strongest observable evidence of children engaging in SRL and met the minimum coding criteria (identification of a clear goal). These three events lasted from eight to 17 minutes and included examples of children working independently or groups of two or three with limited adult support or interaction. It is important to note that *quantity* of events identified is not the focus of addressing RQ#1. Rather, I focused

72

on identifying events in the data that produced the strongest *quality* of evidence to address the first research question. These three examples provide an illustration of what self-regulated learning may look like for a four-year old child. However, it is also important to note that identifying examples during which four-year old children independently identified a learning goal, engaged in set of strategies to accomplish their goal, monitored their progress, and evaluated the outcome did not occur frequently in this study. SRL behaviors were not identified during whole group instruction, classroom routines or transitions such as snack or line-up. All SRL events involved small groups of 2 to 6 children working on an activity. The first example describes two girls engaging in a drawing exercise, which lasts about eight minutes. The transcript below has been organized according to Zimmerman's (2008) three-phase model.

Example 1: Girls Drawing Foods

      Forethought. During center time, Megan chooses to sit at the coloring center. She selects a worksheet from a bin and brings it to the table where Jenny is already working. The worksheet has two columns and four rows that cover the page. The boxes in the left column each have a drawing of a different food: an apple, two bananas, an ice cream cone, and a slice of pizza. The second column has space for children to copy the drawings. Jenny has already started on the same worksheet.

      Performance. Megan starts searching for the colored markers she wants and sets to work drawing her own version of the apple. She traces the outline of the apple in red then states, "I need black." She rotates the paper to help her get the right angle of the marking she makes with the black marker. When she's done with the apple, she says,

"now I'm going to do this one" (looking at the bananas). She says to Jenny, "These are how I do bananas." Noting that Megan's two bananas are not connected at the top like hers, Jenny points to her own drawing and says, "none of these are pulled off," then pointing to Megan's drawing, "I put one little circle at the top, then draw a line until it fits. Like this," then she demonstrates her technique for Megan on a corner of her page. Jenny, already on the fourth drawing on the page, asks for Megan's thoughts, "How can we make a pizza then?" Megan says, "Easy, a triangle, and two, and some, and squares and pepperoni and the crust." Before drawing the pizza, Megan draws the ice cream cone quietly, without talking to Jenny. While drawing the ice cream cone a boy arrives late to the classroom and starts crying while his parent leaves. Megan makes no note of this distraction, and persists with her drawing, looking at the example and looking at Jenny's paper for ideas about her own drawing. She draws the outline of the pizza then counts four triangles on the example and counts to make sure she has four triangles on her drawing.

Self-reflection. When she is done she proudly holds up her paper and says, "Pizza! Look an apple and a banana, and ice cream and a pizza."

Example 1 discussion. During the forethought phase of this example Megan demonstrated goal-setting and planning by selecting the coloring worksheet she wanted to work on during center time, selected markers, and determined which drawing to start first. Since it was Megan's choice to spend her time at the coloring center and her choice to select which coloring worksheet to work on, she also demonstrated her motivation to engage in a structured coloring activity.

74

During the performance phase Megan and Jenny both shared verbal and nonverbal exchanges that demonstrated their ability to focus their attention, select strategies (self-control) and monitor progress towards their goal (self-observation). Both Jenny and Megan focused their attention by persisting at their task until it was complete, as opposed to losing interest or becoming so distracted they could not finish. For example, the girls were so focused, they barely noticed the little boy who started loudly crying when his parent left the room. Both Megan and Jenny also demonstrated the use of specific task strategies to accomplish their goal. For example, Megan traced the outline of the apple first before filling in the details and rotated her paper to help get the right angle for her marking. The girls also talked about specific strategies when Jenny discussed how to draw two bananas that were "not pulled off," when she said, "I put one little circle at the top, then draw a line until it fits, like this," then provided a demonstration of this technique for Megan. Jenny also asked Megan about how she was going to approach drawing the pizza and Megan responded with a plan, "easy, a triangle, and square and pepperoni then the crust." Megan provided examples of how she was monitoring her progress when she finished the apple, looked at the next drawing and said, "now I'm going to do this one" (looking at the bananas). She also stopped to count how many pepperoni were on the example then counted to make sure she had the same number of pepperoni on her drawing. At the end of this SRL cycle, when Megan was done with all four drawings she proudly evaluated her accomplishment and said satisfactorily, "Pizza! Look an apple and a banana, and ice cream and a pizza!"

Example 2: Boys Counting to 100

A second example, which lasted about nine minutes, provides another illustration of what SRL might look like in a preschool classroom.

Forethought. After the children finish snack they have some free time to read books before going outside to play. A group of about eight children congregated around the book corner and begin exploring a selection of books individually and in pairs. One boy, Jeff grabs the book, *Chicka Chicka Boom Boom 1, 2, 3*. At the back of the book there are two brightly colored pages with the numbers 0 to 100 printed in rows in sequential order. Jeff flips to these two pages and asks no one in particular," Who wants to count to 100 with me?" No one immediately expresses interest, he says again, "I'm going to count to 100, who wants to count to 100 with me?" Several children say, "not me!"

Performance. Jeff begins counting by pointing to each number and calling it by name aloud. He starts to struggle around 15 and through the mid-twenties pointing to numbers but incorrectly labeling them. A boy sitting nearby, Mike, notices Jeff counting, and joins him saying, "I want to count to 100." The two boys start over again at 0. Jeff points to 0 and says 1, then corrects himself, "no, 0, 1" and continues pointing to each number as they name it aloud. When they get to 15, Mike is able to help support Jeff by correctly calling out the right number and the two boys continue counting together into the thirties. Though, as they point to each number in the thirties, they call out the corresponding number in the twenties (i.e."37" was read as "27"). When they get to 40, they correctly name it 40 and the following numbers up to 50. When they get to 50, they

again call out each corresponding number in the twenties instead of the correct number in the fifties (i.e.,"57" was read as "27"). They almost identified 60 correctly, saying "six…" but then called it "30" and pointed to each of the following numbers counting on from 30. When they got to the end of the row instead of moving to the row below the set of numbers they had just read, they repeated the same row, pointing to the numbers in the fifties but naming them numbers in the thirties until they got to 60. When seeing 60 this second time, the boys correctly identified 60 as 60 and counted up to 66. At this point a third boy, Nate joined Jeff and Mike. Nate wanted to call 66 "76" and Mike wanted to call it "68," but Jeff corrected them by saying, "no, 66" then they got back on track and continued counting through the 70s, until they got to "80." When they reached 80 Jeff said, "huh, what's this?" and one of the boys said, "78." Mike then took the book and started counting over again from 0 on his own pointing to each number and calling it out. When he got to 12 he hesitated for a moment. Jeff chimed in, pointing to 11 and said, "no this is 12." Mike continued counting from the correct 12 and got up to about 40, at which point he continued to count aloud, but stopped pointing to each number. Jeff then took the book back, and started counting from 0 pointing to each number and naming it aloud. Jane came by to tell the boys to put the books away so they could go outside. Nate, a third boy who had been observing Mike and Jeff looked at the book and said excitedly, "1, 3, 4, 100!" Jeff said, "No we didn't count to it yet!"

Self-reflection. Jeff started counting again from 0, but stopped and said to Nate, "No you do it because you can finish." Nate responded, "I cannot do it!" Jeff said, "You know how to count to 100, I'll help, you." The two boys started counting again from 0,

they got up to the upper twenties before Jeff stopped them, closed the book and said, "No, we'll start counting later we have to go outside."

Example 2 discussion. During the forethought phase of this example, Jeff clearly announced his goal to the group around him, "I'm going to count to 100." During the performance phase he used the book to guide his counting and two strategies to assist him with this task: he identified each number aloud and pointed to each number as he counted. When his friends joined him in the counting activity they also engaged in forethought by adopting the goal of counting to 100 as their own. They also used the same strategies that Jeff employed to count to 100, by pointing and reading to each number aloud.

At a few points throughout the performance phase, the boys provided an indication that they were monitoring their own and each other's progress. For example, when Jeff pointed to 0 and called it 1, then corrected himself, "no, 0, 1" then continued counting; when Nate wanted to call 66 "76" and Mike wanted to call it "68," but Jeff corrected them both by saying, "no, 66" then they got back on track and continued counting through the 70s; and, when Nate excitedly yelled, "1, 3, 4, 100!" and Jeff replied, "No we didn't count to it yet!" At the same time, there were many examples when the boys did not demonstrate that they were accurately monitoring their progress. For example, at one point the boys pointed to each number in the "30's" and called out the corresponding number in the twenties (i.e."37" was read as "27"). This happened again when the boys pointed to numbers in the 50's, they labeled each one a corresponding number in the 30's. This could have been due to either a lack of correctly monitoring their

efforts, or the boys may have lacked the specific knowledge they needed to properly identify numbers in the 30's or 50's.

During the self-reflection phase, Jeff and Nate both shared examples of their self-evaluation when Jeff said to Nate, "you do it because you can finish," implying that Jeff believed he could not count to 100. Nate then clearly stated his belief about his inability to finish the task when he responded, "I cannot do it!" Jeff then said, "You know how to count to 100, I'll help, you." Ultimately the event ended before the boys could complete their task of counting to 100. Jeff closed the book and said, "No, we'll start counting later we have to go outside." Though they did not reach their goal, this statement indicated that Jeff was at least partially attributing their inability to count to 100 to a cause outside of their control (it was time for recess).

In both Example 1 and 2, peers played an important role in enabling an outside observer to identify the various phases of the SRL cycle in action. Though some aspects these young children's demonstration of SRL were nonverbal, the exchanges between peers helped to make children's otherwise private thoughts and SRL processes "public" and available for evaluation (Jacobs & Paris, 1987). If these events had occurred without these verbal exchanges between peers, it would have been harder for an outside observer to make a determination about what, if any, SRL processes were at work.

Example 3: Name Writing

The third example (nine minutes) below also involves an exchange between peers. However, in this example, one child not only engaged in self-regulating her own learning,

but was actively engaged in monitoring the strategies used by her peer and his progress towards his own goal.

Forethought. At the end of morning meeting Marissa holds up a sheet of lined paper and tells the class, "we're going to do name writing." She reviews for the class how the lines can help guide them when they write their name. She asks the class to take their time and to write nicely. All the children are called individually to find the paper with their name at a seat at tables around the room.

Performance (Andrew and Mia). Children quickly find their seats and get to work. Mia begins working on her name, and starts talking to her friend Andrew sitting next to her. She looks up at his paper and points out the letter A at the top of his page and says, "...the A is supposed to go like this," and she begins modeling how to write an A on his paper. She says, "the side is supposed to slide that way." Andrew tries to write an A but then erases. Mia notices this and says, "see Andrew look at me, this is what you do." She begins modeling how to make an uppercase letter by writing out M- I-A on her own paper and Andrew leans in to watch. She tells Andrew that he is not supposed to copy the M and the I so she covers these letters up with her hand, shows him the A and says, "you are supposed to start at the arrow [a marking the teacher provided on the tablet paper to help indicate where children are supposed to start writing their name]." Andrew begins tracing over the example of his name written by the teacher at the top of his paper.

 Mia leans in and says, "no you're not supposed to trace your name like that Andrew." When he continues, she encourages him, "but Andrew you have to try the line [meaning the blank line below the example]." Andrew listens to Mia and starts writing

his name on the line below the example. He writes two letters and Mia leans in again, "Good job Andrew look you're doing good, start with the arrow." She looks at his paper and taps each line, saying, "you have to do [it] one, two, three [more times]." Mia turns away for a moment to work on her own name writing, but when Andrew gets to D, he says, "hey look at my D." Mia doesn't look at first, but when she does, she says, "Andrew this is how you make a D," and traces the letter out for him in the air. He watches and says, "I did that." Mia looks at his paper and says, "no, that is not true" and says, "you have to go like," and erases his paper, then starts to draw a D for him. He erases the marks that Mia makes and she continues to try to show him how to make a D. A teaching assistant, Rob, stops by the table and Mia immediately chimes in, "Andrew needs help, Andrew needs help." Andrew responds, "no I don't" and flashes his paper to Rob who says, "hey Andrew you got it, you're working on those D's huh?" Mia interjects, "he didn't know how to make a D he went like this." She begins tracing a D in the air for Rob. Rob replies, "Ah, nah, Mia, he's good at his D's, you showed him how to do it." Rob watches Andrew make a D and says, "good, perfect" and redirects Mia back to her own paper, "okay Mia let's work on yours." Mia gets back to work on her own paper and Andrew keeps working, when he writes his D a second time, he taps Mia's arm and says, "I did it, I did it, Mia!" Mia takes a look, says, "eh, you have to go up up like that, see that, like that" and makes two marks on his paper. Mia calls to Rob, "Hey Mr. Rob, look at Andrew's, Mr. Rob." Rob turns around, "ok Mia focus on yours." Mia points to Andrew's D, and Rob says, "it's good, it's pretty good, Mia work on yours." Mia and Andrew both get back to work.

81

Self-reflection (Mia). Mia finishes quickly, raises her hand and says, "I did it!" Marissa comes around to her table and says, "Good job Mia, pick a sticker."

Performance continued (Andrew). Rob leans to Andrew, "come on, let's do an R and an E." Andrew keeps working when Rob looks at his paper and asks, "hey are you missing a letter? how do you spell your name?" Andrew turns away with his paper and says, "stop stop." He gets up from the table and starts to walk away. Rob stops him and says, "whoa whoa wait Andrew did you get that missing letter in there buddy? Wait, Andrew, Andrew, want to finish?" Andrew comes back to him and hands him his paper. Rob looks and says, "Nah nah, you're missing a letter, how do you spell your name?" Andrew promptly responds, A-N-D-R-E-W. Rob asks, "Alright, what letter are you missing? You're missing one, which letter?" Rob holds his paper and says, "Look at this one, spell it out, point to each letter." Andrew starts. A-N then looks at Rob surprised. Rob says, "what's the next letter?"

Self-reflection (Andrew). Andrew excitedly says D! then takes his paper realizing he forgot the D. Rob responds, "Ahh, you want to put a D in there?" Andrew comes back to the table and adds the D and exclaims, "hey I made a D!" and "look at my N again, look at my D," before leaving the table to get a sticker from Marissa.

Example 3 discussion. Unlike the previous two events in which the children self-identified their goals, in this third example, the teacher established the learning goal: for children to write their name three times, using an example at the top of tablet paper that was provided to them. Since both children in this example adopted the goal as their own

and readily engaged in the activity, this event met the minimum coding criteria-identification of a clear learning goal.

During the performance phase of this example, though Andrew demonstrated some instances of self-observation (i.e., when he said, "hey look at my D" or erased the marks that Mia made on his paper), he relied heavily on Mia's then Mr. Rob's observations and monitoring of his progress. In Mia's first exchange with Andrew, she has already evaluated his paper and has suggestions for improvement when she says, "...the A is supposed to go like this," and she modeling how to write an A on his paper, sharing the strategy, "the side is supposed to slide that way." Then when she realizes he needs more help, she models how to write an A for him. When he then tries to trace over the example of his name provided by the teacher, Mia continues to monitor him, "no you're not supposed to trace your name like that Andrew" and encourages him to use the blank line. After working for a little while, Andrew checks in with Mia, "hey look at my D." She is not satisfied with his progress and offers another strategy for demonstrating how to write a D by tracing her pencil in the air. Andrew disagrees with Mia's assessment and defends his work, stating that he "did that." The two disagree and the teaching assistant then interjects to offer assistance to Andrew.

During the entire exchange, Mia not only closely monitors Andrew's performance, but is quickly able to complete her own paper without any discussion or request for help from the teacher or another peer. When she finishes, the self-reflection phase of her work consists of a mere, "I did it" when she is satisfied that her work is complete. Andrew needs some additional help from the teaching assistant, but also

83

signals he has completed his goal when he realizes what letter he has missed in spelling his name and seeks the teacher to turn in his work.

Discrepant Data

The results presented above provide the three strongest examples of children demonstrating statements and behaviors that align with aspects of SRL as described in the Zimmerman's (2000) three-phase model that were identified during open coding. Though the three examples above provide an indication of how SRL may look in a preschool classroom, identifying strong examples of children engaging in the phases of SRL was an uncommon occurrence over the course of the study. The primary challenge I encountered when open coding the videos was identifying when children were engaged in an activity where a clear learning goal was in place, as opposed an open-ended activity or creative free time. During coding, I determined that the identification of a clear learning goal (and therefore engagement in the forethought phase) was an essential criterion for determining the start of a potential "event" that would align with the Zimmerman (2000) model. Without the identification of a clear learning goal it was not possible for an outside observer to determine if and how the child should or could regulate their behavior and actions to achieve their goal.

However, identifying a learning goal during an observation period was not always a clear and consistent process. For example, "open-ended activities" do not necessitate a right or wrong answer, and are designed with the goal of exploration and experience, such as encouraging children to manipulate different materials, interact with others, or use their imagination to create (Piaget, as cited in Mooney, 2000, p. 76). A large portion

of the preschool curriculum observed in this study intentionally included open-ended activities and exploratory play, such as playing with Legos and blocks, exploring a sand and water table, or making meals in a pretend kitchen, as this is developmentally appropriate practice for preschool-aged children (McDevitt & Ormrod, 2004). There may be multiple goals for an open-ended activity, the goal may change throughout the course of the activity, or it may never be explicitly articulated (by the teacher or child) for the benefit of an outside observer. The following sequence provides one example of an open-ended activity that frequently occurred during the classroom observations. These types of events did not demonstrate the strongest alignment with the Zimmerman (2000) three-phase model, but may also provide insight into how an educator might approach self-regulated learning differently during open-ended preschool activities.

Example 4: Building a Castle

Three girls are sitting on the floor by two baskets of wood blocks during center time. Julia, grabs one basket and says to the other two girls, "hammer, you're [Ava] going to hammer and you're [Monica] going to stamp." The girls grab a few blocks and get started, then Ava interjects, "no you're going to stamp." Monica, responding to a question from a boy on the other side of the classroom says, "we're making something." Julia says to Ava, "now next, you should put this one on top of that, yea, put it there." Ava says, "I need a screw!" The sequence continues in a similar pattern for 18 minutes with the girls assigning roles to one another and assigning functions to the different types of blocks. For example, labeling one type of block the hammer, and another type of block the screw. They make comments to each other throughout the sequence that indicate they are co-

creating the goal. For example, "we need one more [round block] right here, no we need two..." and "okay good, now I'm going to put this one here" or "let's do this." They also make comments about their progress, like "we'll never make this," and, "yes we will, if we just work together!" They also make comments about their effort, such as "I worked really hard." They only articulate what it is they are building (a princess castle) 12 minutes into the sequence. After about 18 minutes they lose interest in the castle and start playing with snap beads in another area of the classroom.

Example 4 discussion. In this example, the forethought phase was not clearly defined at the start of the sequence. It was clear the girls aimed to build something, but was not exactly clear what they were building or how it was supposed to look since this was an open-ended creative activity. Only towards the end of the sequence did the girls verbalize their goal (to build a princess castle), which indicated that they may not have necessarily started with this goal in mind, or it may have evolved over the course of their interaction. There were, however some clear examples of performance phase behaviors and statements. The girls gathered the materials they needed by selecting different blocks, discussed ways to build their structure, focused their attention (for 18 minutes, a substantial amount of time for a four-year-old), and monitored their progress through statements such as, "we'll never make this." Since the girls eventually lost interest in the activity there was no observable evidence of their engagement in the self-reflection phase of SRL. Therefore it was not possible as an observer to determine if the girls felt they met their goal, failed to meet their goal, attributed their success or failure to any particular cause, or just lost interest.

86

Even when a clear goal was present, an event may have also simply not been the best example of SRL, though aspects of SRL may have been present. Consider the following sequence where evidence of goal-setting and monitoring appear to be present but the self-reflection phase was not observable.

Example 5: Puzzle

Jocelyn is sitting on the carpet by the teacher who is cleaning up after circle time. There is a puzzle board on the floor and the pieces are scattered around her. Jocelyn starts working on the puzzle. She begins picking up pieces and checking to see where they may fit by plugging them into the puzzle board. She tries different locations, looks at the pictures on the pieces, searches for new pieces, and rotates them around until she finds their correct location. The teacher is nearby and trying to put things away on a bookcase behind Jocelyn occasionally leaning in over her puzzle. At one point another child crawls on top of the puzzle to reach another toy, but Jocelyn persists despite these distractions, seeking out pieces for the puzzle. She finds the corner pieces and uses trial and error to find the right ones. She stands up and walks away for a few minutes, but then comes back to the puzzle once more before leaving the puzzle unfinished a second time and moving on to a new activity.

Example 5 discussion. It was clear that for some period of time finishing the puzzle was a goal of Jocelyn's (forethought phase) and that she was able to utilize a set of strategies (i.e., trial and error, setting the corner pieces, using picture guidance, rotating the pieces) to accomplish her goal (performance phase). Yet because she did not finish the puzzle and she did not offer any verbal statements to indicate that she had determined

87

the puzzle was either too hard and she failed to meet her goal or if she just lost interest and walked away, her engagement in the self-reflection phase was not evident. In addition, the overall lack of dialogue in both the forethought and performance phases also made this a weak example of SRL since none of Jocelyn's internal thoughts or beliefs were articulated for my observation. Therefore, though aspects of SRL were present, it was not identified as one of the strongest examples of a child engaging in SRL. Since I adopted a non-participant observer role in this study, I did not interfere to ask her to share her thoughts about the puzzle activity and therefore could not make a clear determination about her goals and reflections on the puzzle activity. However, it is also important to note that events like this puzzle example, where the child or children were engaged in some aspect of SRL were also not frequently identified among the collected data.

A priori Coding Results for RQ#1

In addition to open coding, I watched each video looking for examples of children engaging in the phases of SRL, according to the indicators articulated in the C.Ind.Le (2009) coding scheme, (see Table 3). I identified 141 statements and nonverbal behaviors that aligned with the C.Ind.Le indicators from the 20 hours of video data, which are presented in Table 5.

Table 5

Frequency of C.Ind.Le Indicators

Category Name and Behavioral Indicator	*n*
Metacognitive knowledge	
Knowledge of self	2
Knowledge of others	4
Knowledge of universals	0
Knowledge of tasks	0
Knowledge of strategies	9
Metacognitive regulation	
Planning	26
Monitoring	37
Control	40
Evaluation	9
Emotional and motivational regulation	
Emotional/motivational monitoring	3
Emotional/motivational control	11

Note. "C.Ind.Le" is the Cambridgeshire Independent Learning coding scheme.

Metacognitive knowledge. According to Table 5, children's demonstration of

metacognitive knowledge was identified through statements about their own strengths or

weakness, the strengths or weaknesses of others, or through statements about specific

strategies they used to accomplish a task. The very few examples of children making

statements of their own strengths or weaknesses included, "I cannot do it" or "no I don't

[need help]." Children commented on the strengths or weaknesses of their peers a few

times with statements such as, "he didn't know how to make a D" or, "you [don't] know

how to count to 100, I'll help, you." Children demonstrated their metacognitive

89

knowledge of strategies by explaining or teaching procedures to peers. For example, Jenny said to Megan while providing a demonstration, "these are how I do bananas, I put one little circle at the top, then draw a line until it fits." Or, when Andrew was writing his name, Mia explained to him, "you have to [write your name] one, two, three [more times]." Demonstrations of children's metacognitive knowledge of universals (for example, "it's easy if you practice" or "I got it right because I tried really hard") and knowledge of tasks (for example, "math is harder than reading" or "I've done this before, [making a pattern] is so easy") were not observed.

Metacognitive regulation. Children most frequently demonstrated the set of indicators related to metacognitive regulation (i.e., planning, monitoring, control, and evaluation). Planning primarily included examples of children seeking resources or deciding how to proceed with a task. Seeking resources included examples such as children seeking out specific markers to complete their task (as in a color by number activity), or when a child went searching for glue and scissors to complete her hand washing worksheet activity. Children deciding how to proceed with a task included examples such as a boy pausing with his materials at his seat then making a decision about which sequence to assemble the parts of his car. Or, another child checked the color key on the worksheet and counted off the number of colors he had already completed in order to determine which color he needed to select next. There were a few clear examples of children setting goals nonverbally by selecting an activity such as playing bingo or a puzzle and verbally declaring a goal, such as, "I'm going to count to 100."

The most frequently identified examples of monitoring included children verbally and nonverbally checking their progress on a task. For example, after he accomplished the first step in an activity, Cooper said, "there I glued mine on," or when halfway into building a block structure Jenny said to the other girls, "we'll never get this done." Or, when Jeff said, "no we didn't count to [100] yet!"

Monitoring was also observable to some extent in nonverbal ways. For example, Megan stopped to count four triangles on the model then counted to make sure she had four triangles on her drawing. Or, Hiroshi, after the teacher told him he was done assembling his car, looked over it one more time and decided to take off the light and reattach it higher on the car so it looked more like the model.

Children often used self-correction or commented on/corrected the performance of their peers. In one example, Andrew drew an A, was displeased with how it looked and self-corrected by erasing and drawing a new A. In another example, Jeff pointed to 0 and said 1 then corrected himself and said, "no, 0." Mia was particularly interested in correcting Andrew's efforts to write his name and made several comments to him such as, "the A is supposed to go like this," or "no you're not supposed to trace your name like that Andrew." Other children corrected their peers too. Nate wanted to call 66 "76" and Mike wanted to call it "68," but Jeff corrected them by saying, "no, 66." Or, when tracing and numbering a set of trains 1-3-2-4-5, Lucy said to Mathew, "you didn't do the right order."

Examples of control were prevalent throughout the videos and included children using strategies to assist them in accomplishing their goals and occasionally seeking help.

91

For example, when working on a puzzle Jocelyn tried the pieces in different locations, looked at the pictures on the pieces, searched for new pieces, and rotated them around until she found their correct location. Or Jeff began counting by pointing to each number (nonverbal strategy) and calling it by name aloud (verbal). In a few instances, children helped each other try a new strategy by modeling for their peer. For example, Jenny showed Megan how to draw bananas and did a demonstration in the corner of her paper, saying, "like this." Or, when Mia modeled how to write an A to Andrew. When she started writing she said, "the side is supposed to slide that way." Examples of seeking help were also prevalent throughout the videos, children asked both simple questions such as, "how do you draw a 5?" or "Is 6 red?" and for more structured guidance on a task, such as, "who wants to help mine because mine is not standing" or when Jenny, queried Megan for her thoughts, "how can we make a pizza then?"

Examples of evaluation were only identified a few times and typically included simple statements such as, "I'm all done," "I won" "hey, I made a D," or "I did it!" In one example, Megan evaluated her task by proudly stating what she had done when she said, "pizza! Look an apple and a banana, and ice cream and a pizza." All of the observed examples of evaluation were verbal statements, no nonverbal examples were identified.

The emotional and motivational regulation category included monitoring and control. Monitoring was only observed a few times in relation to awareness of negative emotions during a task. For example, after losing a bingo game, Oliver said, "no fair!" and slapped his hand down on the chip bowl, knocking chips onto the table and floor. Though he finished his bingo board with the next number that was called, Oscar said, "I

92

don't want to play again" and left the table. Another boy, Mathew, was upset that he circled the wrong object on his paper and cried out, "I'm so frustrated!"

Control was frequently observed when children were observed encouraging others or resisting distraction. For example, when Jenny said, "we'll never get this done," Ava responded, "yes we will if we just work together!" Or, Mia said, "good job Andrew look you're doing good, start with the arrow." A few children also demonstrated clear focus and an ability to ignore distractions as a form of control. For example, when the small group of boys wanted to count to 100, Jane came by to tell the boys to put the books away so they could go outside, but they persisted with their task for a few more minutes despite her additional attempts to ask them to stop. Or, when Megan and Jenny were able to stay focused on their drawings despite the loud tantrum of a classmate right next to them. Andrew also demonstrated focus and persistence when he had to make multiple attempts to write his name correctly, he continued to stay on task despite facing difficulty.

Summary of RQ#1 Findings

Open coding helped to make a determination as to whether or not four-year old children are capable of engaging in behaviors that align with Zimmerman's (2000) three-phase model of SRL and provided a rich description of what SRL engagement looks like for a young child. Examples 1-3 (*Boys Counting to 100, Girls Drawing Foods,* and *Name Writing*) provide an illustration of preschoolers' SRL and provide an indication that indeed young children are capable of engaging in self-regulatory learning behaviors and strategies.

Forethought. The children in examples 1-3 demonstrated engagement in forethought phase behaviors by setting goals such as counting to 100, replicating model drawings, and writing their name. They engaged in planning by gathering the necessary materials needed to accomplish their goals, such as writing instruments or books. Evidence of children's self-motivational beliefs (forethought phase attributes) were largely absent from the three examples with the exception of one example in *the Boys Counting to 100* event when Nate said, "I cannot [count to 100]!" and Jeff responded by saying, "you know how to count to 100, I'll help, you." The infrequent identification of children's self-motivational beliefs may be due to the non-participant observer role I adopted in this study. Since I did not ask children questions to better understand their self-efficacy beliefs, outcome expectations, task interest, or goal orientation the children did not have obvious opportunities to identify these beliefs. However, though I was not able to observe children making statements about their self-motivational beliefs does not mean they did not exist.

Performance. Examples 1-3 also provide evidence of children demonstrating performance phase behaviors and attributes. Attributes of children's self-control were most evident through the children's attention focusing and selection of task strategies (as opposed to other self-control attributes such as self-instruction and imagery). In both the *Boys Counting to 100* and the *Name Writing* example Andrew and Mike demonstrated task persistence and attention focusing despite encountering several difficulties. For example, making several attempts to reach 100 despite the challenge of correctly identifying numbers and persisting with the task of writing his name though Andrew

struggled to identify the letter he was missing. Megan and Jenny in the *Girls Drawing Foods* example remained focused on their task despite the loud tantrum of a nearby classmate. Children in all three examples identified and utilized task strategies such as using their fingers to point to each number and counting aloud (*Boys Counting to 100*), using fine motor skills and manipulating materials to achieve writing goals (*Girls Drawing Foods, Name Writing*), help seeking (*Girls Drawing Foods, Name Writing*), and discussing strategies with peers (*Girls Drawing Foods, Name Writing*). Children in all three examples also engaged in self-observation by monitoring their progress and at times self-correcting or correcting the performance of a peer. For example, when Jeff said, "no we didn't count to it yet!" when Nate claimed that they had counted to 100 or when Mia observed Andrew's paper and said, "the A is supposed to go like this."

Self-reflection. All three examples provide some indication of children's engagement in aspects of self-reflection. In the *Name Writing* event, when Andrew finally identified the missing letter in his name, he demonstrated self-evaluation (an aspect of self-judgment) by stating, "hey I made a D!" In the *Girls Drawing Foods* event, Megan proudly held up her paper and said, "Pizza! Look an apple and a banana, and ice cream and a pizza!" The way in which she made this statement demonstrated self-satisfaction (as aspect of self-reaction). In the *Boys Counting to 100* event, the boys had to end the activity because it was time for recess instead of the event ending because they achieved their goal. However, since Jeff said, "we'll start counting later we have to go outside." His statement provided some indication that he was clear they had not reached

their goal yet, and was attributing their inability to do so to a cause that was outside of their control (causal attribution, an aspect of self-judgment).

These three examples provide an illustration of what SRL may look like in a preschool classroom. However examples of SRL that aligned with the Zimmerman (2000) three-phase model were not frequently identified over the course of the entire study. Instead, many of the observations included examples of children engaging in open-ended activities where there may have been multiple goals, the goal changed throughout the course of the activity, or it was never explicitly articulated. During some of these events (i.e., *Building a Castle* and *Puzzle*) it was possible to identify children engaging in some SRL behaviors, notably performance phase attributes such as task strategy selection, attention focusing, and monitoring. However, intentional engagement in forethought and self-reflection phases of SRL were either not clear or present in these examples. Though these examples did not demonstrate close alignment with the Zimmerman (2008) three-phase model, they may have implications for how SRL or emergent SRL behaviors are conceptualized for preschool students.

A priori **results.** The results of the C.Ind.Le coding scheme confirmed the findings from open coding: preschool children are capable of engaging in SRL, however the performance phase of SRL was more frequently identified than children's engagement in the forethought or self-evaluation phase. Though children were most frequently observed engaging in behaviors that aligned with the metacognitive regulation category of the C.Ind.Le, which includes planning, monitoring, control, and evaluation, the planning behaviors typically included behaviors such as "deciding how to proceed with a

96

task" and "seeking and collecting resources" as opposed to "setting goals." Similarly, the observed evaluation behaviors included examples of children making simple statements that they had completed a task, as opposed to more reflective statements about why they were successful.

In addition, children were infrequently observed demonstrating metacognitive knowledge or emotional and motivational regulation. That is, the participating children rarely discussed learning as an activity, evaluated their strengths, weaknesses or those of others, demonstrated an awareness of their emotions while engaging in a task, or discussed or revealed their motivation for a task. As a result, children frequently appeared to attend to one task and then the next with little observable discussion about why they were doing what they were doing, if they were excited about what they were doing, or how they felt or what they thought when they completed the activity.

RQ#2 Findings: Teacher-Child Interactions and SRL

To address RQ#2: *How do teachers' interactions with young children support the development of self-regulated learning?* I used open coding to analyze the verbal and nonverbal supports teachers offered children in order to assess how they helped or failed to help children engage in SRL. The events discussed below are presented as exemplars of the three primary types of teacher-child interactions that were identified through open coding and observed throughout the course of the study. The type of interaction that is presented in the first example was rarely observed over the course of 20 hours of observation. In this example, a teaching assistant, Rob, uses a variety of strategies to help support a little boy focus, use self-observation, self-correction, and persist despite

97

difficulty; all of which are key attributes of SRL. The second example highlights a style of student-teacher interactions that was occasionally observed in the classrooms. In this example Angele is effective at facilitating the children's engagement in an activity, models a sequential procedure the children can use for their own planning, and encourages their participation, but at times takes away opportunities for the boys to self-regulate their learning by completing portions of the task for them. The final example presents a style of teaching that was most frequently observed in the participating classrooms. In this example, the teaching assistant Samia attends to the little boy she is working with, but is mainly interested in his ability to follow directions and complete the task at hand, she does not clarify the goal of the activity, foster his own motivation, model strategies the child can use to complete the activity, or help the child engage in self-reflection when the activity is complete.

These events lasted from four minutes to 22 minutes and included examples of children working one-on-one or in small groups with either the lead teacher or a teaching assistant. The first event examines the role of the teaching assistant in the "Name Writing" example used above in regard to RQ#1. In this context, the focus of analysis is less on Mia and Andrew and more on Rob, the teaching assistant. The end of this event, when Rob joins the children, is repeated here briefly for the reader:

Example 6: Supporting Aspects of Self-Regulated Learning

Performance: A teaching assistant, Rob, stops by the table and Mia immediately chimes in, "Andrew needs help, Andrew needs help." Andrew responds, "no I don't" and flashes his paper to Rob who says, "hey Andrew you got it, you're working on those "D's"

huh?" Mia interjects, "he didn't know how to make a 'D' he went like this." She begins tracing a "D" in the air for Rob. Rob replies, "Ah, nah, Mia, he's good at his "D's," you showed him how to do it." Rob watches Andrew make a "D" and says, "good, perfect" and redirects Mia back to her own paper, "okay Mia let's work on yours." Mia gets back to work on her own paper and Andrew keeps working, when he writes his "D" a second time, he taps Mia's arm and says, "I did it, I did it Mia!" Mia takes a look, says, "eh, you have to go up up like that, see that, like that" and makes two marks on his paper. Mia calls to Rob, "Hey Mr. Rob, look at Andrew's, Mr. Rob." Rob turns around, "ok Mia focus on yours." Mia points to Andrew's "D," and Rob says, "it's good, it's pretty good, Mia work on yours." Mia and Andrew both get back to work.

Self-reflection (Mia). Mia finishes quickly, raises her hand and says, "I did it!" Marissa comes around to her table and says, "Good job Mia, pick a sticker."

Performance continued (Andrew). Rob leans to Andrew, "come on, let's do an "R" and an "E." Andrew keeps working when Rob looks at his paper and asks, "hey are you missing a letter? how do you spell your name?" Andrew turns away with his paper and says, "stop stop." He gets up from the table and starts to walk away. Rob stops him and says, "whoa whoa wait Andrew did you get that missing letter in there buddy? Wait, Andrew, Andrew, want to finish?" Andrew comes back to him and hands him his paper. Rob looks and says, "Nah nah, you're missing a letter, how do you spell your name?" Andrew promptly responds, "A-N-D-R-E-W." Rob asks, "Alright, what letter are you missing? You're missing one, which letter?" Rob holds his paper and says, "Look at this one, spell it out, point to each letter." Andrew starts. "A-N" then looks at Rob surprised.

99

Rob says, "what's the next letter?" Andrew excitedly says "D!" then takes his paper realizing he forgot the "D." Rob responds, "Ahh, you want to put a "D" in there?"

Self-reflection (Andrew). Andrew comes back to the table and adds the "D" and exclaims, "hey I made a "D" before leaving the table to get a sticker from Marissa.

Example 6 discussion: When Rob entered this event, he helped re-focus Mia on her own work and protected the self-confidence of Andrew by encouraging him and affirming that he was doing a good job. By helping to re-focus Mia he assisted her in exercising self-control (a performance phase attribute) and by encouraging Andrew, he helped support his self-motivation (a forethought phase attribute). When he noticed Andrew's motivation for the task was beginning to wane the longer he struggled, he continued to encourage Andrew's attention and motivation to stay on task in a positive tone, "come on, let's do an "R" and an "E." To help support Andrew's own ability to use self-observation skills (a performance phase attribute), Rob provided hints to Andrew without outright telling him he misspelled his name, "hey are you missing a letter? how do you spell your name?" This type of scaffolding gave Andrew ownership in identifying the problem and the opportunity to self-correct. Andrew still needed further assistance after the second attempt at spelling his name correctly, but again Rob did not tell him outright what letter was missing, but asked him to spell his name aloud. When Andrew still didn't realize what letter he was missing, Rob prompted him with another follow up question, "Alright, what letter are you missing? You're missing one, which letter?" Needing another strategy to help him identify the missing letter, Rob then suggests, "Look at this one [pointing to the third name on Andrew's page], spell it out, point to each

letter." Andrew needed to point to each letter before he realized himself which letter was missing, was able to self-correct, and spell his name correctly.

In this example, it took several different types of prompting, and Rob's creative thinking to offer different strategies to enable Andrew to identify the error on his own, without the answer being provided to him. By labeling a variety of different strategies (i.e., spell your name aloud, point to each letter, look at each letter) he was both modeling and helping Andrew understand different strategies he could use to help him solve his own problem that he could potentially use in the future. Compare this example to the next one, of another teaching assistant working with three boys to create police cars.

Example 7: Facilitating Task Engagement

Forethought. Children are sitting at different centers located throughout the room. Angele, a teaching assistant sitting at one table with a tray of supplies says to the boy, Brian, sitting with her, "we are going to make cars, police cars." Brian gets his paper plate car from Angele, takes the wheels she places in front of him and grabs a stick of glue. He takes the cap off the glue and begins manipulating these new materials. Another boy, Max, joins the table. Angele says to them, "you see the car over there?" Brian looks. She continues, "let me get it down here so you guys can see it." She walks away from the table for a few moments while the boys wait. As she returns she says, " okay, this is our sample, okay" and shows them the car that they will be assembling at the center.

Performance. As Angele continues passing out materials the children get to work by putting gluing on their cars so they can attach the new parts that she passes out to them. As she passes out the materials she tells the now three boys at her table, "You're

going to get the light" and places the light at the top of Brian's car for the boys to see. The third boy who just joined the group, Hiroshi, asks if he can make two cars, she responds, "no we're only going to do one okay." She passes out two sets of tires to each child and says, "so everybody gets two tires" and "you guys you're going to put the patrol [sign] underneath [the light]," as she passes out the patrol signs she shows the first child where it will go on his car.

She passes out the signs to the two other boys and says, "And you guys get one patrol sign," placing the signs on Brian and Hiroshi's cars. As she gives Brian the patrol sign, she helps him with his light, making sure it is glued on straight. As she does so she says, "very nice," and "see how your tires should go?" She holds out the model in front of the boys so they can see the tires. She then reaches out to support Max, helping him to hold his paper down while he glues. While the boys are working and she is helping Max she says, "I think these are so beautiful we should put them outside so everyone can see them."

Self-reflection. When Max's wheels are secure she takes her hand away and says, "wonderful!" But when she looks closer at the car she notices that the light was glued too low down on the car and was also missing a part. She says, "you know what Max we're missing a part," removes the light and adds the missing piece, then glues the light down in the right location. She says to Max, "okay? that looks better huh?" Max nods, takes his car and takes it to another table to dry. As he leaves she says, "thank you Max!" In the meantime, Brian is finishing up his car just as Angele turns back to him. Brian asks the assistant, "where should I put this?" He picks up his car and Angele, says to him, "you're

102

done! We're going to put them outside so everyone can see them." She looks at the car again and notices it is missing the same piece Max's car was missing. She removes the light for Brian, adds the piece and reattaches the light. As she does this, she asks Brian, "do you want to bring it home with you?" When the light is reattached she turns around. Brian looks at his car for a few moments and takes off the light that the teacher just reattached. He puts down more glue and reattaches the light a second time. He holds up the car, looks at it again. Angele turns back to him, reaches for the car and says, "beautiful!" She asks him again, "do you want to take this home or do you want to put it outside?" He says "home," and she responds, "okay you can take it home." He gets up and moves the car to another table to dry.

Example 7 discussion. In the forethought phase of this event, Angele provided a clear learning goal for the children she was working with, "we are going to make cars, police cars." Though the children did not independently set this goal as their own, they easily adopt it and engage in the activity without hesitation. She also had a model to share with the children and pre-cut materials that she passed out while she narrated a sequence of assembly instructions ("You're going to get the light...everybody gets two tires... you guys you're going to put the patrol [sign] underneath [the light]...and you guys get one patrol sign"). Providing children with instructions could be interpreted two ways. On the one hand, Angele could be helping children by offering specific instructions they could then use to make their own plan for assembling their cars. Planning is a key component of task analysis and the forethought phase of SRL. On the other hand, she may have

limited their ability to plan and select strategies to accomplish the task using the model alone.

During the performance phase of the task Angele monitored the children's progress and offered guidance as needed. She also encouraged their motivation by telling them she thought the cars looked, "so beautiful" and that they should, "put them outside for everyone to see." She helped Brian by making sure his light was glued on straight, and directed his attention back to the model to help him monitor his progress (performance phase attribute), "see how your tires should go?" and held the model in front of the boys so they could see the placement of the tires.

To support the boys in evaluating the results of their efforts, Angele modeled statements of self-satisfaction (self-reflection phase attribute) for the boys by saying, "wonderful," "beautiful," and "you're done!" when the boys hand their cars to her. However, when two of the boys hand her their cars and she realized they were missing a piece, she just made the necessary corrections for the children. Instead, she could have asked the boys to look at their own car and look at the model to see if they could figure out if they were indeed done, or if any parts were missing. Though Angele was actively involved in facilitating the boys' engagement she missed some key opportunities to help the children engage in SRL.

In Example 5, Rob seemed to find the right balance of facilitating Andrew's engagement and supporting his ability to self-regulate his own learning by identifying and correcting his errors on his own. In Example 6, Angele was actively involved in facilitating the children's engagement and modeling the steps needed to complete the

activity, though she may have been too controlling and prevented the boys from monitoring their own progress. More frequently, I identified events in which a clear goal was present, the child or children engaged a set of strategies to accomplish their goal, but the teacher or assistant played a perfunctory role in this process. The adult was primarily available to the children to ensure they were clear on the directions and completed the activity and did not utilize support strategies in the best way to support children's SRL. The example below provides an illustration of this type of teacher-child interaction.

Example 8: Monitoring Task Completion

During center time the teaching assistant, Samia, is helping children at a center with a color by number activity, a picture in which different parts of a turkey are numbered one through six. Jacob comes to the table and looks at the worksheet in front of him for awhile.

Samia asks him to write his name and color by the number. He asks, "where do you write your name?" She shows him, "here" and points to the top of his page. Jacob starts writing his name but appears unsure of what to do next. He looks at his paper, and up, then back at his paper, around the room, taps and rolls his pen, yawns, pushes his paper around and says, "what do you do?" Samia turns back to him, points to his paper and says, "Now, color by the number." She points to the number one on the paper and asks, "what number is this?" Jacob responds, "uh, one." Samia then points to the color key for one and asks Jacob, "What is the number one?" He says, "brown" and she affirms his answer is correct by saying, "brown, brown." She then points back to the part of the turkey labeled one and says, "color this brown." Jacob gets the brown marker from the

105

tray in the center of the table and gets to work coloring, turning his paper around to color in the brown parts. He leans into Samia and asks, "so what color do you write number two?" She turns back to him and says, "see over there, what color is number two?" and points again to the color key. Jacob responds, "orange." Samia affirms his choice, "okay color orange." When he is done Jacob asks, "so now what do you do?" Jacob taps Samia and asks, "what color do you color three?" He points to the color key that is both labeled and colored and says, "three, green." Samia asks him, "what color is that?" and points to the color key for three. Jacob responds, "green." Samia affirms, "so color that green." Jacob gets the green marker and colors the corresponding section. He taps his paper with the pen then asks Samia again, "what color do you color in number four?" She tells him, "see over there?" He responds, "purple." Samia responds, "number four purple yeah." Jacob colors the four section purple. For the fifth section of the turkey, Jacob looks at this paper, counts the colors he has already completed, then counts off the same number of colors on the color key. When he gets to the fifth color he sees that it is yellow. He leans in and asks Samia, "Is five yellow?" Samia says, "yes." He colors yellow then counts off the color key again until he reaches six. When he sees that six is red, he asks, "is six red?" Samia says, "yes." Before he colors the six part, he notices that the beak of the turkey, labeled five has not yet been colored yellow. He colors it in then gets the red marker to color the last part of the turkey.

When he's done, Jacob looks at his paper, picks it up and hands it to Samia. She takes it, gives it a look over without saying anything. When she turns around Jacob gets up and walks away.

Example 8 discussion: At the start of this event Samia clarified the instructions for Jacob by telling him where to write his name and indicating that he was working on a color by number activity. She asked him to identify the number one and the associated color, brown, then finds the feather labeled one on the picture and tells Jacob, "color this one brown." Throughout activity when Jacob asked Samia a question she primarily asked a question back to him. For example Jacob said, "so now what do you do?" and Samia asked him, "what color do you color three?" He pointed to the color key labeled and colored , "three, green." Asking Jacob is a good strategy to support his independence, yet, he relied heavily upon Samia for guidance for each step of the process and sought her help at every step of the activity until the task was completed.

Based on the type of guidance Samia provided to Jacob throughout this activity, she appeared to be primarily concerned with Jacob completing the coloring task. Though she did frequently reflect his questions back to him in a way that encouraged him to determine his next steps, it is not until the very end of the activity that Jacob figures out what he needs to do and only uses Samia to verify that his determinations about which colors to use are correct. If Samia had approached this task as an opportunity to help foster Jacob's SRL, she may have spent more time at the start of the activity clarifying not only the instructions, but also the objective of the activity, fostered his motivation to engage in the task on his own, and helped equip him with more specific instructions at the start in addition to modeling what needed to be done. She also could have helped him engage in self-reflection by asking him about the strategies he used to help him figure out which colors he needed for which numbers, and how he felt about completing the task.

***A priori* Coding Results for RQ#2**

The CLASS observational coding instrument was used to assess the interactions between the participating teachers and the children in their classrooms. Table 6 provides a summary of the scores classroom teachers received by the CLASS domains, and by each dimension. As indicated in the methods section, the CLASS scores in Table 6 reflect the quality of interactions between Jane and the children in her classroom as well the interactions of her assistant, Angele. Marissa's classroom included her interactions and the interactions of Rob and Samia with the children.

Both teachers received an overall CLASS score in the mid-range indicating that interactions between children and adults were mixed, low-quality interactions were observed as frequently and in some cases more frequently than high-quality interactions. Examining the individual domain scores provides some insight into an explanation for the overall mid-range scores. Though both teachers scored in the mid-range for the emotional support domain, their averages for this domain were closer to a high-range score of 5. This domain was particularly strong for both teachers, indicating that they were providing a fairly consistent emotional climate for children. For example, there was some indication that the children and teachers enjoyed warm supportive relationships with one another, teachers rarely used punitive control, were at times aware and responsive to children's needs, and at times emphasized children's interests and encouraged their autonomy.

The teachers' scores for the classroom organization domain fell in the low- to mid-range. These scores indicate that the participating teachers inconsistently utilized proactive behavior management strategies, at times were distracted by classroom routines

or interruptions that detracted from classroom productivity, and used a limited number of

instructional learning formats to maximize students' interest and engagement.

Table 6

CLASS Scores by Classroom, Domain, and Dimension

Domains and Dimensions	Classroom[1]	
	Jane	Marissa
Emotional Support[2]	4.5	4.5
Positive Climate	4.5	4.2
Negative Climate	1.8	1.8
Teacher Sensitivity	2.8	3.7
Regard for Student Perspectives	4.2	4.0
Classroom Organization	2.9	3.9
Behavior Management	2.8	3.8
Productivity	3.2	4.2
Instructional Learning Formats	2.7	3.8
Instructional Support	1.6	2.1
Concept Development	1.5	1.7
Quality of Feedback	1.7	2.2
Language Modeling	1.5	2.3
Overall CLASS Score[3]	3.0	3.5

Note.
[1] The classroom scores include interactions between teachers and children and teaching assistants and children.
[2] Since Negative Climate is reverse coded, to obtain a score for the emotional support domain, the average Negative Climate score was subtracted from 8 as suggested in the CLASS Pre-K user manual (Pianta, LaParo, Hamre, 2008) then averaged with the remaining emotional support dimensions.
[3] According to CLASS, scores of 1-2 are considered in the "low-range"; 3-5 in the "mid-range"; and 5-6 in the "high-range."

The instructional support domain scores fell in to the low-range. The dimensions in this domain assess the teacher's use of instructional discussions and activities that promote students' higher order thinking skills, emphasis on understanding rather than rote tasks, provision of feedback that expands learning and understanding, and the amount of language stimulation generated by the teacher. Falling into the low-range for this domain indicates that these attributes were rarely observed.

Summary of RQ#2 Findings

Open coding enabled an examination of teacher practices that helped or failed to help children's engagement in SRL. Examples 6-8 serve as exemplars of the types of ways teachers most frequently interacted with children. In example 6 (Rob, Mia and Andrew), the teaching assistant used a variety of strategies to help restate the goals, help the child use self-observation, self-correction, and persist despite difficulty. Though these are key attributes of the forethought and performance phases of SRL, the teaching assistant also missed an opportunity to help the child engage in self-reflection after he successfully achieved his goal.

In example 7 (police cars), Angele helped motivate the children's engagement and modeled strategies for engaging in the activity, but missed opportunities to help the children monitor their own progress, self-correct, and engage in self-reflection at the end of the activity. The last example (Samia and Jacob) was characteristic of a frequently observed style of teacher-child interaction. In this example, the teaching assistant was primarily concerned with the child completing the task. She provided directions for him to follow, but appeared uninterested in his level of motivation for the activity, did not

110

clarify learning objectives, nor did she encourage or model strategies for monitoring, self-correcting, or engaging in self-reflection. Overall, there was little evidence of teachers explicitly supporting children in SRL. Teachers and teaching assistants were primarily focused on helping children complete tasks and spent little if any time scaffolding children's engagement in the forethought and self-reflection phases of SRL.

The CLASS results confirmed themes identified through open coding: the teachers observed in this study interacted with the children in ways that are characteristic of mid-range quality classrooms. Though the emotional climate in both classrooms scored close to the high range, classroom organization was in the mid-range and instructional support was in the low range. These scores indicate that teachers inconsistently scaffolded instructional support, engaged children in opportunities to use analysis and reasoning, prompted thought processes, or used constructive feedback.

Overall Summary of Findings

The results of the open coding analysis indicated that four-year-old preschool children demonstrated behaviors that aligned with Zimmerman's (2000) three-phase model of SRL. Children in examples 1-3 demonstrated engagement in forethought phase behaviors by setting goals and planning for tasks. Evidence of children's self-motivational beliefs (forethought phase attributes) were largely absent. Children in examples 1-3 also provided evidence of performance phase behaviors and attributes such as self-control, (i.e., selection of task strategies, persistence, and attention focusing), and self-observation (i.e., monitoring and self-correcting or correcting the performance of a peer). Though children's engagement in the self-reflection phase was identified, the

111

evidence was limited because these attributes were more dependent on children's ability to verbalize their internal thought processes. Overall, examples of children independently engaging in SRL were not frequently identified over the course of the study. This may be due in part to the play-based learning environment that characterized these two classrooms. That is, children were frequently engaged in open-ended activities where there may have been multiple goals, the goal changed throughout the course of the activity, or it was never explicitly articulated. The results of the C.Ind.Le coding scheme confirmed the findings from open coding: preschool children are capable of engaging in SRL, however children's engagement in the performance phase of SRL was more frequently identified than the forethought or self-evaluation phase.

Open coding also indicated that teachers were rarely observed helping children engage in SRL in consistent or meaningful ways. When teachers were observed supporting children in a goal-oriented task, they were primarily focused on the child completing the task. Teachers rarely restated the objective of the task, helped children engage in goal-setting or planning behaviors or reflect on their performance. When teachers did demonstrate behaviors that supported children in engaging in aspects of SRL they helped children engage the forethought and performance phases of SRL by restating the goal of a task or activity, helping the child use self-observation, self-correction, and persist despite difficulty. The CLASS results confirmed themes identified through open coding: the teachers observed in this study interacted with the children in ways that are characteristic of mid-range quality classrooms. Though the emotional climate in both

classrooms scored close to the high range, classroom organization was in the mid-range and instructional support was in the low range.

Chapter 5: Discussion

The purpose of this study was to understand: (1) the extent to which preschool-aged children demonstrated self-regulated learning behaviors and capabilities and (2) the extent to which teachers' interactions supported young children's self-regulated learning. Twenty hours of observations were videotaped over an eight-week period in two four-year-old preschool classrooms. Videos were open coded then coded using two *a priori* coding schemes that related to each research question. The following chapter provides a summary and discussion of the findings, reviews the limitations, and then closes with implications for future research and practice.

Summary of Findings

Two key findings were identified in this study that address RQ#1: What self-regulated learning behaviors and capabilities do four-year-old children demonstrate?

1. Four-year-old preschool children demonstrated behaviors that aligned with Zimmerman's (2000) three-phase model of SRL.

2. Children's engagement in the forethought or self-reflection phases was identified, though the evidence to support these examples was limited because these attributes were more dependent on children's ability to verbalize their internal thought processes.

Similarly, three key findings were identified that address RQ#2: How do teachers' interactions with young children support the development of self-regulated learning?

4. Teachers were rarely observed helping children engage in SRL in consistent or meaningful ways.

5. Teachers were primarily focused on assisting children with task completion.

6. When teachers were observed assisting children with engaging in aspects of SRL, they supported children with engaging in the forethought and performance phases.

Discussion

The following discussion reviews each of the findings summarized above and presents an interpretation of the results of this study. This section is followed by a discussion of the implications for future research and practice.

Preschool children demonstrated aspects of SRL. Through the use of open coding and the C.Ind.Le coding scheme I identified examples of preschool children demonstrating aspects of SRL. Children demonstrated engagement in the forethought phase by setting goals, gathering materials, and planning. They were observed engaging in the performance phase by focusing their attention, persisting, selecting task strategies, monitoring their progress and at times self-correcting or correcting the performance of a peer. Self-reflection phase behaviors were evident when children demonstrated self-satisfaction with the results of their efforts. Observable aspects of young children's engagement in SRL were difficult to identify because they were largely dependent on children's verbalization of their internal thoughts. This suggests that the presence of any observable engagement in SRL among the children was significant. There were likely other instances of SRL that were present but not observable. The identification of

observable behaviors and SRL engagement identified in this study offers a more positive interpretation of young children's potential to engage in SRL than previous research has suggested (i.e., Baker, 2008; Flavell, Green, & Flavell, 1995; Paris & Newman, 1990; Zimmerman, 1990).

These findings challenge widely held views that have asserted young children cannot self-regulate their learning in meaningful ways because they believe that trying hard is good enough and are overly confident about their abilities (Paris & Newman, 1990). This study presents an argument for pursuing a new research approach that seeks to further understand and foster young children's developing SRL abilities. By waiting until the second or third grade, we may be missing an opportunity to teach children at an earlier age that they can play a role in and regulate their own learning. While SRL in preschool may look different than it would in the second or third grade, the findings of this study do suggest that young children may be more capable of SRL than previously thought. Further, young children may only stand to benefit from being introduced to the process and phases of SRL in preschool. Introducing and modeling the sequence of goal-setting and planning, task engagement, monitoring, and self-reflection may help young children embed an SRL approach to task engagement at a critical and early age prior to school entry.

Examples of forethought and self-reflection were less evident. Some aspects of preschool children's engagement in the forethought and self-reflection phases of SRL were not as easy to identify as performance phase behaviors. Performance phase attributes were the most frequently and clearly identified aspects of young children's

116

engagement in SRL. For example, children provided clear examples of monitoring, self-correcting, attention focusing, and strategy selection.

Clear examples of children engaging in the forethought phase (specifically clear goal-setting) were most frequently observed when the child verbally articulated their goal or when their thoughts immediately translated to action. For example, when Jeff said to his friends, "I'm going to count to 100, who wants to count to 100 with me?" Other identified examples of goal-setting were inferred through children's actions, as in Megan's selection and pursuit of the drawing activity or Andrew's willingness to adopt the teacher's goal (of writing his name) as his own.

Children's demonstrations of engagement in self-reflection were most frequently observed when they articulated their self-judgments or self-reactions or provided an observable demonstration of self-satisfaction. For example, when Megan completed her drawing activity, her self-satisfaction was clear to an outside observer when she proudly exclaimed, "a pizza! Look, an apple, a banana, ice cream and a pizza!" Or, when Andrew identified the missing D and corrected the spelling of his name he said with excitement, "hey look [I made] a D!" and turned his paper in to the teaching assistant. However, most examples included children articulating that they had completed the task rather than their reflections on why or how they achieved their goal.

There are several reasons why forethought and self-reflection may have been more difficult to identify than performance phase attributes. First, it is possible that clear and consistent goal-setting and self-reflection were just not naturally occurring in consistent ways among the participating preschool children. This would not be surprising

117

as the social-cognitive theory asserts that SRL is "not a skill that automatically develops" (Zimmerman, 1989a, p.13).

Second, when children were engaged in the performance phase of SRL they were physically engaged and focused on the task at hand, and used task strategies in concrete and observable ways. Unlike performance phase behaviors, identifying young children's engagement in the forethought and self-reflection phases was dependent on their ability to articulate (unprompted) their feelings, thoughts, and beliefs before and after a task. This was an exploratory study of young children, therefore I only used observational methods to assess children's SRL capabilities. This methodological choice was based on prior research that warned against using methods that depended too much on young children's ability to verbalize their metacognitive thought processes or self-motivational beliefs (Azevedo, 2009; Kim & Lorsbach, 2005). While observation may be the most developmentally appropriate method, the decision not to interview children may partially help to explain why it was easier to identify children engaging in the performance phase of SRL than other phases. I did not question or prompt children to articulate their internal thoughts about their goals and reflections so it was unlikely that a young child would verbally volunteer this information on their own.

Although the infrequent identification of forethought phase behaviors and self-reflection are both subject to the explanations above, there were also challenges that were unique to the identification of each of these phases. For example, during the majority of the observational period children were engaged in play-based learning. During these times the activities were open-ended by design and did not necessitate one goal or even a

118

clearly defined goal (for example, when the girls built a princess castle, the goal evolved over the course of the activity). When observing play-based learning, which constituted a large portion of the 20-hour observation period, it was difficult to identify clear goal driven behavior.

Identifying young children's ability to engage in self-reflection was also uniquely difficult because it required identifying examples in which young children articulated a qualitative evaluation of their work or effort. Children often articulated that they had completed a task, (i.e., "all done" or "I did it!") but rarely included a reflective statement about how or why they achieved her goal. Clear examples of self-reflection would ideally include a statement about the quality of their work or effort, or what they had done to accomplish their goal. While these interpretations do not mean these aspects of SRL were not occurring, they may help to explain why forethought and self-reflection were not as clearly identified as performance phase attributes.

Teachers were rarely observed supporting SRL. Overall there was little evidence of teachers (inclusive of teaching assistants) interacting with children in consistent or meaningful ways to support their engagement in SRL. Though results of the CLASS indicated that the emotional support (positive climate, respect, and warm relationships) provided to students was consistent with mid- to high-range quality classrooms, aspects of classroom organization (behavior management, productivity, and instructional learning formats) and instructional support (concept development, quality of feedback, and language modeling) were in the mid- to low-range. The CLASS research framework suggests that the classroom organization dimensions are most closely

associated with self-regulated learning (Pianta, LaParo, & Hamre, 2008). The low- to mid-range scores observed for the classroom organization dimension of the CLASS supports the finding that teachers' support for SRL was rarely identified.

Though examples of teachers engaging with children in a way that would support their engagement in SRL were not consistently prevalent throughout the study, a brief discussion of the preschool context may help account for some portion of this absence. As discussed in the results chapter, identification of a goal was considered the minimum coding criteria for determining if a child was engaged in SRL. Without the identification of a learning goal it was not possible to determine if or how the child could be engaged in SRL.

In keeping with developmentally appropriate practice, preschool curricula will often focus on play-based learning and not always emphasize activities that have a singular goal in mind, or may be flexibly designed so that the goals are open-ended or exploratory in nature (Bredekamp, & Copple, 1997; Mooney, 2000; White & Coleman, 2000). For example, in one observed activity where children had to cut and paste a set of pictures and sequence them in the right order, the teacher may have indicated that for one child the goal of this activity was to sequence the pictures in the correct order (a cognitive task), but for another child the goal may have been to help the child develop cut and paste (a fine motor task). Or, open-ended activities such as blocks or Legos are not designed to have one outcome. Instead these activities are designed to help foster children's curiosity, risk-taking, and exploration of new ideas or materials (Piaget, as cited in Mooney, p. 76).

120

By adopting a play-based learning educational approach, the teachers in this study were likely going to engage the children in activities that would not have intuitively aligned to SRL without an intentional effort to do so. Therefore though teachers were rarely observed engaging children in SRL does not mean they were failing to provide a support that was necessarily expected of them.

Teachers supported task completion. Teachers primarily engaged children in tasks in rote ways, and were mainly concerned with helping them complete activities (performance phase support). Forethought phase support and more so self-reflection phase support were rarely observed. In this study that teachers placed more emphasis on supporting children's engagement in the performance phase of SRL. Though causation cannot be established through this study, there was a clear relationship between teachers' emphasis on supporting children with task completion and the consistent identification of children's engagement in performance phase attributes. Similarly, a relationship can be assumed between teachers' lack of supporting children in forethought and self-reflection and the lack of substantial evidence of children engaging in these two phases of SRL.

The triadic model of self-regulation (Bandura, 1986) helps to explain the relationship between teacher practices and children's demonstration (or lack thereof) of SRL that was observed in this study. Children's ability to self-regulate their learning is determined not only by their personal thoughts and beliefs, but by the reciprocal interaction of their environment and behavior (Bandura, 1986; Volet, Vauras, & Salonen, 2009; Zimmerman, 1989a). Therefore, children's ability to engage in SRL is not only a product of their personal attributes, but also the result of their interaction between their

personal skills and beliefs, their environment, and their behaviors. By supporting task completion and not forethought and self-reflection, it was not possible to establish the reciprocal SRL environment that is necessary for successful SRL.

Effective teaching strategies. When teachers in this study were effective at supporting children's engagement in SRL, they used strategies to help motivate the child's engagement in a task (forethought phase support) or foster the child's independence in task completion (performance phase support). For example, the teaching assistant Rob supported Andrew by helping him identify a number of different strategies he could use to self-monitor and self-correct the missing letter in his name, such as spelling his name aloud, pointing to each letter, checking and guessing, and sounding it out. Angele helped foster motivation by providing praise and encouragement throughout the police car activity. She also helped the boys engage in planning by providing a model and suggesting a sequence by which they could assemble their cars. Developing a better understanding of the set of strategies teachers can provide to preschool-aged children to promote their engagement in SRL is the next phase for research on this topic.

Limitations

Lack of intensive, long-term involvement. To ensure that I could gather as much rich data as possible in a short time frame, I conducted my observations in a natural classroom setting, where I was able to observe children interacting and engaging in their regular daily activities. In addition to videotaping the classroom observations, I also used memos during each stage of data collection and analysis to be sure that what little time I spent in the classroom was documented both on video and through my own reflections.

122

Selectivity. Because this study was based on one child-care center located in an affluent suburb, two teachers, and approximately 45 children of mixed race/ethnicity and unknown socio-economic status the findings of this study may not be applicable to children in a different setting. In addition, it was not possible to observe all children at the same time I had to make choices about what interactions and groups of children I would focus on during videotaping. As mentioned in my methods section, observations were conducted during a mix of whole group and small group instruction. SRL behaviors were not identified during whole group instruction, classroom routines or transitions such as snack or line-up. The examples of children engaging in SRL were only identified during small group activities or centers. During these times, groups of two to six children were observed working in small groups or at separate centers throughout the classroom. I circulated to each center or small group during the observation, but ultimately could not observe and videotape all the children at the same time.

This challenge presents two validity issues. First, I may have missed examples of children engaging in SRL if I was not videotaping them at that time. The resultant data has the potential of either overestimating or underestimating the frequency one might expect to observe SRL in a preschool classroom. As a result I urge the reader not to focus on the frequency of SRL events or the frequency of identified C.Ind.Le indicators, but rather the quality of these examples and the degree of their alignment to the Zimmerman (2000) model. Second, I had to make decisions, about which interactions to videotape, which meant my own bias and understanding of SRL played a role in data collection (Maxwell, 2005). To help address this validity threat, during videotaping I made an effort

to circulate around the room frequently so that I would not over represent any child or group of children in the classroom during a particular visit. In addition, in my methods and results chapter I described in detail how I operationalized Zimmerman's (2000) three-phase model and applied it to coding so that, to the extent possible, the reader can know my interpretation of Zimmerman's model.

Measurement validity. While coding schemes helped to guide the interpretation of my observations, there are limitations to their use. Bakeman and Gottman (1997) indicate that coding schemes can be designed for use on a continuum of 'physically-based' and 'socially-based' phenomena. Where physically-based coding schemes count or describe observable phenomena, socially-based coding schemes attempt to analyze social constructs, which require a "higher degree of inference and a shared cultural understanding on the part of the observer" (Bakeman & Gottman, p. 70). Both the CLASS and the C.Ind.Le coding schemes fall in the category of a socially-based observational instrument. Therefore, my use of these observational measures was influenced by my own understanding and interpretive bias. To address this validity threat, I used the assistance of another research partner. Data was collected by video so that I could share the data and the coding schemes with another researcher, who separately coded a portion of the data in an effort to establish inter-rater reliability.

Reactivity. Specific strategies such as pre-observation visits, adopting a non-participant observer identity, and teacher feedback were used to help prevent participant reactivity (Maxwell, 2005; Patton, 2002). When observing classrooms, I wanted the children and teachers to act and interact with each other as they would if I were not there.

This was particularly important for my study as I was interested in understanding teacher-child interactions, and did not want my presence to distract from those interactions. To address this validity threat I used three strategies. First, I spent two hours in each classroom prior to conducting my observations so that the children could become more familiar with my presence in the classroom. Second, I adopted the role of a non-participant observer and situated myself in the classroom in a way that minimized my interference yet also enabled me to closely observe and listen in on the children and teachers interacting. Finally, during the pre-observation visits and throughout data collection I informally asked classroom teachers about if and how my presence influenced the children's behavior. Neither teacher felt that the children took much note of my presence in the classroom in a way that altered their behavior. Despite these limitations, the results of this study do provide a better understanding of SRL in the preschool classroom and a rationale for more research on this topic. The implications of these findings are discussed in more detail in the next section.

Implications for Future Research and Practice

The findings of this study suggest more research is needed to identify: (1) the extent of preschool children's SRL capabilities; and (2) effective techniques for fostering the development of SRL in early childhood. Though some studies have started to explore teaching practices that foster SRL in the early elementary grades (Perels, Merget-Kullman, Wende, Schmitz, & Buchbinder, 2009; Perry, 1998; Perry, VandeKamp, Mercer, & Nordby, 2011) it will be beneficial to replicate or adapt these studies for preschool children. In addition, more research focused directly on young children's SRL

capabilities is needed. The following section starts with a discussion of potential methodological implications for future research that explores young children's SRL capabilities, then explores existing research on preschool curricula and teaching strategies that may promote SRL engagement. This chapter closes with a discussion of five essential strategies preschool teachers might consider adopting to further promote SRL in their classrooms.

Combine observational and discussion methods. Future studies with young children should explore the use of both observational methods similar to those used in this study *and* developmentally appropriate methods that enable children to publicize their internal thoughts and beliefs. These methods may include opportunities for children to talk with peers, a teacher, or researcher. If done in a developmentally appropriate way, an interview or discussion guide may be a beneficial methodological approach for working with preschool children. The interview could use simple questions that ask children about what they are doing (their goals), the strategies they use as they engage in a task, and their thoughts or reflections on their efforts, achievements, or struggles (Zimmerman & Martinez-Pons, 1986). An alternative approach to talking to children directly about their thoughts and beliefs might include using small groups and asking children to talk to each other while engaging in a task. In this study, every example of a child engaging in SRL involved at least two children. Through their conversations with peers it was possible for me to better understand their thought processes and enabled me to make a determination about the extent of their engagement in the phases of SRL.

126

Combine open coding with *a priori* coding schemes. Future studies should also consider the benefits and limitations of open coding and working with an *a priori* coding scheme like the C.Ind.Le. Open coding during children's regular classroom activities was beneficial because it enabled an outside observer to assess the extent to which the sequence of children's behaviors demonstrated alignment with all three phases of SRL and it provided an understanding of the classroom context. However, a future study of preschool children's engagement in SRL may consider using open coding with a small group of children who are provided a specific and appropriate task such as a mathematics activity or puzzle and are then observed to assess their engagement in SRL. Prompting children's engagement in SRL and doing so with small groups of children may enable the observer to have more control over the observations and a richer data set in a shorter period of time.

Similarly, there were benefits and limitations to using the C.Ind.Le coding scheme. The coding scheme and training video provided clear definitions of SRL behaviors that made coding observational data less subjective. However, it is easy to misuse the C.Ind.Le like an observational checklist and focus on the frequency of individual indicators instead of considering how each of the observed behaviors relate to each other. For example, often after 30 or 45 minutes of coding video data with the C.Ind.Le, I would have identified several examples of children engaging in planning, monitoring, control, and evaluation but often many of these incidences were isolated examples, they were not connected in a way that aligned with a cycle of self-regulated learning (i.e., where forethought behaviors lead to performance behaviors that in turn

127

lead to self-reflection behaviors). I recommend that future studies that want to use the

C.Ind.Le also use open coding to prevent the misuse of this tool, to triangulate data

methods, and to understand a complete picture of children's engagement in the three

phases of SRL.

Explore alignment between current preschool curricula and SRL. In addition

to the need for new methodological approaches for understanding children's SRL

abilities, more research is needed to better understand the role of the preschool teacher

and supportive teaching practices. Any effort to integrate SRL into the preschool

curriculum should be done in a developmentally appropriate way. In fact, instructional

practices related to supporting children's independence, motivation, use of planning and

reflection are not necessarily new concepts for early childhood curriculum models.

Specifically, the High/Scope and Tools of the Mind curricula are theory-based

approaches to early childhood education that emphasize, to differing degrees, play-based

learning, planning, and reflection (Copple, 2003).

Based on Piaget's philosophy of emphasizing the child as an active learner, the

High/Scope curriculum was developed in the 1960's and utilizes a "plan-do-review"

sequence (Hohmann & Weikart, 2002). Children work in small groups to plan what they

want to do and who they will play with. They engage in a period of work time to carry

out their plans, then get back into small groups to review what they have done and

learned in a discussion that is facilitated by the teacher. Tools of the Mind is based on a

Vygotskian approach to learning. Developed in the early 1990's, Tools of the Mind

focuses on developing children's executive functioning skills and cognitive control

128

through building foundational skills in literacy, mathematics and social-emotional competence (Bodrova & Leong, 2009; Copple, 2003). By using a specific sequence and structure to guide "mature and intentional play", children use "play planning" to describe their plans for play time, and the roles and actions with which they will engage. The next day teachers engage children in a reflective discussion of their previous play session.

Both of these curriculum models hold promise for informing instructional practices that may benefit the development of children's SRL. However, they were not developed with the social-cognitive model of SRL in mind. Instead, Tools of the Mind focuses on developing children's cognitive functioning such as inhibitory control, working memory, and cognitive flexibility (Diamond, Barnett, Thomas, & Munro, 2007). While these aspects of development are beneficial to children's cognitive self-regulation, they do not encompass the triadic interaction between a child's self-motivational beliefs, metacognitive monitoring and awareness, the environment, and individual behaviors, which are fundamental to the social cognitive theory of self regulated learning (Zimmerman, 2000). Similarly, High/Scope engages children in *group* planning, performance, and reflection. While the High/Scope curriculum approach may be an effective strategy for simplifying and modeling the sequence of SRL behaviors, the group focus de-emphasizes the role of "self" in self-regulated learning.

Future research might explore the extent of existing alignment between children in Tools of the Mind or High/Scope classrooms and their engagement in SRL according to Zimmerman's (2000) three-phase model. A future study of this kind could also explore if "play planning" (Bodrova & Leong, 2007) or the "plan-do-review" sequence

129

(Hohmann & Weikart, 2002) are promising instructional practices for helping children engage particularly in the forethought and self-reflection phases of SRL during play-based learning. A separate study of the Tools of the Mind curriculum and SRL could explore if separating the self-reflection phase of SRL by a full day has benefits or unintended consequences for the cyclical feedback loop that characterizes social cognitive models of SRL (Zimmerman, 1989b). Or, a future study could explore children enrolled in classrooms that use these curriculum models and compare them to children in a classroom that does not to explore the extent to which they engage in SRL.

Explore effective teaching practices. In addition to researching the relationship between 'off the shelf' curriculum models and the promotion of SRL, future research could also explore professional development and training models that explicitly focus on promoting SRL in early childhood. Future studies could draw upon existing research that has focused on promoting SRL in the early elementary years. For example, one elementary school practitioner-researcher described a set of strategies she employed in her school to help promote young children's self-efficacy, goal-setting, and planning (Szente, 2007). Over the course of a school year, teachers used strategies to help young children identify and change negative thoughts about themselves, then created positive affirmations to promote their self-efficacy beliefs. With positive self-efficacy beliefs in place, teachers then used goal-setting and action planning strategies to help children set and pursue realistic and achievable goals (Szente). While this approach does not include explicit strategies for supporting young children in the performance or self-reflection

130

phases of SRL, it may be a starting point for developing a more comprehensive approach to supporting SRL for early childhood educators.

Perry and colleagues (2002) have explored the teacher-student interactions that foster self-regulated learning in kindergarten through third grade students during writing activities. Teachers who were effective in promoting SRL during writing included: (1) student choice; (2) opportunities to control how challenging children wanted to make their goals; (3) opportunities to evaluate their own and other's learning; (4) scaffolding instruction; and (5) providing feedback and evaluation that was nonthreatening and mastery oriented (Perry, et al.). Four of the five attributes Perry et al. (2002) identified to be effective in promoting SRL in early elementary students are closely aligned with dimensions of the CLASS.[1] Future studies could explore ways to adapt the instructional strategies Perry et al. (2002) identified for preschool teachers, followed by use of the CLASS in addition to open coding to assess how effective teachers are in employing these new strategies.

One additional experimental design study of young children's self-regulated learning in Germany may also help to guide future research. Perel and colleagues (2009) developed a training program for teachers of four to six-year-old children that first educated the teachers on their own self-regulatory learning practices so that they could be a role model for children. Then the training provided instruction to teachers on how they could promote SRL among young children. Though more information is needed to

[1] Specifically: "regard for student perspectives" aligns with (1) student choice and (2) opportunities to control challenge; "concept development" and "quality of feedback" align with (4) scaffolding and (5) feedback and evaluation.

understand the details of the training program provided to teachers, the results of the

study found significant improvements in the demonstration of SRL among students

(Perels, et al.). Future intervention studies could use this training model as a starting point

for replicating or adapting new approaches for promoting SRL in early childhood.

Implications for practitioners. Further research is needed to develop and test

teaching strategies that support SRL engagement among preschool children. However,

this study and the previous pilot study may provide insights into practices teachers can

adopt to promote and support SRL engagement. In fact, current best practices may

already be suited for promoting SRL engagement; they just need to be utilized by

preschool teachers within an SRL framework. The final section of this study offers five

ways preschool teachers can embed the Zimmerman (2000) three-phase model within

their current teaching practice.

Adopt an orientation to the Zimmerman (2000) three-phase model. Preschool

teachers may benefit from an introduction to the key concepts articulated in

Zimmerman's (2000) three-phase model so they can understand: (1) how SRL can benefit

children's academic success and self-motivational beliefs; and (2) the critical phases of

the SRL cyclical feedback loop. Once introduced to this model, preschool teachers may

quickly agree that it is not too far afield from best practice in preschool education.

However, the SRL model provides a new emphasis on intentional goal-setting,

performance scaffolding, and self-reflection supports preschool teachers could provide to

further assist the children in their classrooms in becoming self-regulated learners.

Preschool teachers may also appreciate reviewing the C.Ind.Le coding scheme, which

132

provides concrete examples of the SRL behaviors that may be typical for a three- to five-year-old child. With an initial orientation to goals and concepts of the SRL model, teachers can begin to visualize how to embed SRL supports into their current approach to teaching preschool children. Once oriented to the goals and structure the SRL, preschool teachers can also consider the type of learning environments that are most conducive to SRL and how or if they need to make adjustments to their current practice. For example, small group instruction that involves plenty of opportunities for interaction with peers and teachers, as was observed in this study.

   Implement forethought phase support strategies. In this study teachers rarely clarified the learning objectives of activities for children. In most cases, a set of materials were provided to children, teachers articulated a sequence of instructions, encouraged participation and offered support as needed. Teachers who adopt an SRL approach to instruction may have to shift their focus from task completion to seeing activities as an opportunity to foster SRL. Preschool teachers who want to adopt this approach may need specific strategies to help them foster children's engagement in the forethought phase of SRL by: (1) identifying the learning goals and objectives of selected activities, (2) helping preschool children set appropriate goals, and (3) developing scripts or prompts to help children talking aloud about the strategies they might use to engage in a task.

   Preschool teachers may also consider strategies for talking with children about their self-motivational beliefs. This might include simple questions that ask children to show or articulate (1) their interest or excitement for the task at hand; (2) how good or confident they are at the particular task, and potentially asking children to (3) talk about

their outcome expectations. If verbalizing these beliefs is too onerous, one approach might include asking children to draw a picture of themselves engaging in the task and asking the child to describe what they have drawn. Once these beliefs are verbalized or expressed through written form or artwork, it may be possible for the teacher to identify potentially negative self-motivational beliefs and can better address them.

Implement performance phase support strategies. Preschool teachers may need to expand their current set of teaching strategies to better support children in the performance phase of SRL. In this study and the previous pilot study, preschool teachers supported children's engagement in the performance phase of SRL by: (1) guiding children in the use of task strategies; (2) labeling the task strategies children were using; (3) prompting the use of a previously learned task strategy; and (4) helping children focus their attention. Each of these strategies helped to support children in completing the task instead of the teacher completing the task for the child. As a result, children appeared to complete tasks more independently and may have been able to retain newly learned strategies for future use.

Although the set performance phase strategies listed above may be effective, they can also be expanded upon to more fully support children's engagement in SRL. Preschool teachers may also want to consider identifying strategies to support children's self-observation and self-monitoring skills. Teachers can use open-ended questions that help children self-monitor their progress, for example, "How do you know when you've counted to 100?" or "I see that you have written your name, take another look, does that look right to you?" Teachers can give encouragement and cues that prompt children to

check their efforts, for example, "almost there" or "getting warmer." Teachers can also continue to develop their use of effective feedback that enables children to maintain ownership over the activity. For example, labeling the strategy a child is using ("I see you are pointing to each letter with your finger") then offering a different or complementary strategy ("what else can you try to figure out this word" or "now try sounding it out"). In considering effective performance phase support strategies, teachers should also consider how to best promote a classroom environment that encourages children to help one another identify different task strategies and engage in self- and peer-monitoring in a non-punitive way.

     Implement self-reflection phase strategies. Preschool teachers' use of strategies to engage children in self-reflection were notably absent from both this study and the pilot study. Preschool teachers may need examples of prompts they can use to help elicit children's self-judgments and self-reactions. For example, asking simple questions that prompt children to evaluate what they have just done or learned and think about why or how they accomplished their goal. These scripts might also include follow-up questions that help children think about the effectiveness of the strategies they used or if they had to change their approach in order to accomplish their goal. Initially, preschool children may not be able to articulate the specific reasons why they accomplished their goal. Therefore a preschool teacher may be particularly effective in role playing the self-reflection script for children. For example, "Brian I can see you were able to cut, paste, and number all ten trains onto your paper! I was very pleased to see that when you got stuck trying to write number 5 you looked at the number 5 on the easel for help. You also took your time and

did not rush. Next time you need to write number 5 you will remember these trains and will know exactly how to write it. You should feel very proud of yourself, you know all of your numbers 1 to 10!" Over time, the preschool teachers may be able to shift this conversation from one-sided role modeling to a two-way dialog that includes open-ended questions designed to support the child in reflecting on their learning experiences.

Role model SRL engagement. Preschool children will benefit from hearing their teachers self-narrate their thoughts and actions as they role model engagement in the SRL process. The more preschool children see and hear adults talking through the learning process as a set of steps that include goal-setting, planning, use of task strategies, monitoring, and self-reflection, the more likely they are to adopt this same sequence of behaviors as their own. By role modeling and verbalizing engagement in this sequence, preschool children will also be provided with a new set of vocabulary that may better support them in articulating their own engagement in SRL. Teachers can also be effective role models for fostering positive self-motivational beliefs. Even better, preschool teachers can role model for young children how to maintain positive self-motivational beliefs when the outcome of activity is not what was expected.

The results of this exploratory study provide a strong rationale for conducting future studies that may involve: (1) new methodological approaches that are developmentally appropriate for assessing SRL in early childhood; (2) an evaluation of the relationship between existing early childhood curricula and the promotion of SRL; or (3) experimental designs that adapt and assess teaching strategies for preschool children that are known to be effective in promoting SRL with early elementary students. In

136

addition, best practices in preschool education may easily support SRL engagement if

preschool teachers begin to apply current teaching strategies within an SRL framework.

There is much to learn, and more research on this topic is both needed and warranted. By

developing a stronger understanding of young children's SRL capabilities and the

teacher-child interactions that support SRL we may be able to capitalize on new and

innovative approaches to supporting children's school readiness and may better support

teachers by providing them with new strategies to identify and foster young children's

academic success.

Appendices

Appendix A: Teacher Recruitment Letter

Dear Teachers,

I am a George Mason University doctoral student who is seeking the opportunity to interview two early childhood teachers and spend ten hours observing the children in their classrooms. The purpose of my study is to better understand four-year-old children's development of self-regulated learning. Your participation in this study will help inform the development of a doctoral dissertation aimed to better understand child development. More information about this study is included below. Thank you in advance for your consideration!

What will participants be asked to do?
- Allow me to observe the children in your classroom for ten hours over the course of 5 visits over a 8 week time period. Each observation will last approximately 2 hours. Classroom observations will be videotaped to enable a rich understanding of the children's development.
- Allow me to visit your classroom twice for about an hour before the official observation visits begin so that the children in your classroom are familiar with my presence. During these visits, I will briefly introduce myself and will otherwise act as an observer.
- Participate in an approximately 1 hour interview with me to discuss your observations of young children's self-regulated learning. Interviews will be tape-recorded.
- Send a letter (see attached) home to the parents/guardians of the children in your classroom informing them about my presence in your classroom.

What am I looking for when I visit your center?
I would like to schedule a set of 2 hour observations (for a total of 10 hours) of the children in your classroom during regular classroom activity time. I will not request any changes to the daily operations or plans for your class during my visits. In fact, I would prefer to observe your classroom during a "typical" day. I will plan my visits to accommodate your schedule. During my observations, I will be watching how the children engage in learning tasks, preferably during morning circle time, center or free choice time, or during other small group play or learning times.

139

How will I use the information I collect?
The information collected during these visits will be used solely for the purposes of my dissertation study. All data will be kept strictly confidential and will only be accessed by myself. Your name and the name and location of your center will not be used in any reports that result from this study.

How often will I visit your classroom?
I plan to visit your classroom 5 times in order to conduct 2 hour observations. In advance of these observations I would like to schedule a brief visit with you so that you can meet me, I can answer any questions you might have about my study, and we can discuss an observation schedule that would not be disruptive to your regular routine. In addition, I will schedule time at your convenience to conduct the 1 hour teacher interview after the classroom observations have been completed.

Are there any risks or benefits to my participation?
There are no risks and no direct benefits associated with your participation in this study.

Is my participation voluntary?
Yes. Your participation in this study is completely voluntary. You have the right to withdraw from the study at any time without penalty.

Payment: Participating teachers will receive a $50.00 gift card as a token of appreciation for the time spent to participate in this study.

Questions?
If you have any questions, please do not hesitate to contact:
Sarah Daily
703-304-8751
sdaily@gmu.edu

I would like to participate, what do I do?
If you are interested in participating in this study, please contact Sarah Daily at sdaily@gmu.edu or 703-304-8751. Please also read and sign the attached consent form.

Thank you,
Sarah Daily

Appendix B: Teacher Informed Consent Agreement

Teacher Informed Consent Agreement
Understanding Young Children's Social and Emotional Development

RESEARCH PROCEDURES
This research is being conducted to learn about young children's social and emotional development. This project is being conducted by Sarah Daily, a doctoral student in the College of Education and Human Development at George Mason University. All activities listed below will end by the spring of 2012. If you agree to participate, you will be asked to do the following:

- Allow Sarah Daily to observe the children in your classroom for ten hours over the course of 5 visits over a 8 week time period. Each observation will last approximately 2 hours. Classroom observations will be videotaped to enable a rich understanding of the children's development.
- Allow Sarah Daily to visit your classroom twice for about an hour before the official observation visits begin so that the children in your classroom are famiJennyr with her presence. During these visits, Ms. Daily will briefly introduce herself and will otherwise act as an observer.
- Participate in an approximately 1 hour interview with Sarah Daily to discuss your observations of young children's self-regulated learning. Interviews will be tape-recorded.
- Send a letter (see attached) home to the parents/guardians of the children in your classroom informing them about my presence in your classroom.

In addition to the activities listed above, the classroom observations will be video-recorded to enable a rich understanding of the children's development. In addition, the 1 hour teacher interview will be audio recorded. A security protocol approved by the George Mason University Human Subjects Review Board will be maintained to ensure video and audio data is kept confidential. The video and audio recordings will only be used to inform the final report of this research project. Video and audio data will only be accessed by Sarah Daily, and will be kept in a locked and secure location for the duration of the study. At the completion of this study, all video and audio data will be destroyed.

RISKS
There are no foreseeable risks for participating in this research.

BENEFITS
There are no benefits to you as a participant other than to further research in child development.

CONFIDENTIALITY
The data in this study will be confidential. The information collected during classroom

observations and interview will be used solely for the purposes of this study. All data will be kept strictly confidential, and will only be accessed by Sarah Daily. Any individually identifiable information about the children will be kept confidential. A code will be placed on the videotapes and other collected data. Through the use of an identification key, the researcher will be able to link observations to your classroom, but only the researcher will have access to the identification key. All names and the name and location of your child care center will not be used in any reports that result from this study. When the study is completed and the data have been analyzed, all data will be destroyed.

PARTICIPATION

Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party. Participating teachers will receive a $50.00 gift card as a token of appreciation for the time spent to participate in this study.

CONTACT

This research is being conducted by Sarah Daily, College of Education and Human Development at George Mason University. She may be reached at 703-304-8751 for questions or to report a research-related problem. You may also contact her supervising professor, Dr. Anastasia Kitsantas, at George Mason University, 703-993-2688. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your participation in this research study.

CONSENT:

_____ I have read this form and agree to participate in this study.

Audio recording

_____ I agree to audio recording the teacher interview.

_____ I do not agree to audio recording the teacher interview.

Video Taping

_____ I agree to videotaping the classroom observations.

_____ I do not agree to videotaping the classroom observations.

Signature: _____

Date: _____

Print Name: _____

Appendix C: Parent Recruitment Letter

Dear Parent / Legally Authorized Representative,

Your child's classroom is participating in a research study with a George Mason University doctoral student, Sarah Daily. This study is designed to better understand young children's social and emotional development by observing early childhood classrooms. Your child's classroom participation in this study will help inform the development of a doctoral dissertation aimed to better understand child development.

We are inviting you to give permission for your child to be part of this study. If you give permission, you will be allowing the doctoral student, Sarah Daily to spend a total of ten hours observing your child's classroom during their normal classroom activities over an eight week period. She will not directly interact with your child and her presence will not impact any of the regularly scheduled activities for the day.

To enable a rich understanding of the children's development, the classroom observations will be video-recorded. A data security protocol approved by the George Mason University Human Subjects Review Board will be maintained to ensure all data collected in this study is kept confidential. The video recordings and field notes will only be used to inform this dissertation study. Video data and field notes will only be accessed by the doctoral student Sarah Daily, and will be kept in a locked and secure location for the duration of the study. When the study is completed all video data will be destroyed.

All data collected in this study will be kept confidential. No child will be identified by name in the final report that results from this study. The names of the teachers and the name and location of the child care center will not be used in any of the reports that result from this study.

Thank you for your cooperation. If you have any questions, please feel free to contact Sarah Daily at sdaily@gmu.edu or 703-304-8751 or Tina Morris, Center Director, at 703-993-9750.

Sincerely,

Sarah Daily
George Mason University Doctoral Student

Parent Informed Consent Agreement
Understanding Young Children's Social and Emotional Development

RESEARCH PROCEDURES
This research is being conducted to learn about young children's social and emotional development. This project is being conducted by Sarah Daily, a doctoral student in the College of Education and Human Development at George Mason University. If you agree to allow your child to participate, you will be allowing Sarah Daily to conduct ten hours of observations of your child's classroom.

The classroom observations will be video-recorded to enable a rich understanding of the children's development. A security protocol approved by the George Mason University Human Subjects Review Board will be maintained to ensure video and audio data is kept confidential. The video recordings will only be used to inform this dissertation study. Video data will only be accessed by Sarah Daily, and will be kept in a locked and secure location for the duration of the study. At the completion of this study, all video data will be destroyed.

RISKS
There are no foreseeable risks to your child for participating in this research.

BENEFITS
There are no benefits to your child as a participant other than to further research in child development.

CONFIDENTIALITY
The data in this study will be confidential. The information collected during classroom observations will be used solely for the purposes of this study. All data will be kept strictly confidential, and will only be accessed by Sarah Daily. Any individually identifiable information about the children will be kept confidential. A code will be placed on the videotapes and other collected data. Through the use of an identification key, the researcher will be able to link observations to individual classrooms, but only the researcher will have access to the identification key. All names and the name and location of your child care center will not be used in any reports that result from this study. When the study is completed and the data have been analyzed, all data will be destroyed.

PARTICIPATION
Your child's participation is voluntary, and you may withdraw them from the study at any time and for any reason. If you decide you do not want your child to participate or if you want to withdraw your child from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs to you or any other party.

CONTACT

This research is being conducted by Sarah Daily, College of Education and Human Development at George Mason University. She may be reached at 703-304-8751 for questions or to report a research-related problem. You may also contact her supervising professor, Dr. Anastasia Kitsantas, at George Mason University, 703-993-2688. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

This research has been reviewed according to George Mason University procedures governing your child's participation in this research study.

Please sign and return this form to your child's teacher by

_____

CONSENT:

_____ I have read this form and give permission for my child to be a part of the classroom observation study.

_____ I have read this form and do not give permission for my child to be a part of the classroom observation study.

Video Taping

_____ I agree to allow videotaping of the classroom observations.

_____ I do not agree to allow videotaping of the classroom observations.

Child's Name:

_____

Parent/Legally Authorized Representative

Signature:_____

Date: _____

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Curriculum Vitae

Sarah Daily graduated from Mclean High School, Mclean, Virginia, in 1997. She received her Bachelor of Arts from Duke University in 2001. She was employed as a Research Assistant then Analyst at the American Institutes for Research for five years and received her Master of Arts in Education from George Mason University in 2006. For four years she worked with the National Governors Association, Center for Best Practices as a Senior Policy Analyst then Program Director of early childhood policy. She is currently a Research Scientist at Child Trends, where she works to support states through early childhood development research and program evaluation. Relevant publications include reports on statewide early childhood assessment practices, early childhood quality rating and improvement systems, state-level early childhood public-private partnerships.