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AUTONOMY SUPPORT, COMPETENCE SUPPORT, AND RELATIONAL SUPPORT CAN FOSTER SELF-EFFICACY FOR SELF-REGULATED LEARNING IN URBAN SCHOOLS

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AUTONOMY SUPPORT, COMPETENCE SUPPORT, AND RELATIONAL SUPPORT CAN FOSTER SELF-EFFICACY FOR SELF-REGULATED LEARNING IN URBAN SCHOOLS

A DISSERTATION APPROVED FOR THE
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Dedication

I dedicate this dissertation in loving memory of the two most energetic and caring women I have ever known: my mother, Nila (1937–2013), and my sister, Loyda (1960–2004). Their legacy lives on not only in me but in the thousands of lives they touched through their family, friends, and ministry. I further dedicate this dissertation to my father, Angel, and my husband, Geoff. These powerful men are most honorable and wise. In spite of the many challenges I have faced in life, they continue to encourage me to be everything God has intended for me to accomplish. All in all, these four great human beings are not only family but also my best friends. Their lives have inspired me to move forward and to never give up.

"I never teach my pupils.

I only attempt to provide the conditions in which they can learn"

--Albert Einstein

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Table of Contents

Table of Contents ..... **v**

List of Tables ..... **ix**

List of Figures ..... **x**

Abstract ..... **xi**

Chapter 1 ..... **1**

Introduction **1**

Research Problem **2**

Purpose of the Study **3**

Hypotheses and Research Questions **3**

Research Approach **4**

Limitations **4**

Organization of the Dissertation **4**

Chapter 2 ..... **6**

Review of Literature **6**

Definition of SESRL **7**

Self-Efficacy 8

Self-Regulated Learning 9

Self-Efficacy for Self-Regulated Learning (SESRL) **10**

Self-Regulation Cycle: A Three-Phase Personal Process **13**

Forethought Phase 14

Performance Phase 15

Self-Reflection Phase 17

Empirical Evidence 19

Conceptual Framework 23

PNT: School Contexts and SESRL 23

Rationale and Hypotheses 37

Chapter 3 40

Research Method 40

Design 40

Data Source: District Context 41

Sample 41

Data Collection 41

Measures 42

Autonomy Support (AS) Measure 42

Competence Support (CS) Measure 43

Relational Support (RS) Measure 44

Self-Efficacy for Self-Regulated Learning (SESRL) Measure 44

Analytical Technique 45

Assumptions 45

Random-Effects ANOVA 45

Random Coefficients Regression 46

Random-Effects ANCOVA 47

Key for Analytical Technique Equations 48

Chapter 4 50

Findings 50

Descriptive Statistics 50

Table 2 *Correlation Matrix for the Dimension Support Theory* 52

Hierarchical Linear Modeling (HLM) Results 52

Summary 58

Chapter 5 60

Discussion and Conclusions 60

Explanation of Findings 61

Hypothesis 1 61

Key Findings 67

Implications 70

References 72

Appendix A **..... 84**

Appendix B **85**

Appendix C **86**

Appendix D **87**

Appendix E **88**

Appendix F **89**

List of Tables

Table 1 *Descriptive Statistics for Student-and School-Level Variables*..... 51

Table 2 *Correlation Matrix for the Dimension Support Theory* 52

Table 3 *HLM Results: Random Effects ANCOVA – Effects of School Dimensions & Covariates on Self-Efficacy for Self-Regulated Learning* 55

List of Figures

Figure 1. Self-efficacy and self-regulated learning components that make up SESRL..... 8

Figure 2. Cyclical view of self-regulated learning..... 13

Figure 3. Conceptual framework: Analytical model of school social contexts . 25

Figure 4. Continuum displaying types of motivations..... 27

Figure 5 Changes in Self-Efficacy for Self-Regulated Learning..... 57

Figure 6 Changes in Self-Efficacy for Self-Regulated Learning..... 57

Abstract

Purpose. The purpose of this research was to examine the relationship between school conditions (namely: autonomy support, competence support, and relational support) and student self-efficacy for self-regulated learning (SESRL) through the lens of psychological needs theory.

Method. This study used de-identified data from 949 students nested in 79 elementary and secondary schools in an urban school district. Using HLM 7, three models were produced. First, a one-way random-effects ANOVA was used to partition self-efficacy for self-regulated learning variance into student and school factors. Second, a random coefficient regression model was used to assess the influence of poverty and minority status on self-efficacy for self-regulated learning. Third, while statistically controlling for student background characteristics, a Random-Effects ANCOVA model was used to assess whether self-efficacy for self-regulated learning was equivalent across the three school level predictor variables: autonomy support, competence support, and relational support.

Results. Findings indicate that self-efficacy for self-regulated learning does vary across urban schools, with the strongest predictor of self-efficacy for self-regulated learning being relational support, followed closely by competence support, and lastly influenced by autonomy supportive conditions.

Implications. Educators can develop school conditions that promote student self-efficacy for self-regulated learning.

Keywords. Autonomy support, competence support, psychological needs, relational support, school conditions, self-efficacy, self-regulation, self-regulated learning, self-efficacy for self-regulated learning, urban schools.

Chapter 1

Introduction

Urban schools in the United States are failing. They are not producing high levels of achievement, and consequently are not preparing students for advanced studies (Gates 2005; Harvey & Housman, 2004). At the turn of the millennium, when comparing United States schools to those of other nations, the graduation rate among American schools was ranked 16 out of 21 by the Organization for Economic Co-Operation and Development (Kirsch, Braun, Yamamoto, & Sum, 2007). Thus, school reinvestment advocates are calling for the reinvention of the American education system (Kahne, Sporte, Torre, & Easton, 2008).

Evidence suggests that urban schools struggle with knowing how to handle students' developmental transitions along with the socio-economic and diverse cultural challenges their students bring to school (Borman & Rachuba , 2001; Caprara et al., 2008; Higgins, 1991; Zimmerman & Cleary, 2006). What is more, the reason urban schools are not successful has been associated with their failure to address the needs of economically disadvantaged and culturally diverse students (Conchas & Rodriguez, 2008; Echevarria, Vogt, & Short, 2008; Planty et al., 2009; Tikly, Caballero, Haynes, & Hill, 2004). Moreover, American urban schools continue to experience dramatic student disengagement, which can be linked to the social context generated within the school setting (Furrer & Skinner, 2003; Hughes & Chen, 2011).

Academic success may be tied to the development of self-regulated learning (Partnership for Learning, 2010). Self-regulated learning refers to learning that occurs when students choose to plan and sustain behaviors that include self-generated thoughts,

feelings, and actions to reach personal goals (Zimmerman, 2005). Thus, a possible or partial explanation for widespread low academic performance may be due to school failure in nurturing student capacity to self-regulate their learning. Student development of self-efficacy for self-regulated learning can lead students to success in school settings (Zimmerman & Cleary, 2006; Zimmerman & Kitsantas, 2007). The relationship of self-efficacy to self-regulated learning has been associated with structured environments (Caprara et al., 2008). Evidence is growing that student capacity to self-regulate is positively related to safe school environments (Pastorelli et al., 2001). Therefore, it seems useful to explore the relationship between classroom social conditions and the formation of self-efficacy for self-regulated learning as it relates to student achievement. This research is of particular relevance because it will add evidence about the relationship between the social context of schools and student confidence (i.e. motivation).

Research Problem

It is speculated that school conditions can contribute toward increasing student self-efficacy for self-regulated learning. The conceptual framework is based on self-determination literature, especially psychological needs theory (PNT), to explain how school conditions can foster self-efficacy for self-regulated learning (SESRL) (Connell & Wellborn, 1991; Ryan & Deci, 2000a; Reeve, Jang, Carrell, Jeon, & Barch, 2004; Reeve, Ryan, Deci, & Jang, 2009; Skinner & Belmont, 1993). Through the lens of PNT, it can be deduced that self-efficacy for self-regulated learning increases when student psychological needs (i.e., autonomy, competence, and relatedness) are met by the school dimensions of autonomy support, competence support, and relational support.

This study begins by reviewing the relevant literature on self-efficacy for self-regulated learning, explicating its development within students and presenting the personal attributes and processes that students experience through the self-regulation cycle. These sections are followed by the study's conceptual framework which uses PNT to explain the relationship between school conditions and self-efficacy for self-regulated learning. The study concludes with an analysis of results and a discussion.

Purpose of the Study

The purpose of this study is to explore the relationship between autonomy support, competence support, and relational support and self-efficacy for self-regulated learning. This study is important because the existence of a relationship between these school dimensions and self-efficacy for self-regulated learning can influence the practice of school professionals in terms of their efforts to motivate children in high poverty schools. In addition it may guide policymakers to support transformational models that aid teachers and school leaders in establishing optimal school conditions that will support learning.

Hypotheses and Research Questions

To understand the relationship between school conditions in an urban school setting and self-efficacy for self-regulated learning (SESRL), the following hypotheses will be tested:

H1: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

H2: Socio-economic status and ethnic diversity moderate the effects of autonomy support, competence support, and relational support on self-

efficacy for self-regulated learning.

Research Approach

This study is guided by self-determination theory, specifically PNT. The study of self-efficacy for self-regulated learning requires understanding the motivational approaches self-systems play in facilitating self-regulated learning (Schunk, 2012; Schunk & Zimmerman, 1994; Zimmerman & Schunk, 2009). Student development is based on perceived self-efficacy for self-regulated learning (Klein & Kozlowski, 2000; Vogt, 2007). The research approach used a hierarchical linear model (HLM), also known as multilevel modeling (MLM) to analyze the data. According to Vogt (2007), the HLM model was designed to estimate the degree or size of the contribution each variable interjects at different levels of regression. That is, the unique contribution of each predictor variable was determined in the study by factoring out its shared variance.

Limitations

As a cross sectional study, causal relationship could not be tested. Cross sectional data were collected from schools within a single urban school district. Consequently, generalization of findings to other environments (urban, rural or suburban) should be done with great caution.

Organization of the Dissertation

Chapter I introduces how this study explores the relationship between the social context of urban schools and student self-efficacy to regulate learning. The problem statement is provided, and its reliance on self-determination theory is established. Chapter I of the study also provides the purpose and significance of the research.

Chapter II of the study provides a review of the literature outlined as follows: 1) Definitions and descriptions of self-efficacy for self-regulated learning, 2) Explanation of the self-efficacy for self-regulated learning cycle, 3) The conceptual framework grounded in psychological needs theory (PNT).

Chapter III describes the research design and justification for choice of method. Included in this chapter are: data source, district context, population and research sample, data collection, measures, and analytical technique.

Chapter IV presents descriptive and analytical results of Random Effect ANOVA, Random Coefficient Regression, and a multi-step Random Effects ANCOVA.

Chapter V concludes with explanations of findings and implications for practice.

Chapter 2

Review of Literature

Urban schools in the United States continue to experience a dramatic failure rate in multiple grade levels (Kahne et al., 2008; Kirsch, Braun, Yamamoto, & Sum, 2007). Failure continues to be on the rise partly because schools do not know how to address the developmental changes that children face as they transition from elementary to middle and then to high school. It is also difficult for schools to deal with the societal shifts that are exemplified by the changes in community demographics, socio-economic status, and family dynamics (Skinner & Belmont, 1993; Caprara et al., 2008; Higgins, 1991; Pastorelli et al., 2001). Thus, urban schools are in need of reinvention, and researchers, policy makers, school leaders, along with other concerned citizens, are motivated to find solutions to the challenges that urban schools face (Kahne et al., 2008).

Amidst the different transformational models there are those that for decades have focused on student motivation and learning. Reigeluth (1999), Schank and colleagues (1999), and more recently, Jensen (2009) have pressed for educational reform where teachers engage students as active participants in the construction of their learning by using authentic, real-world tasks and goal orientation (Corno & Randi, 1999; Glick, 2011; Partnership for Learning, 2010; Reigeluth, 1999). However, research on student learning reports that motivating students is difficult, and motivation tends to decline from the pre-kindergarten year through the senior year of high school (Skinner & Belmont, 1993). In addition, research on classroom learning environment and student motivation suggests that influences within the school social setting can affect

student learning and development (Bandura et al., 2003; Darling-Hammon et al., 2007; Schunk, 2009; Schunk & Zimmerman, 2007). Yet, little is known of the relationship between school conditions in urban settings and student self-efficacy to self-regulate learning.

Healthy school conditions can provide students with the confidence to process, discern, motivate, and act when students set goals towards improved learning outcomes (Zimmerman & Kitsantas, 2007). The following section explains self-efficacy for self-regulated learning (SESRL) by first defining it. Second, personal attributes and a three-phase process of the individual self-regulatory process are described. Third, the premise that supportive school conditions can foster self-efficacy for self-regulated learning is presented relying on psychological needs theory (PNT).

Definition of SESRL

It is necessary to understand two constitutive properties grounded in Bandura's (1996) social cognitive theory to explain self-efficacy for self-regulated learning. Self-efficacy and self-regulated learning combine to form self-efficacy for self-regulated learning. Self-efficacy for self-regulated learning embodies 1) student self-beliefs about the capability to learn or perform tasks, activities, or behaviors at designated levels, and 2) confidence in the capability to use various self-regulated learning strategies (Pajares, 1997, 2002c; Schunk, 2012; Wigfield & Wagner, 2005). Thus, the self-efficacy for self-regulated learning construct unites self-efficacy (e.g., self-belief in one's capabilities and confidence in performing tasks) with self-regulated learning (e.g., student capacity of cognition, strategizing, and motivation) to shape student behavior. These components are presented graphically in Figure 1.

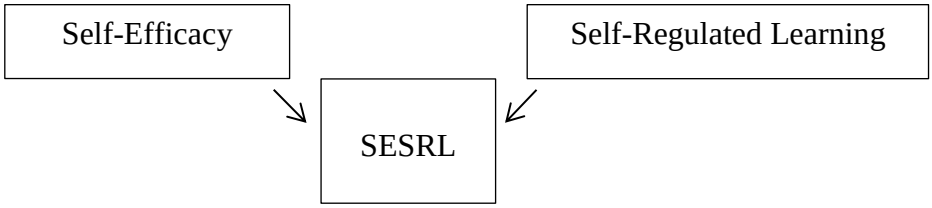

Figure 1. Self-efficacy and self-regulated learning components that make up SESRL. *Note.* SE = Self-Efficacy; SRL = Self-Regulated Learning; SESRL = Self-Efficacy for Self-Regulated Learning.

Self-Efficacy

Self-efficacy theory has been applied to education, health, business, sports, and interpersonal relations (Bandura, 1977, 1997; Schunk & Pajares, 2007). Bandura (1977) refined self-efficacy theory at least four times within the span of 20 years. He first described SE as an "efficacy expectation," which he defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (p. 193). In 1994, Bandura described SE "as people's beliefs about their *capabilities* to produce designated levels of performance that exercise influence over events that affect their lives" (p. 71). Later in 1995, Bandura described SE as "the belief in one's *capabilities* to organize and execute the courses of action required to manage prospective situations" (p. 2). Finally, Bandura (1997) revised the definition of SE to perceived self-efficacy which "refers to beliefs in one's *capabilities* to organize and execute the courses of action required to produce given attainments" (p. 3). All of the definitions refer to self-efficacy as a belief in one's capability to organize, perform, or attain an action, outcome, or goal.

While Bandura's definitions appear to be particularly useful, to best fit the purpose of this research, the SE definition for this study reflects Schunk' s (2012) definition. Self-efficacy refers to "personal beliefs concerning the individual's capabilities to organize and implement actions necessary to learn or perform behaviors at designated levels" (Schunk, 2012, p.498). Pajares (2009) adds that self-efficacy is a belief that provides the foundation for human motivation (to instigate and sustain goal-directed behavior), well-being, and personal accomplishment. In schools, SE is about student confidence in their ability to perform certain behaviors; those behaviors are influenced by the capacity to self-regulate learning. This capacity to self-regulate learning refers to ways students may approach problems, apply strategies, and monitor performance to reach desired outcomes or goals (Paris & Winograd, 2001).

Self-Regulated Learning

The term self-regulated learning (SRL) became popular in the 1980s because it emphasized the emerging autonomy and responsibility of students to take an active role in their own learning (Paris & Winograd, 2001). Scholars (e.g., Pintrich & De Groot, 1990; Reeve, Ryan, Deci, & Jang, 2009; Zimmerman, 2000) recognized that self-regulation is a process that requires the organization and control of capacities that include thoughts, emotions, behaviors, and social contextual surroundings. More specifically, for the proposed study, SRL is defined as "the degree to which students are metacognitively, motivationally, and behaviorally active participants in their own learning process" (Zimmerman, 2008, p. 167). Overall, three central SRL concepts interact to explain the ways individuals approach problems, apply strategies, monitor

self-performance, and interpret outcomes: Student cognition (i.e., awareness of thinking), sustained motivation, and use of strategies (Paris & Winograd, 2001).

Thus, a self-regulated student is pro-active and determined to learn. A self-regulated learner is also "aware of his strengths and limitations [and is] guided by personal set goals and task-related strategies" (Zimmerman, 2002, p. 66). Such a learner possesses a propensity for "thinking about his thinking" or metacognition (Zimmerman & Cleary 2006; Zimmerman & Kitsantas, 2007). While metacognition is also referred to as self-management of learning and its antithesis is "the helpless dependency of the student" (Resnick & Hall, 2003, p.25), both concepts, self-management of learning and SRL focus on the understanding and application of knowledge (Bransford, Brown, & Cocking, 1999, 2000). For the purpose of this study, it suffices to recognize that these concepts have become increasingly muddled because of their loose definitions (Dinsmore, Alexander & Loughlin, 2008). To help differentiate these terms, according to Dinsmore and colleagues (2008), metacognition primarily considers the student mind as "the initiator or trigger for subsequent judgments or evaluations" (p. 405), whereas SRL relies on the environment to stimulate student awareness and regulatory responses for academic learning (Baxter & Glaser, 1998; Campione, Brown, Connell, 1988; Paris & Winograd, 2001; Resnick & Hall, 2003).

Self-Efficacy for Self-Regulated Learning (SESRL)

Pajares (1997, 2002c) held that in schools, students must decide what it is that they will do with the knowledge and skills they acquire in their classes. As students self-reflect and organize what they have done to reach their goals, they are also establishing self-efficacy beliefs that can mediate academic achievement and can enable

them to self-regulate their future behaviors (Bandura, 1986; Pajares, 2000; Zimmerman, 2000). Thus, fundamentally, the depiction of the self-regulated learner illustrates a student who is confident or self-efficacious in his/her capabilities to manage the action(s) required to learn or perform tasks, activities, or behaviors at designated levels (Schunk & Pajares, 2007). For the purpose of this study, self-efficacy for self-regulated learning (SESRL) is defined as the measure of the students' confidence in their capability to use various self-regulated learning strategies that contribute to their motivational beliefs and their performance toward the attainment of expected outcomes (Bandura, 2006; Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Pajares, 2002b; Pajares & Valiente, 2001; Zimmerman & Bandura, 1994; Zimmerman & Martinez-Pons, 1990; Zimmerman, Bandura, & Martinez-Pons, 1992).

Self-regulated students can comprehend with confidence what tasks they are capable of accomplishing, and choose strategies to achieve goals, while also regulating their efforts and attitudes in the school setting (Zimmerman, 1998, 2005). For example, students can choose to use imagery to recall information such as acronyms, mnemonic devices, and visual maps. Also, students can choose to adjust how much effort and time they devote to preparing their assignments, studying for tests, preparing projects, and they can request to be seated in an area that better accommodates their needs. Ultimately behaviors that stimulate students' confidence to self-regulate their learning are based on self-efficacy beliefs which have been found to be sensitive to mastery and vicarious experiences of their home and school environments (Usher & Pajares, 2008a; Zimmerman, 1989, 2000).

Pajares (1997) argued that schools should consider student self-beliefs even more powerful than their knowledge or skills as future academic predictors. More specifically, the more confident students are about themselves, the greater is the possibility students will achieve desired goals. For instance, Pintrich and De Groot (1990), in a correlational study of seventh graders enrolled in science and language art classes, examined the relationship between self-efficacy for self-regulated learning and classroom academic performance. They found that self-beliefs had an intervening role in relation to cognitive engagement. They noted that the greater the use of cognitive strategies by the students, the greater the likelihood of their improved achievement. When students felt confident about their abilities to accomplish a task they tended to use helpful strategies. Earlier, Jennifer Collins (1982) examined the self-efficacy contribution to skill utilization by students at three levels of mathematical ability—low, medium, and high. Within each level, she found a range of confidence in mathematical self-efficacy beliefs. Positive attitudes toward mathematics were better predicted by student self-efficacy than by their actual ability.

In essence, a self-regulated learner is a student who, with confidence, effectively exercises self-efficacy to self-regulate his/her learning (Zimmerman, 2009; Zimmerman & Cleary, 2006; Zimmerman & Kitsantas, 2007). Student self-efficacy for self-regulated learning is shaped by self-efficacy beliefs in capabilities, which stem from mastery and vicarious experiences. In addition, efficacy beliefs can be specific to goals already established or to new goals and include judgments about confidence (Zimmerman & Cleary, 2006). Efficacy beliefs can be perceived as personal attributes that guide behavior and consequently reflect student strategies (Pajares, 2000, Pajares &

Urdan, 2006). How much effort students exert to reach set goals depends partly on their self-regulatory abilities and capacities (Bandura, 1986; Pajares, 1997).

Self-Regulation Cycle: A Three-Phase Personal Process

Self-efficacy beliefs interact through the three linked phases of the self-regulation cycle: forethought, performance, and self-reflection (Bandura, 1986; Pintrich, 2005; Schunk, 2012; Zimmerman, 1998, 2005; Zimmerman & Campillo, 2003; Zimmerman & Cleary, 2006) (See Figure 2). The phases of this cycle have been examined by scholars such as Pintrich (2005), Zimmerman and Campillo (2003), and Zimmerman and Cleary (2006). Nevertheless, it is highly likely that self-efficacy beliefs and the process within the cycle of self-regulation can be affected by the social conditions of the classroom.

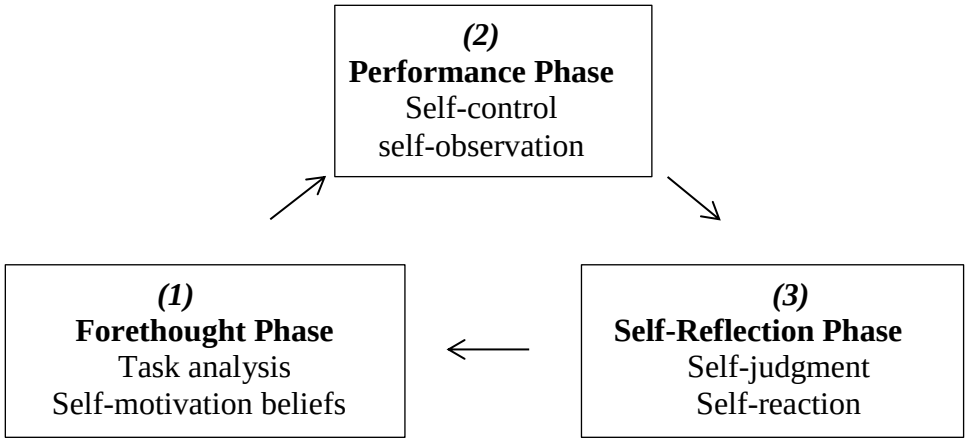

Figure 2. Cyclical view of self-regulated learning.

Note. From "The Hidden Dimension of Personal Competence." In Andrew J. Elliot and Carol S. Dweck (Eds.), *Handbook of Competence and Motivation* (p. 515) by Zimmerman and Kitsantas, 2007, New York: The Guilford Press. Copyright [2003] by Cambridge University Press. Adapted.

Forethought Phase

Individuals have the capability to plan and strategize. According to Pajares (2002a), thoughtfulness is rated highly as a fundamental human capacity because people have the unique opportunity to be thinking creatures who are intuitive, planning ahead to anticipate challenges and opportunities as well as consequences of actions. The forethought phase includes task analysis and self-motivation beliefs (Zimmerman, 2009).

Task analysis. Task analysis takes two key forms, goal setting, and strategic planning. Proactive students tend to "set goals that are more specific, proximal, hierarchically integrative, and challenging" (Zimmerman, 2009, p. 280). These students are considered proactive learners because they are more likely to self-regulate learning effectively and engage in high-quality forethought. Their proactive behavior improves self-regulatory functioning during the two subsequent phases (Zimmerman, 2009; Zimmerman & Kitsantas, 2007). The second key form, strategic planning is closely related to goal setting (Zimmerman, 2009). Setting stimulating goals and selecting the proper strategies to attain them are as important as knowing when to alter the goals or strategies. For example, Grant and Dweck (2003) studied goal setting to predict motivation and performance among pre-med college students as they entered a required and demanding chemistry course. They noted that as the course began, students with strong learning goals were no more skilled than other students. Nonetheless, during the length of the course, these students exhibited a greater use of SRL strategies, resulting in better performance, which produced a healthy sense of SRL and a robust feeling of self-motivation.

Self-motivation beliefs. The self-regulatory process is self-initiated and as such there are motivational beliefs such as self-efficacy, outcome expectations, and task interest or value that influence student engagement in subject matter (McInerney, 2009; Zimmerman, 2009). Reasonably, teachers should work toward making learning fun, interesting, and experiential, while taking into consideration the importance of promoting student goals (Schunk, 2012). The underlying principle is that engaging teacher behavior influences student intrinsic motivation by increasing expectations regarding learning outcomes and also by meeting school expectations (Pajares, 2002a). When students are motivated to identify and integrate school values, their commitment to the development of self-regulated learning increases. The opposite is true if the students do not find value or interest in their course work (Connell & Wellborn, 1991; Reeve, Ryan, Deci, & Jang, 2009; Ryan, Connell, & Grolnick, 1993; Schunk, 2012).

Performance Phase

Three decades of research show that the actions undertaken in phase two, the performance phase (i.e., volitional control)**,** are ignited by autonomous, intrinsically motivated beliefs fueled by feelings of efficacy and competence (Zimmerman, 2000, 2009). That is, within the first phase, forethought, individuals set intrinsic goals and begin to plan action(s)/performance strategically (Schunk, 2012). This second phase includes two major types of performance: self-control and self-observation (Schunk 2012; Zimmerman, 2009).

Self-control. Learners can plan self-control methods to enhance learning and performance. These methods are influenced by goals that students set during the forethought phase and are designed to improve student focus on learning outcomes

(Zimmerman, 2009). Zimmerman (2000, 2009) describes three self-control methods. First, task strategies refer to strategies that break down complex processes and re-organize them into a systematic performance sequence. Second, attention focusing refers to methods used by learners to concentrate while avoiding interruptions (e.g., using earplugs when studying). Third, self-instruction refers to learners using self-verbalization methods or private speech (i.e., aloud whispering, internal speech) to assist themselves in remembering information, rules and strategies (Schunk, 1986).

Self-observation. This second form of performance (Schunk, 2012; Zimmerman, 2009; Zimmerman & Kitsantas, 2007) includes metacognitive monitoring and overt behavioral self-recording. First, metacognitive skills have been described as a special form of appraisal, that is, personal assessment of cognitive processes, including views of self-control (Matthews, Schwean, Campbell, Sakofske, & Mohamed, 2005). These thinking skills have also been referred to as "people's understanding and control of their own cognition" (Sternberg, 2007, p. 18). However, students who believe they are capable of performing academic tasks use more cognitive, self-recording and metacognitive strategies, compared to those who do not practice self-efficacy for self-regulated learning. For example, Pintrich and De Groot (1990) found, through the use of metacognitive strategies, there is a connection between self-efficacy and self-regulated learning as well as between self-efficacy and cognitive strategy (Pajares 2000). Hence, students confident in their self-regulated learning processes can persist, regardless of previous achievement or ability.

Self-recording is a second strategy within self-observation and involves overt behavior such as, keeping learning logs, charts, portfolios, graphs, and diaries

(Zimmerman, 2009). Essentially more successful self-regulated learners record information in a meaningful, accurate non-intrusive manner, providing extensive data to determine progress or to identify gaps in learning (Zimmerman & Kitsantas, 2007). Self-recording is accomplished through the observation of patterns and environmental conditions and is associated with behaviors being tracked or observed (Zimmerman & Martinez-Pons, 1986; 1988). In this way, students can respond and modify their strategies (Zimmerman 2009). Individuals who set goals for themselves (first phase: forethought) and willingly practice self-control (second phase: volitional phase) tend to strategize and exert the necessary effort to reach their goals successfully. The final phase of the self-regulation cycle is self-reflection.

Self-Reflection Phase

During the self-reflection phase students judge and react to their task execution by comparing the outcome(s) to the previously established criteria set forth either by them or the teacher (Torrano Montalvo & Gonzalez Torres, 2004). According to Zimmerman (2009), there are two major types of self-reflection: self-judgment and self-reaction.

Self-judgment. During self-judgment, students evaluate their performance and review how successful they have been in making self-regulated choices. This phase is linked with the forethought phase during which proactive learners examine their progress toward goal attainment. This self-regulatory process allows them to decide the degree of involvement in self-regulation (Schunk, 2012; Zimmerman, 2009). Those who are effectively managing their experiences (e.g., social modeling, social pressures, as well as various other forms of social influences) are inclined to develop further

strategies leading to strong self-efficacy beliefs. These positive beliefs become salient when students self-regulate learning (Bandura et al., 2003; Schunk, 2012).

Self-reaction. The second type of self-reflection is self-reaction. Zimmerman and Kitsantas (2007) explained that self-reaction embodies self-satisfaction or affective perceptions regarding performance as well as adaptive or defensive inferences. These inferences are conclusions about how one should approach next steps. More specifically, student self-reactions influence future behavior, and their emotions dictate what and how urgent these actions should take place (Carver & Scheier, 2007; Torrano Montalvo & Gonzalez Torres, 2004). According to Carver and Scheier (2007), positive feelings arise when students perceive that they are doing better at moving towards their goals; negative feelings arise when they are doing worse in moving towards their goals. Negative feelings can produce frustration, irritation, anxiety, and anger. These affective responses can undermine self-efficacy beliefs since the more reliable and proximal the experiential source is, the greater its influence on self-efficacy for self-regulated learning. In addition, Carver and Scheier (2007) ascertained that the optimal state of emotional being is one in which the arousals or stimulations are neither too high nor too low. Positive reflection of past performance motivates individuals to reach set goals. When goals cannot be reached, the experience produces distress, and individuals tend to stop striving toward the goals. However, when individuals find value in moving forward, even under duress, they must balance discomfort and perseverance towards reaching the goals.

Even though the cyclical interdependence of its elements is not well understood, it seems reasonable that the process within the self-regulation cycle incorporates an

individual's efficacy beliefs and motivation to reach outcomes/goals (Pintrich 2005; Zimmerman and Campillo, 2003; Zimmerman & Cleary, 2006; Zimmerman & Kitsantas, 2007). This interconnection is exemplified during the forethought phase when students first set goals by taking into consideration their self-efficacy and motivational beliefs (Zimmerman, 2009). In the performance phase, proactive learners who are aware of what they are capable of accomplishing exert self-control and self-observational strategies whereby students can take charge of their cognitive abilities. These students tend to be successful in achieving goals (Sternberg, 2007; Zimmerman & Kitsantas, 2007). In the last phase of the cycle, reflection, students think about their accomplishments and compare them to the goals set earlier and decide the degree to which they are willing to be involved in the process of self-regulation (Schunk, 2012; Zimmerman, 2009; Zimmerman & Kitsantas, 2007). Hence, the self-regulation cycle continues to repeat itself. However, according to Zimmerman and Kitsantas (2007), students who are unwilling to interact socially are not as likely to be as successful in self-regulating their learning as those who learn vicariously from their social environment.

Empirical Evidence

While the literature does not explain the relationship between school conditions (namely, autonomy support, competence support, and relational support) and student self-efficacy for self-regulated learning, it does emphasize the importance of student motivation. Ryan, Connell, and Grolnick (1993, p. 167) argued that "the central problem of all education is that of fostering students' motivation to learn." Yet, in spite of the potential of increasing levels of self-efficacy for self-regulated learning in raising

student self-efficacy for academic achievement, many urban schools fail to motivate students (Caprara et al., 2008; Higgins, 1991; Klassen, 2010; Pastorelli et al., 2001; Zimmerman & Bandura, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992). Evidence suggests that urban schools struggle with knowing how to handle student developmental transitions along with the socio-economic and diverse cultural challenges their students bring to school (Borman & Rachuba, 2001; Caprara et al., 2008; Higgins, 1991; Zimmerman & Cleary, 2006).

Usher and Pajares (2008a) found in a study of 4th to 11th graders that, as students progressed through school levels, their confidence to self-regulate their capabilities decreased. They suggested that self-efficacy perceptions decrease as students advance from lower grades to higher grades, and recommended that schools teach students how to organize and regulate their academic routines effectively. In the transition from elementary to middle school, students are more attentive to social comparative information as they begin to encounter taxing environments that can affect their self-efficacy for self-regulated learning (Caprara et al., 2008; Eccles, Midgley, & Adler, 1984; Higgins, 1991; Zimmerman & Cleary, 2006). Pajares and Valiente (2002) assessed student self-beliefs and found that self-efficacy for self-regulated learning decreased as they progressed from elementary school to high school. This suggests the need for teachers to be cognizant of student developmental transitions through school life (Usher & Pajares, 2008b).

In urban school settings, where the majority of students come from low-socioeconomic households [44% of the students enrolled in US public schools in 2007 were at or below poverty level (Planty et al., 2009)], self-efficacy for self-regulated

learning may be difficult to nurture. Zvoch (2006) maintained that the background of students who tend to be alienated emotionally and physically from school is associated with economic disadvantage. Since poverty is a proximal and experiential aspect of these students background, their affective responses (i.e., emotional and physical alienation) can undermine self-efficacy beliefs (Carver & Scheier, 2007). Consequently, their attitudes and behaviors related to self-efficacy for self-regulated learning are characterized by failure to participate fully in the curriculum, by not engaging in the classroom or interrupting the classroom, truancy, absenteeism, and dropping out (Voelkl, 1997; Mitchell & Forsyth, 2004). Caprara and colleagues (2008) and Klassen (2010) also found that low socioeconomic students tend to have lower confidence in their ability to use self-regulated learning tools.

Regarding diverse cultural background, there exist differing views. Borman and Rachuba (2001, p.6) who researched the academic success of poor and minority students "suggested that minority students from [low-socioeconomic] backgrounds were exposed to greater risks and fewer resilience-promoting conditions than otherwise similar [low-socioeconomic] [Caucasian] students." They concluded that minority students who were poor and were exposed to school environments that were less conducive to academic resilience were inclined to have lower levels of internal locus of control and academic self-efficacy. However, findings from Caprara and colleagues (2008) differed. Their study was based in the Italian educational system as they researched the role of perceived self-efficacy for self-regulated learning in academic continuance and achievement. Findings from this study favored the generalizability of self-efficacy for self-regulated learning among students who are either from

individualistic or collectivistic cultural systems. In addition, this study concluded that when students from culturally different backgrounds possess a resilient sense of self-efficacy, they would do as well as their fellow non-minority students (See Bong, 2001; Lent, Brown, Nota, & Soresi, 2003).

Another challenge facing urban schools is that many teachers do not share similar life experiences, ethnicity, and economic background with their students (Bransford, Brown, & Cocking, 1999, 2000). Ladson-Billings (1995) suggested that schools need to be more culturally appropriate, culturally compatible, and culturally relevant in order to build on prior knowledge, forming links between what is familiar to the students. It has been suggested that, for schools to foster self-efficacy for self-regulated learning, teachers need to consider student cultural background and become culturally responsive by being mindful, respectful, and understanding of their life experiences (Duckworth, 1987). Klassen (2010) said that teachers must work toward getting to know their students and assisting them to develop the tools needed to self-regulate their learning.

In sum, self-efficacy for self-regulated learning encompasses self-generated thoughts, feelings, and behaviors that are planned and carried out through the self-regulation cycle. This cyclically adapted process depends on feedback, such as test grades provided to students by teachers (Cleary, Platten, & Nelson, 2008). Moreover, self-efficacy beliefs and student motivation are essential to this process (Zimmerman & Cleary, 2006). This is because students possess personal attributes that affect the self-regulation cycle and guide student planning and strategizing for learning.

There is evidence that self-efficacy beliefs, motivation, and developmental transitions from grade school to middle school and then to high school are influenced by socio-economic status and cultural backgrounds (Caprara et al., 2008; Eccles, Midgley, & Adler, 1984; Higgins, 1991; Zimmerman & Cleary, 2006). However, much educational research has focused primarily on school policies and teacher behaviors that promote student motivation and not on student life experiences and/or educational context that motivate learning (Ryan, Connell, & Grolnick, 1993; Skinner & Belmont, 1993).

Conceptual Framework

Despite solutions suggested by research, urban schools are not increasing student interest in school-related goals and values partly because they continue to ignore supportive school conditions that foster self-efficacy for self-regulated learning (Skinner & Belmont, 1993; Zimmerman & Kitsantas, 2007; Zvoch, 2006). Schools need to account for student self-efficacy for self-regulated learning. Although the prevailing literature fails to explain the link between school conditions and self-efficacy for self-regulated learning, through the lens of psychological needs theory (PNT) this relationship may become clear.

PNT: School Contexts and SESRL

Psychological needs theory (PNT) is one of the three interconnected mini-theories of self-determination theory (SDT); the other two are cognitive evaluation theory and organismic integration theory. The SDT framework suggests that all students regardless of their background, abilities, and/or challenges (e.g., ethnicity, poverty) possess psychological needs that can potentially motivate self-efficacy for self-regulated learning (About the Theory, SDT website, 2012; Reeve, Ryan, Deci, & Jang,

2009). PNT further explains how students can benefit from diverse social contexts (i.e., classroom experiences) that are supportive of individual self-system processes (Deci & Ryan, 2000).

Social context. PNT sheds light on defining and addressing the social contexts that best permit or thwart student ability to obtain the supportive conditions essential to satisfy psychological needs. These psychological needs (i.e., autonomy, competence, and relatedness) make up the individual's self-system processes (Connell & Wellborn, 1991; Deci & Ryan, 2000; Ryan & Deci, 2000b). Accordingly, PNT proposes three dimensions within the school social context that directly influence the development of the student self-system processes. While Connell and Wellborn (1991) referred to these dimensions as autonomy support, structural support, and involvement support, these are directly related to PNT and are referred to in the literature as autonomy support, competence support, and relational support (Deci & Ryan, 1996, Ryan & Deci, 2000a). These three dimensions (See Figure 3) are viewed as essential in constructing school conditions, which are fostered by teacher behavior and instructional style, and lead to the development of individual self-efficacy for self-regulated learning (Jang, Reeve, & Deci, 2010; Reeve, Bolt, & Cai, 1999).

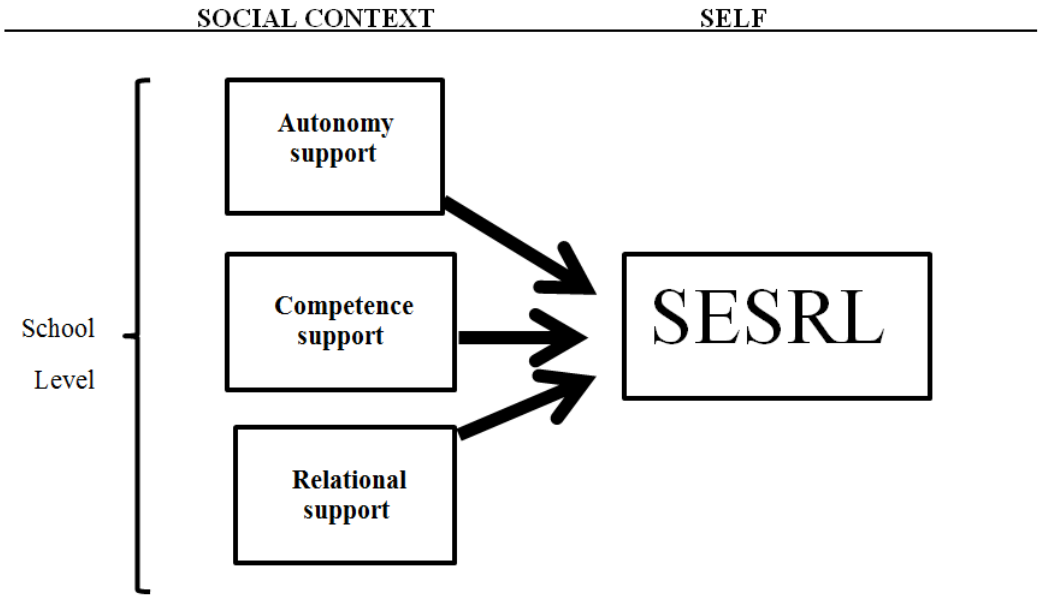

Figure 3. Conceptual framework: Analytical model of school social contexts that foster self-efficacy for self-regulated learning.

Note. SESRL = self-efficacy for self-regulated learning.

Autonomy Supportive Context

An autonomy-supportive context is manifested through the interpersonal behavior that teachers develop with students. This dimension stresses avoidance of external forms of control (Deci & Ryan, 1985; Reeve, Ryan, Deci, & Jang, 2009; Vansteenkiste et al., 2012). PNT research has demonstrated that, within the self-regulation cycle, the content of student intrinsic and extrinsic goals influences behavioral and well-being outcomes, superseding other regulatory influences (Moller, Ryan, & Deci, 2006). For example, Dweck and Master (2009) recognized that the first step in effective self-regulated learning is for students to possess the internal desire to learn. This internal desire is hypothesized to ignite self-regulated learning (Schunk,

2012) through which a student can achieve social, behavioral, and academic success (Bretherton, 1991; Connell & Wellborn, 1991; Deci & Ryan, 2000; Skinner, 1991). When students are intrinsically motivated, they project autotelic or autonomous behavior (e.g., students do something because it interests them and for self-satisfaction).

Autonomy is defined as "the experience of choice in the initiation, maintenance and regulation of activity and the experience of connectedness between one's actions and personal goals and to values" (Connell & Wellborn, 1991, p. 51). In an autonomy supportive context, student autonomy is fostered through interpersonal conditions when the teacher avoids using external rewards, and pressures (Reeve, Ryan, Deci, & Jang, 2009; Skinner and Belmont, 1993), also known as extrinsic motivators (Ryan, Connell, & Grolnick, 1993). Teachers in general, despite their years of experience, are often unfamiliar with what is necessary to facilitate an autonomy supportive context and, whether intentionally or not, tend to use rewards to control student motivation (Newby, 1991; Reeve, Jang, Carrell, Jeon, and Barch, 2004). Examples of autonomy-suppressing behaviors are intruding (e.g., teacher behavior that interferes with student method of learning), and forcing activities students view as meaningless and uninteresting such as assigning homework or class activities that are boring or irrelevant (Assor, Kaplan, & Roth, 2002). Reeve and colleagues (2004) pointed out that teachers engage in behavior controlling strategies in part because of external pressures from high stakes testing policies.

PNT proposes that extrinsic motivation (See Figure 4) can generate different levels of autonomous behavior through a continuum of internalization (Ryan, Connell, & Grolnick, 1993). Internalization is a process that relies on how much importance or

value students place on desired goals. The measure of autonomy varies at different regulation levels depending on the perceived locus of causality (Ryan, Connell, & Grolnick, 1993; Reeve, Ryan, Deci, & Jang, 2009; Ryan & Deci, 2000a). "Extrinsic motivation" at one end of the spectrum is the most extrinsic level of external regulation. Slightly more self-regulated is introjection (somewhat external), followed by identification (somewhat internal), and integration (internal), leading towards intrinsic motivation (internal) or intrinsic regulation at the other end of the spectrum (Deci & Ryan, 2000). Zimmerman and Cleary (2006) declare that in most educational environments, depending autonomous source of motivation (i.e., internal vs. external locus of control), a self-regulated learner would have "a higher probability of succeeding" (p.53).

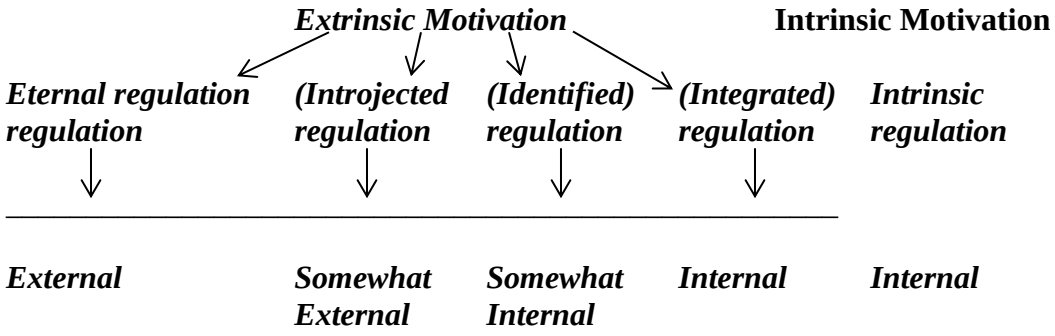

Figure 4. Continuum displaying types of motivations.

According to PNT, when students experience self-satisfaction in an autonomy supportive environment, they are likely to feel competent. Consequently, an autonomy supportive context and a competence supportive context are dimensions that are fundamentally related (Ryan, Connell, & Grolnick, 1993).

Competence Supportive Context

A competence supportive context is one where self-efficacy for self-regulated learning (SESRL) is encouraged through high but achievable expectations and performance outcomes, a structured environment where teachers respond to student efficacy appraisal, and where student learning is facilitated through self-assessment techniques (Skinner & Belmont, 1993). This PNT dimension nurtures student competence, defined as the need for students to experience themselves "as capable of producing desired [school] outcomes and avoiding negative outcomes" (Connell & Wellborn, 1991, p. 51). Hence, the more competent students view themselves, the more confident they become in setting challenging goals.

Schunk (2012) contended that "actual performance offers the most valid information for assessing one's confidence" (p. 147). That is, a competence supportive context enhances student confidence which in turn generates improved student motivation and academic performance. For example, environments rich in formative and summative assessments that are designed to nurture student academic strengths tend to have a lasting effect on student efficacy by raising student efficacy appraisals to self-regulate their learning (Bandura, 1997; Pastorelli et al., 2001). Thus competence support is displayed in classrooms where teachers are mindful in structuring a learning environment with high but achievable expectations (Glick, 2012).

Also, self-efficacy for self-regulated learning can predispose student confidence in academic capabilities and, in turn, positively influence academic outcomes (Pajares, 2002b). Zimmerman, Bandura, and Martinez-Pons (1992) were the first to examine systematically the fundamental contributions stemming from student self-efficacy

beliefs and academic goals. They sampled student participants from two urban high schools who were not tracked according to academic ability. It was predicted that prior achievement would influence self-efficacy beliefs. In the end, a significant causal path was found: Students who had higher self-efficacy beliefs, set greater goals for themselves and were able to achieve expected outcomes. While personal goals played a key role in student attainment of higher grades in school, achievement effects were mediated by self-regulation activities to reach performance goals (Boekaerts & Corno, 2005; Zimmerman, Bandura, & Martinez-Pons, 1992). Thus, a competence supportive environment is associated with self-efficacy for self-regulated learning (SESRL) because this dimension enhances student motivation and performance.

Similarly, it can also be said that the relationship between a competence supportive context and self-efficacy for self-regulated learning (SESRL) requires student self-reflection of performance data linked to authentic appraisal. Once students receive their results from a completed assignment, they usually interpret and evaluate the results. When this happens, students begin to judge their competence and decide whether to create or revise their perception of their capabilities according to their perceived interpretations. Connective attainment, as it is called, promotes improved student self-efficacy, which translates into student tendency to generalize self-beliefs and to replicate their successes in other similar situations (Pajares, 2002c).

Zimmerman and Cleary (2006) concurred and contended that most individuals do not quickly dismiss their performance or failure experiences. In general, occasional failures are unlikely to have much effect on students self-judging their capabilities because accurate and timely teacher feedback is more likely to lead students to self-

appraise factors that can be considered situational, such as insufficient effort and/or poor strategies. For instance, when a teacher provides timely feedback on a given assignment in which the student knew that he or she did not exert much effort and/or allocate enough time to prepare, the student may conclude that his or her poor performance is situational.

Finally, a competence supportive context is not only characterized by teachers who provide helpful and timely feedback, but one where teachers incorporate and encourage student self-assessments as a fundamental learning technique. For instance, students can be taught to regulate their behavior through the practice of metacognitive strategies (Boekaerts & Corno, 2005; Resnick & Hall, 2003). When teachers cultivate or support student competence, they are promoting opportunities for students to revise and improve their understanding. They are also assisting students in thinking about their prior achievements, predicting outcomes, setting goals, planning ahead, apportioning their time, explaining to one's self to improve understanding, noting failures to comprehend, and activating background knowledge (Bransford, Brown, & Cocking, 1999, 2000; Cleary & Zimmerman, 2004; Schunk & Rice, 1991; Schunk & Swartz, 1993; Zimmerman, 2006).

Relational Supportive Context

The third dimension within the school social context is relational support (i.e., involvement). A relational supportive context is described as one where teachers are highly interested in knowing their students and where teachers are willing to provide emotional support (Connell & Wellborn, 1991; Furrer & Skinner, 2003; Hughes & Chen, 2011; Skinner & Belmont, 1993). Teachers and other interested adults are

attuned to student psychological needs to develop interactions that fulfill their need for relatedness (Finn, 1989; Hughes & Chen, 2011; Martin & Dowson, 2009; Mitchell & Forsyth, 2004). Relatedness is defined as "the need [for students] to feel securely connected to the social surroundings and the need to experience oneself as worthy and capable of love and respect" (Connell & Wellborn, p. 51). Simply put, relatedness represents the need to bond (i.e., wish for closeness, attachment, and commitment) and have emotional security. Although this psychological need has been the least studied in the achievement domain as a predictor of school success, it is widely accepted as a basic psychological need (Levesque, Zuehlke, Stanek & Ryan, 2004).

In schools, a relational supportive context is embedded in the quality of the teacher-student relationships. This bond is characterized by trust, which is found when there are open, honest, reliable, competent, and benevolent social interactions between teachers and students (Forsyth, Adams, & Hoy, 2011). In this context teachers openly collaborate with students in establishing safe norms, high standards for learning, and students are encouraged to be active members and participants of the class (Felner et al., 2007; Felner, Ginter, & Primavera, 1982). For example, both teachers and students work toward banning and removing negative norms considered developmentally toxic. This environment hinders or diminishes the need to exude defiant behavior, fuels student motivation to attend school, and can bolster a desire to graduate from high school (Finn, 1989, 1993; Christenson, 2002; Voelkl, 1997). Lee and Burkam (2003) in their study of 190 urban and suburban high schools found that students who perceive the relationship between teachers and students as positive were also highly unlikely to drop out of high school.

A relational supportive context promotes a sense of community regardless of student socio-economic status and diverse cultural backgrounds **(**Bransford, Brown, & Cocking, 1999, 2000). Hughes and Chen (2011) studied 695 first grade students who were from low socio-economic status, culturally diverse, and somewhat low achieving from one urban school district in the state of Texas, United States. They theorized, that:

> When students experience supportive interactions with teachers, classmates view them [teachers] more positively; similarly, positive peer relationships may engender cooperative participation in the classroom and improved teacher-student interactions (Hughes & Chen, 2011, p. 280).

This longitudinal study confirmed that classroom norms and shared expectations among students are associated with teacher practices that successfully involve students.

Implications from Hughes and Chen's study (2011) suggest that teacher beliefs and attitudes about themselves and about their students are critical in establishing an emotionally supportive classroom. Teachers must believe that forming relationships with students through supportive classroom practices will pro-actively engage students and will enable them to cooperate as they become active participants in their learning. Hence, teachers can influence student peer relatedness because they (teachers) are considered the architects who design and regulate a classroom context where peers can relate to the teacher and also to each other (Bierman, 2011). In addition, teachers can enhance student motivational beliefs whereby they can choose to adopt their teachers' beliefs and values, and potentially, transfer these newly established beliefs and values to other academic settings (Martin & Dowson, 2009). Finally, it can also be deduced from

Hughes and Chen's (2011) study that relational supportive practices can bind autonomy and competence supportive dimensions.

Integration of Autonomy, Competence, and Relational Supportive Contexts

Autonomy and competence supportive dimensions are thought to promote greater student well-being as long as the students perceive themselves as being more competent and their source of motivation is autonomous (external vs. internal locus of control) (Connell & Wellborn, 1991; Jang, Reeve, & Deci, 2010; Reeve, Bolt, & Cai, 1999; Levesque, Zuehlke, Stanek, and Ryan, 2004). In addition, it has been ascertained that teacher practices within these two dimensions can promote student confidence and behaviors that contribute to increased performance and increased student engagement (Skinner, Furrer, Marchand, & Kindermann, 2008; Vansteenkiste et al., 2012). It was further found by Jang, Reeve, and Deci (2010) that teachers who provide both autonomy and competence support can shape different aspects of the student SRL. Research that elaborates on this interconnection is growing.

For example, social contexts that are autonomy supportive as well as structured within a competence supportive setting also reflect student-centered teaching conditions (Sierens, Vansteenkiste, Goossens, Soenens, & Dochy, 2009). Effective teachers are expected to provide learning experiences that can trigger expectancies and beliefs to assist students in building connections between current and prior knowledge (Boekaerts & Cascallar, 2006). Building student-centered contexts that support autonomy and competence requires teachers to include practices that consider student prior knowledge, special interests, strengths, and hardships (Brandsford, Brown, & Cocking, 1999). By providing students the opportunity to think [humans think when they do not

know, or when they are not sure (Perkins, 1995)] and time to process information [moving the student from being compliant to becoming a critical thinker (Glick, 2012)] through the use of metacognitive strategies, teachers can foster learning-oriented habits (Resnick & Hall, 2003).

Besides encouraging students to construct their own meanings, beginning with their beliefs, teachers in autonomy and competence supportive contexts are expected to take on behaviors that support student autonomy and competence (Jang, Reeve, & Deci, 2010; Reeve, Jan, Carrell, Jeon, & Barch, 2004; Reeve, & Jang, 2006). Teacher actions in an autonomy supportive environment engage students through behaviors that provide choice, encourage self-initiation, minimize the use of controls, and acknowledge student perspectives and feelings (Assor, Kaplan, & Roth, 2002). Teacher actions in a competence supportive environment engage students in the use of strategies to enhance their confidence in reaching set goals and expectations. In turn, student self-efficacy for self-regulated learning is enriched because students feel respected, trusted, and empowered (Jang, Reeve, Ryan, & Kim, 2009).

Recent studies indicate that there is a relationship between autonomy supportive and competence supportive contexts. These conditions make important contributions to student self-efficacy to self-regulate learning (Jang, Reeve, & Deci, 2010; Jang, Reeve, Ryan, & Kim, 2009; Sierens et al., 2009). Jang, Reeve, and Deci (2010) in their study of high school students in a Midwestern state found the relationship between these environmental conditions (i.e., instructional styles) to be complimentary, linear, and uniquely predictive. In their view, this finding differs from findings that describe the

relationship between autonomous and competence supportive environments as antagonistic, curvilinear, and independent.

Additionally, when teachers design a structured environment that promotes volitional functioning (i.e., self-control), according to Vansteenkiste and colleagues (2012) the social context in the classroom represents both autonomy and competence supportive conditions because these dimensions are mutually supportive. For instance, when teachers provide explanations about why an activity is worth doing and give students the opportunity to work out a problem in their own way (Reeve, 2006), they simultaneously exhibit autonomy and competence supportive behaviors that sustain student inner endorsement (Reeve & Jang, 2006). Vansteenkiste's findings are based on Sierens and colleagues (2009) confirmatory factor analysis that autonomy and competence supportive conditions are dimensions that are positively correlated factors (Vansteenkiste et al., 2012).

In Sirens and colleagues' study (2009) of 526 Belgian students in two secondary high schools and first year teacher candidates, they found that classroom "structure was associated with more self-regulated learning under conditions of moderate and high autonomy support" (p. 57). As stated by Vansteenkiste and colleagues (2012), Sirens' findings also demonstrated that students' perception of teacher structure "only had a positive relation to self-regulated learning when it was combined with at least a moderate amount of [students] perceived teacher autonomy support" (p. 2). Correspondingly, Jang, Reeve, Ryan, and Kim (2009) found that students who perceived high autonomy support in their classrooms associated their classroom environments with active engagement and positive school functioning. They claimed

that although autonomy supportive environments nurture individual student state of motivation, it is not only through autonomy support that competence satisfaction is fostered; it is also through the provision of structure and a focus on improvement that competence satisfaction occurs.

Finally, the existence and integration of autonomy and competence supportive conditions are contingent on relational supportive practices. Autonomy supportive behaviors were inferred in Hughes and Chen's (2011) findings that student interest and participation in school-related activities was positively associated with each of the autonomy and competence supportive dimensions. They argue that, through instructional and social-emotional practices, teachers support students in the development of self-views of competence. This proposition was tested with high school students in South Korea (Jang, Reeve, Ryan, & Kim, 2009). The researchers found that when supportive contexts exist in the classroom, regardless of whether the students come from an independent or collectivistically oriented society (i.e., United States vs. South Korea), students associate satisfying experiences with positive affect, which provoked feelings of high autonomy, high competence, and high relatedness.

Thus, student performance and engagement can be enhanced when the elements of autonomy and competence supportive conditions are integrated and bound by relational supportive conditions (Hughes & Chen, 2011). That is, when competence support is presented in an autonomy-supportive way, student engagement is fascilitated (Jang, Reeve, & Deci, 2010). These school conditions are exemplified by engaging teacher behaviors when they provide help, communicate clear goals, rules, and expectations using both autonomy and competence supportive behaviors (i.e.,

promoting volitional functioning) (Pajares, 2002a; Zimmerman, 2009). Also, when teachers use competence and autonomy support in a relational supportive way by using prompts (e.g., "I know you can do it," "next time you will do it," "keep up the pace") as well as other social persuasion strategies (e.g., high fives, written cards of encouragement) students may act the message that they do indeed have what it takes to reach their goals and their self-motivation beliefs are enhanced (Schunk, 2012; Usher & Pajares, 2008a, 2008b; Zimmerman, 2006; Zimmerman and Cleary, 2006). Thus, when supportive dimensions are present in the classroom, students will feel respected by their teachers and empowered to make decisions that positively influence their learning. Students also are motivated, feel confident in effectively planning their study activities, and are likely to think about themselves as learners (Vansteenkiste et al., 2012). In short, the formation of student self-efficacy for self-regulated learning is enhanced.

Rationale and Hypotheses

This review has examined scholarship that looks at the process by which students self-regulate learning, and it has postulated through the lens of psychological needs theory that schools play a crucial role in influencing student self-efficacy for self-regulated learning by purposefully fostering autonomy support, competence support, and relational support. Overall, psychological needs theory explains that schools as agencies (Bandura, 1986), serving school-age children from all walks of life, can precipitate supportive dimensions that can spark a lasting, pre-decisional process to self-regulate learning (Zimmerman & Schunk, 2009). These supportive conditions are evident through teacher practices that can enhance students psychological needs of autonomy, competence, and relatedness (Bierman, 2011; Gest & Rodkin, 2011).

In order to deduce the relationship between autonomy support, competence support and relational support with self-efficacy for self-regulated learning, through the lens of PNT, findings from several studies were considered. Work from Sierens and colleagues (2009) suggested that the existence of competence and autonomy supportive contexts influence self-regulated learning. Evidence from Hughes and Chen's (2011) longitudinal research explained that instructional and social-emotional practices foster relatedness perceptions among low achieving and ethnically diverse students. In addition, it was suggested by Hughes and Chen (2011) that student motivation can be enhanced when the elements of autonomy and competence supportive conditions were integrated and presented in a relational supportive way.

Since poverty and cultural diversity is especifically prevalent in urban schools, it is important to study the association between these covariates and self-efficacy for self-regulated learning. Evidence concerning the relationship between low socio-economic status and student self-efficacy reveals a negative relationship. This is probably because low socioeconomic status students possess risk factors that affect their lives and as such they tend to be alienated emotionally and physically from school (Zvoch, 2006). For example, Caprara and colleagues (2008) proposed that children of poverty are likely to have lower confidence in using self-regulated learning tools and strategies. In addition, Klassen (2010) found that students of poverty whose fathers had lower levels of educational attainment also had lower self-efficacy for self-regulated learning.

Regarding minority status and its relationship with the school environment, research has had mixed reviews. Borman and Rachuba (2001) who explored the academic success of poor and minority students concluded that minority students in

comparison with Caucasian students who were similarly poor, when exposed to environments that were less conducive to academic resilience, were inclined to have lower levels of internal locus of control and academic self-efficacy. Higgins (1991, p. 158) concluded that “the prevalence of self-directive and self-evaluative tradeoffs [in self-regulation] were likely to vary across cultures.” However, results from a study by Jang and associates in South Korea (2009) demonstrated that regardless of the students ethnic makeup, their most or least satisfying classroom experiences were predicted by the learning environment. Finally, Hughes and Chen (2011, p. 278) stated that poverty students and minority students may be "especially responsive to differences in the quality of classroom social relationships".

Consequently, the focus of the present study is to further examine through the lens of PNT the relationship between autonomy support, competence support, and relational support in urban schools and self-efficacy for self-regulated learning. In addition, the study will examine the relationship between poverty and self-efficacy for self-regulated learning and minority status and self-efficacy for self-regulated learning. The following two hypotheses are offered.

H1: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

H2: Socio-economic status and ethnic diversity moderate the effects of autonomy support, competence support, and relational support on self-efficacy for self-regulated learning.

Chapter 3

Research Method

Design

The focus of the study was on the relationship between autonomy support, competence support and relational support and self-efficacy for self-regulated learning (SESRL). While the primary unit of analysis was the school, data were multi-level with individual students being nested in schools. Since all variables were continuous, a hierarchical linear model (HLM), also known as multilevel modeling (MLM), was used to analyze data. According to Vogt (2007), the HLM model was designed to estimate the degree or size of the contribution each variable interjects at different levels of regression. That is, the unique contribution of each predictor variable was determined in the study by factoring out its shared variance. This study used survey data to test the following two hypotheses:

H1: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

H2: Socio-economic status and ethnic diversity moderate the effects of autonomy support, competence support, and relational support on self-efficacy for self-regulated learning.

To test the second hypothesis both free and reduced lunch (FRL) and minority status were controlled. The data were collected from schools in a single urban district in the Southwest, United States.

Data Source: District Context

Sample

Data for this study come from a medium sized urban school district in a Southwestern State. The district has between 2,500 to 2,700 teachers serving about 41,000 students. The demographic composition of the students in the district as reported in October of 2011 was African American, 29%; Asian, 2%; Caucasian, 29%; Hispanic, 26%; Native American, 7%; and other, 7% (Oklahoma State Department of Education, 2011). Seventy-five percent of the student population is free and reduced lunch eligible. School sizes range from 150 (elementary school) to 1,250 (high school) students. Excluding alternative schools, there are 57 elementary schools, 15 middle schools, and 9 high schools. Grade configuration for elementary schools is kindergarten through 5th grade, for middle school is 6th through 8th grade, and for high school is 9th through 12th grade. The survey sampled about 1,000 students. The overall return rate for all students was 98%.

As a whole, during the 2010 – 2011 academic year, the district's average academic performance index (API) was 920 on a scale of 0-1500 (Oklahoma State Department of Education, 2011).Twenty-four schools of the district have not met adequate yearly progress on the No Child Left Behind Act Annual Report Card. Therefore, like many other similar urban districts in the United States, the district in this study faces pressure to improve student achievement.

Data Collection

This study uses pre-existing, de-identified administrative data from South Urban School District. The district collected survey data from 949 students in 79 schools.

Students in the 5th, 7th, 9th, and 11th grades were randomly sampled and randomly assigned to one of two surveys. Faculty data from teachers in the same schools came from the Oklahoma Center for Education Policy (OCEP) (2011), University of Oklahoma College of Education. OCEP collaborated with South Urban School District to collect online, de-identifiable data from approximately 1,300 teachers.

Measures

South Urban School District and OCEP used the following surveys to measure the constructs of this study.

Autonomy Support (AS) Measure

The faculty trust in students (FTS) survey was used to measure autonomy support (See Appendix A) (Forsyth, Adams, & Hoy, 2011; Tschannen-Moran, 2004). Autonomy support is operationalized by measuring teacher perceptions of student trustworthiness (e.g., dependable, reliable, responsible, truthful, honest). This perception is manifested through the daily interpersonal behavior that teachers develop with their students (Reeve, Ryan, Deci, & Jang, 2009). Meaning that when teachers perceive their students as trustworthy learners who are motivated to study and grow, then they (teachers) are more incline to be more vulnerable in their daily interpersonal behavior (Adams, 2013; Forsyth, Adams, & Hoy, 2011).

To sum up, the faculty trust survey gaged autonomy support by measuring teachers' perceptions of the degree to which students are open, honest, reliable, competent, benevolent, committed to academics, and determined to succeed. The questions in this survey were from the omnibus T–scale, a short operational measure of three dimensions of faculty trust (i.e., trust in clients, trust in colleagues, and trust in

principals). The survey can be given at either elementary or secondary schools. The Cronbach's-alpha in this scale typically ranges from .90 - .98 (Tschannen-Moran, 2004). There were five statements presented to the teachers for their response on a Likert-type scale, and there were six answer categories (1-6 scale) ranging from *strongly disagree* (score 1) to *strongly agree* (score 6) (Forsyth, Adams, & Hoy, 2011; Tschannen-Moran, 2004).

Competence Support (CS) Measure

The student academic emphasis (AE) survey was used to measure competence support (See Appendix B). In schools with strong student academic emphasis, students experience faculty and student press for academic success. The operationalization of competence support is seen when students perceive that they are capable in reaching performance outcomes and set for themselves high but achievable goals. Thus competence support is needed to generate connective attainment, which prompts improved student self-efficacy, motivation, and improved academic performance. The more competent students view themselves, the more confident they become in setting challenging goals (Connell & Wellborn, 1991; Pajares, 2002c; Schunk, 2012).

Students report their perceptions of teacher expectation for their effort and participation. A higher score indicates that students perceived that most teachers pressed all students toward academic achievement. Respondents were presented with eight statements with four answer categories ranging from strongly agree to strongly disagree. This survey was adapted from one developed by the Consortium on Chicago School Research (2011). The reliability measured by Cronbach's-alpha, ranged from .79 - .93, suggesting a strong internal consistency among the survey items.

Relational Support (RS) Measure

The student trust in teachers scale was used to measure relational support (See Appendix C). Student trust in teachers measures the quality of relationships between teachers and students as perceived by students. Thus the operationalization of relational support takes into account student perceptions of an environment that enhances their desire to bond with teachers and that nurtures emotional security (Connell & Wellborn, 1991). Questions asked students about the reliability of teacher actions, teacher concern for students, teacher competence in their teaching, teacher willingness to help students, teacher honesty, and teacher dependability.

In schools with high relational support, students perceive teachers as open, honest, reliable, competent, and benevolent (Forsyth, Adams, & Hoy, 2011; Tschannen-Moran, 2004). Students were asked to rate 13 statements on a Likert-type scale, and there were four answer categories ranging from strongly disagree to strongly agree; scoring from 1 to 4. Reliability as measured by Cronbach's alpha was .90, suggests a strong internal consistency among the items when used in other studies (Forsyth, Adams, & Hoy, 2011; Tschannen-Moran, 2004).

Self-Efficacy for Self-Regulated Learning (SESRL) Measure

A seven-question scale was distributed to students enrolled in the 5th, 7th, 9th, and 11th grades (See appendix D). Cronbach's alpha coefficients, ranged from .78 - .84 in previous uses of the scale (Tschannen-Moran, 2004). The confirmatory factor analysis affirmed that all items fit the latent constructs satisfactorily (CFI = .98; RMSEA = .0 (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Bandura, Caprara,

Barbaranelli, Gerbino, & Pastorelli, 2003; Bong, 2001; Zimmerman & Bandura, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992; Zimmerman & Martinez-Pons, 1990).

Analytical Technique

This study analyzed data at two different levels, students nested in schools. Thus, multilevel modeling was used to address the hierarchical nature of the data. Three different models were developed and tested: A One-Way Random Effects ANOVA, Random Coefficients Regression, and Random Effects ANCOVA (Luke, 2004; Raudenbush & Bryk, 2002; Raudenbush, Bryk, Fai Cheong, Congdon, & du Toit, 2011; Vogt, 2007).

Assumptions

For the purpose of this study, hierarchical linear modeling (HLM) was used because it employs a *nested* variable metaphor by which it is assumed that one can control for different variables while estimating the contribution size from other variables at different levels or by the degree by which the nested variables contribute to any changes on the outcome variable, self-efficacy for self-regulated learning (SESRL) (Vogt, 2007). It was also assumed that student level data were collected and measured without error. Lastly, since the study required sorting out the effects of two levels, by using HLM it was also assumed that level-1 errors were independently and normally distributed with a common variance and that the residuals were uncorrelated with a constant variance (Raudenbush & Bryk, 2002).

Random-Effects ANOVA

A one-way Random-Effects ANOVA (Null Model) was used to partition variance in self-efficacy for self-regulated learning (SESRL) to student and school

factors. Results were used to calculate the Intraclass Correlation Coefficient (ICC). The ICC measures the proportion of variance between groups (i.e., level-2 units) (Raudenbush & Bryk, 2002). The One-Way ANOVA model is a *fully unconditional* model, and it does not involve level-1 or level-2 predictors (Luke, 2004).

Level-1: $SESRLij = \beta 0j + rij$

Level-2: $\beta 0j = \gamma 00 + u0j$

Mixed Model:

$$SESRLij = \gamma 00 + u0j + rij$$

Random Coefficients Regression

A Random-Coefficients Regression Model was used to estimate the effects of free and reduced lunch and minority status on self-efficacy for self-regulated learning. These student variables were grand-mean centered and allowed to vary across schools.

Level-1.

$$SESRLij = \beta 0j + \beta 1j\ (FRLij) + \beta 2j\ (minority\ statusij) + rij$$

Level-2.

$$\beta 0j = \gamma 00 + u0j$$

$$\beta 1j = \gamma 10 + u1j$$

$$\beta 2j = \gamma 20 + u2j$$

Mixed Model.

$$SESRLij = \gamma 00 + \gamma 10 * FRLij + \gamma 20\ minority\ statusij + u0j + u1j * FRLij + u2j * minority\ statusij + rij$$

Random-Effects ANCOVA

The Random-Effects ANCOVA was used to test the hypotheses. This model allows the introduction of school level predictors of self-efficacy for self-regulated learning (SESRL). A stepwise approach was followed whereby contextual controls of free and reduced lunch rate and minority status were entered first then each of the need support variables were entered one at a time. The full model included all significant school level variables.

Mixed Model for Autonomy Support (AS).

$$SESRLij = \gamma 00 + \gamma 03*(ASj) + \gamma 01*(FRLj) + \gamma 02*(\text{minority status}) + \gamma 10*(FRLij) + u0j + rij$$

Mixed Model for Competence Support (CS).

$$SESRLij = \gamma 00 + \gamma 04*(CSj) + \gamma 01*(FRLj) + \gamma 02*(\text{minority status}) + \gamma 10*(FRLij) + u0j + rij$$

Mixed Model for Relational Support (RS).

$$SESRLij = \gamma 00 + \gamma 05*(RSj) + \gamma 01*(FRLj) + \gamma 02*(\text{minority status}) + \gamma 10*(FRLij) + u0j + rij$$

Full Mixed Model for Random Effects ANCOVA.

$$SESRLij = \gamma 00 + \gamma 01(FRLj) + \gamma 02(\text{minority status}j) + \gamma 03(ASj) + \gamma 04(CSj) + \gamma 05(RSj) + \gamma 10*(FRLij) + u0j + rij$$

For these multi-level modeling processes (i.e., ANOVA, Random Coefficients Regression, ANCOVA), student and school controls were grand-mean centered. Grand-mean centering has a computational advantage over no centering or group centering in that it reduces potential multicollinearity problems between intercepts and

slopes across group estimations, and it isolates the net effect of school-level variables on an outcome by partialing out Level-1 effects (Adams, 2013, p. 12).

Key for Analytical Technique Equations

i = Individual students (unit)

j = Schools (unit)

r = Level I random effect

u = Level II random effect ($u0$, $u1$, $u2$)

β = Level I coefficient

$\beta 0j$ = School mean for self-efficacy for self-regulated learning (level-1 intercept)

$\beta 1j$ = This slope is the expected change in self-efficacy for self-regulated learning associated with a unit increase in free and reduced lunch

$\beta 2j$ = This slope is the expected change in self-efficacy for self-regulated learning associated with a unit increase in minority status

$\gamma 00$ = Grand mean for the outcome variable SESRL

$\gamma 01$ = Effect of free and reduced lunch rate on self-efficacy for self-regulated learning controlling for individual free and reduced lunch status

$\gamma 02$ = Effect of minority status on self-efficacy for self-regulated learning controlling for individual free and reduced lunch status

$\gamma 03$ = Effect of autonomy support (AS) on self-efficacy for self-regulated learning controlling for individual free and reduced lunch status

$\gamma 04$ = Effect of competence support (CS) on self-efficacy for self-regulated learning controlling for individual free and reduced lunch status

$\gamma 05$ = Effect of relational support (RS) on self-efficacy for self-regulated learning

controlling for individual free and reduced lunch status

$\gamma 10$ = Average self-efficacy for self-regulated learning controlling for free and reduced lunch status

$\gamma 20$ = Average self-efficacy for self-regulated learning controlling for minority status

Chapter 4

Findings

In this chapter, first the descriptive statistics of the critical variables will be analyzed and presented (i.e., free and reduced lunch, minority status, self-efficacy for self-regulated learning, autonomy support, competence support, and relational support). Following these descriptions, an HLM hierarchical linear model will be used to test hypothesis one and two. Hypothesis one will test whether schools in this sample have an effect on differences in student self-efficacy for self-regulated learning. Findings from hypothesis two provide evidence of the effects of socio-economic status and ethnic diversity on self-efficacy for self-regulated learning. The chapter ends with a summary.

Descriptive Statistics

Student and school characteristics are reported through descriptive statistics. At the student and school levels all of the variables in the analysis were standardized to a mean of 0 and a standard deviation of 1. These variables were standardizing essentially because they needed to be on the same scale in order to gage their relative importance. Eighty-one percent of the students in this sample qualified for free and reduced lunch rate. Fifty-two percent of the students were identified as minorities. Table 1 provides a visual representation of the school descriptions for each of the variables. Variables were standardized to convert the metrics to a common scale so that unique effects could be compared.

Variable	Mean	SD	Minimum	Maximum
Level I -- (n = 949)				
Free and Reduced Lunch	0.81	0.39	0.00	1.00
Minority Status	0.52	0.50	0.00	1.00
Self-Efficacy for Self-Regulated Learning	0	1.00	-3.93	1.63
LEVEL II -- (n = 79)				
Free and Reduced Lunch	0	1.00	-3.12	0.63
Minority Status	0	1.00	-1.66	2.32
Autonomy Support (AS)	0	1.00	-2.56	2.75
Competence Support (CS)	0	1.00	-2.64	1.79
Relational Support (RS)	0	1.00	-2.15	1.80

Table 1 *Descriptive Statistics for Student-and School-Level Variables*

Table 2 is the correlation matrix including correlations of the school level needs support variables (i.e., autonomy support, competence support, relational support), as well as the correlations of the covariates (i.e., free and reduced lunch rate, minority status). It is interesting to note that although the three needs support variables captured separate phenomena within schools, when these same variables are operationalized they are found to be highly correlated.

Variables	Free & Reduced Lunch	Minority Status	Autonomy Support	Competence Support	Relational Support
Free & Reduced Lunch	1	-.702	-.432	.089	-.123
Minority Status	.702	-1	-.515	.115	-.245
Autonomy Support	-.432	.515	1	.308	.555
Competence Support	.089	-.115	.308	1	.647
Relational Support	-.123	.245	.555	.647	1

Table 2 *Correlation Matrix for the Dimension Support Theory*

Hierarchical Linear Modeling (HLM) Results

Multi-level modeling employing HLM 7 was applied as the analytical technique to test the two hypotheses. To learn whether self-efficacy for self-regulated learning varied across schools; a one-way, random-effects ANOVA model was used. The partition of the variance provided information about differences in self-efficacy for self-regulated learning attributed to student and school factors. The estimate of the level-1 variance ($\sigma^2 = 0.93161$) represented within-school variability, and the estimate of the level-2 variance ($\tau = .07363$) captured the between-school variability (Luke, 2004; Raudenbush & Bryk, 2002; Raudenbush et al., 2011). Differences among students accounted for about 93% of the total variance in self-efficacy for self-regulated

learning. The between-schools effect was found to be about 7% of the total variance. This 7% of variance is statistically significant, meaning that schools in this sample had different effects on student self-efficacy for self-regulated learning.

To test the first hypothesis, the Random Effects ANCOVA model was used to assess the influence that autonomy support, competence support, and relational support had on self-efficacy for self-regulated learning while statistically controlling for the effects of the covariates free and reduced lunch and minority status at the student level, and free and reduced lunch rate at the school level. A stepwise approach was used to first test the effects of each individual variable included in all four model. All significant predictors were included in the full model (See Table 3).

Results for model one indicate that autonomy support was a statistically significant predictor of self-efficacy for self-regulated learning. As autonomy support increases by 1 standard deviation, the parameter estimate for autonomy support was .18, meaning that the unique effect of autonomy support on self-efficacy had an explained variance of roughly 3.3%. This relationship was found significant.

In model two of the analysis, as competence support increases by 1 standard deviation, competence support had a stronger relationship with self-efficacy than autonomy support did. In this second model, the parameter estimate was found to be .23 which meant that the explained variance of competence support on self-efficacy was almost 5%.

Model three suggests that relational support may be the strongest predictor of self-efficacy for self-regulated learning. As relational support increases by 1 standard deviation in school, the parameter estimate was to be .25. This meant that almost 6% of

the explained variance in self-efficacy was attributed to relational support. Based on this third model, relational support explained nearly all of the school level variance in self-efficacy. This meant that almost 86% of all the variance in self-efficacy across schools is explained by relational support.

Results of the combined model indicate that relational support had a stronger unique effect on SESRL than autonomy support and competence support. In this last step of the Random Effects ANCOVA model, as autonomy support increases by 1 standard deviation in schools, self-efficacy for self-regulated learning increases by about .01 standard deviation. There was practically no variance (.00) in self-efficacy for self-regulated learning that could be explained by autonomy support. Also, in the combined model as competence support increases by 1 standard deviation in schools, the parameter estimate for competence support was reduced from .23 to .11. That is approximately .01 of the variance in self-efficacy for self-regulated learning is explained by competence supportive schools. In the combined model as relational support increases by 1 standard deviation in schools, the parameter estimate for relational support went from .25 to about.14. That is, approximately .02 of the variance in self-efficacy for self-regulated learning is explained in relational supportive schools. Thus, according to the combined model, approximately .03 of the variance in self-efficacy for self-regulated learning can be explained by relational and competence supportive conditions. Hence, in the combined model of the three school dimensions, relational support seems to be the catalyst for student motivation.

School Predictors	Model 1	Model 2	Model 3	Model 4
Individual Level:				
Free & Reduced Lunch Slope	-0.25** (.09)	-0.29** (.09)	-0.28** (.09)	-0.29** (.09)
School Level				
Autonomy Support (AS)	.18** (.04)	--	--	0.01 (.04)
Competence Support (CS)	--	0.23** (.03)	--	0.11* (.05)
Relational Support (RS)	--	--	0.25** (.03)	0.14* (.06)
Free & Reduced Lunch Rate	0.03 (.06)	-0.00 (.05)	-0.01 (.05)	-0.01 (.05)
Minority Status Rate	0.03 (.06)	-0.02 (.05)	0.03 (.05)	0.02 (.05)

Table 3 *HLM Results: Random Effects ANCOVA – Effects of School Dimensions & Covariates on Self-Efficacy for Self-Regulated Learning*

Note. Autonomy support (AS) is measured as teacher perception of student trustworthiness. Competence support (CS) is measured as student perception of academic emphasis. Relational support (RS) is measured as student perception of teacher trustworthiness. N = 79, $^{**}p < .01$, $^{*}p < .05$, Standard Error (denoted within parenthesis).

To test the second hypothesis, whether socio-economic status and ethnic diversity moderate self-efficacy for self-regulated learning, a Random Effects ANCOVA model was used. In this hypothesis moderation meant that these contextual conditions would have an effect on the strength of the relationship between needs supports and self-efficacy. In other words, these contextual conditions would either make the relationship stronger or makes the relationship weaker. Surprisingly, results from each of the four models indicate that neither minority status nor free and reduced lunch has a statistically significant influence on self-efficacy for self-regulated learning. These covariates possess low variance and are not significantly related to the school level variance.

Moreover, at the individual level, it is evident that there is a negative relationship between free and reduced lunch and self-efficacy for self-regulated learning (See Table 3, Figures 5 and 6). Figures 5 and 6 both show that, at the individual or student level, when free and reduced lunch are controlled, relational support and competence support both have greater influence on self-efficacy for self-regulated learning. That is, it was found that free and reduced lunch depresses the ability for a self-regulated climate to be fully experienced in schools.

The linear graphs (figures 5 and 6) depict the relationship between free and reduced lunch and self-efficacy for self-regulated learning. When free and reduced lunch is not controlled, as relational support (figure 5) or competence support (figure 6) increases, self-efficacy for self-regulated learning increases. But when controlling for free and reduced lunch, (i.e. taking out the effect of free and reduced lunch) it is evident that the same kind of linear relationships are even more effective. In short, the

relationships described in both figures 5 and 6 suggest that poverty at the student level has a depressing effect on the ability of free and reduced lunch to produce self-efficacy for regulated learning.

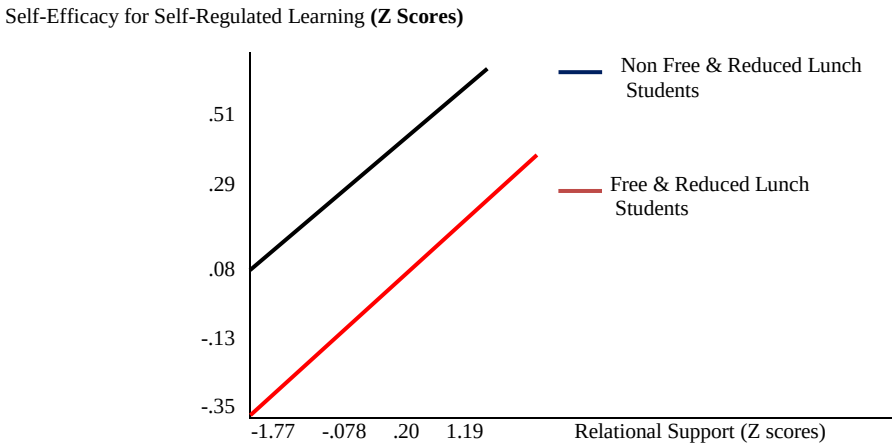

Figure 5 Changes in Self-Efficacy for Self-Regulated Learning

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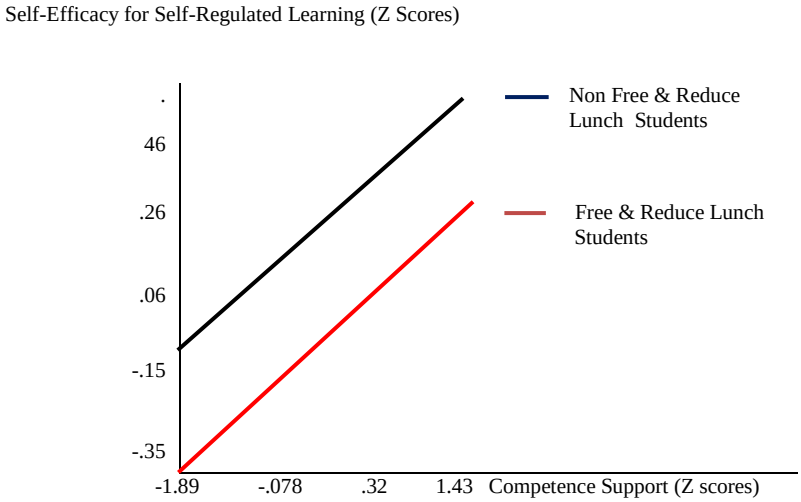

Figure 6 Changes in Self-Efficacy for Self-Regulated Learning

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Summary

The purpose of this study was to examine the relationship between school dimensions of autonomy support, competence support, and relational support and self-efficacy for self-regulated learning. Two hypotheses were tested.

H1: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

H2: Socio-economic status and ethnic diversity moderate the effects of autonomy support, competence support, and relational support on self-efficacy for self-regulated learning.

Schools in this sample have an effect on differences in student self-efficacy for self-regulated learning. The unique effect of each of the normative school conditions (i.e., relational support, competence support, and autonomy support) was able to explain differences in SESRL. At the school level, after controlling for free and reduced lunch and minority status, using Random Effects ANCOVA, through a step-wise approach, it was determined that relational support was the strongest predictor of self-efficacy for self-regulated learning. It was closely followed by competence support. Autonomy support had the least influence on self-efficacy for self-regulated learning. In the combined model, autonomy support, competence support, and relational support were entered together to study their interaction and see how they intermingled to explain variance in self-efficacy. Through this fourth model, it was found that relational support also had the strongest effect on self-efficacy for self-regulated learning, and autonomy support had once again the lowest influence.

Although relational support had the strongest school level condition for self-efficacy, this did not mean that autonomy support and competence support were insignificant. The step-wise approach showed that each variable had a unique effect on self-efficacy. What this may mean is that relational support seems to be a catalyst for needs support, and in its absence there may not have a strong autonomy support and competence support that is needed. These three conditions matter and when all three conditions are together, relational support stands out as being, in this case, the most important condition for school differences in self-efficacy. Consequently, the evidence supports the first hypothesis: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

When considering the school compositional factors of free and reduced lunch rate and minority status, it was found that at the school level, poverty and minority status were not significantly related to self-efficacy for self-regulated learning. They were not significant predictors of differences in SESRL. Consequently, the second hypothesis was not confirmed. Thus, socio-economic status and ethnic diversity do not moderate the effects of autonomy support, competence support, and relational support on self-efficacy for self-regulated learning across schools. Post hoc analyses at the individual level did demonstrate that the relationship between relatedness support and competence support take parallel paths for free and reduced lunch and non-free and reduced lunch students.

Chapter 5

Discussion and Conclusions

This chapter summarizes, restates the purpose of this study, and explains its major findings in relationship to the literature that has been presented. In addition, it suggests possible implications for change in educational practice.

Existing scholarship emphasizes the importance of student motivation (Ryan, Connell, & Grolnick, 1993) and describes the potential of increasing levels of self-efficacy for self-regulated learning in order to raise academic achievement among urban students (Caprara et al., 2008; Higgins, 1991; Klassen, 2010; Pastorelli et al., 2001; Zimmerman & Bandura, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992). Moreover, since prevailing literature fails to explain the link between school conditions and self-efficacy for self-regulated learning, the current study anchored its conceptual framework on self-determination literature, especially psychological needs theory (PNT), to explore the predictive effects that normative school conditions have on self-efficacy for self-regulated learning. Thus, through the lens of PNT, the researcher tested the following two hypotheses:

H1: Autonomy support, competence support, and relational support are school conditions that predict self-efficacy for self-regulated learning.

H2: Socio-economic status and ethnic diversity moderate the effects of autonomy support, competence support, and relational support on self-efficacy for self-regulated learning.

Explanation of Findings

Psychological needs theory argues that conditions that satisfy student psychological needs, namely autonomy support, competence support, and relational support are viewed as essential in the formation of supportive school conditions which are nurtured by teacher behaviors and teacher instructional styles. These dimensions are believed to lead to the development of self-efficacy for self-regulated learning (Jang, Reeve, & Deci, 2010; Reeve, Bolt, & Cai, 1999). In this study, the three normative conditions of the self-systems process were operationalized by using surrogate measurers. Autonomy support was measured as teacher perception of student trustworthiness, competence support was measured as student perceived academic emphasis, and relational support was measured as student perception of teacher trust worthiness.

Hypothesis 1

In the current study, after controlling for poverty and ethnic diversity across schools, significant evidence was found that demonstrated that at the school level 7 % of self-efficacy for self-regulated learning was attributed specifically to supportive school conditions. Autonomy, competence, and relational supports appear to have an independent predictive relationship with self-efficacy for self-regulated learning, while using student background controls (i.e., economic and minority status). Previous research has indicated that of the three psychological needs dimensions, autonomy and competence supportive conditions were thought to have the greatest influence on student self-regulation (Jang et al., 2010; Vansteenkiste et al., 2012). Correspondingly, relational support has been the least studied in the achievement domain and thought to

be the least influential on self-regulation (Lavesque, Zuehlke, Stanek, & Ryan, 2004; Skinner, Marchand, Furrer, & Kindermann, 2008). In the present study, however, although the influence that each dimension had on self-efficacy for self-regulated learning was significant when used as the sole predictor, in the combined model, relational support had the strongest influenced on self-efficacy for self-regulated learning, .14, closely followed by competence support, .11, and then autonomy support, .01, which was not statistically significant.

One may wonder why the autonomy supportive dimension was not the strongest predictor in supporting students' self-system processes. An alternative hypothesis to explain this surprising finding is that there is not a common measurement scale to gage any of the support dimensions. In the present study, autonomy support was measured using teacher perceptions of student trustworthiness as being open, honest, reliable, competent, and benevolent. Therefore, as a surrogate measure, the scales in this study did not explicitly capture what teachers do and say in their daily interactions to promote volitional functioning. In contrast, in order to gage autonomy support, other studies have questioned teachers specifically in their use of non-controlling language in order to influence, persuade and advocate classroom goals, asked teachers about the development of classroom norms to establish structures and routines, included questions about caring and autonomy-supportive instruction, and asked the extent to which they nurture and acknowledge student inner motivational resources, feelings and perspectives (e.g., Jang, Deci, & Reeve, 2010; Skinner & Belmont, 1993; Skinner, Furrer, Marchand, & Kindermann, 2008; Vansteenkiste et al., 2012).

The differences in the way autonomy support was measured could explain why autonomy support, when used as the sole predictor, was not found to have a strong effect on self-efficacy for self-regulated learning. Even more so, when combined with the other two psychological needs supports (i.e., relational and competence support) this study found that its prediction power washes out and had no significant influence on self-efficacy for self-regulated learning.

The academic emphasis surrogate scale was likely a best fit in measuring student perception of competence support. The scale was similar to those used in other studies in that it gaged how students perceived teacher clarity of expectations and contingency (e.g., Jang, Reeve, & Deci, 2010; Skinner & Belmont, 1993; Skinner, Furrer, Marchand, & Kindermann, 2008; Vansteenkiste et al., 2012). Thus, the surrogate variable, academic emphasis, appeared successfully measure whether or not students perceived teachers as being consistent, classrooms having optimal structures, and teachers challenging them to achieve desirable and achievable outcomes.

Finally, it is noteworthy that even though relational support tends to be overlooked, in this study this dimension displayed the strongest positive relationship with self-efficacy for self-regulated learning. That is, results from this study indicated that students perceived their teachers as benevolent, open, honest, reliable, and competent, while also conveying higher student motivation to attend school, do school work, and willingness to participate in class. In addition although the current study did not look into student drop out and graduation rates, this finding supports Lee and Burkam's claim (2003) that students who perceived the relationship between teachers and students as positive were also more likely to stay in school and graduate from high

school. Overall, evidence indicates that relational supportive schools are exemplified by teachers who are interested in them, and where students perceive their teachers as individuals with whom they can bond and who can provide them with emotional security (Connell & Wellborn, 1991; Furrer & Skinner, 2003; Skinner & Belmont, 1993).

In short, schools in this sample have differential effects on student self-efficacy for self-regulated learning. That is, these findings confirm support for the theoretical claim that meeting students' psychological needs produces motivation. Moreover, in the combined model, through a step-wise approach, it was found that relational support had the strongest effect on self-efficacy for self-regulated learning. This finding stands in contrast with some previous research that places autonomy support as more influential in the self-systems process. More than likely this non-convergence was due to the use of different measurement scales. Regardless, hypothesis one was supported. The three support dimensions do influence self-efficacy for self-regulated learning.

Hypothesis 2

Socio-economic status was selected as one of the independent variables in the second hypothesis because in urban settings, poverty and the lack of economic opportunity are prevalent. Zvoch (2006) maintained that experiencing poverty can alienate students emotionally and physically. Carver and Scheier (2007) argue that poverty undermines student self-efficacy beliefs. Consequently, it was hypothesized that free and reduced lunch would moderate the relationship between school conditions and self-efficacy for self-regulated learning. Ethnic diversity was examined as a second moderator because an overwhelming number of underprivileged children in urban

schools are also ethnic minorities (Planty et al., 2009). Thus, it seemed reasonable to examine urban school ethnic diversity effects.

The second hypothesis which considered the moderating effects of socio-economic status and ethnic diversity on the relationship between school conditions and self-efficacy for self-regulated learning was not confirmed. In reference to socio-economic status and self-efficacy for self-regulated learning, previous studies have found that children of poverty are likely to have lower confidence in using self-regulated learning strategies and consequently they possess lower self-efficacy for self-regulated learning (Caprara et al., 2008; Klassen, 2010). In this study, poverty rate is viewed as an ecological variable that takes into consideration the school culture with the percentage of students on free and reduced lunch. Because of this, the overall effect of free and reduced lunch did not have a significant effect on self-efficacy for self-regulated learning.

This finding diverges from theory because the school composition in terms of the poverty rate was not a significant predictor of differences in self-efficacy for self-regulated learning. This finding is somewhat surprising since the sample size included a high free and reduced lunch rate population, 81%. On the other hand, the small effect of free and reduced lunch might exist because the sampled schools were high poverty schools. Without much variance in free and reduced lunch rate, a strong relationship is unlikely. Since the majority of the student population at South Urban School District was identified as living in poverty, many of the mediating effects (e.g., academic aspirations, availability of resources, and lack of economic opportunity) associated with poverty (Caprara et al., 2008; Higgins, 1991; Klassen, 2010) do not vary much.

Consequently, even though poverty is relatively invariable within the sampled school district, relational supportive conditions had a statistically significant effect in terms of the development of student motivation (i.e., self-efficacy for self-regulated learning).

In addition, it is interesting to note that when considered at the individual student level, poverty had a negative effect on self-efficacy for self-regulated learning. In other words, negative bivariate correlations between poverty and self-efficacy for self-regulated learning components were evident at the student level: autonomy support, -.25, competence support, -.29, and relational support, -.28. This negative relationship was also apparent in the combined model since the expected change in self-efficacy for self-regulated learning associated with a unit increase in free and reduced lunch at the student level was -0.29. These relationships suggest that poverty at the student level has depressing effects on the ability of free and reduced lunch to produce self-efficacy for regulated learning. Moreover, although poverty appears to lessen the effectiveness of supportive school conditions at the student level, when the moderating effects of poverty are controlled, the supports do affect self-efficacy for self-regulated learning.

It has been suggested that schools must become more culturally appropriate, culturally compatible, and culturally relevant, and that teachers need to become culturally responsive (Duckworth, 1987; Ladson-Billings, 1995). However, even though the majority of the students, who attended South Urban School District, are members of ethnic minority groups, results showed that minority status had practically no influence on self-efficacy for self-regulated learning. That is, there was no association between minority status and self-efficacy for self-regulated learning. After careful consideration of the sample size and the methods used to collect the data, lack of support for this

portion of the second hypothesis appears not to have been due to sample size, bad data, poor data collection, or measurement problems. The logic behind the hypothesis seemed reasonable, but it was not supported.

Potentially, the logic behind the premise that minority status has a negative influence on self-efficacy for self-regulated learning may have been misguided by competing views from previous studies. Whereas Hughes and Chen (2011) ascertained that minority students would be more likely to respond to differences in the quality of the classroom relational supportive conditions. Borman and Rachuba (2001) concluded that minority students who were poor and were exposed to school environments that were less conducive to academic resilience were inclined to have lower levels of internal locus of control and academic self-efficacy than their similar Caucasian counterparts. Moreover, Caprara and colleagues (2008) who based their study in the Italian educational system, favored the generalizability of self-efficacy for self-regulated learning and stated that when students from culturally different backgrounds possess a resilient sense of self-efficacy, they would do as well as their fellow non-minority students (See Bong, 2001; Lent, Brown, Nota, & Soresi, 2003). Lastly, a recent study in South Korea by Jang and colleagues (2009) found that the success of students, regardless of their ethnic makeup, is predicated on whether students find classroom experiences most or least satisfying. The results from South Urban School District seem to support Jang's findings.

Key Findings

Educational research has centered primarily on school policies and teacher behaviors that promote student motivation instead of focusing on students' perceptions

of their educational context and background experiences that motivates them to self-regulate learning. This study focused on the latter. There were four key findings.

Key finding 1. Schools in this sample have differential effects on students self-efficacy for self-regulated learning.

Key finding 2. In the combined model, through a step-wise approach, it was found that relational support had the strongest effect on self-efficacy for self-regulated learning. Through the PNT lens, it was ascertained that the strongest bivariate relationship predictor of self-efficacy for self-regulated learning was relational support. This is a key finding since in the literature much of the emphasis has been given instead to the effects of either autonomy support or competence support (See Levesque et al., 2004; Skinner & colleagues, 2008; Vansteenkiste et al., 2012).

Key finding 3. School compositions in terms of poverty and minority membership were not significant predictors of differences in self-efficacy for self-regulated learning. This finding is somewhat surprising since the sample size included a high free and reduced lunch rate population, 81%. The small effect of free and reduced lunch rate, however, is likely a consequence of the high poverty sample.

Key finding 4. Another important finding is not related to the hypotheses but it is really worth noting. This finding refers to the effect of relational support for both free and reduced lunch and non-free and reduced lunch students on self-efficacy. There are three interesting points. The first point is that in this sample there is a self-efficacy gap. Meaning that, in general, if students qualify for free and reduced lunch probably these students have low self-efficacy. But this first point does not tell the whole story. The second point is that self-efficacy increases for both free and reduced lunch students

and non-free and reduced lunch students as the amount of relational support and competence support in schools increases. The third and final point is that free and reduced lunch students in higher relational supportive environments have higher self-efficacy compared to non-free and reduced lunch students in lower relational supportive environments. Thus, free and reduced lunch effect washes out if the students are in a high relational supportive environment. In summary, supportive environments have a positive effect on self-efficacy for free and reduced lunch and non-free and reduced lunch students. Also in this sample free and reduced lunch students who are in a relational supportive environment have higher self-efficacy than non-free and reduced lunch students in a non-relational supportive environment. Suggesting that, relational support does benefit student self-efficacy.

One last point on key findings is that previous research has not specified needs support at the school level. In fact, most all other studies on self-determination theory have been based on individual students. In those studies the major focus has been on autonomy support and competence support, and less attention has been given to relational support, which is why this study stands out as being of great important. In summary, there are two reasons that set this study out as being unique and important: One, this study specified needs support as property of school, not the property of individual relationships. And two, in this study when it is specified that needs support as property of schools, relational support really stands out as being an extremely important condition to student self-efficacy.

Implications

Evidence presented in this study do not deny that the overall meaning of the self-systems processes appear to be a potential predictor of self-efficacy for self-regulated learning even in schools of poverty. This study provides further evidence that relational supportive conditions are perceived by students as emotionally safe. They chose to bond with teachers who sustained their basic psychological needs of relatedness and in turn increase their motivation. Urban schools need to encourage positive and affirming conditions that promote relationships. Thus, since it has been demonstrated through this study that schools really matter in supporting the psychological states of students, here are four possible implications that are related to the work in urban schools that can influence leadership practice in the effort to motivate children in high poverty schools.

1. Urban school leaders need to recognize that schools can make a difference in student self-efficacy and must be diligent in nurturing self-efficacy for self-regulated learning through relational supportive conditions.
2. Urban school leaders need to hire school personnel who are willing to create relational supportive conditions that support self-efficacy for self-regulated learning.
3. Urban school leaders must also invest on professional development to empower both existing personnel, while also training new hires, on the what, the why and the how to foster relational supportive conditions that bring about self-efficacy for self-regulated learning.

4. Urban school leaders must advocate and seek out funding for training future leaders and classroom teachers that encourages the development of self-efficacy for self-regulated learning through relational supportive conditions.

The predictor conditions (i.e., relational support, competence support and autonomy support) should be enhanced by schools. Moreover, because schools are all different, each educational agency needs to consider how it can nurture supports, in particular relational support, that will enhance self-efficacy for self-regulated learning.

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Appendix A

Autonomy Support Instrument

Indicate your level of agreement with each of the following statements about your school from strongly disagree to strongly agree.

1. Teachers in this school trust their students

Strongly		*Somewhat*	*Somewhat*		*Strongly*
___*Disagree*	___*Disagree*	___*Disagree*	___*Agree*	___*Agree*	___*Agree*

2. Students in this school care about each other

Strongly		*Somewhat*	*Somewhat*		*Strongly*
___*Disagree*	___*Disagree*	___*Disagree*	___*Agree*	___*Agree*	___*Agree*

3. Students in this school can be counted on to do their work

Strongly		*Somewhat*	*Somewhat*		*Strongly*
___*Disagree*	___*Disagree*	___*Disagree*	___*Agree*	___*Agree*	___*Agree*

4. Teachers here believe students are competent learners

Strongly		*Somewhat*	*Somewhat*		*Strongly*
___*Disagree*	___*Disagree*	___*Disagree*	___*Agree*	___*Agree*	___*Agree*

5. Students are secretive

Strongly		*Somewhat*	*Somewhat*		*Strongly*
___*Disagree*	___*Disagree*	___*Disagree*	___*Agree*	___*Agree*	___*Agree*

Appendix B

Competence Support Instrument

Place an "X" next to the word that is closest to how you feel or what you think.

1. Teachers in this school really make students think.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

2. Teachers in this school expect students to do their best all of the time.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

3. Teachers in this school expect students to work hard.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

4. In this school, students find the work difficult.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

5. In this school, students are often challenged.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

6. In this school, teachers ask difficult questions on tests.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

7. In this school, teachers ask difficult questions in class.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

8. In this school, students have to work hard to do well.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

Appendix C

Relational Support Instrument

Place an "X" next to the word that is closest to how you feel or what you think.

1. Teachers are always ready to help at this school.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

2. Teachers at this school are easy to talk to.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

3. Students are well cared for at this school.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

4. Teachers at this school always do what they are supposed to.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

5. Teachers at this school really listen to students.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

6. Teachers at this school are always honest with me.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

7. Teachers at this school do a terrific job.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

8. Teachers at this school are good at teaching.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

9. Teachers at this school have high expectations for all students.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

10. Teachers at this school DO NOT care about students.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

11. Students at this school can believe what teachers tell them.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

12. Students learn a lot from teachers in this school.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

13. Students at this school can depend on teachers for help.
___*Strongly Disagree* ___*Disagree* ___ *Agree* ___*Strongly Agree*

Appendix D

Self-Efficacy for Self-Regulated Learning Instrument

Place an "X" next to the word that is closest to how you feel or what you think.

1. I am able to finish my homework on time
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

2. I am able to study when there are other interesting things to do.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

3. I am able to concentrate on my homework.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

4. I am able to remember information presented in class and in my school books.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

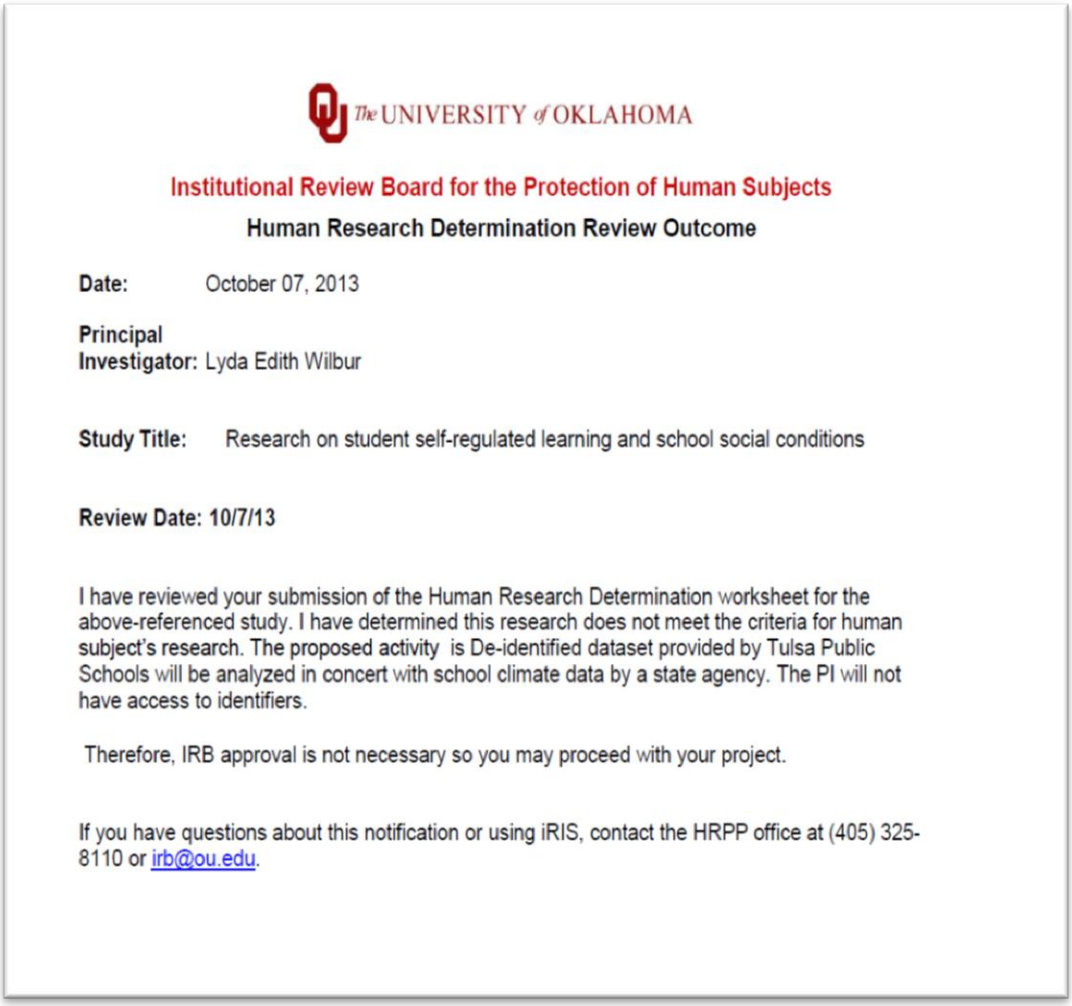
5. I am able to arrange a place to study at home where I won't get distracted.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

6. I am able to motivate myself to do schoolwork.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

7. I am able to participate in class discussions.
___*Never* ___*Rarely* ___ *Often* ___*Almost always*

Appendix E

Institutional Review Board for the Protection of Human Subjects Outcome Decision



The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects

Human Research Determination Review Outcome

Date: October 07, 2013

Principal Investigator: Lyda Edith Wilbur

Study Title: Research on student self-regulated learning and school social conditions

Review Date: 10/7/13

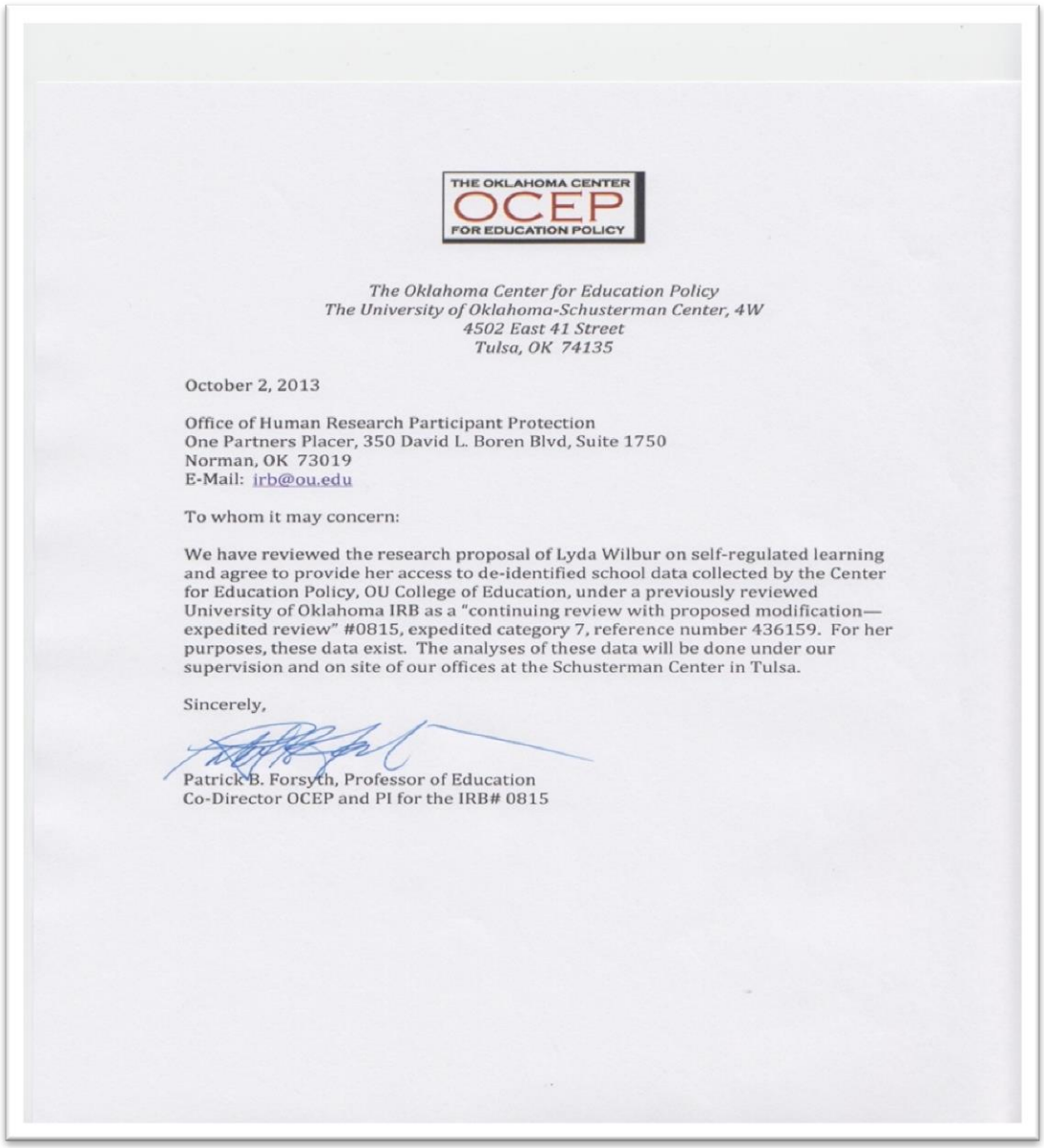
I have reviewed your submission of the Human Research Determination worksheet for the above-referenced study. I have determined this research does not meet the criteria for human subject's research. The proposed activity is De-identified dataset provided by Tulsa Public Schools will be analyzed in concert with school climate data by a state agency. The PI will not have access to identifiers.

Therefore, IRB approval is not necessary so you may proceed with your project.

If you have questions about this notification or using iRIS, contact the HRPP office at (405) 325-8110 or irb@ou.edu.

Appendix F

Access Approval Letter from the Oklahoma Center for Education Policy



THE OKLAHOMA CENTER
OCEP
FOR EDUCATION POLICY

The Oklahoma Center for Education Policy
The University of Oklahoma-Schusterman Center, 4W
4502 East 41 Street
Tulsa, OK 74135

October 2, 2013

Office of Human Research Participant Protection
One Partners Placer, 350 David L. Boren Blvd, Suite 1750
Norman, OK 73019
E-Mail: irb@ou.edu

To whom it may concern:

We have reviewed the research proposal of Lyda Wilbur on self-regulated learning and agree to provide her access to de-identified school data collected by the Center for Education Policy, OU College of Education, under a previously reviewed University of Oklahoma IRB as a "continuing review with proposed modification—expedited review" #0815, expedited category 7, reference number 436159. For her purposes, these data exist. The analyses of these data will be done under our supervision and on site of our offices at the Schusterman Center in Tulsa.

Sincerely,

Patrick B. Forsyth, Professor of Education
Co-Director OCEP and PI for the IRB# 0815