

USING COGNITIVE INTERVIEWING TO ASSESS PRIMARY STUDENTS'
PERCEPTIONS OF CLASSROOM GOAL STRUCTURES

by

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Dedication

This is dedicated to my husband, Nicholas Hartigan, without whom I would never have started this journey. He has been a constant source of support for me and encouraged me every step of the way.

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Abstract

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Goal orientation theory provides a framework for understanding how the classroom environment impacts student outcomes by investigating the different purposes individuals have for engaging in activities and how environmental factors influence these orientations. Previous research has focused on students' perceptions of classroom goal structures through the use of surveys, primarily with middle school students. The current study was designed to further this research by applying cognitive interviewing techniques to determine the validity of modified survey items used to assess classroom goal structures with young children. The sample included 19 students enrolled in first and second grade in a mid-Atlantic elementary school. Cognitive interviews were conducted as students responded to modified teacher goal scales of the *Patterns of Adaptive Learning Scales –PALS* (Midgley, Maehr, Hicks, Roeser, Urdan, Anderman, Kaplan, Arunkumar, & Middleton, 2000). Students were specifically questioned on what they

thought the item was asking and what examples they could give to support their answer choice. Student answers were coded on several criteria, and these codes were used to calculate a global cognitive validity score for each of the eight survey items. Analysis of student responses indicated moderate to high validity scores for some goal structure items, specifically those items related to making mistakes, trying hard, and public demonstration of grades. Implications and future research with young students and goal structures are presented.

Chapter 1: Introduction

Early childhood education has become increasingly focused on academic outcomes, increasing pressure on teachers to raise academic achievement with students as young as preschool. Academic pressure has continued to increase for these students in younger grades, to the point that many current preschool and kindergarten programs have standards and expectations previously used in first or second grade classrooms (Stipek 2006a). This means that across grade levels, even in first and second grades, teachers are feeling pressured to teach academic skills that had previously been taught in higher grade levels. This shift in academic demands influences how teachers interact with students. Teachers who feel pressured to focus on academic skills in a “drill and kill” environment tend to spend less time engaging and interacting with students (Stipek, 2006b). The interactions students have with their teachers play a major role in the development of students’ beliefs about school and learning, and in turn, impact their academic and social outcomes (Pianta, 1999). Thus, it is important to understand how these interactions that students have with their teachers and the classroom environment impact how they approach learning.

Bronfenbrenner's (1979) ecological systems theory provides a framework for how children both influence and are influenced by their surroundings and interact with the physical and social features of their environments, both at home and at school. This means that the adults, such as caregivers and teachers, play a major role in these interactions and influences of a child's environment. Pianta (1999) focuses Bronfenbrenner's framework with the application of the General Systems Theory specifically to children's classroom experiences. In this framework, teachers' relationships with students are critical to development; these relationships are seen as living systems that interact with larger systems (e.g., classrooms). Within a classroom, children constantly interact with other children, with teachers, and with materials, providing countless opportunities for interactions and feedback. Through these interactions and feedback teachers regulate student behaviors; they model and support what behaviors they expect of students and create structures, both implicitly and explicitly, through established classroom procedures. These early school experiences have lasting impacts on children's academic and social development, and set the groundwork for how students may interpret future classroom experiences (La Paro, Pianta, & Stuhlman, 2004).

Research about the impact of the classroom environment has been conducted since the 1930's (see Lewin, 1936) when it was recognized that classrooms are psychological environments, influenced by social interactions (Fraser, Aldridge, &

Adolphe, 2010). The acknowledgement of classrooms as important environments was further extended to a *need-press* theory (Murray, 1938; Pace & Stern, 1958) in which people are conceptualized in terms of their psychological needs and the environment in terms of its press. According to Murray (1938), “the press of an object is what it can do to the subject - the power it has to affect the well-being of the subject in one way or another.” (p. 121) Pace and Stern (1958) suggested that the atmosphere of an environment is crucial, specifically what is valued, encouraged, and rewarded in that environment. Therefore, needs and press interact and support behavior and student outcomes.

This basic theory of students having needs and the environments interacting with these needs has led to an expansive literature in the field of classroom environment. Classroom environment literature includes a variety of instruments and ways to measure and define the classroom environment, focusing on associations between the environment and student outcomes, differences between student and teacher perceptions of the classroom, and the effect of other variables such as gender, age, or subject area (Fraser, 1991). Two major approaches to assessing the classroom environment include observation checklists (e.g. La Paro et al., 2004; Stipek & Byler, 2004) and questionnaires to assess student and teacher perceptions (e.g. Aldridge & Fraser, 2000; Fraser, Anderson, & Walberg, 1982; Fraser, 1990). Although these measures may differ significantly in terms of population assessed and specific dimensions of the classroom

environment identified, they all share a common theme of identifying aspects of the classroom environment that impact students, both academically and socially, such as teacher instructional and emotional support, evaluative feedback (La Paro et al., 2004), organization of the classroom, behavior management, teacher productivity (Ponitz, Rimm-Kaufman, Brock, & Nathanson, 2009), and teachers' use of instructional strategies and grouping (Stipek, Feiler, Daniels, & Milburn, 1995).

Although classroom environment research has identified multiple classroom features, there is a lack of consistency among researchers as to which dimensions are the most important or most closely linked to student outcomes. Researchers have consistently identified correlations between the dimensions of classroom environments and student outcomes (see Fraser, 1991 for a review); however this research does not utilize consistent measures or explain how the classroom environment is related to student outcomes. For example, Fraser (1986) compiled an extensive review of 45 studies that investigated the effects of classroom environment on student outcomes, but within this review, over 43 dimensions of the classroom environment were identified, using six different measures. A few of these dimensions were found in the same measures, but overall, each survey had its own scales and separate characteristics. And although this review demonstrated correlations between these characteristics of the classroom environment and students' cognitive and affective outcomes, there was no discussion of why or how these specific dimensions contribute to student outcomes.

There is also a lack of consistent measures across age or grade levels. Much of the survey work that has focused on student and teacher perceptions of the classroom environment involved students in either middle or high school (Fraser, 1991). Other measures that have been used with elementary and preschool children typically utilize observational checklists (La Paro et al., 2004; Rimm-Kaufman, La Paro, Downer, Pianta, 2005; Stipek & Byler, 2004; Stuhlman & Pianta, 2009) that assess differing dimensions of the classroom environment, as noted by an outside observer. The variability and quantity of classroom environment dimensions, as well as the number of measures designed to assess these dimensions, make it difficult to integrate these research findings and to develop a cohesive framework for understanding the implications of the classroom environment (Patrick, Kaplan, & Ryan, 2011). Patrick et al. suggest that goal theory can provide this framework to support and further inform how classroom environments impact students.

Goal theory seeks to explain the different purposes individuals have for engaging in activities (Dweck, 1992) and investigate the environmental factors that influence these orientations (Ames, 1992). The characteristics of behaviors surrounding how students pursue achievement are referred to as personal goal orientations. Pintrich (2000) describes goal orientations as schemas for how students approach or engage in a task. How students perceive the interactions and relationships in a classroom influences how students develop these schemas, or goal orientations (Patrick et al., 2011). Through the

interactions and relationships within the classroom, students perceive goal-related messages. These “environmental goal emphases” are called goal structures (Kaplan, Gheen, & Midgley, 2002, p. 24). Classroom goal structures are created by the classroom practices, such as classroom rules and procedures, that make mastery or performance goals salient; this also includes the goal-related messages teachers convey to their students, explicitly or implicitly (Kaplan et al., 2002). These classroom goal structures are related to and predictive of students’ personal goal orientations (Anderman & Maehr, 1994; Maehr & Midgley, 1996; Wolters, 2004). How students perceive the classroom environment affects what kinds of goals they adopt (Anderman & Wolters, 2006). Research on goal theory suggests that the adoption of certain goal orientations is associated with varying emotional and academic experiences in school (Ames, 1992).

This current investigation uses Ames’ characterizations of *mastery* and *performance* goals (Ames, 1992). In general, mastery goals focus on the current task, with an emphasis on wanting to learn the material or to develop new skills or competence (Ames, 1992; Kaplan et al., 2002), whereas performance goals focus on attempting to create an impression of high achievement and to avoid an impression of low achievement (Elliot & Dweck, 1988). Mastery goals have been shown to be associated with adaptive behaviors and positive outcomes, such as increased learning strategy use, sustained effort, and positive affect (Ames, 1992; Elliot & Dweck, 1988; Kaplan et al., 2002; Urdan, 1997). Studies have revealed mixed results for outcomes of performance goals, though in

general, performance goals are considered less positive than mastery goals (Kaplan et al., 2002).

Multiple researchers have examined the relationship between the students' perceptions of the classroom environment and the students' personal achievement goals. The perceived classroom environment influences the students' personal goal adoption, which influences their performance and motivation in the class. Thus, there is an indirect relationship between classroom goal structures and student performance (Anderman & Maehr, 1994; Church, Elliot, & Gable, 2001; Maehr & Midgley, 1996; Wolters, 2004). Because of this connection between personal goals and classroom goal structures, how students perceive the classroom goal structure also became an important research focus. In order to assess students' perceptions of their classroom goal structure, researchers have primarily used self-report surveys. A dominant measure of goal orientation has been a self-report survey from PALS (Midgley et al., 2000). These scales were specifically developed to assess mastery and performance goals structures and have been frequently used or adapted in research investigating classroom goal structures and both academic and social outcomes (Kaplan et al., 2002; Kaplan & Maehr, 1999; Kaplan & Midgley, 1999; Lau & Nie, 2008; Turner, Meyer, Anderman, Midgley, Gheen, & Khan, 2002). Studies consistently demonstrate the importance of students' perceptions about the goal emphases of their classrooms. However, although these scales have been used frequently, the 2000 PALS (Midgley et al.) clearly states that these scales are not intended for

children in third grade or younger. The authors do not comment about what other measures might be more appropriate for assessing perceptions of classroom goal structures with young children. Although PALS has provided a consistent measure of classroom goal structures, unlike the multiple checklists and surveys used to measure other aspects of the classroom environment, the assessment of classroom goal structures has, at this point, neglected the perceptions of young students.

Additionally, recent critiques of the dominant use of self-report surveys (Fulmer & Frijters, 2009; Karabenick et al., 2007; Woolley, Bowen, & Bowen, 2004) have demonstrated potential problems with the cognitive demands placed on students, regardless of age, while responding to surveys dealing with motivation-related constructs, including goal orientations and classroom goal structures. Responding to self-report surveys requires students to be able to simultaneously understand the content of the question, retrieve memories or learned information related to the question, and choose the best answer. These processes can be taxing on students and they may not be able to accurately interpret or respond to survey items (Woolley et al.). Students may also overreport or underreport their answers when self-reporting (Willis, 2005).

Cognitive interviewing (Karabenick et al., 2007; Willis; Woolley et al.) has emerged as a tool that can provide information about what students think about when they respond to surveys about classroom goal structures. Cognitive interviewing refers to questioning respondents as they answer survey questions, primarily for the purpose of

improving a survey. Cognitive interviewers specifically question respondents about their thought processes as they answer the question. This is done in order to both help the respondents articulate what the question is asking, as well as to help reduce response error (Willis).

Statement of the Problem

The increasing academic demands being placed on young students have had impacts on how teachers interact with students, with more of an academic focus and less attention on developing a relationship (Stipek, 2006a). Students perceive the relationships and interactions within their classrooms, and this social climate then impacts current and future student outcomes, both behaviorally and academically (Hamre & Pianta, 2001). Although much research has been done in the area of classroom environments, there is a lack of consistency among measures used and dimensions of the classroom that most impact students. There is also a lack of research demonstrating how or why characteristics of the classroom environment have an impact on students.

Goal orientation theory can provide a coherent framework for investigating students' perceptions of the classroom environment. With the more recent focus on standardized testing, classrooms where teachers feel pressured for their students to perform well academically have a greater focus on performance goal orientations, whereas classrooms where teachers focus on both the academic demands as well as social interactions are perceived to be more mastery oriented (Ryan & Brown, 2004). The

establishment of a mastery-oriented classroom environment leads to the enhancement of students' engagement, valuing of effort, and commitment to learning (Ames, 1992). The relationship between the perceived classroom environment, or goal structure, and the students' personal goal orientations provides an explanation for why the environment impacts students, making goal orientation research a valuable venue for investigating classroom environments. By understanding how students perceive these environments, researchers can then identify the features of achievement settings that prompt the emergence of goal orientations (Kaplan & Maehr, 2007).

However, much of the research on goal structures has focused on older students, particularly those transitioning to middle school (Maehr & Anderman, 1993; Middleton, Kaplan, & Midgley, 2004; Midgley, Anderman, & Hicks, 1995; Urdan & Midgley, 2003). Further research is needed to determine the perceptions and effects of goal structures on younger students. Previous research in classroom goal structures has demonstrated that although students' goal orientations can change from year to year, they tend to be relatively stable (Kaplan & Midgley, 1999). The lack of research with young students and their perceptions of the classroom environment leaves a gap in our understanding of how early goal orientations form. The classroom environment literature has already demonstrated that students' early classroom experiences impact their future academic and social outcomes (La Paro et al., 2004). Research with younger students

may help to determine when personal goal orientations are adopted, and add to the research on stability or change of goal orientations.

Purpose

The purpose of this study was to use cognitive interviewing to examine the validity of classroom goal structure items in a modified version of the PALS (Midgley et al., 2000) in assessing primary students' perceptions of classroom goal structures. This study continued previous work I conducted using cognitive interviews with the original scales from the PALS. Specifically, in the current study, I conducted a subsequent round of interviews with the modified survey items to determine if students were able to better interpret and elaborate on the items than in the original version, based on their cognitive validity scores. The interview data also provided information about what common teacher practices or classroom events students recall as examples pertaining to the survey items, providing more information about how students perceive the classroom environment related to goal structures. The goal of this study was to add to the research on classroom goal structures by specifically focusing on young children.

Research Questions

Previous research has not investigated how young students perceive their classrooms in terms of goal structures. This current study attends to this gap with respect

to how primary students respond to a modified version of a current measure by addressing the following research questions:

- (1) How do primary students interpret items on a modified version of the PALS?
- (2) To what extent do they recall memories or events that are relevant to each item?
- (3) How well do they choose a response that reflects these recollections?
- (4) What specific teacher practices do students refer to as examples of mastery or performance goal structures?

Study Overview

This study utilized cognitive interviews concurrent with administration of a modified version of the teacher goals scales in the PALS (Midgley et al. 2000). I interviewed first and second grade students as they answered the modified survey items, specifically asking them what they thought each item was asking, what answer they would choose, and why they chose that answer. Follow-up questions were also used, as well as pre-scripted examples to help the students accurately interpret what the questions were asking. I interviewed each student individually, and the interviews were recorded and transcribed. The interviews were coded based on student responses to the cognitive interview questions, in categories of item interpretation, coherent elaboration, and congruent answer choice. For each category, responses received a rating of Yes, No, or Insufficient Prompt, and then each item was given a global cognitive validity score

ranging from 0 to 4. Mean scores were calculated for each item based on students' global cognitive validity scores and, and the interviews were analyzed for recurring responses that indicated teacher practices related to mastery or performance goal structure items.

Definition of Terms

The following terms and definitions are used throughout this study.

Achievement goals: Achievement goals refer to the reasons why an individual pursues an achievement task, most often an academic task in a learning environment, such as a classroom. Achievement goals were developed to explain an individual's motivation and subsequent behaviors related to achievement (Pintrich, 2000).

Goal orientations: Achievement goals are organized into different schemas for “approaching, engaging, and evaluating one's performance in an achievement context” (Pintrich, 2000, p. 94). Goal orientations refer to the overall system of beliefs about competence, ability, effort, and purposes surrounding achievement.

Mastery goal orientation: A personal mastery goal orientation means that in general, a person will focus on the current task, with an emphasis on wanting to learn the material or to develop new skills or competence (Ames, 1992; Kaplan et al., 2002).

Performance goal orientation: A performance goal orientation means that the focus is on demonstrating competence (Ames, 1992), and attempting to create an impression of high achievement or to avoid an impression of low achievement, often done in comparison to others (Nicholls, 1984).

Goal structures: Goal-related messages that emphasize either mastery or performance goal orientations are present in achievement settings, such as classrooms. These are called goal structures, and researchers have found that perceptions of goal structures are related to students' personal goal orientations (Church et al., 2001; Kaplan et al., 2002; Wolters, 2004).

Cognitive interviewing: Cognitive interviewing refers to a variety of methods used to question survey respondents specifically about their thought processes as they answer survey questions. Respondents are asked what they think a question is asking them and to explain why they would choose a specific answer. This is done primarily to improve a survey measure (Willis, 2005).

Chapter 2: Literature Review

The purpose of this review is to examine existing research related to young children's perceptions of classroom goal structures. There is significant research on both the importance of the classroom environment as well as the contribution of goal theory, specifically classroom goal structures, to student outcomes, both academic and social. This review highlights some of the major research surrounding classroom environment and then addresses the major research findings of goal theory, focusing specifically on the development of goal structures in classroom settings, the outcomes for students, both academically and socio-emotionally, and practices that have successfully helped teachers influence the construction of goal structures. Lastly, this review focuses on the current assessments of goal structures, recent critiques, and proposed methods to enhance assessment of goal structures with young children.

Overview of Classroom Environment Research

The classroom environment has been studied since the 1930's (see Lewin, 1936) and has expanded into an extensive line of research, with a multitude of measures that identify characteristics of the classroom that impact students (Fraser, 1991). One approach to assessing the classroom environment has been through the use of

questionnaires and self-report surveys, for both teachers and students. Fraser (1998) provides an overview of nine different classroom environment instruments that have been used with students aged eight and above. Most of his questionnaires focus on the students' perspective of what is happening in the classroom. One of the first of Fraser's measures, the *Learning Environment Inventory* (LEI) asks high school students to respond to 105 statements, measuring social dimensions of the classroom such as cohesiveness, friction, favoritism, cliqueness, satisfaction, and apathy. This measure was modified for use with younger students (8-12 years old) and renamed *My Class Inventory* (MCI). This modified version contains only five of the original 15 scales, has simplified vocabulary, and includes a two-point response format, instead of four, but the characteristics of the classroom that are measured remain the same. Fraser (1994) analyzed results from these and other measures of the classroom environment to determine correlations between the environment and students outcomes. Although the various measures assessed different aspects of the classroom, Fraser consistently found a significant correlation between the positive aspects of the classroom (e.g. cohesiveness, satisfaction, etc.) and students' achievement scores and positive attitudes toward school.

Although most of Fraser's and colleagues' measures were designed for older students (i.e., middle and high school), researchers have also investigated how preschool and elementary students interact with their classroom environments and the impacts of these interactions on students' perceptions of themselves as learners. Young children tend

to rate themselves highly on competence and performance (Stipek & Tannatt, 1984), but even these normally high ratings can be influenced by the environment. Stipek and Daniels (1988) identified two types of classroom environments: child-centered and didactic. In the didactic classroom, normative evaluation was emphasized, through public feedback, ability grouping, prevalent grades, whether in the form of happy or sad faces or actual grades, and emphasis on working alone. The second type of environment, child-centered, deemphasized normative evaluations through the use of flexible groups, positive and frequent feedback, and opportunities for cooperation among students. Stipek and Daniels found that kindergarten students in the classrooms that emphasized evaluation rated themselves lower in both current and future ability. In further research, Stipek, Feiler, Daniels, and Milburn (1995) found that didactic classrooms, which focused heavily on academic instruction, were associated with a negative social climate and negative student outcomes, whereas students in child-centered classrooms rated their abilities higher, showed more pride in their accomplishments, had higher expectations for future success, and were more motivated toward challenging tasks.

Another dominant observational measure for assessing the quality of the classroom climate with young children, including preschool and elementary, has been the Classroom Assessment and Scoring System (CLASS; La Paro et al., 2004). The CLASS focuses on aspects of teacher-child interactions: the emotional climate of the classroom, the management of the classroom, and the instructional support the teacher provides for

the students. This checklist focuses on the interactions between a teacher and target child, as well as providing global notes about the climate of the classroom as a whole. Pianta and colleagues conducted multiple studies looking at the correlations between teacher-student relationships, as measured by the CLASS, and student outcomes (Hamre & Pianta, 2001, 2005; Pianta, 1999; Pianta, La Paro, Payne, Cox, & Bradley, 2002). In one study, Hamre and Pianta (2005) found that teachers' instructional and emotional support moderated risk achievement in young children; children who had previously displayed high functional risk in kindergarten, when placed in highly emotionally supportive first grade classrooms, had similar achievement scores as did those students with low functional risk by the end of the year. One year in a highly supportive classroom made an impact for these young at-risk students. In another, more longitudinal study, Hamre and Pianta (2001) found that kindergarten teachers' reports of negativity in their relationships with students uniquely predicted student grades through lower elementary school; this negativity also predicted behavioral outcomes into upper elementary and middle school. This study demonstrates that the relationships and interactions students have, as early as kindergarten and first grade, can either positively or negatively impact future school success, both academically and socially.

Classroom Environment and Goal Theory

Although the extensive research on the impact of the classroom environment provides evidence that classroom interactions do impact student outcomes, the

inconsistencies among measures and identified characteristics of the classroom make it difficult to understand how these impacts occur (i.e., through what process students' perceptions of the environment impact their outcomes). Patrick et al. (2011) suggest that classroom environment research and goal theory research can support each other, with goal theory providing a strong theoretical framework for understanding the underlying processes that connect the environment to student outcomes. Goal theory assumes that motivation is influenced by both individual beliefs as well as the environment (Maehr, 1984; Nicholls, 1989). As explained in detail in the following sections, goal theory begins with investigating the reasons behind students' motivation (Dweck, 1992), and has expanded to determine how students perceive the classroom environment in relation to their motivation schemas (Ames, 1992). Research on goal theory suggests that the adoption of certain goal orientations is associated with varying emotional and academic experiences in school (Ames, 1992).

In the following sections, an initial background discussion of achievement goals is given, defining the two main types of achievement goals- mastery and performance. Interactions between personal goals and classroom goal structures are discussed, with specific reference to research studies conducted on the relationships between goal orientations and student outcomes. Due to the extensive literature base surrounding goal theory and goal structures, this review summarizes the major findings regarding student outcomes by highlighting some of the research studies conducted in this field. This

review also discusses the TARGET framework, as a method for intervention based on goal structure research (Ames, 1992). Building on this research, implications and future research directions for goal theory are discussed.

Achievement Goals

Achievement goals focus on the reasons why and how people attempt achievement, the purposes of their behaviors, and how these behaviors are represented by various ways of responding to tasks (Ames, 1992). Achievement goals are organized into different schemas for how students pursue achievement tasks, known as goal orientations. These achievement goals are both personal and situational (Kaplan, Middleton, Urdan, & Midgley, 2002), meaning that even though goal orientations remain somewhat stable over time (Meece, Blumenfeld, & Hoyle, 1988; Kaplan & Midgley, 1999), some experimental studies have shown that situational achievement demands can influence goal orientations (Elliot & Dweck, 1988; Elliot & Harackiewicz, 1996).

Achievement goals have been grouped into two basic categories, based on the reasons behind the pursuing of goals and subsequent motivational behaviors (Ames, 1992). Previous research has differentiated these categories with various labels, such as task involved or ego involved (Maehr, 1983; Nicholls, 1984), learning oriented or performance oriented (Dweck, 1986), and mastery focused or ability focused (Ames, 1984). Ames and Archer (1988) integrated these various labels and identified goal orientations as either mastery or performance oriented, and these labels have been used

frequently in current research (Kaplan & Maehr, 2007). Therefore, this literature review follows Ames' labels of *mastery* and *performance* goals.

Mastery goals. "Mastery goal orientation can be said to refer to a purpose of personal development and growth that guides achievement-related behavior and task-engagement" (Kaplan & Maehr, 2007, p. 142). In general, mastery goals focus on the current task, with an emphasis on wanting to learn the material or to develop new skills or competence (Ames, 1992; Kaplan et al., 2002). The emphasis is on mastery of the material, skill, or concept, and the focus is on developing one's own competence. Mastery goals have been shown to be associated with adaptive behaviors and positive outcomes, such as increased learning strategy use, sustained effort, and positive affect (Ames, 1992; Elliot & Dweck, 1988; Kaplan et al., 2002; Urdan, 1997).

Performance goals. The purpose of a performance goal is demonstrating competence (Ames, 1992). The focus is on attempting to create an impression of high achievement and to avoid an impression of low achievement (Elliot & Dweck, 1988). Performance goals reflect a concern with and focus on the self, and so they often involve social comparison (Nicholls, 1984). Learning is viewed as a way to achieve success, and behaviors are focused on achieving success in relation to others (Ames, 1992). Studies have revealed mixed results for outcomes of performance goals. For example, performance orientations were associated with negative affect in students during difficult or challenging tasks (Ames, 1992), but other studies found weak or moderate correlations

between a performance orientation and students' grades (Elliot, 1999; Urdan, 1997).

However, a meta-analysis of studies involving goal orientations and student outcomes (Utman, 1997) found that in general, performance goals are considered less positive than mastery goals (Kaplan et al., 2002).

Approach-avoid distinction. Because of the mixed findings for the outcomes associated with performance goals, Elliot (1999) argued that this inconsistency resulted from a failure to distinguish between two separate purposes of performance goals, the desire to demonstrate high ability in relation to others, labeled *performance-approach*, and the desire to avoid demonstrating low ability or appearing incompetent, labeled *performance-avoid*. Elliot and Harackiewicz (1996) proposed that these two categories should be considered as separate goal orientations. When considering performance-approach and performance-avoid as distinct, studies have concluded that performance-avoid goals are strongly associated with negative outcomes, such as low self-efficacy, anxiety, avoidance of help-seeking and low grades (Elliot, 1999; Kaplan & Maehr, 2007). The research on performance-approach is less conclusive, although in general, this goal orientation is considered more positive than performance-avoid (Elliot, 1999). Studies have shown some positive outcomes for a performance-approach orientation, such as grades and persistence (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). Students may be willing to strive harder at a task when focused on getting a good grade or while in competition with others. Harackiewicz et al. found this to be particularly true with

college students. However, other studies have also found performance-approach goals to be associated with anxiety, low knowledge retention, and disruptive behavior (Midgley, Kaplan, & Middleton, 2001). A focus on grades or competition could lead to a superficial learning of the material, or to changes to a performance-avoid orientation when students react to failure (Middleton, Kaplan, & Midgley, 2004). Due to conflicting research, the potential benefits of performance-approach goals are still currently debated (Kaplan & Maehr, 2007).

This distinction of approach and avoid has also been applied to mastery goals (Elliot, 1999), but with much less research investigating this distinction. The studies conducted that have yielded the most results with the mastery approach-avoid distinction have focused on the elderly (Elliot, 2005). The lack of research makes it difficult to evaluate this distinction and any patterns of engagement and motivation for students (Pintrich, 2003). Due to the limited knowledge base and older age of the population investigated, this review will not use the distinctions of mastery-approach or mastery-avoid.

Goal Structures

Personal goal orientations represent the characteristics of behaviors surrounding the pursuit of achievement of individuals both in general and in specific situations. Goal-related messages are also present in achievement settings, such as classrooms. These “environmental goal emphases” are called goal structures (Kaplan et al., 2002, p. 24).

Classroom goal structures are created by the practices, both at the classroom and school level, that make mastery or performance goals salient; this also includes the goal-related messages teachers convey to their students, explicitly or implicitly (Kaplan et al., 2002). For example, a teacher may post a list of the students earning the highest grades on a test, implicitly emphasizing competition and high grades (performance goal message), whereas another teacher may explicitly tell his or her students that learning the material is much more important than receiving a high score on a test (mastery goal message). It is important to note that most research on classroom goal structures has not used the performance-approach, performance-avoid distinction, but instead, has focused on the comparison of mastery and performance goal structures (Anderman & Wolters, 2006). Wolters (2004) tried to develop a measure for a performance-avoid classroom goal structure, but he found the data from the measure to be unreliable. Therefore, although the approach-avoidance distinction is made for personal goals, in terms of classroom goal structures, the only distinctions used in most research, and in this investigation, are mastery and performance.

Personal goals and goal structures. Classroom goal structures are related to and predictive of students' personal goal orientations (Anderman & Maehr, 1994; Maehr & Midgley, 1996; Wolters, 2004). How students perceive the classroom environment affects what kinds of goals they adopt (Anderman & Wolters, 2006). Church et al. (2001) conducted a study with undergraduate college students to investigate this relationship.

They examined the relationship between the students' perceptions of the classroom environment and the students' personal achievement goals, as well as students' grades and motivation toward the class. They concluded that the perceived classroom environment influenced the students' personal goal adoption, which influenced their performance and motivation in the class, therefore leading to an indirect relationship between classroom goal structures and student performance. In one study (Wolters, 2004), junior high school students filled out surveys assessing their perceptions of the classroom goal structure and their own personal goal orientations. Consistent with previous research, Wolters found that students who perceived a mastery goal orientation in the classroom were more likely to report a personal mastery goal orientation; the results were the same for performance goals. Research has consistently shown a link between the classroom goal structures, particularly the students' perceptions of the goal structures, and students' adoption of personal goal orientations.

Mastery vs. performance classroom goal structures. As previously described in this review, personal mastery goals have typically been associated with positive outcomes (Ames, 1992; Elliot & Dweck, 1988; Kaplan et al., 2002; Urdan, 1997). Research on classroom goal structures has also been consistent with these findings; classrooms that are perceived as having a mastery goal structure have been associated with positive student outcomes, both academically and socially (Ames & Archer, 1988; Kaplan, Gheen, & Midgley, 2002; Kaplan & Maehr, 1999; Kaplan & Midgley, 1999; Lau

& Nie, 2008; Turner et al., 2002). Each of these research studies will be examined in the following sections:

Academic outcomes. Ames and Archer (1988) examined the relationship of specific motivational patterns to students' perceptions of the classroom goal structure. One hundred seventy-six junior high and high school students from an advanced studies program were surveyed about their perceptions of the classroom goal structure and their use of learning strategies, choices, causal attributions, and attitudes. Ames and Archer found that the students' perceptions of whether mastery or performance goals were salient in the classroom did impact their use of effective learning strategies, as well as how they engaged in and responded to learning tasks. When students felt that the classroom goal structure was high-mastery oriented, they were more likely to report a preference for challenging tasks and to report using effective learning strategies than those students who perceived their classes as low-mastery oriented. They were also more likely to like their classes more. Interestingly, Ames and Archer determined that it was the degree to which the classroom goal structure emphasized mastery goals, rather than performance, that predicted how students engaged in learning. Performance cues may have been present, but students' use of learning strategies in this study was more dependent on how mastery-oriented they perceived their classrooms to be. In looking at causal attributions, they found a difference in performance and mastery orientations. Students who perceived a performance goal structure were more likely to attribute their

failure to a lack of ability and to view the work as too difficult, whereas students who perceived the classroom as mastery-oriented attributed their failure to a lack of sufficient effort. Ames and Archer concluded that goal structures, although determined by actual classroom practices, are also defined by how a student assigns meaning to these practices and subsequently adopts a goal orientation.

This interaction between personal goals and classroom goal structures was investigated in a more recent study by Lau and Nie (2008). This study examined the influence of goal orientations to math, specifically achievement, interest, and the use of avoidance coping and effort-withdrawal. They measured achievement using a multiple-choice math test, and interest was assessed using student reports of attention and participation in class. Avoidance coping was measured using a scale to assess students' tendency to give up when they found the work too difficult or boring, and effort withdrawal refers to students' tendency to minimize effort put forth into their math work. Lau and Nie wanted to expand goal theory cross-culturally, by specifically investigating an Asian population. They found that a mastery goal structure was positively related to math achievement, interest, and engagement, and negatively related to effort withdrawal and avoidance coping. Conversely, they found that a performance goal structure was negatively related to math achievement and engagement, but positively related to effort withdrawal and avoidance coping. Additionally, a performance goal structure tended to reinforce personal performance-avoid goal orientations, which led to maladaptive

outcomes, such as giving up on difficult work and withdrawing effort. This supports previous research suggesting the importance of a personal mastery goal orientation for positive student outcomes.

Social-emotional outcomes. The studies in this section investigate other aspects of student outcomes in the classroom, such as student well-being, affect, coping strategies, and disruptive behavior. The first two studies overlap and so will be discussed in terms of their outcomes and conclusions. Kaplan and Midgley (1999) and Turner et al. (2002) examined how the classroom goal structure interacted with students' use of coping strategies, such as asking for help, either seeking or avoiding help. Turner et al. conducted research with sixth grade students in math classrooms, and Kaplan and Midgley surveyed students in fifth grade and then again in sixth grade. Both studies found that in classrooms where a mastery goal structure was emphasized, students reported using positive coping strategies. These students asked for help when needed, used self-encouragement when faced with difficult tasks, and reported lower levels of avoidance. Interestingly, Turner et al. found that the perception of a high mastery goal structure was more predictive of students' low use of avoidance than a high performance goal structure was of predicting high use of avoidance. This supports Ames and Archer's (1988) conclusion that fostering a mastery goal structure may be more important than reducing a performance goal structure. Turner et al. also acknowledge that they did not

differentiate between performance-approach and performance-avoid goal orientations, which may have affected their results.

Kaplan and Maehr (1999) further investigated student outcomes by assessing the relationship between goal structures and psychological well-being. Well-being included measures of relationships with peers, behavioral control, general emotional well-being, school-related affect, and perceived academic self-efficacy. Sixth grade students were surveyed about both their psychological well-being and their perceptions of classroom goal structures. Kaplan and Maehr, in support of other research, found that a perception of a mastery goal structure was related to a positive sense of well-being, in all measures used. They also analyzed the results in terms of ethnicity, to determine if any differences existed between African-American students and Euro-American students. They found the results consistent for both groups, which is similar to Lau and Nie's (2008) conclusion that goal structures function in similar ways for culturally diverse populations.

Kaplan, Gheen, and Midgley (2002) examined the relationship between students' reports of disruptive behavior and student perceptions of classroom goal structures. They surveyed ninth grade students about their behaviors and perceptions of their math classes. The survey about disruptive behavior used a scale to ask students if they engaged in behaviors that bothered the teacher or disrupted the class. Because teachers' expectations and management styles differ, Kaplan et al. felt that self-reports from the students would be more accurate than behavior reports filed at the school. Observations of disruptive

behaviors by the researchers could also be very subjective, again supporting the conclusion to use student self-reports. After analyzing the data, Kaplan et al. found a significant relationship between goal structures and reports of disruptive behavior; students who perceived a mastery goal structure reported lower levels of disruptive behavior than those students who perceived a performance goal structure. The same results were also true when looking at students' personal goal orientations, thus offering further research to link classroom goal structures with adoption of personal goals. This study also surveyed teachers' perceptions of their classroom goal structures, and the relationship was the same; in classrooms where teachers felt they established mastery goal structures, students reported lower levels of disruptive behavior. Kaplan et al. suggest further research to determine if these reports of disruptive behavior would vary with the same students across classrooms with different goal structures.

These studies, similar to classroom environment literature, focus on how the classroom impacts student outcomes. Although the goal structure research focuses primarily on students in middle school and above, the work done by Stipek et al. (Valeski & Stipek, 2001; Stipek & Byler, 2004) as well as Pianta et al. (La Paro et al., 2004; Pianta, 1999) in the field of classroom environment research has demonstrated the importance of the impact of the classroom on very young students as well. It is important for teachers and researchers to understand how these goal structures are developed and perceived by students of all ages.

Development of classroom goal structures. The previous section highlighted some of the research studies that establish the benefits of developing a mastery-oriented classroom. The practical implication then is to determine how these goal-related messages are made salient in the classroom; what is it that teachers actually do to convey to students the nature of the classroom goal structure? Goal orientations emerge in response to achievement schemas; students perceive environmental cues that emphasize either a mastery or performance goal orientation and then respond accordingly. Therefore, research has been concerned with identifying the features of achievement settings that prompt the emergence of goal orientations (Kaplan & Maehr, 2007).

TARGET. A major framework in delineating classroom practices to support students' mastery goal orientations was developed by Carole Ames (1992). Using the acronym of TARGET, Ames described six classroom features that influence the development of goal structures. In summary, these six features are: *Task*- What is the student asked to do? Is the task meaningful? How difficult is the task? *Autonomy*- Who decides how to do the task? Are students participants in the decision-making? *Recognition*- What kinds of behaviors does the teacher recognize? *Grouping*- What criteria are used for grouping students? *Evaluation*- How is the assessment of the task accomplished? *Time*- How is the time given for the task managed? Is it flexible or strict? (Ames, 1992; Maehr & Midgley, 1991).

Using the TARGET framework, Maehr and Midgley (1991) conducted a three year intervention study, working with middle school teachers in a school-wide plan to develop specific practices that would emphasize mastery goals. The schools selected to participate in this intervention project were paired with control schools for comparison purposes. At the end of the three years, the students in the intervention schools had much lower reports of performance-oriented goals, both personally and perceived in the classroom and school, than those students attending the control schools. Table 1, adapted from Kaplan and Maehr (2007), demonstrates what teachers' practices might look like in each of the TARGET areas, in both a mastery-supportive classroom and a performance-supported classroom.

Table 1
Teacher practices related to TARGET domains

Domain	Mastery Supportive	Performance Supportive
Task	Personally meaningful and challenging; produces a useful or meaningful product; differentiated	Overly easy or overly difficult; involves rote activity; product is mainly used for evaluation; no differentiation
Authority	Decisions are shared; regulations and norms can be internally enforced	Externally enforced rules; no authority to choose alternatives
Recognition	Effort, taking risks, creativity, sharing ideas, learning from mistakes; recognition is private	Use of little effort, not making mistakes, following rules; recognition is public
Grouping	By interest; interaction is encouraged within and between groups	By ability level, performance, or social status; interaction is limited and competition is encouraged
Evaluation	Evaluated for progress, creativity, and mastery; evaluation is private	Evaluated for completion and performance as compared to others; evaluation is public
Time	Time is flexible; allowed to work at one's own pace; schedule can be changed if necessary	Time limits are strict and enforced; schedule is more important than completion or understanding

Further research. Patrick, Anderman, Ryan, Edelin, and Midgley (2001) used TARGET to investigate how teachers communicate goal orientations to fifth grade students. This mixed-method study observed the relationship between teacher practices and student perceptions of classroom goal structures. Their findings supported Ames'

(1992) TARGET framework; they found that the classroom practices that influenced goal structures were aligned with the categories of TARGET as described above. For example, in analyzing teacher discourse, they found distinct differences in the area of evaluation. In classrooms where the students perceived a high performance goal orientation, the teachers emphasized the importance of grades and routinely announced grades publicly or made public comments regarding the comparison of students. In mastery-oriented classrooms, the teachers made comments emphasizing the importance of learning the material and praised students for effort rather than completion. This study also highlighted other important teacher practices outside of the TARGET framework. Patrick et al. found that the messages teachers convey about the nature of learning contributed to the perception of goal structures. Teachers of mastery-oriented classrooms described learning as an active process, requiring student interaction, whereas teachers of performance-oriented classrooms indicated that learning took place as a result of following rules and memorizing material independently. In addition, Patrick et al. also found that the teachers' affective support contributed to goal structure interpretation. Students perceived more mastery orientation when teachers showed concern both for students' well-being and for their learning. Interestingly, they found that it was not enough for teachers to show concern for their students' emotional and physical comfort; they also had to show concern for their educational progress and learning. This high level of affective support for students was seen as conveying a level of respect for students,

and students responded to this by perceiving the classroom climate as high mastery-supportive.

Similarly, in a separate study, Patrick, Turner, Meyer, and Midgley (2003) also investigated classroom practices, in this case as evidenced by teachers at the beginning of the year. This study analyzed and grouped sixth grade classrooms according to teacher practices. Patrick et al. (2003) described classrooms where teachers were consistent in their expectations, showed warmth and concern for the students, emphasized the value of learning, and conveyed positive expectations for all students, as “supportive” classrooms. The classes labeled “supportive” demonstrated the highest level of perceived mastery-goal orientation. Patrick et al. (2003) found that the messages teachers conveyed at the beginning of the year were consistent with those conveyed at the end of the year, suggesting a high level of stability throughout the year in terms of teachers’ goal-related classroom practices.

Assessing Classroom Goal Structures

Because of the connection between personal goals and classroom goal structures, researchers have also focused on how to assess students’ perceptions of classroom goal structures. The measures developed have been overwhelmingly used with older students, which is why the current study was designed to analyze the usefulness of modifying these types of measures with younger students. Ames and Archer (1988) designed a survey to specifically focus on perceptions of classroom goal structures. Students rated each item

on a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Using this survey, Ames and Archer found that the students' perceptions of whether mastery or performance goals were salient in the classroom did impact their use of effective learning strategies, how they engaged in and responded to learning tasks.

In other research, and a focus for this study, a dominant measure of goal orientation has been a survey from PALS (Midgley et al., 2000). The scales assessing goal orientations have been used with seven different samples of elementary (sixth grade) students and middle school students (seventh and eighth grade). Items on the student scales are anchored at 1 = "Not at all true," 3 = "Somewhat true," and 5 = "Very true." After the initial development of these scales, future research led to scales specifically designed to assess goal structures in the classroom separately from the assessment of personal goal structures (Midgley, Kaplan, Middleton, Maehr, Urdan, Anderman, Anderman, & Roeser, 1998). The scales were specifically developed to assess mastery and performance goals structures. For example, a question about a classroom's mastery goal structure is "My teacher wants us to really understand the subject, not just to remember facts or rules." A question targeted to a classroom's performance goal structure reads "My teacher thinks that it is more important to do well than to learn new things." These scales, and others from a more recent PALS (Midgley et al., 2000), have been frequently used or adapted in research investigating classroom goal structures and both academic and social outcomes (Kaplan et al., 2002; Kaplan & Maehr, 1999; Kaplan

& Midgley, 1999; Lau & Nie, 2008; Turner et al., 2002) and have been the dominant method of assessment in this line of research.

Recent Critiques of Self-Report Measures

This brief review of the many studies that investigated classroom goal structures and related outcomes demonstrates the importance of students' perceptions about the goal emphases of their classrooms and the outcomes, both academic and social, that are related to classroom goal structures. However, the dominant method of assessing goal structures through the use of self-report measures has been questioned (Fulmer & Frijters, 2009; Karabenick et al., 2007; Woolley, et al., 2004). Although self-report scales for motivation related constructs have continued to increase in use, Fulmer and Frijters believe that there has not been sufficient consideration for the developmentally appropriateness of these scales. One issue they cite is the developmental differences in audiences for whom a scale may be used; specifically, issues may arise when a scale is used with younger students. Self-report scales may not have "developmentally suitable item and response formats, sentence structure and word choice" (Fulmer & Frijters, 2009, p. 224). Administering a survey can also be problematic if younger students are expected to complete it independently without assistance reading items and response choices. Fulmer and Frijters also discuss cognitive issues with self-report scales. The concepts contained in these surveys may be beyond the cognitive processing abilities of some students, particularly younger students. Some measures, such as the PALS, force students

to think about multiple contexts and constructs. For example, “a performance-avoid goal item in the PALS requires students to consider the beliefs of their teacher, the abilities of other classmates, as well as the perception of their own knowledge of intelligence (‘It’s important to me that my teacher doesn’t think that I know less than others in class’)” (Fulmer & Frijters, 2009, p. 224). Students may not be able to cognitively process these areas accurately in order to pick a response choice.

Karabenick et al. (2007), in a review prior to Fulmer and Frijters, came to similar conclusions in regard to self-report surveys, but Karabenick et al. focused primarily on the cognitive demands of self-report measures and the use of cognitive methods to enhance validity. Karabenick et al. refer to cognitive validity as the “information that is derived from examining how respondents process thoughts, feelings, beliefs, or experiences as they respond to survey items...whether respondents’ cognitive processes during test performance mirror those intended by test designers” (p. 140). Their concern was focused on the cognitive processes that children have to employ in order to understand and respond to an item on a self-report measure. Woolley et al. (2004) refer to this same concept but call it developmental validity, that is, “when an item can be read, comprehended, and validly responded to by children in a targeted age range” (p. 192). They focus on the developmental aspects of the cognitive processes because these may vary due to the age and abilities of the respondents. Although adults may struggle with context or word choice in surveys, Woolley et al. believe that children demonstrate more

limited vocabulary, attention spans, and cognitive capacity than adults, making the process of responding to items more difficult than for most adults. It is because of this focus on age and ability differences that Woolley et al. place the emphasis on developmental validity, but this concept is quite similar to Karabenick et al.'s focus on cognitive validity. For both research groups, the importance is in aligning the cognitive processes of the respondents with that of the expected responses by the test designers; in essence, are the students thinking about the concepts in the same way that the survey designers intended? In order to address these validity issues, Woolley et al. and Karabenick et al. advocate for the use of a specific cognitive method, called cognitive interviewing, to explore how students think about, process, and respond to self-report measures.

Cognitive Interviewing

Cognitive interviewing refers to a variety of methods used to question survey respondents specifically about their thought processes as they answer survey questions, as a way of improving a survey measure. In his book about cognitive interviewing techniques, Willis (2005) establishes the need for cognitive interviewing by discussing error issues in self-report surveys and previous ways of dealing with these errors. Response error represents the difference between the true score and what the respondent actually reports. Respondents can both over-report and under-report in their answers, or misunderstand the question altogether. Willis believes that "response error is a major

impediment to survey data quality, and the design of questionnaires that are sufficiently free of such error is a complex process that requires the use of systematic principles of both question design and empirical evaluation” (p. 15). Response errors may occur for a variety of reasons; the respondents can’t remember the information, don’t have enough information to answer the question, or they simply don’t want to talk about it.

Miscommunication between the interviewer and respondent may also occur. Standard survey questions do not typically allow for flexible dialogue between the respondent and the interviewer and, unlike normal conversational speech, miscommunications may go completely unnoticed or unaddressed. Checklist systems and questionnaire design guides are systems currently in place to assist with identifying errors in questions and potential problems, but Willis believes these systems are incomplete and do not provide the same level of feedback as cognitive interviewing.

History. Karabenick et al. (2007) credit Piaget as perhaps the first researcher to use cognitive interviewing techniques when he asked young children about what they were thinking as they solved problems. He then became concerned with developing an interview procedure to investigate children’s cognitive processes. This conceptualization of unobservable processing has also been referred to as Cognitive Aspects of Survey Methodology, or CASM (Willis, 2005; Woolley et al., 2004), and has been used in various forms with survey research for over 20 years. CASM developed as the result of research into survey response error and focuses on the complex cognitive processes

respondents must navigate when answering a question. CASM includes a four-stage model of survey response: Comprehension of the question, Retrieval from memory of relevant information, Judgment/Estimation processes, and Response processes. CASM was originally proposed as a framework that would guide the traditional view of questionnaire design by emphasizing the importance of cognitive processes in survey response. Willis views cognitive interviewing as a systematic application of the theoretical work of CASM.

Cognitive interviewing in research. As previously described, cognitive interviewing techniques are concerned with the cognitive processes a respondent goes through when responding to survey questions. Similar to CASM's four-stage model, Karabenick et al. (2007) identify six separate cognitive steps: 1) read and interpret the meaning of self-report items; 2) interpret what the item is asking; 3) search memory for thoughts, experiences, and feelings that are relevant to the content and context of the item; 4) read and interpret answer response options; 5) simultaneously think about the item, relevant memories, and response items to search for the answer that most accurately reflects the respondent's experience; and 6) select the response option that is congruent with information retrieved from memory. These cognitive processes can be complex and put considerable load on a respondent. Cognitive interviewing focuses on obtaining information from respondents in three critical stages in these steps- interpretation of the item, retrieval of relevant information from memory, and selection of a response option

that is congruent with the information retrieved from memory, by asking respondents various questions as they go through the survey. It is designed to elicit data from respondents about their processing of a survey item. Cognitive interviews are used in the development of new instruments, in the modifications of existing instruments, when adapting an established instrument for a new population, or for confirming cognitive validity of an existing instrument (Willis, 2005). Cognitive interviewing data can provide valuable information not only on which test items are problematic, but also why these items performed poorly. Willis points out several times in his book that it is important to note that the focus of cognitive interviewing is on improving the items. He is primarily concerned with how well the respondents' answers are congruent with the intended purposes of the instrument. Willis advocates for the use of both standard and non-standard questions during interviews, giving the interviewer the flexibility to address each individual based on his or her responses.

Desimone and Le Floch (2004) reviewed studies in which researchers used cognitive interviewing techniques to pretest surveys given to teachers and principals. The goal of their review was to provide examples of how cognitive interviewing techniques had improved surveys and helped to reduce validity threats. As the authors state, "an important aspect of validity is that the respondent has a similar understanding of the questions as the survey designers; and that the questions do not omit or misinterpret major ideas, or miss important aspects of the phenomena being examined" (p. 4). The

authors' rationale for the use of cognitive interviewing as a tool for improving survey design, as well as the anecdotes of survey respondents, were very similar to Willis' (2005) arguments. There were some differences in their explanation of cognitive interviewing techniques. Desimone and Le Floch utilized a think-aloud method, with standardized follow-up questions. In the think-aloud method, respondents are instructed to simply speak out loud everything they are thinking as they are answering the questions, and the follow-up questions are used in the event of any misunderstanding or lack of information. In these studies, the interviewers rarely offered any statements other than "Thank you. Your explanation will be very helpful," during the interviews, unless they were asking follow-up questions. Desimone and Le Floch (2004) used what Willis would call proactive, standardized probes, or follow-up questions that had been generated by the interviewer prior to conducting the interview. While Willis does describe other types of probes that occur reactively or as the interview is ongoing, these researchers chose to use only proactive standardized questions. Similar to Willis, Desimone and Le Floch regard cognitive interviewing as only a means for pretesting a survey; during the interview, they were not interested in what the respondents report pertaining to the construct, but rather how the responses demonstrated confusion or complexities with the question itself.

Although studies using cognitive methods may suggest that the revised surveys are better than the original surveys, evidence of this is not substantial. Foddy (1998)

suggests that some researchers, such as Willis (2005), state that the evidence of the effectiveness is in the examples of confusions or misinterpretations that respondents had with the initial survey, and that the improvements should be obvious. To further investigate this, Foddy compared the effectiveness of a range of in-depth probes. Eight questions were used, taken from previous studies using cognitive methods. Six categories of probes were used, ranging from general, "Can you tell me more about that?" to more question specific, "What age/group were you thinking of?" As in the Desimone and Le Floch (2004) study, all questions were proactive and standardized. Survey respondents were first asked to answer the eight survey questions, and then the interviewer went back through, reminding them how they answered the question and using the follow-up probes. Foddy admits that one of the consequences of this design is that respondents might forget what thoughts they had while answering the questions, if the probes are asked at the end rather than at the same time, but he believed that with only eight questions, this risk was not too great. Responses for open-ended probes were coded as being successful or unsuccessful in terms of the purpose of the probe, and the criteria for the concept of success was clearly defined for each probe. Responses of "don't know," or "not sure," were categorized as non-informative. Foddy argues that although the respondent was unable to respond does say something about the question, it is not specific in what the problem with the question was. The results showed differences in the ways in which individuals comprehended the questions. Individuals responding to the same survey item

might really be answering very different questions based on their own interpretations.

Foddy found that the most successful probes were the most specific, and that the use of these specific in-depth probes was “unquestionably more effective” (p. 129).

Cognitive interviewing applied to PALS. As evidenced by the examples given, there are multiple methods or approaches to cognitive interviewing techniques. Here, I specifically focus on Karabenick et al.’s description and method, since they specifically applied cognitive interviewing techniques to motivation related self-report measures, including the PALS (Koskey, Karabenick, Woolley, Bonney, & Dever, 2010). In this study, the researchers used four questions during the survey: "What is that question trying to find out from you?" "Which number would you choose as your answer?" and "Please explain to me why you chose that answer." Individual follow-up questions, like "Can you give me an example?" or "Can you tell me more about why you chose that number?" were used, based on each individual’s response. Koskey et al. used these questions with two classroom mastery scales from the PALS, one with the stem *My teacher* and the other scale beginning with *In our class*. Student responses to the four questions, and any follow-up questions, were rated by three sets of coding criteria—item interpretation, coherent elaboration, and congruent answer choice. A valid item interpretation meant that the student's interpretation of the question was consistent with the intended meaning of the scale. Valid coherent elaboration referred to the ability of a student to explain perceptions or experiences in the classroom that were related to the question. For

coherent elaboration, there were two areas: content and context. Content referred to the goal structure feature and whether or not the student gave examples that were consistent with the intended meaning of the item, while context referred to the student's classroom and whether or not the student specifically mentioned his or her classroom or teacher. If a student selected an answer choice that was consistent with the examples or experiences given, this answer was a valid congruent answer choice. The raters also came up with an overall rating of cognitive validity, on a scale of 0-4 based on these coding criteria. A score of zero meant that the student was inconsistent and did not accurately interpret the item or elaborate on it accurately, a one meant the student interpreted only one aspect of the item (either the content or context), two or three represented some inconsistencies, and a four was given if the student interpreted the item and elaborated on the item consistent with the intended meaning of the item, throughout the interview, and also chose an answer consistent with his or her interpretation and elaboration.

Overall, the researchers found a higher level of validity with middle school students (sixth and eighth grade) than with elementary school students (third and fourth grade), but the cognitive validity for both groups ranged only from low to moderate (1.69 to 2.34). For most of the questions, using the stem *My teacher* resulted in more valid answers than the *In my class* stem; however, only the elementary school students were given both scales. Using cognitive interview techniques, the researchers found that some vocabulary terms, such as the word "concepts," and the idea of "improvement" were

difficult for children to understand. The researchers note that reading these questions out loud to students does not solve the problem of misunderstanding the terms. With only low to moderate scores for cognitive validity, this study demonstrates the need for multi-method studies to investigate students' cognitive processes when answering surveys.

I used the Koskey et al. (2010) study as a model for a pilot study conducted with 14 students in kindergarten, first, and second grade (Hartigan, 2011). My study replicated Koskey et al.'s method, using the teacher goals scales from the PALS, while conducting cognitive interviews with the students. Similar to Koskey et al., the cognitive validity scores were quite low, ranging from 1.29 to 2.29. Koskey et al. defined ratings below three, and particularly below two, as problematic. As none of the items resulted in a cognitive validity rating over three, this provides further support that these items, as written, are difficult for young students to understand and respond to. Valid item interpretation ranged from 14.30 to 71.00%. Students were able to better elaborate on the context of each item, that is, that the item referred to the students' classrooms and teachers, than on the content, or intended meaning, of each item. Context elaborations ranged from 50.00 to 78.60%, and content elaborations only ranged from 7.10 to 35.70%. Specifically, three items received very low scores on cognitive validity, interpretation, and content elaboration: *My teacher wants us to understand our work, not just memorize it*; *My teacher recognizes us for trying hard*; and *My teacher tells us how*

we compare to other students. These three items had the lowest scores, demonstrating that students had a particularly difficult time interpreting and responding to these items.

With respect to the five-point Likert scale, almost 75% of the students were able to choose an answer that was consistent with their elaborations 80-100% of the time. Students were able to use the lower end of the scale, as observed in responses like “No, my teacher never does that,” as well as the higher end, with responses like, “Yes, that happens all the time in my classroom.” For the middle part of the scale, students’ responses also accurately matched this selection, with responses like, “Well, sometimes my teacher says it’s ok, and sometimes she says it’s not,” and “Three- because some days we have lots of time, but other days we have to rush and finish everything.” This is consistent with the results from Koskey et al. (2010), who found that across items, 80-100% of students could accurately respond to the items using the five-point scale. Although students often struggled to provide coherent elaboration regarding the content of the item, overall, students were able to elaborate on the context of the item. No students specifically responded about an additional or outside context, such as home or extracurricular activities; students either directly mentioned their classroom or teacher, or neglected to mention any specific context. This differs from Koskey et al. (2010), who noted that much of the misinterpretation or lack of elaboration was due to students misunderstanding the context or reflecting about an outside context, such as swimming or karate, rather than focusing on their classrooms. The fact that no students in my

interviews commented about events outside of school may have been due to my relationship as the researcher with the students, as a known teacher in their school. Conducting the surveys with a teacher in their own school, even if outside their classrooms, may have focused the students on the classroom context.

It is not surprising that the cognitive validity ratings were as poor, and lower, as those found by Koskey et al., since the PALS, in its original form, is specifically recommended for students in fourth grade or higher. My previous study was intentionally using a measure that is not designed or intended for this young population. The purpose of the study was to determine how young students responded to these items, in their current state, which is not intended for them, in order to make modifications. This current study tested these modified items in a subsequent round of cognitive interviews; the interview data also served to provide information about what teacher practices students describe that are related to classroom goal structures.

As discussed previously, most research on goal structures has been conducted with older students, mainly fourth grade and higher. Reasons for this seem to focus on methodology, since the dominant assessment has been self-report survey research. However, in light of Koskey et al.'s (2010) use of cognitive interviewing, this could be an effective tool in making modifications to existing surveys in order for use with younger students. The extensive research on classroom environments demonstrates the impact that classrooms have on students, both currently, and in the future. Also, given the

implications of stability and change of goal orientations, if students do start developing specific patterns of responses to achievement tasks, accurately assessing these interpretations and perceptions of the classroom environment early on may help further research into how students make these interpretations and apply them to their own goal orientations. Research with younger students could also contribute to the conflicting stability and change research, allowing for more longitudinal studies to investigate how students' goal orientations and perceptions change and develop.

Chapter 3: Method

The purpose of this study was to use cognitive interviewing to examine the validity of classroom goal structure items in a modified version of the *Patterns of Adaptive Learning- PALS* (Midgley et al., 2000) in assessing primary students' perceptions of classroom goal structures by addressing the following research questions:

- (1) How do primary students interpret items on a modified version of the PALS?
- (2) To what extent do they recall memories or events that are relevant to each item?
- (3) How well do they choose a response that reflects these recollections?
- (4) What specific teacher practices do students refer to as examples of mastery or performance goal structures?

Research Design

Due to the constraints of utilizing surveys with young children, this study employed a mixed-methods approach by conducting concurrent interviews with the survey administration. Survey data were combined with cognitive interviewing questions in order to determine how children responded to survey items.

Participants

Participants were 19 students enrolled in either first or second grade in a mid-Atlantic elementary school. Nine students were in first grade and 10 in second grade. The sample was diverse in terms of race/ethnicity: 42.1% White, 15.8% African American, 21.1% Asian, 10.5% Hispanic, and 10.5% multiracial. There were 10 girls and nine boys. The participants' mean age was 7.37 years ($SD = .68$).

Sampling Procedures

In my previous study (Hartigan, 2011), 250 informed consent letters were mailed to the parents of students from five kindergarten classes, five first grade classes, and five second grade classes. From the group of students who returned forms, 14 students were randomly selected to participate in the pilot study. The current study continued with the sample of students now in first or second grade who had returned forms and not been selected to participate previously. Students currently in second grade who were in my first grade class last year were excluded from this list, as well as the students who were now in third grade. Because this study is dependent on verbal communication through interviews, students with processing or communication disabilities, as noted on student's Individual Education Plans, were also excluded. The final exclusion included students labeled as English Speakers of Other Languages Level 1; this level refers to students with limited to no verbal English skills.

Measures

This study utilized both quantitative and qualitative measures. Students responded to survey items, but also participated in cognitive interviews at the same time. The following specific measures were used:

Patterns of Adaptive Learning (PALS, Midgley et al., 2000). Items were selected from the teacher goals scales of the PALS (see Appendix; Midgley et al., 2000) and modified based on results from the previous study. An example question would be “Your teacher thinks it’s ok to make mistakes as long as you’re learning.” Items on the scales are anchored at 1 = “Not at all true,” 3 = “Somewhat true,” and 5 = “Very true.” In their recent study, Koskey et al. (2010) used both the teacher goal scales and the classroom goal structure scales, but they found that the teacher goal scales demonstrated greater cognitive validity than the classroom scales. Based on Koskey et al.’s results, the present study only used the teacher goal scales.

However, this study differed from the Koskey et al. study in that students responded to both mastery and performance items from the teacher scales. Because the focus of this study is on how students interpret and respond to items about classroom goal structures, it is important to find out if the distinctions of mastery and performance exist for young students in the same way that previous studies have shown for older students. In the PALS, there are two scales for performance: approach and avoid. In both the pilot study (Hartigan, 2011) and this current study only the performance approach items were

used. This decision was based on the fact that several of the performance-avoid items use the term “stupid.” Within the school environment, use of the term “stupid” is strongly discouraged and young students view it as a very bad word. It would have negatively impacted my credibility to them as a teacher if I had used this word, and because the pilot study used the original questions with no modifications, I chose not to use these items. Table 2 demonstrates the original questions compared to the modified items:

Table 2*Comparison of original and modified PALS items*

Original Item	Modified Item based on Hartigan (2011)
1. My teacher thinks that mistakes are ok as long as we're learning.	1. Your teacher thinks that it is ok if you make mistakes as long as you are learning.
2. My teacher wants us to understand our work, not just memorize it.	2. Your teacher wants you to really understand what you are learning, not just be able to repeat it.
3. My teacher points out students who get good grades as an example to all of us.	3. Your teacher tells you about the students who get good grades as an example to your whole class.
4. My teacher really wants us to enjoy learning new things.	4. Your teacher really wants you to enjoy learning new things.
5. My teacher lets us know which students get the highest scores on a test.	5. Your teacher lets you know who gets the highest grades on a test.
6. My teacher recognizes us for trying hard.	6. Your teacher notices when you are trying hard.
7. My teacher gives us time to really explore and understand new ideas.	7. Your teacher gives you enough time to really explore and understand new ideas.
8. My teacher tells us how we compare to other students.	8. Your teacher tells you how you are doing compared to other students.

Cognitive interviewing. The current study followed Karabenick et al.'s (2007) cognitive pretesting procedures (see Appendix B) with the exception that the interviewer read the questions out loud to the students. Given their age and reading levels, it was not appropriate to ask the students to read the questions themselves. The interviewer first

read an example item to the students in order to explain the five-point Likert scale before proceeding to read the PALS items. After the interviewer read each PALS item, the students were asked to 1) indicate what they thought the question was asking, 2) indicate which answer they would choose, and 3) explain why they selected that answer. Follow-up questions and pre-scripted examples were used to further probe participants' responses if students could not answer the first question, "What do you think this question is asking?" At the end of the interview, students were asked if they wanted to go back to any questions and add any more information, or if they thought any questions in particular were difficult or confusing.

Data Collection Procedures

Approval was obtained from the Human Subjects Review Board at George Mason University, as well as the Research Review Board of the school district. Parental consent was obtained for each student, and each student responded to a verbal assent form. The students were instructed that they would be answering questions about what they think about their classrooms and teachers.

Survey administration. The surveys were administered to the students one-on-one, in a separate location from the students' classrooms. All survey items were read aloud to the students, including the sample item in order to explain the Likert scale response format.

Interviews. Students were interviewed individually, concurrent with the survey administration. As the researcher conducting the study, I was known to the participants as a teacher in the school; however, the researcher was not the students' classroom teacher. The interviews were recorded and took approximately 15 minutes per student. The interviews followed Karabenick et al.'s (2007) cognitive interview procedures and asked pre-scripted questions that involved reading the item out loud to the students and asking a series of questions in order to obtain information about how the students interpreted and responded to the items. Specifically, each student was asked "What do you think that question is trying to find out from you?" and "Which number would you choose for your answer?" referring to a five-point Likert scale. Students were then asked "Can you tell me why you choose that answer?" In addition to these questions, follow up questions were used, such as "Can you give me an example," or "Can you tell me more about that?" Pre-scripted examples of teacher behaviors or statements that represent each item were also used if students needed further prompting (see Appendix B). Interviews were audio recorded and transcribed for analysis.

Fidelity of Implementation

In order to determine if the researcher followed the interview protocol accurately, the interview transcriber, who was not the researcher, completed a checklist for each interview, indicating whether or not the interviewer asked the required questions: What is that question asking you? What answer would you pick? and Why did you choose that

answer/ Can you give me an example? For each of these questions, the transcriber indicated the interview number where the question was asked. This was done so that a third party could verify the fidelity of implementation of the interview script. According to this checklist, the interviewer asked the three questions 100% of the time.

Coding of the Data

The recorded interviews were transcribed and coded on the extent to which participants a) accurately interpreted each item, b) provided a coherent elaboration, and c) provided an answer choice consistent with their elaboration on the item. These three criteria were scored with Yes, No, or Insufficient Prompt, which meant that the interviewer did not ask sufficient follow up questions to obtain a response. The rater also provided a more global rating for cognitive validity on a scale of 0-4, based on the student's responses for the previous three sets of criteria. For coherent elaboration, there were two areas: content and context. Content referred to the goal structure feature and whether or not the student gave examples that were consistent with the intended meaning of the item, while context referred to the students' classrooms and whether or not the student specifically mentioned his or her classroom or teacher. A score of zero meant that the student was inconsistent and did not accurately interpret the item or elaborate on it accurately, a one meant the student interpreted only one aspect of the item (either the content or context), two or three represented some inconsistencies, and a four was given if the student interpreted the item and elaborated on the item consistent with the intended

meaning of the item, throughout the interview, and also chose an answer consistent with his or her interpretation and elaboration.

The interviews were transcribed and then coded first by each question that the students were asked. The answers to the question “What do you think that question is asking,” were highlighted and coded as item interpretation. The other two questions, “What answer would you pick?” and “Tell me why you chose that answer” were highlighted and coded as congruent answer choice and coherent elaboration, respectively. Three separate colors were used for highlighting, since students did not always answer the questions in order. For example, many students would immediately pick a response number from the Likert scale before stating what they thought the question was asking or giving examples from their classrooms. The color-coding helped to differentiate the answers to the various components of the structured interview, which aided in the scoring for item interpretation, coherent elaboration, and congruent answer choice.

In order to establish inter-rater reliability, a second trained rater double-coded 42.10% of the interview data (i.e., eight randomly selected complete interviews). This percentage for double coding is above what is recommended by Pianta, La Paro, and Hamre (2008). Inter-rater reliability between the researcher and the double-coder was 94.73%, which was within the recommended range for reliability according to Pianta et al. Although Woolley et al. (2004) recommend three independent coders for all text data, given the high level of agreement, only two raters were used for this study.

Data Analysis

Descriptive statistics were calculated for all participants in order to determine the mean age of the students, as well as percentages for gender and ethnicity. Descriptive statistics were also calculated for all the items, providing information on the means and ranges of responses for each question. New variables for mastery and performance items were created by calculating the mean composite score. The internal consistency of each survey scale was also determined by calculating Cronbach's alpha. The correlation between the mastery and performance scales was examined to determine if they were negatively correlated to each other. Means and standard deviations were calculated for cognitive validity scores for each item.

In order to explore teacher practices that were referenced by the students, the interviews were coded according to students' interpretation and elaboration of the items. Similarities in student responses were noted on a separate paper, in order to keep track of common teacher practices noted by the students. These common responses were used to report the results for each item.

Chapter 4: Results

The purpose of this study was to use cognitive interviewing to examine the validity of classroom goal structure items in a modified version of the PALS (Midgley et al., 2000) to assess primary students' perceptions of classroom goal structures. The cognitive interviewing process focuses on how students interpret and respond to survey items and addresses the following research questions:

- (1) How do primary students interpret items on a modified version of the PALS?
- (2) To what extent do they recall memories or events that are relevant to each item?
- (3) How well do they choose a response that reflects these recollections?
- (4) What specific teacher practices do students refer to as examples of mastery or performance goal structures?

Due to the mixed methods approach to this study, the results are organized by first presenting the numeric data from the coding scheme, which addresses the first three research questions by reporting the percentages of students who accurately interpreted and elaborated on the items. The next section then provides a by-item report of student answers and examples in order to support the numeric findings and address the fourth research question.

Cognitive Validity

Table 3 presents the mean cognitive validity ratings, or global scores, for each item. These global ratings corresponded to the criteria for the three coded areas: item interpretation, coherent elaboration (both context and content), and congruent answer choice. A score of zero meant that the student was inconsistent and did not accurately interpret the item or elaborate on it accurately, a one meant the student interpreted only one aspect of the item (either the content or context), two or three represented some inconsistencies, and a four was given if the student interpreted the item and elaborated on the item consistent with the intended meaning of the item, throughout the interview, and also chose an answer consistent with his or her interpretation and elaboration. The mean cognitive validity scores ranged from 2.36 to 3.58, out of a possible 4.00. These scores are notably higher than those using the original PALS items in the pilot study (Hartigan, 2011). The cognitive validity ratings in the pilot study only ranged from 1.29 to 2.29. The performance goal structure items in this study ranged from 2.86 to 3.58, with a mean cognitive validity score of 3.05 ($SD = .64$). The mastery goal structure items ranged from 2.37 to 3.58, and the mean cognitive validity score for all mastery items was 3.14 ($SD = .47$).

Table 3*Mean cognitive validity ratings of items assessing classroom goal structures*

Item	Cognitive Validity Mean (Standard Deviation)
1. Your teacher thinks that mistakes are ok as long as you're learning.	3.579 (0.69)
2. Your teacher wants you to really understand your work, not just be able to repeat it.	2.368 (1.26)
3. Your teacher tells you about the students who get good grades as an example to your whole class	2.684 (1.16)
4. Your teacher really wants you to enjoy learning new things.	3.105 (0.99)
5. Your teacher lets you know who gets the highest grades on a test.	3.579 (1.86)
6. Your teacher notices when you are trying hard.	3.421 (0.96)
7. Your teacher gives you enough time to learn about new ideas.	3.211 (0.98)
8. Your teacher tells you how you are doing compared to other students.	2.895 (1.05)

Table 4 presents the proportion of students, by item, who provided valid item interpretation and valid coherent elaborations, both for the content and the context of each item. Specifically, 36.84 to 84.21% of students were able to provide valid item

interpretations. Students were able to better elaborate on the context of each item, that is, that the item referred to the students' classrooms and teachers, than on the content of each item. Context elaborations ranged from 94.74 to 100%, and content elaborations ranged from 36.84 to 94.74%. Again, these percentages differed from the results of the pilot study, where context elaborations ranged from 35.70 to 78.60%, and the percentage of students who provided a coherent content elaboration only ranged from 7.10 to 35.70%.

Table 4

Proportion of students providing valid item interpretation and meeting coherent elaboration validity criteria for items assessing classroom goal structure

Item	Interpretation Frequency (%)	Coherent elaboration	
		Context Frequency (%)	Content Frequency (%)
1. Your teacher thinks that mistakes are ok as long as you're learning.	13 (68.42%)	19 (100%)	18 (94.74%)
2. Your teacher wants you to really understand your work, not just be able to repeat it.	7 (36.84%)	18 (94.74%)	7 (36.84%)
3. Your teacher tells you about the students who get good grades as an example to your whole class.	8 (42.11%)	19 (100%)	10 (52.63%)
4. Your teacher really wants you to enjoy learning new things.	16 (84.21%)	18 (94.74%)	10 (52.63%)
5. Your teacher lets you know who gets the highest grades on a test.	15 (78.95%)	19 (100%)	16 (84.21%)
6. Your teacher notices when you are trying hard.	14 (73.68%)	19 (100%)	16 (84.21%)
7. Your teacher gives you enough time to learn about new ideas.	13 (68.42%)	19 (100%)	12 (63.16%)
8. Your teacher tells you how you are doing compared to other students.	10 (52.63%)	19 (100%)	10 (52.63%)

Note: Reported percentages reflect the percentage of valid responses out of the total number of codable responses.

The following sections highlight some responses by item that demonstrate how students interpreted and elaborated on items. Although the mastery and performance items were mixed in together for the survey administration, this section presents the

results from the mastery items first, in order from highest mean cognitive validity score to lowest, and then performance items in the same order. Items are numbered in the order they were asked in the survey.

Mastery goal items. All five mastery items from the teacher goal scales of the PALS were modified for this survey. Each modified item is presented below, with examples of student responses. The mastery goal structure items ranged from 2.37 to 3.58, and the mean cognitive validity score for all mastery items was 3.14 ($SD = .47$).

Item 1: Your teacher thinks mistakes are ok as long as you are learning.

Responses to item 1 demonstrated how students interpreted their teachers' reactions to mistakes. This item had the highest mean cognitive validity score ($M = 3.58$, $SD = .69$) for all the mastery items and the highest overall percentage of students who provided coherent elaborations on the content (94.74%). Most students were able to reference the importance of trying hard even when mistakes happen, as well as how teachers encourage multiple attempts even when mistakes were made. Many students answered "very true," without even hesitating and talked about how their teachers encourage them through mistakes. For example:

Student (S): Oh, 5, definitely.

Interviewer (I): Ok, tell me why.

S: Because, um, well, sometimes I don't get questions right, that happens to everyone, my teacher says. She says you learn from your mistakes, so that's what I try to do.

Some students referred to their teacher's emotional state, as in whether or not he or she would get angry at mistakes.

Student (S): One time, we did a journal for our words we should know, and I didn't know all my words and cut out the wrong ones. But she didn't get mad at me. She just said, "You're still learning, that's ok."

Another student discussed how his teacher did get upset when he made a mistake:

S: I would say, its number 2.

I: Number 2, can you tell me why?

S: Um, so she grades our things, right? So she always wants us to get everything correct, so I'm like always trying hard not to make mistakes. And when I do make mistakes, she like, I can see her face, and I know she's not really happy.

Item 6: Your teacher notices when you're trying hard. In the original item, the question is stated, "My teacher recognizes us for trying hard." In the pilot study, the word "recognizes" was extremely problematic, resulting in a cognitive validity rating of 1.50. Students thought "recognizes" meant that the teacher remembered who they were and did not mention the issue of trying hard. However, with the modified item, the mean cognitive validity rating went up to 3.42 ($SD = .96$). Most students elaborated with

comments from their teachers, like “Wow, great focus- you’re trying hard,” or “Keep working, I can tell you’re really thinking,” or “Not quite, but I know you’ll get it because you are working,” demonstrating that at least at the primary level, these teachers make an effort to deliberately point out when students are trying hard. Students are also aware of these statements and could connect them to what the PALS item was asking. Students also referred to teachers giving out stickers or “tally marks,” which was part of one particular teacher’s behavior management system.

S: Yeah, like she says good job, keep working, and we have these uhh tally marks and when we’re working she might say, you can have a tally mark, you are really trying hard and if you just keep focused, that’s how you get tally marks, so I know she notices.

There was still some misinterpretation about what it meant to try hard, as in this example:

I: What do you think that question is asking?

S: I’m trying hard when I sweat... so...

I: Ok, what about when you’re trying hard in the classroom, like reading or writing?

S: Yes, I sweat then, so my teacher knows, cause I’m sweating, so she knows I’m like doing my best. I sweat when I try my best.

Item 7: Your teacher gives you enough time to learn about new ideas.

Responses to item 7 received a mean cognitive validity score of 3.21, ($SD = .98$),

showing some understanding of the concept of having enough time to understand new material. Students specifically elaborated about occasions when they or other students were struggling to understand a concept.

S: That means she gives you some time to think about new ideas.

I: So if you or someone in your class is having trouble learning, does she give you more time?

S: Yeah, all the time. Like one time, that's what happened to me when I was trying to do this problem with minuses, like I started to get confused.

I: And then what happened?

S: So she went on this website and told me, and she did it with the whole class, but the kids like me who didn't get it, we got to watch more with her and do more problems so like more practice and then we could understand.

Another student discussed how his teacher would not continue until everyone understood:

S: Say we're learning about shapes. Then she would wait for a period of time, say 1 or 2 weeks, and once everybody understands everything, then, then she can keep going, but if only one person understands, we keep talking about shapes until we all get it.

Misinterpretations typically reflected students' beliefs about their own time management or that of their classmates.

S: Some people rush through it and then you skip questions or make mistakes, and the teacher is like “This is blank, this is not right,” so then you get more time cause you have to go back and do it carefully. Some people don’t take their time.

Item 4: Your teacher really wants you to enjoy learning new things. For item 4, every student interviewed, except one, responded to this question with a four or a five (very true), suggesting that primary students seemed to think that it would be an obvious statement that their teachers wanted them to enjoy learning. This may be an example of how the students’ ages affected their answers, since earlier studies investigating classroom goal structures have found that students in elementary schools tend to view their classrooms as more mastery-oriented than students in middle schools (Anderman & Midgley, 1997; Midgley et al., 1995). Eighty percent of students were able to accurately interpret this item, for example:

S: Oh, that means that she wants you to love learning about new things and be excited, like she is.

Or as another student said,

S: Like she wants us to have fun and be learning at the same time, cause we can be excited about new stuff if it’s fun.

However, students were often at a loss to elaborate exactly how they knew their teachers wanted them to enjoy learning and could not give many examples of teacher actions or dialogue that could indicate this. Only 52.63% of the students were able to give a

coherent elaboration about the content, which accounts for the mean cognitive validity score of 3.11 ($SD = .99$). When asked to give an example, many students replied, “I don’t know.” Other students indicated that enjoying learning could happen at times, but not at others.

S: Well, she wants us to kind of have a little fun with learning, but sometimes we need to really focus and I don’t think she cares if we enjoy it, we just have to do it.

Or as another student said,

S: Yeah, sometimes I know she wants us to enjoy it, cause when we first started geometry, she brought it marshmallows and toothpicks, so we could make like geometry shapes and then we got to eat them later. That was fun to start something new, so then we would be excited about it.

Item 2: Your teacher wants you to really understand what you’re learning, not just be able to repeat it. Item 2 demonstrated the lowest overall mean cognitive validity rating ($M = 2.37$, $SD = 1.26$), for both mastery and performance items, specifically due to the low percentage of students interpreting the item correctly. Only 36.84% ($n = 7$) of the students accurately interpreted this question and demonstrated a coherent elaboration of the content. Students at this age struggled to articulate the distinction between understanding and memorization. They tended to interpret the question to simply mean that their teachers wanted them to learn.

S: Um, I think that means, that your teacher's trying to make you understand what he's talking about.

Or, as another student said,

S: It's very true, because she wants you to be smart and know what you're learning about because if you don't know what you're learning about then you're not going to know what you have to do after that.

Students also struggled to explain how their teachers would make this distinction between understanding and memorization and had difficulty coming up with an example of what their teachers would say or do. One student simply said, "I'm just guessing, because I don't really know that much about my teacher."

When students did accurately interpret this item, they reflected on whether or not their teacher thought the concepts were important enough to remember longer than their current grade level:

S: I think like 3, cause I think she just wants us to know stuff for second grade.

I: How do you know?

S: So um, like something we learning about at the beginning of the year, like rounding, we never talk about that anymore, so it was only for that one test.

In contrast, another student reflected on an experience where he knew his teacher wanted him to retain the information for a longer period of time because she continually reviewed it.

S: I think 5 cause she, first we learn the thing, and then later, like later in the school year it comes back... Like, ok, we've been working on graphs a lot, like since the beginning of the year, but it keeps coming back, we just talked about it today! That means we have to really know it.

Performance goal items. The three performance goal items used in this survey were modified from the performance-approach teacher goal scale of the PALS. The performance goal structure items ranged from 2.86 to 3.58, with a mean cognitive validity score of 3.05 ($SD = .64$).

Item 5: Your teacher lets you know who gets the highest grades on a test. Item 5 had one of the highest mean cognitive validity ratings overall ($M = 3.58$, $SD = 1.86$), with 78.95% of students interpreting it correctly and 84.21% elaborating on the content. In some cases, students who did not provide a coherent elaboration simply responded with a short statement like “No, she doesn’t.” This is in contrast to other students who did elaborate on what that might look like in the classroom. For instance:

S: No, she doesn’t say anything, you just take your grade home and show it to your mom, you just look at your own paper, not anyone else’s. That’s what my teacher says- your grade is your business.

Or as another student said,

S: No way, that would be like, let’s say A____, he got, let’s say an N [lowest grade] on a test, um, and um J____ got an O [highest grade], Mrs. _____ wouldn’t be

like, “Oh wow everybody, J_____ got the highest, and A_____ got the lowest.” Never happens, no way.

Item 8: Your teacher tells you how you are doing compared to other students.

Item 8 demonstrated moderately low mean cognitive validity rating of 2.89, ($SD = 1.05$), with only 52.63% of the students accurately interpreting this question and demonstrating a coherent elaboration of the content. This item also had low ratings in the pilot study; the concept of comparison seemed difficult for students to understand. Even though the item was changed from its original wording “My teacher tells us how we compare to other students,” it seems that still using the word “compared” made it difficult for students to understand. This item had the highest number of students (6) respond “I don’t know,” when asked what they thought this question was asking. With the follow-up prompt, students were able to give examples or respond to the item. Similar to the questions about teachers pointing out grades, many students gave non-examples or just stated that their teachers would not compare them to other students.

I: Does your teacher ever say if you’re doing better than someone or if someone’s doing better than you are?

S: Oh no, she never says that because that’s not really nice to say and she is a nice teacher and doesn’t want kids to be sad by saying mean things.

A few students referred to their teachers comparing behaviors among students, rather than grades or other academic work.

S: Well, like only sometimes, she says, “I like how N_____ is working,” and that’s kind of like comparing cause she is telling the other kids to be like me.

Item 3: Your teacher tells you about the students who get good grades as an example to your whole class. Item 3 had the second lowest overall mean cognitive validity rating (2.68, $SD = 1.16$), with only 42.11% of students providing a valid interpretation, and only 52.63% elaborating on the content. When asked at the end of the interview if there were any questions on which they wanted to elaborate more, or that they found particularly difficult, two students specifically mentioned this item as being confusing and difficult. In this item, students often skipped or ignored answering what the question was asking them and jumped right to the elaboration.

I: What do you think that question is asking?

S: It’s a 1, not at all true, cause she wouldn’t do that, that would be embarrassing. Or, as another student agreed,

S: No way, that would be mean, she doesn’t do that.

Students responded quickly to the idea of their teacher talking about student grades, but had difficulty understanding the part of the question regarding these students as examples.

S: Um like one time, for an example, we were taking a Native American test, and so I did really good, so she announced my name, so I was the only person who got everything correct. She just announced my name and everybody clapped.

I: Did she tell them that they should be like you?

S: well, um no, but her voice, it sounded like that.

Only seven students were able to accurately interpret the item and then elaborate.

S: That question means um, maybe if you're getting bad grades, she's telling you examples of kids that are better, so she's probably trying to make you try to upper your grades. But not in my class, cause that's still kinda mean to say it like out loud.

Congruent Answer Choice

With respect to the five-point Likert scale, almost 85% of the students were able to choose an answer that was consistent with their elaborations 88-100% of the time. Students were able to use the lower end of the scale, as observed in responses like “No, my teacher never does that,” as well as the higher end, with responses like, “Yeah, that happens all the time.” For the middle part of the scale, students’ responses also accurately matched this selection, with responses like, “Well, sometimes it’s ok, and sometimes it’s not,” and “Three- cause sometimes we don’t understand and she gives us more time, but then other times we have to go real quick and get to lunch or wherever.” This is consistent with the results from Koskey et al. (2010), who found that across items, 80-100% of students could accurately respond to the items using the five point scale.

Survey scales

Cronbach's alpha was calculated to determine the internal consistency for each survey scale (i.e., mastery and performance classroom goal orientations). The small sample size ($n=19$) may have contributed to the low alpha values of .174 for mastery and .643 for performance. However, these scores are notably higher than the original PALS items used in the pilot study (Hartigan, 2011), which were -.505 for the mastery scale and .241 for the performance approach scale.

Cronbach's alpha was also recalculated after dropping the items with cognitive validity scores lower than 3.00, but there was not much improvement in the reliability coefficients. When item 2 was dropped from the mastery scale, the alpha was .266. When both items 2 and 4 were dropped, the alpha went up to .519, demonstrating some improvement in the mastery scale. For the performance scale, dropping the lowest scoring item (item 3) resulted in a lower alpha of .238. This may be because item 3 and item 5 ask students about teachers pointing out grades, so both items are needed for the original alpha of .643.

Although the reliability coefficients for both the mastery and performance scales were low, the results from this study demonstrated moderate to high support for the cognitive validity of many of the items. The following chapter discusses these findings and presents suggestions for future research.

Chapter 5: Discussion

The purpose of this study was to use cognitive interviewing to examine the validity of classroom goal structure items in a modified version of the PALS (Midgley et al., 2000) to assess primary students' perceptions of classroom goal structures. Students were asked to explain what they thought the survey items were asking, which answer they would pick, and then to provide examples from their classroom to explain why they chose that answer. Student responses were coded according to their interpretations and elaborations, and then given a global cognitive validity rating, ranging from 0 to 4. In this section, limitations and validity issues are discussed, as well as implications of the research findings and suggestions for future research.

Limitations and Validity Issues

There were some specific limitations to this study. For instance, the sample size was limited, both in terms of number of participants, as well as number of classrooms. Originally, 20 students were selected, but one student was removed from the study after it was determined that she had several special education needs, including auditory processing and communication. At the time of the selection, she was not categorized as a special education student, but she was by the conclusion of the study, and therefore did

not meet the requirements for inclusion. As the researcher, interviewer, and a full-time teacher, it was difficult for me to find the time to conduct student interviews during the school day, which is why the sample size was so limited. Including more students may have provided more variety in terms of responses and examples of teacher behavior that related to each item. Since the students were responding to questions about their classroom environment, the examples the students provided about their teachers may be limited because this study only included students from ten different classrooms. Seven of those classrooms only had one student representative. Including more students would have allowed all twelve first and second grade classrooms to be represented by multiple students, again ideally providing a wider variety of student responses.

Using a strict coding protocol may have helped to improve inter-rater reliability, but this also limited the study because student responses were only coded for the specific criteria. Even though this study was purposefully narrow in looking at how students responded to these modified survey items, I am ultimately interested in how students perceive the classroom environment related to goal structures. This limited coding scheme did not necessarily provide as much insight into students' perceptions as I had hoped. Rather than focusing on teacher practices, this study was purposefully limited to students' understanding and interpretation of the survey items. The follow-up prompts were added in this investigation to provide students with an opportunity to discuss more teacher practices than was the case with the original interview script, but this did not turn

out to be as effective as planned. The follow-up prompts did help to give students a better understanding of what the item was asking, but the students rarely elaborated with more than one example. The examples students gave were also very similar to each other. Additional prompts may have enabled students to recall a greater variety of experiences in response to the items.

This study was purposefully limited to how students interpreted and responded to the modified PALS items. This limited the depth of analysis for student responses in terms of the mastery and performance items, that is, if students were actually differentiating between these two types of goal messages. A follow-up to this would be to interview the students again, using descriptions of a mastery or performance oriented teacher, and ask the students which description most closely resembled their teachers. Comparing their answers to their responses on the survey could determine if they were consistently identifying their classrooms as mastery or performance oriented (E. M. Anderman, personal communication, August 3, 2012). Anderman also recommended administering the modified survey to a large group of first and second grade students, in order to more accurately calculate reliability coefficients for the scales.

As a researcher working in my own school, the students most likely had, at a minimum, an awareness of me as a teacher at the school, even if they were not familiar with me personally. This existing relationship could have affected students' responses to me, and my reactions to them. To help mitigate potential reactivity or bias issues

associated with this threat, the interview had a fairly clear structure that helped to limit my reactions to their responses. Although I did not want the interviews to be rigid or formal, they were structured in a way that my interactions with each student were relatively similar in terms of the information I was asking of them. The interview protocol allowed for more flexible follow-up questions and examples, so the interviews did vary to some extent. However, this variability had more to do with the student responses than with my reactions to them.

On a positive side, I believe that my relationship with the students may have improved rapport and helped increase the depth of responses because the students may have felt more comfortable talking to me than with a stranger. Although students sometimes struggled to provide coherent elaboration regarding the content of the item, overall, students were able to elaborate on the context of the item. No students responded about an additional or outside context, such as home or extracurricular activities; students either directly mentioned their classroom or teacher, or neglected to mention any specific context. This is distinctly different from Koskey et al. (2010), who noted that much of the misinterpretation or lack of elaboration was due to students misunderstanding the context or reflecting about an outside context. For example, in the Koskey et al. study, students responded about items in terms of outside extracurricular activities, such as swimming or karate, rather than focusing on their classrooms. This was not the case in any of the interviews in this study.

The high percentage of students elaborating on the appropriate context of each item may have been positively influenced by my relationship to the students as a teacher in their school. It is difficult to draw any conclusions from one study, but the difference in correct context elaborations between this current study and the study conducted by Koskey et al. (2010) may be attributable to this relationship between the interviewer and the students. Further administration of these survey items by interviewers known to the respondents, particularly those already in the school setting, may help to situate the context for young children.

Conclusions

Even with these limitations, overall, there was improvement in cognitive validity scores between the pilot study using the original items and the current study with the modified items. The highest mean cognitive validity score in the pilot study was 2.29, which was lower than the lowest mean score in the current study (2.37).

For some items, the improvement in cognitive validity scores demonstrates that simplifying the wording of the question greatly increased students' ability to interpret these items. For example, in the original format, item 4 "My teacher recognizes us for trying hard," had a mean cognitive validity rating of 1.50, but when this item was reworded to "Your teacher notices when you are trying hard," the mean cognitive validity rating went up to 3.42. However, rewording the items was not always successful in helping students better interpret and elaborate on the items. Item 2 originally worded,

“My teacher wants us to understand our work, not just memorize it,” was notably problematic in the pilot study. Even with the modified version in the current study, “Your teacher wants you to really understand your work, not just be able to repeat it,” students continued to struggle with differentiating between the concepts of understanding versus memorization. This item (i.e., item 2) continued to have the lowest cognitive validity rating with both the original and modified wording. Two students were even able to articulate that this was a confusing item. Additionally, at the end of the interview, students were asked if there were any questions to which they wanted to add information or clarification, or if there were any questions that they found especially difficult. Only two students responded to this, but both of them commented that this particular item was hard to understand.

By analyzing the responses and percentages of accurate interpretations and elaborations, three main facets of goal structures, both mastery and performance, appear to be the most readily understood by young children: making mistakes, trying hard, and showcasing grades, as demonstrated in two mastery items (i.e., items 1 and 6), and one performance item (i.e., item 5), respectively. These items demonstrated moderately high mean cognitive validity ratings (3.42 to 3.58). For item 1, even in the original item wording in the pilot study, and in this current study, overall, students were able to interpret and elaborate on the concept of mistakes as part of learning. In this current study, through the use of follow-up prompts, students were able to better reflect and

elaborate on what their teachers do and say when they make mistakes. This provided evidence that in some classrooms, students are aware if teachers actively encourage them through their mistakes and consider mistakes to be a part of the classroom experience, or if mistakes are not viewed this way. Students were also able to discuss the importance of trying hard (item 6) in their learning and 84.21% of the students interviewed were able to give examples of what their teachers would say or do when they were trying hard. When students were asked about their teachers letting the class know which students had the highest grade (item 5), 84.21% of them were able to provide a description of what this would look or sound like in a classroom. This is important because most students responded that their teachers did not point out student grades, but they were easily able to give examples of what a teacher could say or do to demonstrate this.

Items 4 and 7 had moderate mean cognitive validity ratings (3.21 and 3.12), demonstrating that students had some understanding of the concepts of enjoying learning new things (item 4) and having enough time to learn new material (item 7). With these items students struggled a bit more to provide examples demonstrating what teachers would say or do than they did with items 1, 5, and 6, but the mean cognitive validity ratings were still above 3.00, below which Koskey et al. (2010) define as problematic.

These items, and particularly the three highest scoring items (1, 5, and 6), suggest that young students understand at least these areas of classroom goal structures, as measured by this modified version of the PALS, which has not previously been

investigated. Based on the results of this study, students in first and second grade could understand the concepts of mistakes as part of learning, the importance of trying hard, and an awareness of teachers publically discussing grades.

For children in these early grade levels, many fundamental learning tasks are brand new, such as learning to read and write, and so children at this age may be more attuned to the reality of making mistakes and trying hard. Based on the students' responses, most children this age are aware of the fact that they do make mistakes, but how they respond to those mistakes may be largely based on how their teachers react. Most students responded positively about mistakes, such as nonchalant comments like "Yeah, I make mistakes all the time, everyone does," and could provide examples of how their teachers provided opportunities to learn from their mistakes. Students were also aware of the importance of trying hard and pointed out systems that teachers had in place for recognizing effort. Some students mentioned a tally mark system used by one teacher, where she would add tally marks to the students' names, presumably on a chart, when they were working hard. Another student discussed how he could earn a "green" day by trying his best to do his work. Young students do not always differentiate between academic competence and social skills, such as following classroom rules, listening to the teacher, and behaving well with other students (Stipek & Tannatt, 1984). Because of this, students may have a more global understanding of "trying hard," and interpret it as putting forth effort in academic work, as well as behavioral goals, making it a very salient

issue for young children. It is not surprising then, that this was one of the items understood most easily by these young students.

Previous research has noted that students in later elementary grades tend to receive more evaluative feedback from their teachers than students in early elementary (Stipek & MacIver, 1989). However, for this sample of students, formal grades are introduced in first grade and play a dominant role in the type of feedback that is given to students in both first and second grades. Perhaps students could understand the concept of a teacher publically announcing grades to the class because grades had just recently become part of their school experience. The mean score for item 5 was 1.84, indicating that most students thought their teachers never pointed out who had the highest grades, but 84.21% of the students could give an example of what it would look or sound like if their teachers did point out grades. This high percentage of non-examples demonstrates the awareness and concern that young students have over their grades.

However, in contrast, it is interesting to note that students had a much harder time with item 3 (i.e. *Your teacher tells you about the students who get good grades as an example to your whole class*), which was very similar to item 5 (i.e., *Your teacher lets you know who gets the highest grades on a test*). Both these items ask students if their teachers discuss students' grades publically, but only 52.63% of them were able to explain how pointing out students as examples would look in their classrooms. Students were not sure if teachers were just pointing out students who received good grades or

actually stating that these students should be examples to the rest of the class. Because item 3 had two parts: 1) teachers stating which students had high grades, and 2) indicating that these students should be examples to others. It is possible that students only paid attention to the first part of the question and did not understand the second part.

Along with this difficulty in understanding the concept of examples, two other items had cognitive validity ratings below three, which Koskey et al. (2010) defined as problematic. These were items 2 and 8. Students struggled to differentiate between deep understanding of the material they were learning and memorization in item 2, and they could not elaborate on this item due to the lack of understanding about these two concepts. Students also had a hard time understanding the concept of comparison in item 8 and were often unable to give examples of how their teacher might or might not compare students to each other. Although young students do make social comparisons as young as age three (Stipek & MacIver, 1989), children tend to become more aware of these comparisons as they get older (Stipek & Tannatt, 1984). Social comparisons may be more prevalent in higher grade levels than in first or second grade. It may be that these young children, while able to make comparisons themselves, are not aware of what a teacher would say or do when comparing students. Students may also have had difficulty with the vocabulary term “compare,” so possible revisions could take this word out. For example, the item could read, “Your teacher tells you if you are doing better or worse than another student.”

With these three items (2, 3, and 8), it was difficult to discern whether students were unaware of these aspects of the classroom goal structure or if they were just unable to interpret the survey items. These three items in particular may benefit from subsequent revisions and interviews. Because students demonstrated an understanding of item 5 but not 3, perhaps item 3 could be eliminated from future surveys with young children. Alternatively, item 3 could be modified so that it did not repeat the idea of teachers pointing out grades, but focused more on how teachers could point out students as examples, since this was the idea that confused students. A possible revised item could be “Your teacher tells you which students are doing well because she (or he) wants you to be like them.”

Implications and Future Directions

Research on goal theory and the development of goal structures has significant practical implications for teachers. Students perceive the relationships and interactions within their classrooms, and this social climate then impacts current and future student outcomes, both behaviorally and academically (Hamre & Pianta, 2001). Goal orientation literature can provide a coherent framework for investigating students’ perceptions of the classroom environment. Students perceive environmental cues that emphasize either a mastery or performance goal orientation and then respond accordingly. This correlation between the perceived classroom environment, or goal structure, and the students’ personal goal orientations (Anderman & Maehr, 1994; Anderman & Wolters, 2006;

Church et al., 2001; Maehr & Midgley, 1996; Wolters, 2004) provides an explanation for why the environment impacts students, making goal orientation research a valuable venue for investigating classroom environments.

The classroom environment represents not only the interactions between teachers and students, but also the motivational structure these interactions create, through academic demands placed on students, emphasis on grades or performance, and attitude toward mistakes and learning. Determining how early on students are aware of these motivational emphases towards mastery or performance orientations, as well as to what specific areas of classroom goal structures students are attending, can help inform best practices for teachers.

This current study demonstrated that primary students could respond to some goal structure items in a way that was consistent with the intended meaning of the item. Although the survey items demonstrated low reliability, students' responses support the theory that young children are aware of their classroom environment in terms of goal structures. This has practical implications for teacher practices related to goal structures.

As discussed previously in the literature review, Ames (1992) used the acronym TARGET to describe six classroom features that influence the development of goal structure: Task, Authority, Recognition, Grouping, Evaluation, and Time. Maehr and Midgley (1991) worked with teachers to develop practices in these areas that would support mastery goal structures. The results of their three year study demonstrated that

when teachers deliberately geared their teaching practices to facilitate a mastery goal structure, middle school students perceived this and reported their classrooms as more mastery-oriented than did those in control groups. These same teacher practices could also be deliberately implemented in elementary school classrooms. Previous research may have found direct instruction of mastery goal practices for elementary school teachers unnecessary, as it is generally believed that at least older (i.e., fifth grade) elementary school classrooms are naturally more mastery-oriented than middle school classrooms (Midgley, Anderman, & Hicks, 1995). Middle school classrooms may emphasize performance goals more than mastery, as compared to elementary; however the classroom environment literature has acknowledged that the growing pressure of standardized testing has begun to impact even primary classrooms (Stipek, 2006b). Future studies similar to Midgley et al. (2005), who compared older elementary school students' (fifth grade) perceptions of classroom goal structures to middle school students' perceptions, may find that there is less of a difference in the two age groups than before. This research could help to determine if the added pressure of high stakes testing has made elementary classrooms less mastery-oriented than they were previously. If so, this would support the need for future research with students in the primary grades of first and second. Given this shift to more academically demanding classrooms in the younger grades (Stipek) as well as the student responses in this study that support students'

understanding of goal structure items, elementary teachers should have direct instruction in practices that support mastery goal structures.

The results from this study demonstrated moderate to high support for some of the modified items on the PALS for use with young children. Koskey et al. (2010) defined ratings below three, and particularly below two, as problematic. In this current study, none of the items had a mean cognitive validity rating below two, and only three of the items had a mean cognitive validity rating below three. Although this study had a very limited sample size, there is at least initial evidence that young children are attuned to their classroom environments and could respond accurately (mean cognitive validity score over 3.00) to five separate goal structure items.

The items that proved most difficult may need further revision to determine if the wording can be changed in a way that makes the concepts accessible to young children, or it may be that these concepts (deep understanding vs. rote learning and comparison between students) are too difficult for this age group. Possible revisions could involve more of an explanation about what understanding means, i.e., that the teacher wants the students to know the material for a long period of time, or that what they are learning today is useful for what they will learn tomorrow. In item 8, which asks students if their teacher tells them how they are doing compared to other students, possible revisions could explain what this means and ask students directly if their teacher says they are doing better or worse than other students in the class. It may be that the word “compared”

is one with which students are not familiar, but they might understand the question if the concept was explained without this terminology. Stipek and MacIver (1989) argued that preschool children as young as three are able to make social comparisons between themselves and another child or adult. Young students, however, may not be aware of how teachers would make comparisons known, as in, what specifically a teacher might say or do when comparing students. Providing more specific examples of teacher phrases or actions might help children to better understand this item.

Most previous research using the PALS has involved students in middle or high school (Maehr & Anderman, 1993; Midgley et al., 1995; Middleton et al., 2004; Urdan & Midgley, 2003), but other research about the classroom environment has long since operated on the principle that young children are aware of and influenced by their environment (Murray, 1938; Pace & Stern, 1958). By working in this principle and using a modified version of the PALS with younger students, the research areas of classroom environment and goal orientation theory can converge and support each other. Ryan et al. (2011) have suggested previously that goal orientation research can provide a coherent framework for understanding how the classroom environment impacts students. By modifying commonly used goal structure items for use with young children, researchers can now make this connection even earlier. Longitudinal studies may be able to begin with children as young as first grade, in order to determine how stable students'

perceptions of classroom goal structures are, and how this impacts the development of their personal goal orientations.

However, in this current study, the reliability coefficients for both the mastery and performance scales ($\alpha=.174$ and $.643$, respectively) were too low to justify the use of these current modified items with young students. Using the information from this study to make further revisions to problematic items may help to improve the reliability of data from these scales. Additionally, it may be beneficial for future studies to use larger sample sizes. Longitudinal studies using the PALS would only be effective if the revised version for young students proved reliable. Further research is needed to determine if this can be done.

Due to the low reliability coefficients, this current study cannot support the further use of these modified items with a small sample size of primary students. However, the increased cognitive validity scores indicate that the changes made to the original items helped the students to better understand what the items were asking. This provides support for the use of cognitive interviewing in item development and modification (Willis, 2005). Specifically, this study followed a suggested further research direction by Koskey et al. (2010), who recommended using more in-depth probes and examples with the survey items. Given the improvement in cognitive validity scores from the original items to the modified items, the follow-up examples greatly improved students' understanding of the items, as well as their ability to provide examples from

their class. These examples could also be used with older students in further studies with the PALS. This study also followed Koskey et al.'s recommendation and used the Teacher Goal scales from the PALS, rather than the Classroom Goal Structure scales. Further research could utilize cognitive interviewing techniques to modify the classroom scales, both for use with older students, as well as younger students.

Cognitive interviewing could also be applied to the Teacher Approaches to Instruction scales of the PALS, which ask teachers about their teaching practices related to goal structures. Cognitive interviewing could provide an opportunity for teachers to reflect on their practices and elaborate on what they actually do in the classroom. Teacher responses could then be compared to student responses in the same classroom. Teachers and students may be attuned to different teacher practices, and comparing their responses could help researchers to better understand how both teachers and students view the classroom. This research could also investigate whether teachers and students view the same classroom as either mastery or performance oriented.

Exploring teacher practices and student perceptions of these practices can inform teacher education and help better prepare teachers for managing a supportive classroom environment. With the increased academic pressure on young students (Stipek 2006a), establishing a mastery-oriented classroom that supports positive student outcomes has become increasingly important. By understanding how even young students perceive the classroom environment in terms of goal structures, teachers can then work to implement

mastery-oriented practices that will best support students beginning from their earliest school experiences.

Appendices

Appendix A

Patterns of Adaptive Learning Scales (PALS)

STUDENT SURVEY

The first question is an example.

I like strawberry ice cream.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE		VERY TRUE	

Here are some questions about yourself as a student in your class. Please circle the number that best describes what you think.

In this class:

1. Your teacher thinks that it is ok if you make mistakes as long as you are learning.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE		VERY TRUE	

2. Your teacher wants you to really understand what you are learning, not just be able to repeat it.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE			VERY TRUE

3. Your teacher tells you about the students who get good grades as an example to your whole class.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE			VERY TRUE

4. Your teacher really wants you to enjoy learning new things.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE			VERY TRUE

5. Your teacher lets you know who gets the highest grades on a test.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE			VERY TRUE

6. Your teacher notices when you are trying hard.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE		VERY TRUE	

7. Your teacher gives you enough time to learn about new ideas.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE		VERY TRUE	

8. Your teacher tells you how you are doing compared to other students.

1	2	3	4	5
NOT AT ALL TRUE	SOMEWHAT TRUE		VERY TRUE	

Appendix B

Cognitive Interviewing Script

“Thank you for helping us with the questions we are writing for our survey. We are going to go through 5 questions. I will record your answers, so that I can be sure to know exactly what you’ve said. I am going to read each question or sentence out loud to you, and then ask you to tell me what it is asking, choose the answer that is best for you, and tell me why you chose that answer. It is important for you to know that there are no right or wrong answers to these questions, only what you think is right for you. You can skip any questions you do not want to answer, and you can stop anytime if you want.”

Turn the tape recorder on. TEST THE RECORDER TO MAKE SURE IT IS ON.

Complete the information on the cover page (Child ID, gender, age, teacher, grade, item set)

“Let’s start with an example.”

1. Interviewer reads the question out loud to the student.

If the child has trouble:

- a. Read aloud to the child the word(s) he or she had trouble with.
- b. Ask the child if he or she understands the word(s) after hearing you say it.
- c. Ask the child to tell you what the problematic word(s) mean. If they clearly do not understand the word, you may offer other suggestions.

d. Note on the comment page what specific word or phrase was difficult for the child to understand.

2. “What is that question trying to find out from you?”

3. “These numbers describe how different people feel about this (question/idea).

Which number would you choose as your answer?”

Read answer options. Ex: “Very confident, somewhat confident, not at all confident, or somewhere in between.”

4. “Please explain to me why you chose that answer.”

5. FOR EXAMPLE ITEMS ONLY: “Let’s talk about the other choices...”

Guide the child through different response options. For example, you could ask:

“What do you think a 1 means? How about a 4? How is 4 different from 5?”

AFTER EXAMPLE: Decide whether the child understands how to use response scale.

- If you think the child does NOT understand, do a second example.
- If there is a second type of response scale, do a second example.

Otherwise you may begin the first item.

Follow-up Options:

Can you give me an example?

Can you tell me a little more about why you chose number ____?

Are there any other reasons why you chose number ____?

Is there anything else you can tell me about why you chose number ____?

Note problematic items/words:

- When a child has difficulty understanding a specific word
- When a child completely misinterprets an item
- Note non-verbal behavior that you think is important (i.e., child is very distracted; child seems anxious, nervous, or slow to respond; child seems puzzled or confused)

Use question specific prompts as necessary (see next page).

“Now let’s do the (first/next) question.”

Follow up Prompts

1. Your teacher thinks that it is ok if you make mistakes as long as you are learning.

Follow up prompts: What does your teacher say if you make a mistake?

If you make a mistake, does your teacher tell you to keep going or try again?

2. Your teacher wants you to really understand what you are learning, not just be able to repeat it.

Follow up prompt:

3. Your teacher tells you about the students who get good grades as an example to your whole class.

Follow up prompts: Does your teacher tell you that you should be like other students who get good grades?

4. Your teacher really wants you to enjoy learning new things.

Follow up prompt: Do you think it is important to your teacher that you like learning new things? How do you know?

5. Your teacher lets you know who gets the highest grades on a test.

Follow up prompt: Does your teacher tell you who got the highest grade or who did the best?

6. Your teacher notices when you are trying hard.

Follow up prompt: Does your teacher tell you that she can tell when you are trying hard?

When you are really trying hard at your work, does your teacher say anything to you?

7. Your teacher gives you time to learn about new ideas.

Follow up prompt: When you are learning about something new, does your teacher give you enough time to figure it out?

If you or someone in your class is having trouble learning something new, does your teacher slow down or take time to make sure you understand it?

8. Your teacher tells you how you are doing compared to other students.

Follow up prompt: Does your teacher tell you if you are doing better than someone else in your class? Does your teacher tell you if someone else in your class is doing better than you are?

Appendix C

Informed Consent Form

RESEARCH PROCEDURES

This research is being conducted to determine what children think about as they respond to a survey about their classroom environment. Your child will be interviewed one on one by the researcher before or after school in the researcher's classroom. The interview will be recorded, but this recording will only be used by the researcher in order to accurately write your child's responses, and no one else will hear the interview. The interview will take approximately 30-45 minutes.

RISKS

There are no foreseeable risks for participating in this research.

BENEFITS

There are no benefits to you or your child as a participant other than to provide further research in the use of surveys with young children.

CONFIDENTIALITY

The data in this study will be confidential. Your child's teachers will not have access to any audio recordings or written interviews and will not be told that your child is helping with a research study.

PARTICIPATION

Your child's participation is voluntary, and you may withdraw your child from the study

at any time and for any reason. If you decide you don't want your child to participate or if you withdraw your child from the study, there is no penalty or loss of benefits to which you or your child are otherwise entitled. There are no costs to you, your child, or any other party.

CONTACT

This research is being conducted by Amanda Hartigan at George Mason University. She may be reached at 703.855.0104 for questions or to report a research-related problem.

You may also contact Dr. Michelle Buehl, the principal investigator at (703) 993-9175.

You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research.

CONSENT

I have read this form and agree to allow my child to participate in this study.

Name _____

Child's Name _____

_____ I agree to audio taping of my child's interview.

_____ I do not agree to audio taping of my child's interview

Signature _____

Date of Signature _____

Appendix D

Verbal Assent Form

To be read to the student : “You will be answering questions about what you think about your classroom and your teacher. You do not have to do this if you do not want to, and that is ok. If you don’t know the answer or do not want to answer, you can skip any questions you want. Would you like to help answer these questions?”

Student’s name: _____ Date: _____

Record student’s response:

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Curriculum Vitae

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