

The Pennsylvania State University

The Graduate School

College of Education

**MOTIVATED BY GRACE?  
EXPLORING ACHIEVEMENT MOTIVATION  
IN CATHOLIC SECONDARY SCHOOLS**

A Thesis in

Educational Psychology

by

Timothy R. Balliett

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Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of

Doctor of Philosophy

May 2008

The thesis of Timothy R. Balliett was reviewed and approved\* by the following:

Robert J. Stevens  
Associate Professor of Education  
Thesis Adviser  
Chair of Committee

J. Daniel Marshall  
Professor of Education

Rayne A. Sperling  
Associate Professor of Education

Peggy Van Meter  
Associate Professor of Education

Kathy L. Ruhl  
Professor of Education  
Head of the Department of the Department of Educational and School Psychology and  
Special Education

\*Signatures are on file in the Graduate School.

## ABSTRACT

The relationships of religious beliefs and perceived classroom context to achievement goal orientation in Catholic secondary schools are explored to determine if achievement goal orientation is a stable individual characteristic in addition to being situational. The theoretical development, measurement, and perceived classroom correlates of mastery-avoidance goal achievement motivation are discussed. Debate over the values inherent in performance-approach goal adoption provides the context for examining the relationship between religious beliefs and motivation in Catholic secondary schools. The grace and Tracy scales and a religiosity measure were administered to 1300 Catholic secondary school students in 8 schools. Mastery-avoidance motivation was present in this population. Religious beliefs were correlated with mastery-approach goal orientation. Multiple regression analyses indicated that classroom perceptions were the strongest predictors of achievement goal orientation.

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## Acknowledgements

The long and arduous process of completing this dissertation has been challenging on several levels. Indeed, it has been a prolonged journey completing a dissertation while concurrently engaged in formation for the Roman Catholic priesthood and graduate studies in theology. However, I think my studies in theology and educational psychology have informed each other over these years, resulting in the unique synthesis of my dissertation topic.

There were many people who assisted me over these many years as I worked on this dissertation. At the risk of inadvertently omitting someone, I would like to take special notice of a few. First and foremost is Dr. Robert J. Stevens, who patiently provided the space and time to complete this work, and frequently mobilized his efforts on short notice to help me complete this process. Similarly, I must thank my committee members, Drs. Peggy van Meter, Rayne Sperling, and J. Daniel Marshall. They have all been most gracious beyond the call of duty in their willingness to see me through this process. They have been excellent teachers and guides.

Special thanks are especially due the administrators, students, parents, and staff of the schools who participated in the study. They gave generously of themselves and their time. They have also been most patient in receiving feedback from this study which, hopefully, will inform their own important vocation as educators.

I am also indebted to those who are responsible for my seminary formation. Without the strong and loving support of Bishop Donald W. Trautman, I would never have been given the opportunity to work on this dissertation. I have been greatly assisted by my spiritual directors, seminary formators, mentors, and healthcare professionals over the years as I tried to balance my studies and discernment. These include: Very Rev. Michael Kesicki, SSL; Rev. Nicholas Rouch,

STD; Sr. Mary Andrew Himes; Rev. Corbin Eddy, STL; Rev. David Couturier, OFM Cap., Ph.D.; Rev. Robert Leavitt, SS, STD; Rev. Timothy Kulbicki, OFM Conv., HED; Rev. Gladstone Stevens, SS, Ph.D.; Rev. Scott Jabo; Rev. Jeffrey Dauses, STL; Rev. Romauld Meogrossi, OFM Conv., Ph.D.; Dr. Daniel Haggerty; and Dr James E. Leri. Additionally I would like to thank Rev. John Schultz, former Vicar of Education, and Mr. Joe Street, Director of Religious Education, both of the Diocese of Erie, for their assistance. I am deeply grateful for the seminarians of St. Mark Seminary, Erie, PA, and St. Mary's Seminary and University, Baltimore, MD, especially Ross Miceli and Matt Strickenberger. Without their loving concern, patience, personal help, and many favors, this dissertation simply would not have been possible.

I would also like to thank the people and priests of St. Jude's, Erie, PA, where I stayed during a year-long sabbatical while I worked on the dissertation. Msgr. Robert Brugger provided a wonderful atmosphere in which to live and work, and I cherished living and learning from him, the other priests in residence, the parish staff and people. Special thanks are also due Msgr. Charles Kaza, the pastor of my parish ministry assignment, St. Tobias, Brockway, PA. He and his parishioners have been a profound strength of support and prayer during the last two years of completing this dissertation.

Finally and most importantly, I would like to thank my family. They have been a bulwark throughout the many challenges and difficulties of these past several years, and have been tremendously generous and patient. I deeply regret not being more present to them while I struggled with managing this work and my formation for the priesthood. In thanksgiving for all that they have given me, in particularly my faith and love of learning, I dedicate this dissertation to them.

## Chapter 1

### Introduction

A key assumption of many models of learning is that some goal, criterion, or reference value exists that can serve to measure how much and how well learning has taken place. There are three general perspectives on goals in current research, each reflecting a different level of analysis (Linnenbrink & Pintrich, 2000). The first is task-specific goals, which places emphasis on individuals' goals for a particular task or problem (Bandura, 1997; Locke & Latham, 1994). A second level of goals concerns more global or general goals that individuals may pursue, including the reasons why an individual is motivated (Ford, 1992). These also reflect different goal contents that individuals may be striving for in many contexts, not just achievement contexts (Austin & Vancouver, 1996).

The third perspective, achievement goal orientation, represents an intermediate position between target and general goals. They were specifically developed to explain motivation in achievement contexts. Although the term "orientation" implies a more enduring personal characteristic, it also includes situational components (Kaplan, Middleton, Urdan, & Midgley, 2002). This includes classroom structures that may influence adoption of different goal orientations (Ames, 1992; Ames & Archer, 1988).

One model used in achievement goal motivation research is hierarchical or trichotomous achievement motivation (Elliot, 1997). Learners with mastery-approach goals are oriented to "developing new skills, trying to understand their work, improving their level of competence, or achieving a sense of mastery based on self-referenced standards" (Ames, 1992, p. 262). Additionally, individuals can be positively motivated to try to outperform others and to

demonstrate their competence and superiority in reference to others rather than the task itself (called performance-approach orientation). In contrast, individuals can also be negatively motivated to try to avoid failure or to avoid looking stupid or incompetent to others (which is known as performance-avoidance orientation). The perceptions undergraduate students have of their classroom environment have been correlated with trichotomous achievement motivation (Church, Elliot, & Gable, 2001).

More recently, a fourth orientation, mastery-avoidance, has been introduced (Elliot, 1999). It is concerned with judgments of incompetence by the requirements of the task itself or one's own pattern of achievement. Whereas mastery-approach goals are oriented toward developing one's skills, increasing understanding of content, or completing tasks, mastery-avoidance goals strive to avoid stagnation or loss of skills, forgetting or misunderstanding material, and leaving tasks incomplete. The existence of mastery-avoidance orientation has been shown in undergraduate students (Elliot & McGregor, 2001), but its conceptualization and measurement remains problematic. Additionally, the presence of mastery-avoidance among high school students and its relationship with perceived classroom environment is unknown.

Another concern among some researchers is that the values of competition espoused in performance goals are contrary to the purposes of public education (Kaplan & Middleton, 2002; Nicholls, 1989; Urdan, 1997). Yet these researchers provide no empirical evidence to support their view that more global values are at play in adopting performance goals. One context in which to examine this question is Catholic secondary schools. Parents and students who select Catholic schools often do so because of the educational, religious, and social values that Catholic schools foster. Examining the relationship between religious values and achievement goal orientation in Catholic schools may shed light on this larger debate.

### *Purpose of the Study*

The purpose of the present study is an attempt to demonstrate how two perspectives on goals interact in Catholic secondary schools. The degree to which religious values are correlated with goal orientation choice will demonstrate the relationship between more global goals and goal orientation. Additionally, the relationship of students' perception of the classroom context with goal orientation, in conjunction with more global goals as measured by religious worldview, will attempt to shed more light on the situational and stable components of goal orientation. Finally, the theoretical articulation of goal orientation itself will be explored in the current development of mastery-avoidance goal orientation and its measurement in a Catholic secondary classroom context.

### *Research Questions*

The first question investigated was: What achievement motivation orientations are present in Catholic high schools? In particular, do students in Catholic high schools report mastery-avoidance orientation? It was hypothesized that all four achievement motivations would be present among Catholic high school students in their math classes. Catholic schools' emphasis on academic press and religiosity is thought to foster the presence of both mastery-approach and performance-approach orientations. Additionally, the emphasis in Catholic schools on sacramentality and social support could foster the presence of both mastery-approach and mastery-avoidance orientations. Although thought to be the least prevalent among the four goal orientations because of the nature of Catholic schools, performance-avoidance was hypothesized to still be present due to its occurrence in middle schools populations (Middleton & Midgley, 1997; Skaalvik, 1997).

No known previous research has been conducted on the relationship between single gender Catholic high schools and adoption of achievement goal orientation. Thus this will be an overarching context to be investigated prior to examining perceived classroom context. It was hypothesized that boys in single-gender Catholic high schools would be more likely to adopt mastery-approach and performance-approach oriented goals and less likely to adopt mastery-avoidance and performance-avoidance oriented goals than boys in coeducational Catholic high schools and girls in coeducational Catholic high schools.

The third question investigated was: In Catholic high schools, what classroom context variables predict achievement motivation orientations in mathematics? It was hypothesized that students who perceived their classroom as engaging, but viewed their teachers as placing more importance on evaluations rather than learning, and viewed said evaluations as being harsh, would adopt mastery-avoidance goals. It was also hypothesized that the results of Church, et al. (2001) on perceived classroom variables will be replicated, namely: classroom engagement would be a positive predictor and evaluation focus and harsh evaluation would be negative predictors of mastery-approach goals; evaluation focus would predict performance-approach goals; and evaluation focus and harsh evaluation would predict performance-avoidance goals.

The fourth question investigated was: Does religiosity predict mathematics achievement motivation among students attending Catholic high schools? It was hypothesized that religiosity would predict mastery-approach and performance-approach achievement goals.

The final question explored was: Do religious values (as measured by the grace and Tracy scales) predict mathematics achievement motivation? Specifically, it was hypothesized that students with more gracious images of God and benign images of the world and human nature would adopt mastery-approach or mastery-avoidance goals. It was hypothesized that

students with less gracious images of God and pessimistic images of the world and human nature would adopt performance-approach or performance-avoidance goals.

These five research questions and hypotheses, taken together, all fall within the current debate of whether goal orientation is more situated and contextual or is more of a personal predisposition or individual difference variable (Pintrich & Schunk, 2002). They also reflect one possible solution to this debate. By adopting the strategy utilized in personal and social psychology that assumes that both situational and personal conceptualizations are important in the stability of goal orientation, the means in which they interact were examined (Pintrich, 2000b).

## Chapter 2

### Literature Review

#### *Three General Perspectives on Goals*

A key assumption of many models of learning is that some goal, standard, criterion, outcome, or reference value exists that can serve to measure how much and how well learning has taken place. Indeed, Murphy and Alexander (2000) have shown that in the academic motivation literature, the area with the greatest proliferation of categories and subcategories is research on goals and goal orientations. It appears that there are three general perspectives on goals in current research, each reflecting a different level of analysis (Linnenbrink & Pintrich, 2000; Pintrich, 2000a, Pintrich, 2000b). The first, task-specific goals, was developed from the socio-cognitive perspective, with an emphasis on individuals' goals for a particular task or problem (Bandura, 1997; Locke & Latham, 1994). Also called target or purpose goals (Harackiewicz, Barron, & Elliot, 1998), they are focused on the specific outcome that the individual is focused upon, such as completing a term paper or correctly answering 85% of items on an exam. These target goals specify the standards or criteria by which individuals can evaluate their performance, but they do not address the purposes or reasons why an individual is seeking to attain these goals.

A second level of goals concerns more global or general goals that individuals may pursue, including the reasons why an individual is motivated (Ford, 1992). This goal content approach attempts to specify the range of potential goals that could subserve motivated behavior. Ford (1992) proposed 24 basic categories of goals, including goals of exploration, understanding, superiority, resource acquisition, mastery, intellectual creativity, unity, transcendence, happiness,

social responsibility, safety, and belongingness. These general goals apply to all areas of life and serve to characterize what individuals want or are trying to achieve, as well as the reasons why they do something. There are a large number of other general goal content constructs, such as possible selves (Markus & Nurius, 1986), that reflect a more general perspective on goals and reflect different goal contents that individuals may be striving for in many contexts, not just achievement contexts (see Austin & Vancouver, 1996 for a review). These general goals, however, do not have the same level of specificity in terms of standards or evaluation criteria as target goals.

The third perspective, achievement goals, represents an intermediate position between target and general goals. Referring to purposes or reasons why an individual is pursuing an achievement task, achievement goals are most often operationalized in terms of academic achievement, although they may be applied to other achievement contexts (Pintrich & Schunk, 2002). Whereas target and more general goals can be applied to any context or any type of goal, achievement goal constructs were specifically developed to explain achievement motivation. As Elliot (1997) and Thrash and Elliot (2001) have pointed out, classic achievement motivation research has been concerned with the energization and direction of competence related behavior, which includes evaluation of competence relative to a standard of excellence. Given this general definition, achievement goal constructs represent an integrated and organized pattern of beliefs about both the general purposes or reasons for achievement as well as the standards or criteria that will be used to judge successful performance (Urdu, 1997). Thus achievement goals represent a combination of general goals or purposes, such as mastery or superiority (Ford, 1992) and more target goals by which performance and efficacy will be judged (Bandura, 1997).

Achievement goal constructs, such as mastery and performance goals (Ames, 1992), are assumed to reflect an organized system, theory, or schema for approaching, engaging, and evaluating one's performance in an achievement context (Pintrich, 2000a). Thus the term *achievement goal orientation* is often used. It connotes the idea that achievement goals are not just simple target goals or more general goals but represent a general orientation to the task that includes a number of related beliefs about purposes, competence, success, ability, effort, errors, and standards. Although the term "orientation" implies a more enduring personal characteristic, it also includes situational components (Kaplan, et al., 2002). Laboratory manipulations have revealed that situational demands can orient students toward different achievement goals (Elliot & Harackiewicz, 1996; Elliott & Dweck, 1988) and researchers have examined how classroom structures may influence adoption of different goal orientations (Ames, 1992; Ames & Archer, 1988). However, survey research has suggested that there are also individual differences in the goal orientations that students hold, and that these goal orientations were somewhat stable over time (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Meece, Blumenfeld, & Hoyle, 1988; Wolters, Yu, & Pintrich, 1996) and across academic and activity domains (Pintrich & DeGroot, 1990; Duda & Nicholls, 1992). Thus it appears that in spite of their differing goal orientations, individuals may pursue the same goal in a particular achievement situation in response to the goals emphasized in those situational contexts.

### *Models of Achievement Goal Orientation*

There are several different models of achievement goal orientation that have been developed by researchers during the past 20 years (Ames, 1992; Dweck & Leggett, 1988; Elliot, 1999; Kaplan, Middleton, Urdan, & Midgley, 2002; Maehr & Midgley, 1991; Nicholls, 1984; Pintrich, 2000a, 2000b). These models vary somewhat in their definition of goal orientation, the

use of different labels for similar constructs, the proposed number of goal orientations, and the role of approach and avoidance forms of the different goals. They also differ in the degree to which an individual's goal orientations are more personal, based on somewhat stable individual differences, or the degree to which an individual's goal orientations are more situated or sensitive to the context and a function of the contextual features of the environment. Most of the models assume that goal orientations are a function of both individual differences and contextual factors, but the relative emphasis along this continuum does vary between the different models.

Most models are dichotomous models, since they propose two general goal orientations that concern the reasons or purposes individuals are pursuing when approaching and engaging in a task. In Dweck's model, the two goal orientations are labeled *learning goals* and *performance goals* (Dweck & Leggett, 1988), where learning goals reflect a focus on increasing competence and performance goals involve either the avoidance of negative judgments of competence or the attainment of positive judgments of competence. Ames (1992) labeled these orientations *mastery goals* and *performance goals*, where mastery goals orient learners to "developing new skills, trying to understand their work, improving their level of competence, or achieving a sense of mastery based on self-referenced standards" (p. 262). In contrast, performance goals orient their learners to focus on their ability and self-worth, to determine their ability with reference to besting other students, surpassing others, and receiving public recognition for their superior performance (Ames, 1992).

Midgley and her colleagues (e.g., Anderman & Midgley, 1997; Kaplan & Midgley, 1997; Maehr & Midgley, 1991; Midgley, et al., 1998) have typically used the terms *task goals* and *performance goals* in their research program, and these terms parallel the two main goals from Dweck and Ames. Task-focused goals involve an orientation to mastery of a task, increasing

one's competence, and progress in learning, all of which are similar to the learning and mastery goals of Dweck and Ames. Performance goals involve a concern with doing better than others and demonstrating ability to the teacher and peers, similar to the performance goals discussed by Dweck and Ames.

Nicholls and his colleagues (Nicholls, 1984, 1989; Thorkildsen & Nicholls, 1998) have proposed *task-involved goals* and *ego-involved goals* or *task orientation* and *ego orientation*. In this line of research, the focus and operationalization of the goals have been when individuals feel most successful, which is a somewhat different perspective than the more general reasons or purposes learners might adopt when approaching or performing a task. Nevertheless, they are somewhat similar to the goals proposed by Dweck, Ames, and Midgley in that task-involved goals are defined as experiencing success when individuals learn something new, gain new skills or knowledge, or do their best. Ego-involved goals involve individuals feeling successful when outperforming or surpassing their peers or avoiding looking incompetent.

Finally, Elliot, Harackiewicz, and their colleagues have investigated two general goal orientations, a *mastery orientation* and a *performance orientation* (Elliot, 1997; Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Harackiewicz et al., 1997, 1998). In their work, a mastery goal orientation reflects a focus on the development of knowledge, skill, and competence relative to one's own previous performance and thus is self-referential. Performance goals concern striving to demonstrate competence by trying to outperform peers on academic tasks. These two general orientations are in line with the other definitions of goals provided by Dweck, Ames, Midgley, and Nicholls.

Research on mastery goals has consistently found positive relationships between adoption of mastery goals and adaptive cognitive, behavioral, and emotional outcomes (see Ames, 1992;

Pintrich & Schunk, 2002; and Urdan, 1997 for reviews). Mastery goals have been found to be associated with achievement; intrinsic motivation; feeling academically efficacious; preferring challenging tasks; persisting in the face of difficulties; adaptive help-seeking; the use of effective cognitive, self-regulatory, and metacognitive strategies; the attribution of success to effort, interest, and strategy use; and positive attitudes toward school and schoolwork.

Research concerning performance goals, however, has not been as consistent (Elliot, 1999; Midgley, Kaplan, & Middleton, 2001; Urdan, 1997). Some studies have found a relationship between performance goals and such maladaptive outcomes as decreased achievement, negative affect in response to difficulty and challenge, using surface or lower-level learning strategies, diminished help-seeking, and attributing failure to low ability (Ames, 1992; Dweck & Leggett, 1988; Pintrich & Schunk, 2002). Other studies have found no relationship between performance goals and negative outcomes, and some have found relations with such positive outcomes as academic efficacy, deeper cognitive and self-regulatory strategies, and achievement (Elliot, 1999, Midgley et al., 2001; Urdan, 1997).

In an attempt to explain the mixed results of performance goals, Elliot and his colleagues have made a distinction between two different types of performance goals, a *performance-approach goal* and a *performance-avoidance goal*, resulting in what they have termed *hierarchical* or *trichotomous achievement motivation* (Elliot, 1997, 1999; Elliot & Church, 1997; Elliot & Thrash, 2001; McGregor & Elliot, 2002). This development is based upon the general approach/avoidance distinction that has been a hallmark of achievement motivation research since its inception (Atkinson, 1957; McClelland, Atkinson, Clark, & Lowell, 1953), as well as more recent social cognitive perspectives on approaching and avoiding a task (Covington & Roberts, 1994; Elliot, 1997; Harackiewicz, et al., 1998). They suggest that individuals can be

positively motivated to try to outperform others and to demonstrate their competence and superiority, reflecting an approach orientation to the general performance goal. In contrast, individuals can also be negatively motivated to try to avoid failure or to avoid looking stupid or incompetent, what they label a performance-avoidance orientation.

Two other lines of research have made the same distinction. Midgley and her colleagues (Middleton & Midgley, 1997; Midgley et al., 1998; Midgley & Urdan, 2001) have made a similar demarcation between performance-approach and performance-avoidance goals in their research on middle schools. Skaalvik (1997) also having conducted research with middle school aged students, proposed two dimensions of performance or ego goal: *self-enhancing ego orientation* and *self-defeating ego orientation*. Self-enhancing ego orientation is based on besting others and demonstrating superior ability, as in the performance-approach goal. Self-defeating ego orientation is focused on avoiding looking dumb or negative judgments, as in the performance-avoidance orientation. Elliot and Church (1997), Middleton and Midgley (1997), and Skaalvik (1997) have each conducted factor analyses validating the independence of mastery, performance-approach, and performance-avoidance goals in measures they have developed. Conceptually, the avoidance and approach distinctions in performance goals are similar among the three lines of research, and the independently developed measures have a significant degree of convergence (Smith, Duda, Allen, & Hall, 2002).

Elliot and his colleagues have found a consistent pattern of results utilizing the trichotomous or hierarchical achievement motivation with undergraduate populations. Mastery goals are related to such positive outcomes as: intrinsic motivation, interest, enrollment in similar courses or major, deep processing, engaged studying, preparing well in advance of exams with less “cramming”, viewing exams as a positive challenge, feeling calm and not worrying while

taking exams, persistence, and effort (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, & Elliot, 2002; McGregor & Elliot, 2002). In one study (Church, Elliot, and Gable, 2001) mastery orientation predicted achievement, however, this was also the only study to include both criterion-referenced and normative grading structures. Criterion-referenced grading was found to predict adoption of mastery orientation.

Performance-approach goals also relate to positive outcomes, such as viewing exams as a positive challenge, preparing well in advance of exams and less “cramming”, feeling calm while taking exams, aspiring to higher grades, persistence, effort, and achievement. Yet this orientation may predict negative outcomes, including surface processing, feeling threatened during exam preparation, test anxiety, and fear of failure (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, et al., 2002; McGregor & Elliot, 2002).

Performance-avoidance goals are related to an even larger number of negative outcomes such as decreasing ability-related self-esteem, surface processing and disorganization, viewing exams as threatening, fear of failure, test anxiety, procrastination, lack of engagement while studying, feeling anxious and worrying while taking exams, and aspiring to lower grades. It also negatively predicts deep processing, early preparation for exams, intrinsic motivation, and exam performance (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; McGregor & Elliot, 2002).

These findings are consistent with the theoretical framework for the distinction between performance-approach and performance-avoidance behaviors, namely that positive outcomes associated with performance-approach goals, whereas performance-avoidance goals are affiliated

with negative emotions and behaviors. Research utilizing middle school or junior high students has found similar results. (Kaplan & Midgley, 1997; Middleton & Midgley, 1997; Skaalvik, 1997; Wolters et al., 1996). It is hypothesized that the differences in results on this particular issue may stem from different measures, classroom contexts, and participants (Pintrich & Schunk, 2002).

#### *Toward a 2 x 2 Achievement Goal Motivation Framework*

The hierarchical or trichotomous achievement goal motivation articulated by Elliot (1997, 1999), Middleton and Midgley (1997), and Skaalvik (1997) distinguishes between approach and avoidance forms of performance goals but portrays mastery goals as a unitary orientation. However, it is theorized that mastery goals may also be separated along the approach-avoidance distinction into *mastery-approach goals* and *mastery-avoidance goals* (Elliot, 1999). Since the outcomes associated with mastery goals are predominantly positive, it may seem counterintuitive to theoretically develop a mastery-avoidance goal orientation. However, this may be due to the assumption on the part of many theorists that mastery goals are an approach form of motivation and portray the ideal form of motivational regulation (Elliot, 1999; Elliot & McGregor, 2001). Yet, a full crossing, or 2 x 2, of the mastery-performance and approach-avoidance distinctions seems necessary to account for the broad spectrum of motivation and clarify the relationships between constructs (Linnenbrink & Pintrich, 2000; 2000a, 2000b).

In the *2 x 2 achievement goal framework*, the conceptual core of achievement motivation is competence, which may be differentiated along two fundamental dimensions: definition and valence (Elliot, 1999; Elliot & McGregor, 2001). Figure 1 summarizes the interaction of these dimensions, forming four goal orientations. Competence is defined by the three standards used

Figure 1. The 2 x 2 achievement goal framework.

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		<b>Definition</b>	
		Absolute/ intrapersonal (mastery)	Normative (performance)
<b>Valence</b>	Positive (approaching success)	Mastery- approach goal	Performance- approach goal
	Negative (avoiding failure)	Mastery- avoidance goal	Performance- avoidance goal

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*Note.* Adapted from “A 2 x 2 Achievement Goal Framework,” by A. J. Elliot & H. A. McGregor, 2001, *Journal of Personality and Social Psychology*, 80, p.502. Copyright 2001 by the American Psychological Association. Adapted with permission of the author.

in evaluating performance: absolute (the requirements of the task itself), intrapersonal (one’s own past attainment or maximum potential attainment), and normative (the performance of others).

Absolute and intrapersonal competence share many conceptual and empirical similarities and often seem indistinguishable (e.g., learning new information

represents both the mastering of a task and the development of one's knowledge).

As such, in the present research we consider these standards jointly rather than individually...[The distinction between absolute/intrapersonal and normative standards] was made explicit in the achievement goal tradition in the proffering of a mastery-performance dichotomy and in essence became a signature feature of this approach (Elliot & McGregor, 2001, p.501-502).

Valence represents the attractiveness and desirability of the end to which one is striving.

Therefore competence is valenced in terms of approaching success or avoiding failure. Although substantial research on avoidance behaviors in educational settings exists (see Ryan, Pintrich, & Midgley, 2001, and Urdan, Ryan, Anderman, & Gheen, 2002, for reviews), the distinction in valence was not explicitly made in achievement goal theory until the development of hierarchical or trichotomous goal theory (Elliot, 1997, 1999; Elliot & McGregor, 2001).

Conceptually, mastery-avoidance is concerned with judgments of competence by the absolute requirements of the task or one's own pattern of attainment, and attention (valence) is focused on avoiding incompetence. Whereas mastery-approach goals are oriented toward developing one's skills, increasing understanding of content, or completing tasks, mastery-avoidance goals strive to avoid stagnation or loss of skills, forgetting or misunderstanding material, and leaving tasks incomplete (Elliot, 1999). Mastery-avoidance goals differ from mastery-approach goals in terms of the valence of competence, from performance-avoidance goals in terms of the definition of competence (i.e., normative judgment), and from performance-approach goals in terms of both the definition and valence of competence. Table 1 summarizes the different purposes for engagement and standards utilized in judging performance among the four goal orientations.

Table 1

*Two Goal Orientations and Their Approach and Avoidance States*

Goal Orientation	Approach state	Avoidance state
Mastery orientation	Focus on mastering task learning, understanding	Focus on avoiding misunder- standing, not learning, not mastering task
	Use of standards of self- improvement, progress, deep understanding of task	Use of standards of not being wrong, not doing it incorrectly relative to task
Performance orientation	Focus on being superior, besting others, being the smartest, best at task in comparison to others	Focus on avoiding inferiority, not looking stupid or dumb in comparison to others
	Use of normative standards such as getting best or highest grades, being top or best performer in class	Use of normative standards of not getting the worst grades, not being lowest performer in class

*Note.* Adapted from “An Achievement Goal Theory Perspective on Issues in Motivation Terminology, Theory, and Research,” by P. R. Pintrich, 2000, *Contemporary Educational Psychology*, 25, p.100. Copyright 2000 by Elsevier Inc. Adapted with permission.

Pintrich, Elliot, and their colleagues have contended that mastery-avoidance goals are operative in achievement settings (Elliot, 1999; Elliot & McGregor, 2001; Linnenbrink & Pintrich, 2000; Pintrich, 2000a, 2000b; Pintrich & Shunk, 2002). For example, mastery-avoidance goals may be especially relevant for individuals who avoid learning about and using computers and new technology, in which their fear of making mistakes often limits their use of computers. Elderly adults and athletes may exhibit mastery-avoidance orientation when concern over decline in their physical and cognitive abilities lead them to adopt goals of not losing their skills. Concern over loss of abilities can lead to complete withdrawal from a particular activity, as was the case in Michael Jordan's early retirement from the National Basketball Association (Elliot, 1999). This is due not to concerns about perceptions of others but due to the demands of the activity or self-set standards. Avoidance of absolute standards would also be at work in not attempting novel or difficult tasks (e.g., a 1,000 piece jigsaw puzzle or a doctoral dissertation) in the fear of failure or leaving the task incomplete. Other examples include striving not to miss a bunt in a baseball game, attempting not to make an error in a business transaction, and the stereotypical perfectionist who is utilizing a standard of not getting it wrong or doing it incorrectly relative to the task. An anecdotal, yet clear example of mastery-avoidance behaviors at work in educational settings is provided by Linnenbrink & Pintrich (2000):

A niece of the second author was in a whole-language reading class in elementary school. She wanted to never write her spelling words incorrectly and she got quite frustrated with the constant encouragement of invented and idiosyncratic spellings by the teacher. It seemed that she was motivated to "not be wrong" in spelling the words, which did generate a great deal of effort as well as good performance in terms of the use of normative spelling conventions, but her affect was less positive and included anxiety,

worry, and frustration. It seemed that her standards or criteria were not norm-referenced because she was not concerned with the other students in the class. In fact, given the emphasis on invented spelling in the whole-language class, comparisons with other students were not relevant because the teacher allowed the use of many diverse spellings. It seems that she was focused on not getting it “wrong” or not mastering the task, not because she was concerned about competing with others or looking dumb but because of her own self-set standards for avoiding spelling words incorrectly (p. 201).

In further reflecting on this example, Pintrich & Schunk (2002) note, “She just knew there were correct and incorrect spellings, and had a goal of not misspelling the words” (p. 220). Thus she reflects both absolute and intrapersonal standards at work in mastery-avoidance motivation.

Pintrich (2000a) has hypothesized the effect of mastery-avoidance goals on cognitive and motivational self-regulation in educational settings. Mastery-avoidance could lead to less adaptive self-regulated learning processes than mastery-approach goals. A focus on not making mistakes, rather than learning and progress, could result in less deep processing strategies. This would be reflected by the use of more memorization strategies, reliance on the text and content materials to determine competence, less risk-taking, and unwillingness to use different cognitive strategies. Given the general predictions of avoidance forms of motivation (Higgins, 1997), an increase in negative motivational beliefs and affect may be more strongly associated with mastery-avoidance orientation than negative cognitive regulation. With its emphasis on not being wrong, it is anticipated that anxiety would increase, and interest and self-efficacy decrease.

The first empirical investigation of the 2 x 2 achievement goal framework and mastery-avoidance goals was conducted by Elliot & McGregor (2001). Exploratory factor analyses indicated the existence of four separate factors, and confirmatory factor analyses indicated that

the 2 x 2 model was the best fit among the alternative models (two trichotomous models, a mastery-performance dichotomous model, and an avoidance-approach dichotomous model). In three studies, they found that mastery-avoidance orientation was present in large, lecture-oriented, introductory-level undergraduate psychology courses using both absolute and normative grading, although it was less prevalent than the other three goal orientations.

Most theoretical assumptions about mastery-avoidance orientation also were supported in analyses, which were conducted only in normatively graded courses. Mastery-avoidance was positively predicted by fear of failure. Mastery-avoidance was also related to disorganization in studying, test anxiety, and negative affect (e.g., worry, nervousness) about taking exams. However, it was unrelated to exam performance. In general, mastery-avoidance had a more negative set of antecedents and consequences than mastery-approach goals, and more positive antecedents and consequences than performance-approach goals. The most striking differences between mastery-avoidance and performance-avoidance were in increased interest and class engagement for mastery-avoidance and lower achievement for performance-avoidance goals. However, contrary to predictions by Pintrich (2000a), mastery-avoidance goals were unrelated to surface or deep study strategy use, and workmastery (as defined by the Work and Family Orientation Scale, Spence & Helmreich, 1983).

Mastery-avoidance may reflect an inability to change the situation or the self. Elliot & McGregor (2001) found that mastery-avoidance was positively predicted by entity theory (i.e., the belief that people don't change) (Dweck & Leggett, 1988) and negatively predicted by self-determination (Deci & Ryan, 1991) and incremental theory (i.e., the belief that people can change). This is in contrast to self-determination positively predicting mastery-approach orientation. However, the self-determination measure used by Elliot & McGregor (2001),

developed by Dweck (1999), may be confounding autonomy in the classroom with personal autonomy.

*Refining the Conceptual Understanding and Measurement of Mastery-Avoidance Goals*

Although the findings of Elliot & McGregor (2001) are generally supportive of the theoretical distinctions of mastery-avoidance orientation, it is important to recognize that the findings are based upon only self-report data and are limited to one particular classroom environment, namely, a normatively evaluated large undergraduate lecture courses. More recent research utilizing mastery-avoidance orientation has further clarified the construct and its relationship to other variables and settings. Understanding the various similarities and differences in the measures used in this nascent research is essential in discussing the theoretical conception of mastery-avoidance as a construct distinct from other achievement motivation orientations.

Finney, Pieper & Barron (2004) modified the achievement goal measure developed by Elliot & McGregor (2001) to match a general academic context of all classes taken within a semester by undergraduate students and found that the four factors were supported. Pieper (2004) used undergraduates to replicate Elliot & McGregor's (2001) findings regarding fear of failure and workmastery, as well as the relationship between competitiveness and performance-approach orientation. Karabenick (2004) found that among undergraduates mastery-avoidance was correlated with avoidance of help-seeking, and mastery-approach was correlated with seeking help. Conceptually, Karabenick (2004)'s findings show that mastery-avoidant students' fear of discovering that one is incorrect is more powerful than wanting to seek those resources that would correct their mistakes.

Whereas Finney et al. (2004) modified the mastery-avoidance items developed by Elliot & McGregor (2001), both Pieper (2004) and Karabenick (2004) developed their own mastery-avoidance measures. They differ in their emphasis on “worry,” “fear,” and “concern.” See Table 2 for a comparison of mastery-avoidance measures by item. The degree to which fear of failure is related to mastery-avoidance may indicate a confounding of the measures of mastery-avoidance with worry or fear. Paul Pintrich of the University of Michigan and Akane Zusho of Fordham University both attempted to construct mastery-avoidance items that were less focused on fear and worrying and contained more of an affective component but were unsuccessful (A. Zusho, personal communication, March 25, 2005). Christina Rhee and Kai Cortina, graduate students at the University of Michigan, have developed a measure of mastery-avoidance for use in secondary school and undergraduate foreign language classrooms that eliminates the references to fear and worry, and focuses more on avoidance of mistakes, avoiding not fulfilling one’s own potential, and avoiding a lack of mastery or understanding. At the time the present study was conducted, Rhee and Cortina were still conducting analyses on these items and they were not available for use (C. Rhee, personal communication, March 16, 2005).

As evidenced from Table 2, a middle ground between Rhee & Cortina’s preliminary work to eliminate fear and worry found in Elliot & McGregor (2001) and similar measures is the emphasis placed on “concern” rather than “afraid” or “worry” by Karabenick (2004). The word “concern” may measure a marked interest or focus with only a subtle nuance of anxiety or distress. There is most likely some aspect of fear of failure in avoidance, since it’s been consistently measured with at least one item in performance-avoidance measures (e.g., “My fear of performing poorly in this class/semester is what motivates me.”). But the measurement of mastery-avoidance should be brought more in line with the subtleties of fear expressed in most

Table 2

*Comparison of Mastery-Avoidance Measures by Item*

Reported standardized confirmatory factor loadings (CFA's) included in parentheses.

<b>Elliot &amp; McGregor (2001)</b>	<b>Finney et al. (2004)</b>	<b>Pieper (2004)</b>	<b>Karabenick (2004)<sup>a</sup></b>
I worry that I may not learn all that I possibly could in this class. (.81)	I worry that I may not learn all that I possibly could this semester. (.85)	I worry that I may not learn all that I possibly could this semester. (.82) <sup>b</sup>	
Sometimes I'm afraid that I may not understand the content of this class as thoroughly as I'd like. (.86)	I am afraid that I may not understand the content of my courses as thoroughly as I'd like. (.52)	I'm afraid that I may not understand the content of my course as thoroughly as I'd like. (.56)	I'm afraid that I may not understand the content of this course as thoroughly as I'd like.
I am often concerned that I may not learn all that there is to learn in this class. (.82)	I am definitely concerned that I may not learn all that I can this semester. (.77)	I am definitely concerned that I may not learn all that I can this semester. (.80)	I'm concerned that I may not learn all there is to learn from this class.
		I'm afraid my coursework will be too challenging for me to master. (.51)	
			I'm concerned about the possibility of not completely mastering the material in this course.
			I'm afraid that I won't do my very best in this course.

*Note.* <sup>a</sup>Items from Study 2, provided by Christina Rhee (personal communication, March 16, 2005). Seven items were reported in Study 1, but were not provided in Karabenick (2004) or by the researcher (personal communication, S. Karabenick, March 16, 2005). Factor analyses were not conducted. <sup>b</sup>Item presented differently in two tables within the same paper. Alternate wording: "I worry that I may not understand the content of my courses as thoroughly as I'd like."

performance-avoidance measures. Karabenick's (2004) measure of mastery-avoidance in a movement in this direction. Although Karabenick (2004) does not provide confirmatory factor loadings for his measure, the reported reliabilites are stronger than Finney et al. (2004) and and Pieper (2004). (See Table 3 for reliabilites of goal orientation measures using mastery-avoidance orientation.) Additionally, the item Pieper (2004) added to mastery-avoidance: "I'm afraid my coursework will be too challenging for me to master," may be measuring self-efficacy rather than mastery-avoidance, which may explain its relatively low factor loading. Until another measure of mastery-avoidance is developed, Karabenick (2004) appears to have the most face validity of the current measures.

Table 3

*Cronbach Alpha Reliabilities for Five Goal Orientation Measures Using Mastery-Avoidance*

<b>Goal Orientation</b>	<b>Elliot &amp; McGregor (2001)</b>	<b>Finney et al. (2004)</b>	<b>Pieper (2004)</b>	<b>Karabenick (2004) – Study 1 (28 items)</b>	<b>Karabenick (2004) – Study 2 (18 items)</b>
Mastery-Approach	.87; .89; .87	.876	.86	.84	.78
Mastery-Avoidance	.89; .88; .84	.675	.77	.82	.79
Performance-Approach	.92; .94; .96	.744	.86	.94	.87
Performance-Avoidance	.83; .83; .82	.757	.72	.89	.86

*Classroom Environment and Achievement Goal Orientation*

Elliot and McGregor's (2001) findings that perceived classroom engagement is related to adoption of mastery-approach and mastery-avoidance goals demonstrate the interaction between classroom environment and goal orientation. Many laboratory based studies have shown how

readily participants' goals for completing a task may be altered by simply providing goal-specific information prior to their engagement in a particular task (Elliot & Harackiewicz, 1996; Elliott & Dweck, 1988; Harackiewicz & Elliot, 1993, 1998; see Dweck & Legget, 1988; Harackiewicz, et al., 1998 for reviews). These findings lend support to the claim that environmental demands may orient students toward different achievement goals.

Yet the relationship between goal orientation and environmental cues in classroom and school contexts is more complex, since several features of a classroom differ from the laboratory setting. These include the presence of multiple messages presenting conflicting goals, use of non-challenging or engaging yet highly consequential tasks, and the development of a climate and pattern of situational characteristics over an extended period of time (Urdu, Kneisel, & Mason, 1999). Additionally, some classroom research has indicated that students' goal orientations may be stable across academic tasks (Meece et al., 1988), academic domain (Pintrich & DeGroot, 1990) and over time (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000; Meece, Blumenfeld, & Hoyle, 1988; Roeser, Midgley, & Urdu, 1996; Wolters, Yu, & Pintrich, 1996). However the degree to which goal orientation is more situated and contextual or more of a personal predisposition and individual difference variable is still debated by goal theorists. As Urdu (1997) states:

Because goals are believed to be at least partially sensitive to environmental manipulations, they offer hope that the quality of students' motivation and behavior in school can be altered by changing the environment, rather than by the more difficult process of changing the personality of the child (Maehr & Nicholls, 1980). The question now is whether the research evidence supports the hopes (p.115).

Research on classroom variables as antecedents of dichotomous achievement goals has received significant attention over the past fifteen years. One specific line of research follows the TARGET system. Ames (1992) used TARGET, a conceptual system developed by Epstein (1988, 1989), to organize classroom variables thought to orient students toward adopting mastery or performance goals. TARGET, in the form modified by Ames (1992), is an acronym representing five classroom structures over which educators exercise potential control: *Task*, *Authority*, *Recognition*, *Grouping*, *Evaluation*, and *Time*. Although the different features of each general structure are often presented as separate from each other, in the reality of actual classrooms, these features and structures often interact and overlap. Research utilizing the TARGET system has strongly supported the hypothesized links between classroom and school-wide characteristics and mastery and performance goal adoption (Ames, 1992; Maehr & Midgley, 1996).

It is important to note that theoretical and empirical work in this area emphasizes the importance of students' perceptions of the classroom environment, rather than objective measures of the environment itself. It is believed that the "psychological environment" (i.e., students' perceptions of the environment), plays a more important role in the goal adoption process (Ames, 1992; Church et al., 2001; Maehr & Midgley, 1991).

Church et al. (2001) examined the relationship between perceived classroom characteristics and hierarchical or trichotomous achievement goal theory with an undergraduate population. They measured student perceptions of characteristics within the TARGET framework that would be the most theoretically sensitive to differentiating adoption of mastery, performance-approach, and performance-avoidance goals. Lecture engagement (from the Task category) measured the extent to which students perceived that the instructor made the lecture

material interesting. This engagement predicted the adoption of mastery goals and was unrelated to performance-approach and performance-avoidance goals. Evaluation focus (from the Evaluation category) concerned perceptions that the instructor emphasized the importance of grades and performance evaluation in the course. This prompted adoption of both performance-approach and performance-avoidance goals, and was negatively related to mastery goals. Harsh evaluation (from the Recognition and Evaluation categories) addressed the extent to which students perceived the grading structure was so difficult that it minimized the likelihood of successful performance. This predicted adoption of performance-avoidance goals and negatively predicted mastery goals.

Church et al. (2001) also found that perceived classroom environment and achievement goals were predictors of intrinsic motivation and graded performance in both a norm-referenced course and a criterion-referenced course. Lecture engagement was a positive predictor of intrinsic motivation, whereas evaluation focus and harsh evaluation were negative predictors. Additionally, mastery goals positively predicted and performance-avoidance goals negatively predicted intrinsic motivation, but none of the perceived classroom environment variables remained significant predictors of intrinsic motivation when achievement goal variables were added as predictors. Although perceived classroom environment variables had no direct relationship with graded performance, they did influence achievement goal adoption, which in turn were predictors of achievement. Both performance-approach goals and mastery goals were positive predictors of achievement and performance-avoidance goals were negative predictors of achievement.

Church et al. (2001) is the only investigation utilizing trichotomous goal orientation measures with an undergraduate population to find a positive relationship between mastery

orientation and graded performance. However, it is also the only study to use a course with an absolute grading structure. Although evaluation type (normative or absolute) did not predict graded performance, absolute evaluation did predict intrinsic motivation. Absolute standards also positively predicted mastery goals, which in turn predicted graded performance and intrinsic motivation. The criterion-referenced course used in the study is described by Church et al. (2001) as “taking part in a program designed to help maintain student interest and enrollment. It seems likely that professors in such a program would create a more mastery-oriented learning environment than the average professor, an environment in which mastery goal pursuit would undoubtedly yield maximal benefits” (p.52). This environment, as described by Church et al (2001), mirrors the environment advocated by Kaplan and Middleton (2002) and Midgley et al. (2001) in their arguments against the adoption of performance-approach goals. Clearly the issue of what enhances the link between mastery goals and achievement is in need of further research attention.

Elliot & McGregor (2001), an empirical investigation examining the 2 x 2 achievement goal framework and mastery-avoidance goals, included a measure which they labeled as assessing classroom engagement. They indicate that classroom engagement positively predicted both mastery-approach and mastery-avoidance goals but did not predict performance-approach or performance-avoidance goals. However, Elliot and McGregor (2001) used a modified version of what was labeled an intrinsic interest measure in Elliot and Church (1997) to assess classroom engagement. Whether the measure used in Elliot & McGregor (2001) measures classroom engagement or intrinsic interest may be open to debate.

How might the perceived classroom variables measured by Church et al. (2001) predict adoption of mastery-avoidance motivation? Existing research (utilizing dichotomous,

trichotomous, and 2 x 2 achievement goal theory), as well as the theorized connections of the 2 x 2 achievement goal theory in particular and avoidance and approach perspectives in general point to three particular hypotheses. Namely, lecture engagement, evaluation focus, and harsh evaluation all appear to be positive predictors of mastery-avoidance goal adoption. Thus, mastery-avoidance differs from mastery-approach in that evaluation focus and harsh evaluation are positive predictors whereas in mastery-approach they are negative predictors. Mastery-avoidance also differs from performance-approach in that both lecture engagement and harsh evaluation will be positive predictors, whereas they do not predict performance-approach goals. Finally, mastery-avoidance differs from performance-avoidance in that mastery-avoidance is positively predicted by lecture engagement whereas there is no relationship between lecture engagement and performance-avoidance goals.

#### *Debating the Values Espoused in Performance-Approach Goals*

Debate about the usefulness of the theoretical distinctions made by the trichotomous or hierarchical achievement motivation and the 2 x 2 achievement motivation in comparison with a dichotomous theory of goals has centered on the value-laden interpretations of the theory and relevant findings. Kaplan and Middleton (2002) argued that although the hierarchical theory makes a meaningful explanatory distinction, it does not provide a basis in itself for judgments of value. In a critique of Midgley et al.'s (2001) paper questioning the need for performance-approach goals, Harackiewicz, Barron, Pintrich, Elliot, and Thrash (2002), argued that the revision of goal theory reflects the possibility that students can pursue goals by means of different pathways, alternatively known as the *Equifinality Principle* (Ford, 1992; Pintrich, 2000a; Shah & Kruglanski, 2000). Harackiewicz, Barron, Pintrich, et al. (2002) further stated, "We will not begin to understand these complex processes if we continue to rely on a simplistic

generalization that mastery goals are always good and performance goals are always bad” (p. 643), a conclusion shared by Hidi and Harackiewicz (2000). Kaplan and Middleton (2002) took issue with this conclusion, noting that it deals not with the explanatory power of the theory but makes a value judgment.

This is mainly because the simplistic statement “mastery goals are always good and performance goals are always bad” is not an inherent underlying assumption of achievement goal theory. Rather, it is a value that is based on the type of success that one believes should be emphasized in the achievement context. Nicholls (1989), for example, saw it as an ethical issue: “I can argue that ego orientation [performance goals] and academic alienation are unfortunate and cynical approaches to academic life. But I can hardly argue that these orientations are false, unbiased, or not objective. Instead, I argue that these unfortunate realities are more pervasive because people who are highly competitive or alienated claim that impressing the “right” people and beating others is the way to success” (pp. 102-103). Urdan (1997) agreed and suggested that the positive associations of performance goals with outcomes “may be due more to the way schools are than the way they could be. Task [mastery] goals represent a hope that all students, not just those who think they are more able than others or those that enjoy beating others, can become actively involved in school and be motivated to learn for the sake of learning” (p. 136)...

The desirability of mastery goals, performance goals, or any of their combinations depends on the purposes espoused in the achievement context. In a discussion over the purposes of education, Harackiewicz and her colleagues may argue [*sic*] that besting others and extrinsic rewards are worthy and valued purposes (cf. Hidi & Harackiewicz,

2000). We tend to disagree and argue that some of the primary purposes of education should be educating everyone, facilitating social responsibility, and developing critical reflection over societal processes that enhance inequality and injustice – purposes that do not go along with defining school success as winning a competition. We believe that research results do not provide a moral justification to reproduce social institutions that highlight values of social inequality and competition. Emphatically, we think that a conversation that tackles these issues is important, indeed crucial... We also think that paraphrasing this conversation in terms of research findings and characterizing opinions as theoretical revisions is misleading and masks the fact that what is under discussion are the valued purposes of contexts such as education. (pp.647-648).

The central thrust of Kaplan and Middleton's (2002) concern is not that the addition of performance-approach goals to goal orientation theory is unnecessary from a theoretical perspective, but rather performance-approach goals, for the most part, are contrary to the valued purposes of public education.

Performance-approach goals, like all goal orientations, are part of a more general system of beliefs about the purpose of schooling and the meaning of achievement. A performance approach goal orientation is part of a world-view in which success is defined as demonstrating high ability. Such a belief may put performance-approach-oriented students at risk for adopting attitudes and behaviors that, although contributing to their goals of demonstrating high ability, may be maladaptive (Kaplan, Middleton, Urdan, & Midgley, 2002, p.28).

Harackiewicz, Barron, Pintrich, et al. (2002) articulate a different set of valued outcomes for education, as well as who makes the decision of value in education and the role of educational researchers in that process:

At the classroom or school level, the multiple goals perspective allows for the possibility that teachers and schools can achieve similar goals in different ways. As the long history of educational reform efforts tells us, there is no one “magic bullet” or one pathway to achieve the goals of having motivated, engaged, knowledgeable, skilled, and happy students. There are different ways to achieve these valued outcomes, and researchers should help schools understand the options and the potential rewards and risks of adopting different strategies based on scientific theory and evidence. There are plenty of politicians and educators who already “know” the answers to our educational problems, but the role of researchers is to help frame the problems and bring to bear empirical evidence on the problems and suggested solutions. As researchers, it is important for us to foster a critical perspective on educational problems and to rely on empirical evidence in our suggestion for improvement. The multiple goal perspective suggests that there may be multiple pathways to improve schools, not just one “mastery road” that all must travel (p.643).

It is important to recognize in this debate that values play an important part in research, including choice of research topics, definition and labeling of concepts for classification, and advice for practice based upon empirical findings (Borg & Gall, 1989). Of particular concern is the *naturalistic fallacy*, i.e., the tendency to define what is good in terms of what is observable, or sliding from a description of what is into a prescription of what ought to be (Myers, 1993).

The gulf between “is” and ‘ought,’ between scientific description and ethical prescription, remains as wide today as when philosopher David Hume pointed it out 200 years ago. No survey of human behavior – say, of sexual practices – logically dictates what is “right” behavior. If most people don’t do something, that does not make it wrong. If most people do it, that does not make it right. There is no way we can move from objective statements of fact to prescriptive statements of what ought to be without injecting our values. Ethical decisions must in the end be made on their own merits...The realization that human thinking always involves interpretation is precisely why we need scientific analysis. By constantly checking our beliefs against the facts, as best we know them, we counter and restrain our biases (Myers, 1993, p.11-12).

Although both Harackiewicz, Barron, Pintrich, et al. (2002) and Kaplan and Middleton (2002) have clearly articulated their viewpoints, neither have presented empirical or correlational evidence to support either value viewpoint. It is clear that the employment and fostering of performance-approach goals is a value decision on the part of educators and parents (Hidi & Harackiewicz, 2000).

#### *Catholic Schools and Achievement Motivation*

Among the value decisions that some parents make regarding education is to send their children to a Catholic school, often because of the educational, religious, and social values that the Catholic schools foster. The official function of Catholic schools is to aid and assist parents who are seen as the primary educators of their children. (*Catechism of the Catholic Church*, 1994; Congregation for Catholic Education, 1988; National Conference of Catholic Bishops, 1972). Part of this educational function is to pass on the religious values of Catholicism.

*Sacramentality and communion.* Catholic schools place a tremendous emphasis on both sacramentality and communion, and this may be found in both their formal aims and in practice (Bryk, Lee, & Holland, 1993; United States Conference of Catholic Bishops, 2005; Vatican Council II, 1965.) Sacramentality refers to the belief that God and the spiritual are experienced through the material world.

The visible, the tangible, the finite, the historical – all these are actual or potential carriers of the divine presence...Catholicism, therefore, insists that grace (the divine presence) actually enters into and transforms nature (human life in its fullest context). The dichotomy between nature and grace is eliminated. Human existence is already graced existence (McBrien, 1994, p.10).

The principle of communion is based on the belief that the way to God is a communal one. Even when the divine-human encounter is most personal and individual, it is still communal, in that the encounter is made possible by the mediation of a community of faith, the Church.

Thus there is not simply an individual personal relationship with God or with Jesus Christ that is established and sustained by meditative reflection on Sacred Scripture, for the Bible is the Church's book and the testimony of the Church's original faith. For Catholicism there is no relationship with God, however profound or intense, that dispenses entirely with the communal context of every relationship with God (McBrien, 1994, p. 12-13).

This principle of communion was further manifested in the Church's understanding of itself as primarily a community, the People of God, during the Second Vatican Council (Flannery, 1996). This led to defining a new important function for Catholic schools, namely, to serve as

instruments of social justice set on developing a greater communal orientation and less individualism (Bryk et al., 1993).

*Social support and academic press.* Bryk et al. (1993) identifies two central characteristics of Catholic schools: a focused academic program and a sense of community. A strong emphasis is placed on standard academic courses, electives are few in number, and ability tracking is limited (Bryk et al., 1993). Thus it has been suggested that Catholic schools generally provide more opportunities to learn than public schools (Lee, Chow-Hoy, Burkham, Gevert, & Smerdon, 1998). While their methods of instruction may be traditional, Catholic school teachers also hold students to high standards, often pressing them to explain their thinking (Bryk et al., 1993).

United by a shared vision and commitment to fostering both academic and personal development, a sense of caring and mutual respect is present in most Catholic schools (Bryk et al., 1993). Catholic schools are by design organized to foster a sense of community through smaller school and class sizes, more informal modes of communication, and multiple roles assumed by faculty (such as administration and extracurricular activities) (Bryk et al., 1993).

Zusho (2005) views Bryk et al.'s (1993) two central characteristics of Catholic schools as fostering both *academic press* and *social support*. These two factors have been suggested to independently increase engagement and achievement in the psychological literature (Goodenow & Grady, 1993; Middleton & Midgley, 2002, Wentzel, 1997). In the 1980s, researchers defined school effectiveness in terms of academic press, i.e., an emphasis on academic excellence, indicated by schools' commitment to high standards for student achievement, clear academic objectives, homework, and school time devoted to achieving those standards (Gill, Ashton, Algina, 2004). In the early 1990s, however, some researchers (e.g., Battistich, Solomon, Kim,

Watson, & Schaps, 1995) challenged the focus on academic press. These scholars advocated social support, which has been variously referred to as communitarian organization, a communal perspective, and communal values (Gill, Ashton, Algina, 2004). Social support is defined in terms of shared values, supportive student–teacher relationships, and an ethic of caring forming the basis of school effectiveness (Lee & Smith, 1993).

Competing visions of schooling underlying the two models have continued to fuel debate between the advocates of academic press and communal values (see Shouse, 1996, for a historical perspective). However, conceiving of academic press and communal values as competing models may impede progress in understanding how both may increase school effectiveness (Gill, Ashton, & Algina, 2004). For example, Lee and Smith (1999) examined academic press and communal values in 30,000 sixth- and eighth-grade students in 304 inner-city Chicago public elementary schools and found that both were related to mathematics achievement. Zusho (2005) also interprets the analysis of Catholic schools conducted by Byrk et al.'s (1993) as clearly pointing to both academic press and social support as being supportive of Catholic school effectiveness.

Academic press for understanding suggests that students perceive that their classrooms vary in their demand for cognitive engagement. For example, Stevenson (1998) measured higher level press as a demand for higher order thinking and lower level press as following directions or procedures. This work supports the conceptualization of perceptions of press for understanding and underscores the central role of the teacher in pressing for different kinds of thinking. Byrk et al.'d (1993) research on the focused academic programs of Catholic secondary schools indicates that academic press for understanding is a hallmark of Catholic secondary schools.

Given the research of Church et al. (2001) on the relationship between the perceived classroom variables of lecture engagement, evaluation focus, and harsh evaluation and achievement motivation, particular focus should be given to academic press in Catholic schools. For the most part, research on academic press (e.g., Phillips, 1997; Shouse, 1996; Stevenson, 1998) has developed separately from research on motivation. But it holds promise for enhancing our understanding of how motivation and the learning environment combine to promote positive academic beliefs and behaviors in students. In an initial study on academic press and achievement motivation, Middleton & Midgely (2002) found that academic press for understanding was correlated with mastery-approach and performance-approach orientation. Academic press negatively correlated with avoidance of help-seeking and avoidance of academic risk.

An important consideration when incorporating the challenge or demand of academic press into the classroom is the perception of that press by the students. There is a concern that the wrong kind of demand or too great a demand may lead students to view a demand not as a challenge, but as a threat, leading to disengagement from their academic work (Middleton, 2004). When considering the perceived classroom variables utilized by Church et al. (2001), evaluation focus coupled in tandem with harsh evaluation could be perceived as a threat. It would be expected that such a threat would be correlated with mastery-avoidance and performance-avoidance. Perceived lecture engagement and evaluation focus would be indicators of academic press. It would be expected, based on the research of Church et al (2001) and Middleton & Midgely (2002), that this would be correlated with mastery-approach and performance-approach orientation.

*Catholic single-gender secondary schools.* Another striking difference between public and Catholic schools is the relatively large percentage of Catholic single-gender secondary schools. In 2004-2005, 14 percent of Catholic secondary schools were boys' schools and 20.3 percent were girls' schools, making the single-gender proportion 34.3% overall (McDonald, 2005). Lee and Bryk (1986) and Riordan (1985, 1990) have found that students in single-gender secondary Catholic schools take more academically oriented courses, and have higher educational aspirations than their Catholic coeducational counterparts. Bryk et al. (1993), in which Lee and Bryk's (1986) analyses were reproduced and expanded, found significant differences within sexes attending these different educational settings when controlling for student background, socioeconomic status, and academic curriculum track. In general, Bryk et al. (1993) report that single-gender Catholic schools deliver specific advantages to their students in future educational plans, affective measures of locus of control and self-concept, gender-role stereotyping, and attitudes and behaviors related to academics. Several of the differences they report are of particular note. Students in all-girls schools are more likely to associate with academically oriented peers and to express positive interest in mathematics than girls in coed schools. Students in all-boys schools and girls in single-gender schools enroll in a larger number of mathematics courses. Mathematics achievement is higher for boys in all-boys schools. Girls in single-gender schools also hold higher educational aspirations.

However, the validity of Bryk et al.'s (1993) assertion that single-sex Catholic secondary schools are more effective than Catholic coeducational secondary schools depends heavily on their ability to consider preexisting differences between coeducational and single-sex Catholic school students. Marsh (1989a, 1989b) critiqued Lee and Bryk's (1986) claims about the adequacy of their controls for pre-enrollment differences. Le Pore & Warren (1997) found that single-sex

Catholic school students did not have higher educational aspirations than coeducational Catholic school students, especially in the case of female students. Additionally, boys who attended single-sex Catholic high schools had higher mathematics achievement test scores than boys enrolled in coeducational Catholic high schools, whereas there was no difference for girls in single-sex and coeducational Catholic schools. They also found no differences in locus of control and self-esteem.

Given this conflicting research, when examining motivation in Catholic schools, one must take into consideration the potentially differential impact on students attending single-gender schools. There is currently no data on achievement motivation goals adoption in single-gender Catholic secondary schools. However there are two findings in the above reported research that may point to a consistent pattern. LePore & Warren (1997) also found that boys in single gender schools have higher math achievement than their coed counterparts. Although LePore & Warren (1997) did not test for differences between boys and girls, the reported weighted, design effect-adjusted means of mathematics achievement test scores for girls in both all-girls and coeducational schools are almost identical with boys in coeducational schools. Additionally, Bryk et al. (1993) found that boys in all-boys schools take more math courses and have higher math achievement than boys and girls in coeducational schools. Thus one may hypothesize that boys in single-gender Catholic schools may be more approach oriented and less avoidance oriented in mathematics than their counterparts in coeducational schools and girls in coeducational schools.

*Religiosity, religious beliefs, and motivation.* Zusho (2005) indicates that two mutually reinforcing factors underlie the different context of Catholic schools: Catholicism in general and the institutional structure and nature of Catholics schools. Bryk et al. (1993) suggests that

neither of these factors alone can account for this, but it is the dynamic interaction of the two that are essential. Zusho (2005) further argues that merely studying the organizational features of Catholic schools will not provide a complete picture. One must consider the distinctive culture and traditions of Catholic beliefs that facilitate and maintain these institutional practices.

Is it possible that Catholic school students adhere to religious beliefs that place them at an advantage motivationally? Research has indicated a general positive correlation between religiosity in general and academic motivation. Students who regularly attend church often display greater interest in academics (Bryk et al., 1993; Jeynes, 2003), have higher educational aspirations (Regnerus, 2000) and are less likely to drop out of school (Loury, 2004). Religious involvement is also correlated positively with academic achievement (Regnerus & Elder, 2003). Jeynes (2002, 2003) found that students in Catholic schools who reported a higher level of religious commitment were more likely to obtain higher levels of achievement. However, there are no studies that have examined the relationship between religiosity and achievement motivation goals. The above mentioned correlations between religiosity and academic motivation mirror the positive outcomes found with both mastery-approach and performance-approach orientation and academic motivation and achievement (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, et al., 2002; McGregor & Elliot, 2002). Thus future research may indicate that religiosity may be related most closely with these two orientations.

There is also a lack of research examining Catholic school students' specific religious attitudes and beliefs that may influence their learning and motivation. More work examining the values and motivational beliefs of Catholic school students certainly seems warranted. In particular, whether students attending Catholic schools are more likely to adopt mastery or

performance goals is unknown. Likewise whether the adoption of different achievement orientation goals by students is related to holding specific religious beliefs has yet to be investigated. Much of the work on Catholic schools and the impact of religious beliefs originate not from psychology, but sociology. Thus, in order to investigate the religious values and worldviews of individuals that may impact achievement goal choice, I will draw primarily upon theoretical and empirical research within the domains of the sociology of religion.

*Greeley's Sociological Theory of Religion and the Grace and Tracy Scales*

A subset of questions used in the General Social Survey (GSS), the *grace scale* and the *Tracy scale* (Davis & Smith, 1992; Greeley, 1995), are two measures consistently used to explore the impact of religious beliefs in adults. The GSS is one of several on-going projects conducted by the National Opinion Research Center (NORC) at the University of Chicago, and it is currently the largest sociology project funded by the National Science Foundation (NSF). Designed to gather data on contemporary American society in order to monitor and explain trends and constants in attitudes, behaviors, and attributes, it has been conducted almost annually from 1973-1994 and biennially since 1996. Consisting of in-person interviews of a national area probability sample of 1,500 – 3,000 non-institutionalized adults, the questionnaire contains a standard core of demographic and attitudinal variables, plus certain topics of special interest selected for rotation (called *topical modules*). Items that appeared on national surveys between 1973 and 1975 are replicated, and the exact wording of these questions is retained to facilitate time trend studies as well as replications of earlier findings. In the period from 1973-1990 alone, more than 25,000 respondents answered approximately 1,500 different questions. (Davis & Smith, 1992; NORC, 2003a; NORC 2003b).

One subset of questions contained in the religion section of the GSS since 1984 is comprised of the *grace scale* and the Tracy scale (Davis & Smith, 1992; Greeley, 1995). These two scales are reflective of Greeley's (1981, 1982) sociology of religion. Greeley (1995) defines religion as:

a system of narrative symbols which acts to establish powerful and long-lasting moods in humans by formulating conceptions of a general order of existence and clothing conceptions with such an aura of factuality that the moods and motivations seem uniquely realistic...Religion enables humans to cope with joy and grace as well as suffering, injustice, and death – marriage and birth as well as sickness and death. (p. 2)

Thus, religion for Greeley is an overarching system of meaning-making for human existence. It is not the social scientist's place to attempt to confirm or negate the existence of a supernatural being, but rather, to ask how religious meaning systems influence human attitudes and behavior. Drawing from Parsons (1954, as cited in Greeley, 1995), it is argued that human behavior is shaped to some considerable extent by the meaning that humans attach to their lives, and religion provides an answer to the problem of meaning. Greeley views religion first and foremost as a story which influences meaning-making in other "stories" or realms of human existence. These stories are shaped by encounters of the numinous, i.e, the holy or spiritual found outside oneself. These encounters may be gentle and ordinary (Otto, 1958) or powerfully mystic or noetic (James, 1958), and they may occur in collective rituals, relationships with others, or in personal and solitary encounters. What is important for the social scientist is that people choose spiritual reality and that choice tends to reflect what they believe reality is really like (James, 1958). Playing off the biblical account of creation of man in Genesis 1:26 (New

American Bible), “Let us make man in our image, after our likeness,” Greeley (1995) states, “Voltaire said that man creates God in his own image and likeness. Perhaps it would be more accurate to say that humans create God in the image and likeness of the numen they have experienced” (p. 16).

Greeley (1995) posits five elements in his theory of religion: experiences, encoding, symbols, stories, and rituals. The origin of religion in both an individual’s life and in a religious heritage begins with *experiences* that renew hope, that are *encoded* in *symbols*. These are then shared with others as *stories*, which are told to and constitute a story-telling community, which then enacts the stories in *rituals*. Although described as a linear model, theoretically it is best represented as circular, with five points on the circumference of the circle and influence lines running from each of the five points to the other four. Thus, religion is primarily a story or collection of stories (what Greeley terms *poetry*), which are then later reflected upon at some depth to become theological doctrine and dogma (or *prose*). Although doctrines, creeds, and moral formulae are important for organized religion, Greeley’s theory insists that experiences that renew hope are prior to and richer than propositional and ethical religion and provide the raw data for the later. Every object, event, and person encountered in an individual’s life is a potential hope renewing experience that informs, recreates, or changes the story of religion, particularly since story-telling is a process of making meaning. The poetry provides the big picture or overarching structure, and the prose fills in the details. Since symbols are inherently narrative, the symbol or image of God that one has is the primary and central religious symbol in which all the metaphors (or stories) are combined and into which all are projected.

This image of God then may play a pivotal role in the rest of human activity. Greeley (1989a) has demonstrated that, even given the combined forces of modernization, urbanization,

industrialization, and the ecumenical nature of capitalistic society, differences in God image exist.

Greeley, in consultation with NORC and other researchers, has developed two scales used in the GSS which attempt to measure the religious imagination of individuals: the grace scale and the Tracy scale (Greeley, 1981, 1984, 1995). The grace scale, which is the more symbolic of the two, asks respondents to locate themselves on a scale of 1 to 7 between 4 sets of two contrasting images of God: Mother/Father, Master/Spouse, Judge/Lover, and King/Friend. The higher the grace scale score, the more gracious the image of God held by the participant, indicated by images consisting of “Mother”, “Spouse”, “Lover”, and “Friend” (see Appendix A). The Tracy scale consists of two items which asks the participants to locate themselves on a scale of 1 to 7 between two contrasting views on the degree of goodness or evil inherent in the world and human nature (see Appendix A). Factor analyses indicate that each scale loads onto its own factor (Greeley, 1984, 1995).

#### *The Relationship Between Gracious Stories and Achievement Goal Orientation*

Although the theory that supports the use of the grace scale is sociological in nature and origin, and its empirical support and usefulness has been demonstrated with sociological data, Greeley (1995) concedes that the measure itself may be a measure of individual differences, and therefore a psychological measure.

Perhaps the grace scale used in this analysis does not indeed measure cultural orientation at all. Perhaps it measures personality orientation. Perhaps it is a psychological rather than a religious variable. Obviously, there is no way to refute that possibility. While it is possible in theory (Parsonian theory) to separate the culture system from the personality system, the two interact so powerfully in

an individual from the earliest days of his life that in practice it would be very difficult to sort them out. It may be that the religious imagery questions asked in the General Social Survey are nothing more than a kind of inkblot that merely measures different personality orientations. One must note, however, that even if the grace scale merely measures personality, it is a very powerful personality measure if through four rather simple items one can provide more predictive power than do far more elaborate personality tests (p. 188).

The strength of the grace and Tracy scales, then, may lie in their ability to be used as individual difference measures that may be compared with a tremendous amount of sociological data in the GSS since 1984. Given the limited analysis conducted with these measures thus far, it has already been demonstrated that they differentiate individuals far better than the traditional demographic variables, with the exception of level of education, on matters of social and political values (Greeley, 1984, 1988, 1993, 1995). However, in the field of educational research, level of education is often held constant by design, further strengthening the potential for predictive power of the grace and Tracy scales.

In the current debate over the values implicit in selecting performance-approach goals in educational settings (Harackiewicz, Barron, Pintrich, et al., 2002; Hidi and Harackiewicz 2000; Kaplan & Middleton, 2002; Midgley et al. 2001), the grace and Tracy scales may act as a unique correlational bridge between current beliefs and values in the U.S. population and achievement goal orientation. In this particular debate, the question to be asked is whether an individual's religious imagery affects his/her adoption of specific achievement goals. If this question is answered affirmatively, then given the sociological data utilizing the scales, one may be able to deduce a relationship between adoption of a particular achievement goal orientation and a profile

of viewpoints on social responsibility, equality, and justice, the development of which are the central aims of education articulated by Kaplan and Middleton (2002).

How might religious imagery predict achievement motivation? Goal orientation represents an integrated pattern of beliefs and leads to “different ways of approaching, engaging in, and responding to achievement situations” (Ames, 1992, p.261). Urdan (1997) notes that goal orientations are the reasons *why* one pursues achievement tasks, and are not just the performance objectives. Goal orientation also includes not just the purposes or reasons for achievement, but also reflects a type of standard by which individuals judge their performance and success or failure of reaching that goal (Pintrich, 2000a, 2000b, 2000c). Just as religious imagery may provide a framework for viewing the world and explaining its events and interactions with others, achievement goal orientations may provide a pattern and reasoning for explaining educational situations. If Greeley’s theory is correct, then one’s religious story may correlate with one’s educational story, of which achievement goal orientation plays a particular role.

The images of the grace scale are designed to articulate the differences between a God who is perceived as immanent and who emphasizes the manifestation of Her goodness (mother, friend, spouse, lover) and a God perceived as transcendent or distant and who emphasizes His judgment (father, king, master, judge) (Greeley, 1995, 2000). This dichotomy is carried over into the Tracy scale which ascertains the dominant view of goodness or corruption in the world and human nature. Thus those high on these two measures of religious imagery view themselves, others, and the world as primarily good and reflections of a close and loving God. Conversely, those low on the scales see themselves, others, and the world as basically corrupt and divorced from a judgmental God.

In examining the theoretical conceptions behind achievement goal motivations, a similar pattern may be distinguished. Pintrich and Schunk (2002), collating various definitions provided by researchers, define mastery goal orientation as “a focus on learning, mastering the task according to self-set standards or self-improvement, developing new skills, improving or developing competence, trying to accomplish something challenging, and trying to gain understanding or insight” (p.214). They define performance goal orientation as

a focus on demonstrating competence or ability and how ability will be judged relative to others, for example, trying to surpass normative performance standards, attempting to best others, using social comparative standards, striving to be the best in the group or class on a task, avoiding judgments of low ability or appearing dumb, and seeking public recognition of high performance levels (p.215-216).

The performance orientation is primarily focused on normative judgment, a viewpoint that may be less consistent with Catholic schools. High scores on the grace and Tracy scales may reflect a more communal and cooperative orientation to education, particularly as it is found in Catholic schools (Byrk et al., 1993). As such, they would be opposed to the competition, social division, and individualism inherent in performance goals.

Conversely, mastery orientation is focused on the task, basing evaluation according to standards inherent to the task. Elliot and McGregor (2001) term this an absolute standard of competence. Evaluation may also be chosen by the self, which as an intrapersonal standard (Elliot & McGregor, 2001) reflects that the standard is based on one’s own past attainment or maximum potential attainment. The reliance on a task or self in determining the degree of competence depends upon the ability of the task or self to provide an appropriate judgment of

said competence. This implies that the task or self is “good,” i.e., not fundamentally deprived and also capable of making the judgment. As viewed from the Catholic sacramental system (McBrien, 1994) everything is good since it is created by God. Since the task (part of the world) or the self (reflective of human nature) must be “good” in order to make a judgment of competency, mastery orientation may be consistent with gracious religious imagery.

Elliot and McGregor’s (2001) research with parental socialization as an antecedent of achievement goals may inform the impact gracious images of God may have on achievement orientation. Parental responses to behavior can address the person as a whole or the person’s specific behaviors, and can be positively or negatively valenced. Parental responses can also communicate conditional approval or induce worry about failing or making mistakes.

Performance-approach goals were linked to conditional approval for both mothers and fathers and person-focused positive feedback for fathers. Performance-avoidance goals were linked to person-focused negative feedback for both parents.

Thus, at least for some persons, the pursuit of [performance-approach] goals represents an attempt to earn acceptance and love from one’s parents at the dynamic level, the outward expression of which is likely the presence of a contingency between one’s positive achievement outcomes and one’s sense of global value and worth... The pursuit of performance-avoidance goals appears to represent an attempt to evade global devaluation by one’s parents at the dynamic level, the outward manifestation of which is likely the presence of a contingency between one’s negative achievement outcomes and one’s overall sense of self-worth (Elliot & McGregor, 2001, p. 516).

If one extrapolates the relationship with one's parents to the relationship with one's "Parent" (i.e., God), these findings may be in keeping with Greeley's (1995) theory of religion and the grace scale, in which less gracious imagery perceives God as distant and who emphasizes His judgment (father, king, master, judge). Greeley (1981, 1995) has found that the primary agents of religious socialization, measured in part by the grace scale, are the quality of relationships within the family of origin and the family of procreation (or marriage). In the case of performance orientation, one's goodness as viewed by one's parent may be dependant upon the judgment of one's competence or worth by the parent figure (Elliot & McGregor, 2001). Whether one is concerned with one's parents or Parent depends upon which story one is most concerned. Although mastery-avoidance goals shared similar socialization antecedents as performance-avoidance goals, they did not have the negative pattern of consequences as performance-avoidance goals, indicating that one may not be as concerned with the judgment to be made or the judgment is perceived as more benevolent (Elliot & McGregor, 2001). Interestingly, Elliot and McGregor (2001) found no relationship between parental socialization and mastery-approach goals.

It is hypothesized that students who have gracious religious images as measured by the grace and Tracy scales would be likely to adopt both mastery-approach and mastery-avoidance goals, whereas students who view God, the world, and humans as being less gracious would be likely to adopt both performance-approach and performance-avoidance goals. If this hypothesis is supported, then given the combined correlational findings of Greeley (1984, 1988, 1989a, 1989b, 1991, 1993, 1995), one may deduce that those who hold performance-approach and performance-avoidance goals may tend to have social and political attitudes and opinions which are deemed to enhance inequality and injustice in society relative to those who adopt mastery-

oriented goals. This link would be extremely tentative, but it would be a small step in providing empirical evidence in the value debate over performance-approach goals.

## Research Questions and Hypotheses

1. What achievement motivation orientations are present in Catholic high schools? In particular, do students in Catholic high schools report mastery-avoidance orientation? It is hypothesized that all four achievement motivations are present among Catholic high school students in their math classes. Catholic schools' emphasis on academic press and religiosity is thought to foster the presence of both approach orientations. Additionally, the emphasis on sacramentality and social support would indicate the presence of both mastery orientations. Although thought to be least prevalent because of the above, performance-avoidance is hypothesized to also be present due to its occurrence in middle schools populations (Middleton & Midgley, 1997; Skaalvik, 1997).
2. Since no known previous research has been conducted on the relationship between single gender Catholic high schools and adoption of achievement goal orientation, this will be an overarching context to be investigated prior to examining classroom context. It is hypothesized that boys in single-gender Catholic high schools will be more likely to adopt approach oriented goals and less likely to adopt avoidance oriented goals than boys in coeducational Catholic high schools and girls in coeducational Catholic high schools
3. In Catholic high schools, what classroom context variables predict achievement motivation orientations in mathematics? It is hypothesized that students who perceive their classroom as engaging, but view their teachers as placing more importance on evaluations rather than learning, and view said evaluations as being

- harsh, will adopt mastery-avoidance goals. It is also hypothesized that the results of Church, et al. (2001) on perceived classroom variables will be replicated, namely: classroom engagement will be a positive predictor and evaluation focus and harsh evaluation will be negative predictors of mastery-approach goals; evaluation focus will predict performance-approach goals; and evaluation focus and harsh evaluation will predict performance-avoidance goals.
4. Does religiosity predict mathematics achievement motivation among students attending Catholic high schools? It is hypothesized that religiosity will predict mastery-approach and performance-approach achievement goals.
  5. Do religious values (as measured by the grace and Tracy scales) predict mathematics achievement motivation? Specifically, it is hypothesized that students with more gracious images of God and benign images of the world and human nature will adopt mastery-approach or mastery-avoidance goals. Whereas students with less gracious images of God and pessimistic images of the world and human nature will adopt performance-approach or performance-avoidance goals.

These five research questions and hypotheses, taken together, all fall within the current debate of whether goal orientation is more situated and contextual or is more of a personal predisposition or individual difference variable (Pintrich & Schunk, 2002). They also reflect one possible solution to this debate. By adopting the strategy utilized in personal and social psychology that assumes that both situational and personal conceptualizations are important in the stability of goal orientation, the means in which they interact will be examined (Pintrich, 2000b).

## Chapter 3

### Method

#### *Participants and School Information*

Participants were recruited from eight Catholic secondary schools in the Midwest and Mid-Atlantic states. Three schools were urban, all-male schools. Four schools were suburban co-educational schools, and one school was a rural co-educational school. Of the 4750 students enrolled in the schools, 2321 returned questionnaires. Out of those 2321 students, 886 students were filtered out of the study because they had missing data. The remaining 1435 students had a response for every item of every measure used in analyses.

Out of these 1435 students, 135 identified themselves as non-Catholic. Table 4 summarizes the religious affiliation of the non-Catholic students. Due to the limited number of non-Catholics, analyses examining religious affiliation differences could not be conducted. Thus all non-Catholic students were eliminated from the sample.

The remaining 1300 students used in the study represent 56.01% of the returned questionnaires, and 27.37 % of the total enrollment of the schools. Of the sample, 696 (53.54%) participants were from all male schools. Table 5 summarizes the demographic data of the students used for the study.

#### *Procedure*

Students responded to surveys consisting of three elements: their motivation to learn in their current math class, their perception of their current math class' learning environment, and their religious imagery, beliefs and practices.

Table 4

*Religious Affiliation by Type of School*

Religion	All Male Schools N=756		Co-ed Schools N=679		All Observations N=1435	
	Total	%	Total	%	Total	%
Catholic	696	92.06	604	88.95	1300	90.59
Protestant	17	2.25	18	2.65	35	2.44
Other – Religion*	4	0.53	11	1.62	15	1.05
Other – No Religion**	6	0.79	19	2.80	25	1.74
Other – Unknown***	33	4.37	27	3.98	60	4.18

*Note:* \*Other - Religion: Jewish 4, Orthodox 0, Muslim 2, Hindu 1, Sikh 0, Universalist 0, Wicca 4, Mixed 4, Deist 0, Buddhism 0  
 \*\*Other - No Religion: Agnostic 9, Atheist 5, None 11  
 \*\*\*Other – Unknown: No response or subject indicated they did not know.

Two different survey administration procedures were used at the discretion of school administrators. One school used Method A and 7 schools used Method B. A multivariate analysis of variance (MANOVA) was conducted to determine whether there were any systematic differences in dependant variables between the school that used Method A and the schools using Method B. No significant differences were found [Wilks's  $\Lambda = .992$ ,  $F(10, 1289) = 1.03$ ,  $p > .05$ ].

*Method A.* Approximately one week prior to administration of the questionnaire, potential participants were given an informed consent form to take home. Teachers distributed and collected the consent forms. Students under 18 years of age who returned the informed

Table 5

*Comparison of Demographic Variables by Type of School*

Variable	All Male Schools N=696		Co-ed Schools N=604		All Observations N=1300	
	Total	%	Total	%	Total	%
<b>Gender</b>						
Male	696	100	204	33.77	900	69.23
Female	0	0.00	400	66.23	400	30.77
<b>Race</b>						
Caucasian	635	91.24	586	97.02	1221	93.92
Black	7	1.01	2	0.33	9	0.69
Hispanic	27	3.88	2	0.33	29	2.23
Asian	10	1.44	8	1.32	18	1.38
Native American	2	0.29	0	0.00	2	0.15
Other	13	1.87	6	0.99	19	1.46
Missing	2	0.29	0	0.00	2	0.15
<b>Age</b>						
13	2	0.29	0	0.00	2	0.15
14	122	17.53	82	13.58	204	15.69
15	215	30.89	147	24.34	362	27.85
16	158	22.70	152	25.17	310	23.85
17	126	18.10	146	24.17	272	20.92
18	71	10.20	74	12.25	145	11.15
19	1	0.14	3	0.50	4	0.31
Missing	1	0.14	0	0.00	1	0.08
<b>Grade</b>						
9	207	29.74	123	20.36	330	25.38
10	199	28.59	174	28.81	373	28.69
11	157	22.56	132	21.85	289	22.23
12	132	18.97	175	28.97	307	23.62
Missing	1	0.14	0	0.00	1	0.08

consent form to their teacher prior to administration of the survey could participate. Participants were given a self-explanatory packet containing an instructions sheet, one implied consent form, the questionnaire, and an optical scanning response form during either their homeroom or a designated class period. They completed all forms during their free time at a site and time of their own choosing. They returned the questionnaire and the optical scanning form together in a sealed envelope to the researcher during a designated homeroom or class period.

*Method B.* Approximately one week prior to administration of the questionnaire, potential participants were given during their secondary school homeroom or a designated class period an informed consent form to take home. Students under 18 years of age who had returned the informed consent form to their homeroom/designated class teacher prior to administration of the survey could participate. During students' free time during their homeroom or designated class period, participants were given a self-explanatory packet containing an instructions sheet, one participant implied consent form, the questionnaire, and an optical scanning response form. They completed all forms during their free time in either the homeroom or the designated class period. They returned the survey and the optical scanning form together in a sealed envelope to the researcher.

### *Measures*

*Demographic information including religious affiliation.* Participants were asked to provide their gender, age, race/ethnicity, year in school, and religious affiliation. However, due to the number of subjects, none of these variables were used in statistical analyses.

*Religiosity Measure Questionnaire.* The Religiosity Measure Questionnaire (Rohrbaugh & Jessor, 1975) operationalizes Glock's (1959) four dimensions of religiosity, and evaluates the impact of religion on the participant's daily, secular life as well as determines the extent of

individual participation in religious rituals. The measure is intended to be applicable to religiosity in general, and no particular religious affiliation or denominational creed is assumed (Boivin, 1999). It consists of 7 multiple choice items and one open response item. Two of the multiple choice items and the open response item are scored from 0 (indicating least religiosity) to 3 (indicating greatest religiosity). The open response item, “How many times have you attended religious services during the past year” question was scored according to four meaningful breaks in the response distribution, namely, 0-24 = 0, 25-51 = 1, 52-60 = 2, and 61-400 = 3. The remaining five multiple choice items are scored from 0 (indicating least religiosity) to 4 (indicating greatest religiosity). Thus the measure has a potential range of 0-29. Some of the items are reverse worded. See Appendix B for the questionnaire.

The original sampling included a random selection of 497 freshmen at a large public university, of which 276 provided a cohort sample that was measured longitudinally throughout their college experience. Cronbach alphas were over .90, and the measure had an average of .55 for Homogeneity Ratios (Scott, 1960), indicating the measure was unidimensional and homogenous. The measure correlated with other self-ratings of religiosity ranging from .78 - .83 (Rohrbaugh & Jessor, 1975).

It includes a belief in God item that approximates the same question administered in the GSS (Davis & Smith, 1992; Greeley, 1995). Only five percent of GSS respondents typically indicate an atheistic or agnostic belief (Greeley, 1995). See Appendix B for the item.

*God imagery.* The grace scale (Greeley 1991, 1995) is a measure of an individual’s God imagery. Consisting of four items, it asks participants to locate themselves on a scale of 1 to 7 between two contrasting images of God: Mother/Father, Master/Spouse, Judge/Lover, and King/Friend. The higher the grace scale score, the more gracious the image of God held by the

participant, indicated by images consisting of “Mother”, “Spouse”, “Lover”, and “Friend.”

Factor analyses indicate that the items loads onto one factor (Greeley, 1984). All items loaded between .56-.72 on their primary factor; none of the secondary loadings exceeded .31.

Reliability data have not been reported. See Appendix A for the grace scale.

*Sacramentality.* The Tracy scale (Greeley 1995) measures to what extent an individual views creation as sacramental, i.e., revealing the Divine presence. It consists of two items which asks the participants to locate themselves on a scale of 1 to 7 between two contrasting views on the degree of goodness or evil inherent in the world and human nature. Factor analyses indicate that the items loads onto one factor (Greeley, 1995). Reliability data have not been reported. See Appendix A for the Tracy scale.

*Perceived classroom environment.* Three measures developed by Church et al. (2001) based on the TARGET model (Epstein, 1988; Ames, 1992) were used to assess the perceived classroom variables of central interest: classroom engagement, evaluation focus, and harsh evaluation. The items were modified in the present study to reflect a secondary school math class context and were randomly ordered. Participants indicated their response to each of the 11 items on a 1 (strongly agree) to 7 (strongly disagree) scale. These scales consist of revised items from existing classroom or sport climate scales (Ames & Archer, 1988; Fraser & Fisher, 1986; Winston et al., 1994) as well as new items created by Church et al. (2001). The reliability and validity of the measures have been demonstrated by Church et al. (2001). Specifically, reliability scores range from .88-.91 for classroom engagement, .57-.65 for evaluation focus, and .66-.74 for harsh evaluation. See Appendix C for the items on each measure.

*Achievement goals.* The Achievement Goal Motivation Scale (Karabenick, 2004) measures mastery approach, mastery avoidance, performance-approach, and performance-

avoidance achievement goal motivation (Elliot, 1999). It consists of 18 items, 5 items each for mastery-approach and performance-avoidance, and 4 items each for mastery-avoidance and performance-approach. Participants were asked to rate the degree to which each item applies to them on a 1 (not at all true) to 5 (completely true) scale. Reliability and validity data of the questionnaire have been reported by Karabenick (2004). Specifically, Cronbach's alpha for each of the goal orientations range from .78-.86. Items were modified to apply specifically to the participant's math class and randomly ordered. See Appendix D for the items.

## Chapter 4

## Results

Results are presented according to the specific research questions examined in the study.

*What Achievement Motivation Orientations in Math Are Present in Catholic High Schools?*

All four achievement goal orientations were present in the sample. Figures 2 through 5 illustrate the distribution of each goal orientation in the sample. Table 6 presents descriptive statistics of each achievement goal orientation. Participants scoring on the upper 24 percent of the absolute range of a goal orientation measure were classified as “high scores.” Thus, high scores on a range of 5-25 were 21 and above; high scores on a range of 4-20 were 17 and above.

*Figure 2.* Distribution of mastery-approach orientation scores.

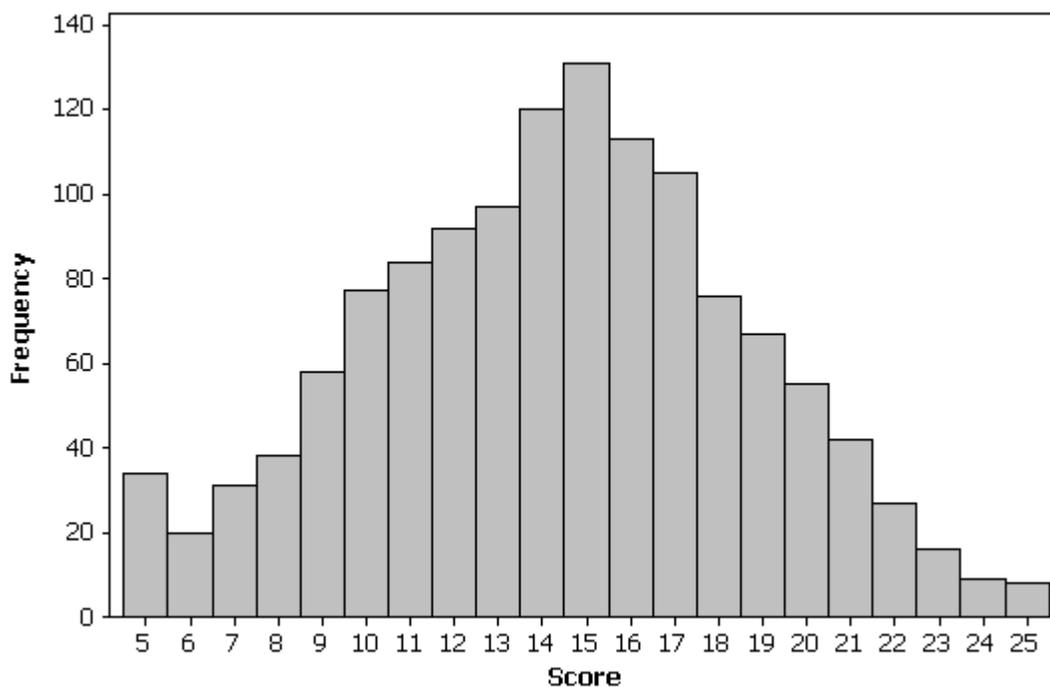


Figure 3. Distribution of mastery-avoidance orientation scores.

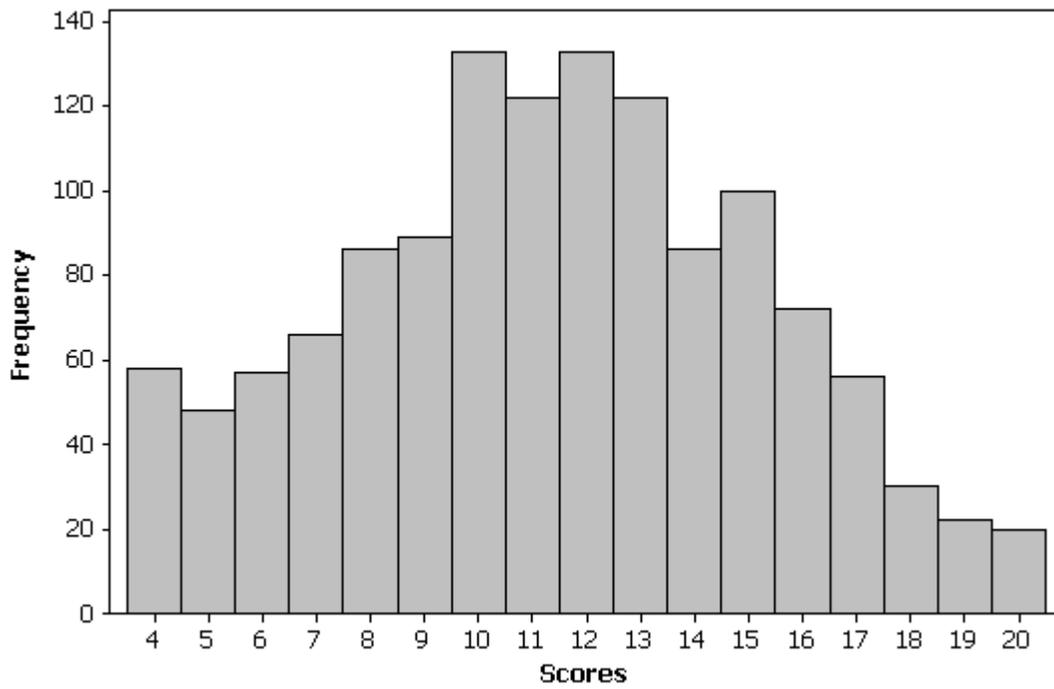


Figure 4. Distribution of performance-approach orientation scores.

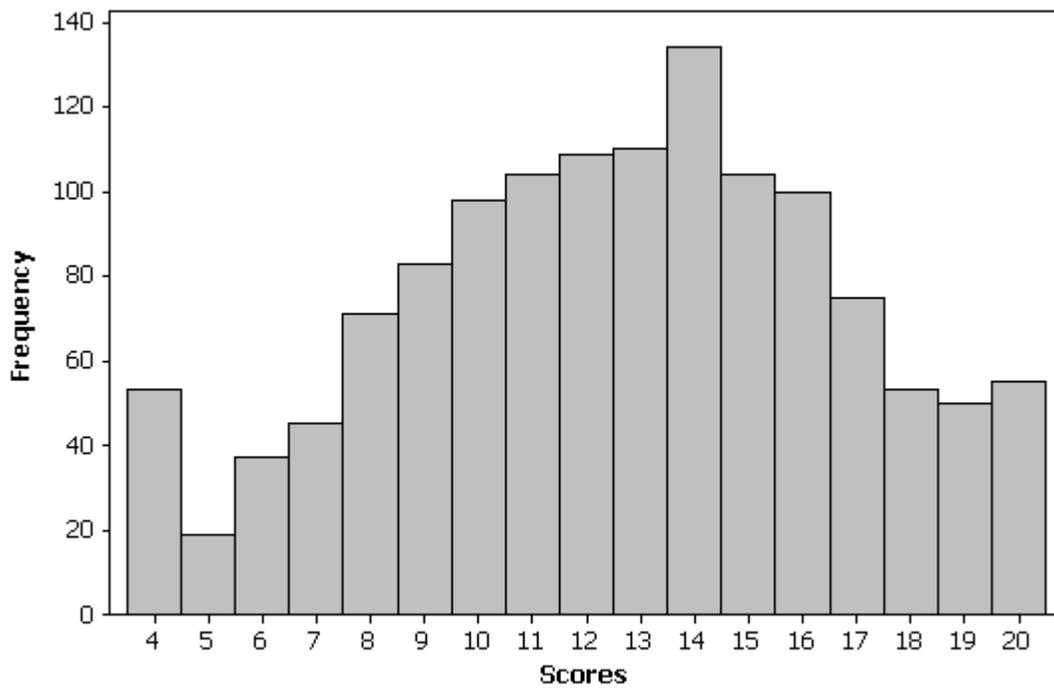


Figure 5. Distribution of performance-avoidance orientation scores.

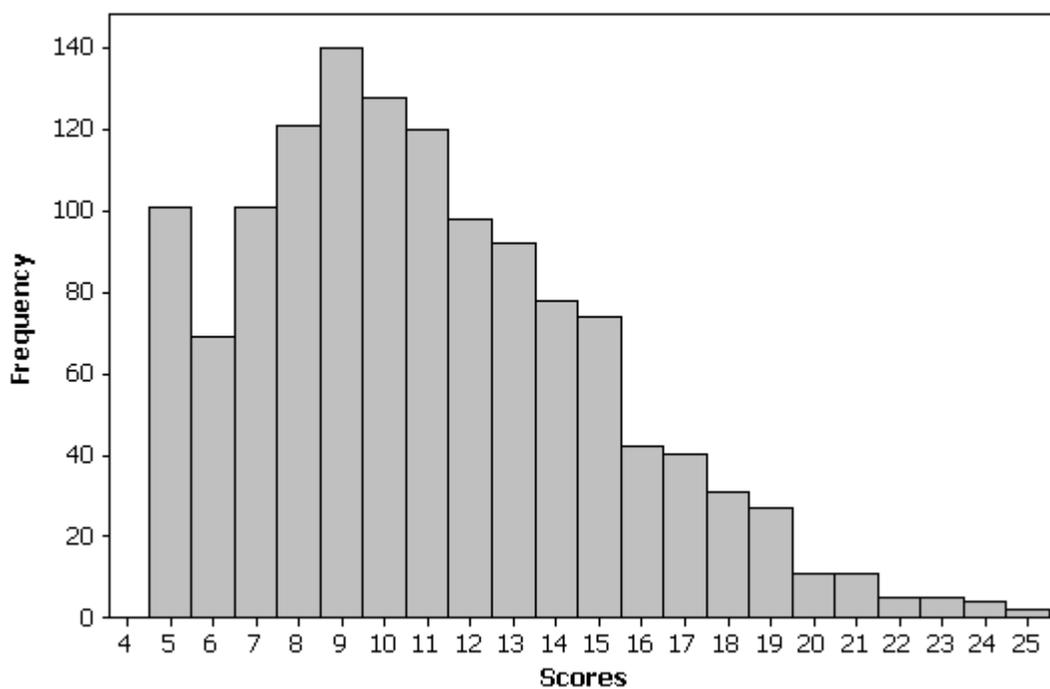


Table 6

*Means, Standard Deviations, and Ranges for Achievement Motivation Orientations*

Variable	Mean	SD	Range	High Scores	
				Total	%
Mastery Approach	14.33	4.30	5-25	102	7.85
Mastery Avoidance	11.37	3.87	4-20	128	9.85
Performance Approach	12.57	4.09	4-20	233	17.92
Performance Avoidance	10.98	4.04	5-25	27	2.08

As is indicated in Figures 2-4, the distributions of mastery-approach, mastery-avoidance, and performance-approach orientations approximate a normal distribution. The unimodal, positively skewed distribution of performance-avoidance indicates that the majority of students

scored low on this scale. Thus performance-avoidance was not a prevalent goal orientation in this sample.

### *Statistical Analyses for the Remaining Research Questions*

Multiple regression analyses were performed to investigate the amount of variance in each achievement goal orientation accounted for by the different predictors under investigation, in an attempt to answer research questions 2 - 4. Multiple regression is an additive technique that assumes the predictors are independent. Correlations among predictors and achievement motivation goals are reported in Table 7. The presence of high multicollinearity among predictor variables was examined to eliminate unbiased parameter estimates (Klem, 1995; Licht, 1995). Multicollinearity among predictors was tested by calculating variance inflations factors (VIFs).

Table 7

### *Correlation Matrix for Predictors and Achievement Motivation Goals*

Variable	2	3	4	5	6	7	8	9	10	11
(1) Religiosity	.054	.366**	.143**	-.091**	.012	-.063*	.262**	.043	.095*	.003
(2) God Image	-	.021	.042	-.000	-.056*	.064*	.072**	.002	-.045	.011
(3) Sacramentality		-	.143**	-.114**	-.037	-.050	.198**	-.009	.015	-.030
(4) Class Engagement			-	-.439**	-.236**	-.011	.367**	-.164**	.105*	-.040
(5) Evaluation Focus				-	.403**	.013	-.083**	.237**	.011	.199**
(6) Harsh Evaluation					-	-.024	-.030	.233**	.016	.113**
(7) Gender/School						-	-.083**	.115**	-.124**	.002
(8) Mastery Approach							-	.073**	.258**	.054
(9) Mastery Avoidance								-	.145**	.400**
(10) Performance Appr									-	.366**
(11) Performance Avoid										-

\* $p < .05$ . \*\* $p < .01$ .

The VIF measures how much the variance of an estimated regression coefficient increases if the predictors are correlated. VIF = 1 indicates no relation among predictors; VIF > 1 indicates that the predictors are correlated; VIF > 5 – 10 indicates that the regression coefficients are poorly estimated. All the predictors in the regression models presented had VIFs ranging from 1.0 to 1.3, indicating minimal to no collinearity. All variables are positive predictors in the following regression models, unless otherwise noted.

Due to the number of significance tests employed that utilize multiple comparisons, a Bonferonni adjustment procedure was conducted for the study. This will minimize experiment-wise error, adjusting the maximum level of alpha downward to consider chance capitalization (Perneger, 1998; Sankoh, Huque, & Dubey, 1997). Thus for all the significance tests that follow, the alpha levels reported for all significance tests of  $p < .001$  and  $p < .0002$  are equivalent to the standard  $p < .05$  and  $p < .01$ , respectively.

*Attending a single-gender versus co-educational Catholic school*

Since no known previous research has been conducted on the relationship between single gender schools and adoption of achievement goal orientation, a categorical variable was created to examine this. Gender/School type was coded for all significance tests as follows: 1 = all male school, 2 = male in coeducational school, 3 = female in co-educational school. Gender/school type was positively correlated with mastery-approach and performance-approach orientation and positively correlated with performance-approach orientation.

As a follow-up to these correlations, a multiple analysis of variance (MANOVA) was conducted to determine whether there were differences in achievement goal orientations between gender/school types. A significant difference was found, Wilks's  $\Lambda = .955$ ,  $F(8, 2588) = 7.59$ ,  $p < .0002$ ,  $\eta^2 = .05$ . Subsequent separate analysis of variance (ANOVA) procedures were

conducted, with Tukey HSD procedures used to explore all possible pairwise comparisons. Differences in mastery-avoidance motivation were found,  $F(2, 1297) = 11.23$ ,  $MSE = 14.73$ ,  $p < .0002$ , with girls in coeducational schools scoring higher than both boys in single-gender schools and boys in coeducational schools. Differences were also found in performance-approach orientation,  $F(2, 1297) = 11.34$ ,  $MSE = 16.43$ ,  $p < .0002$ , with girls in coeducational schools scoring lower than both boys in single-gender schools and boys in coeducational schools.

*What Classroom Context Variables Predict Achievement Motivation Orientations?*

Given these results, gender/school type was added as a classroom context predictor in subsequent regression analyses along with classroom engagement, evaluation focus, and harsh evaluation. Beta weights of predictors for subsequent classroom context regression analyses are reported Table 8.

*Mastery-Approach.* Classroom engagement ( $r^2 = .134$ ) and evaluation focus ( $r^2 = .007$ ) were predictors of mastery-approach motivation,  $F(2, 1297) = 107.41$ ,  $MSE = 15.89$ ,  $r^2 = .141$ ,  $p < .0002$ .

*Mastery-Avoidance.* Mastery-avoidance motivation was predicted by evaluation focus ( $r^2 = .056$ ), harsh evaluation ( $r^2 = .022$ ) and gender/school type ( $r^2 = .013$ ),  $F(3, 1296) = 44.11$ ,  $MSE = 13.61$ ,  $r^2 = .091$ ,  $p < .0002$ .

*Performance-Approach.* Performance-approach motivation was negatively predicted by gender/school type ( $r^2 = .015$ ) and positively predicted by classroom engagement ( $r^2 = .010$ ),  $F(2, 1297) = 17.32$ ,  $MSE = 16.28$ ,  $r^2 = .025$ ,  $p < .0002$ .

*Performance-Avoidance.* Evaluation focus was the only predictor of performance-avoidance orientation,  $F(1, 1298) = 53.38$ ,  $MSE = 15.71$ ,  $r^2 = .039$ ,  $p < .0002$ .

Table 8

*Beta Weights for Classroom Context Predictors of Achievement Motivation*

Variable	B	SE B	$\beta$	$r^2$
<b>Mastery Approach</b>				
Class Engagement	0.30	0.02	0.41**	0.134**
Evaluation Focus	0.11	0.03	0.10*	0.007*
<b>Mastery Avoidance</b>				
Evaluation Focus	0.18	0.03	0.17**	0.056**
Harsh Evaluation	0.14	0.02	0.17**	0.022**
Gender/School	0.51	0.12	0.12**	0.013**
<b>Performance Approach</b>				
Gender/School	-0.56	0.13	-0.12**	-0.015**
Class Engagement	0.07	0.02	0.10*	0.010*
<b>Performance Avoidance</b>				
Evaluation Focus	0.22	0.03	0.20**	0.039**

\* $p < .001$ . \*\* $p < .0002$ .

*Does Religiosity Predict Mathematics Achievement Motivation?*

Religiosity predicted mastery-approach orientation,  $F(1, 1298) = 95.40$ ,  $MSE = 17.25$ ,  $r^2 = .068$ ,  $p < .0002$ . Religiosity also predicted performance-approach orientation,  $F(1, 1298) = 11.89$ ,  $MSE = 16.55$ ,  $r^2 = .008$ ,  $p < .001$ . Religiosity was not a significant predictor of mastery-avoidance or performance-avoidance orientation. See Table 9 for beta weights of predictors.

*Do Religious Beliefs Predict Achievement Motivation?*

Religious beliefs were measured by sacramentality and God imagery. Sacramentality predicted mastery-approach orientation,  $F(1, 1298) = 52.97$ ,  $MSE = 17.79$ ,  $r^2 = .038$ ,  $p < .0002$ . Sacramentality was not a significant predictor of the other three achievement goal orientations.

God imagery was not a significant predictor of any of the four achievement goal orientations.

Beta weights of predictors are reported in Table 9.

Table 9

*Beta Weights for Religious Predictors of Achievement Motivation*

Variable	B	SE B	$\beta$	$r^2$
Religiosity				
Mastery Approach	0.23	0.02	0.26**	0.068**
Performance Approach	0.08	0.02	0.10*	0.008*
Sacramentality				
Mastery Approach	0.37	0.05	0.20**	0.038**

\* $p < .001$ . \*\* $p < .0002$ .

## Chapter 5 Discussion

### *Presence of 2 x 2 Achievement Goal Orientation in Catholic Secondary Schools*

It was hypothesized that all four achievement goal orientations from the 2 x 2 achievement goal theory would be present in Catholic secondary schools. The results indicate that all four were indeed present. The most prevalent achievement orientation, as measured by the percentage of students who scored high on each of the measures, was performance-approach, with almost 18 percent of the sample scoring in its upper range. It was followed by mastery-avoidance (9.85 percent) and mastery-approach (7.85 percent). Although the distributions of these three motivation orientations appeared to approach a normal distribution, performance-avoidance was clearly skewed, with the majority of students scoring low on its scale. Only 2 percent of students scored high on performance-avoidance. Although mastery-avoidance and performance-avoidance were relatively strongly correlated ( $r = .40$ ), the difference in distributions indicates that they are clearly distinct motivational patterns. These findings support the distinction in motivations made by 2 x 2 achievement goal theory (Elliot & McGregor, 2001).

### *Attending a single-gender versus co-educational Catholic school*

Another hypothesis was that boys in all-boys schools will be more likely to adopt approach oriented goals and less likely to adopt avoidance oriented goals than boys in coeducational schools and girls in coeducational schools. This was not supported. Boys in both single-gender and coeducational schools were more likely to adopt approach oriented goals and less likely to adopt avoidance oriented goals than girls in coeducational schools. However, the lack of all-girl Catholic high schools in the present study limits the interpretation of this finding.

Although these results may possibly indicate a gender difference in secondary mathematics (Simpkins, Davis-Kean, & Eccles, 2006) rather than a function of gender/school type differences reported in the literature (Bryk et al., 1993), this cannot be determined due to this limitation.

#### *Relationship Between Classroom Context and Achievement Motivation*

It was hypothesized that students who perceive their classroom as engaging, but view their teachers as placing more importance on evaluations rather than learning, and view said evaluations as being harsh, would adopt mastery-avoidance goals. Both evaluation focus ( $r^2 = .056$ ), harsh evaluation ( $r^2 = .022$ ) were found to be significant predictors. However, these relationships accounted for very little variance in achievement goal orientation. Classroom engagement was not found to be a significant predictor; in fact it was negatively correlated with mastery-avoidance. This result is puzzling given the theoretical definition of mastery-avoidance (Elliot, 1999; Elliot & McGregor, 2001; Linnenbrink & Pintrich, 2000; Pintrich, 2000a, 2000b; Pintrich & Shunk, 2002). One would expect engagement to be associated with mastery. However, classroom engagement was positively correlated with only mastery approach ( $r = .367$ ,  $p < .05$ ) and performance approach ( $r = .105$ ,  $p < .05$ ). Indeed, it was negatively correlated with mastery-avoidance ( $r = -.164$ ,  $p < .05$ ). This seems to indicate that classroom engagement is a function of valence (i.e., approach), not definition (i.e., mastery), of achievement goals.

It is also hypothesized that the results of Church, et al. (2001) on perceived classroom variables will be replicated. However, this hypothesis was not supported. Only three of the seven hypothesized predictors were supported by the results. This may be a function of the different classroom context between Church et al (2001) and the present study. Church et al. (2001) utilized undergraduates in specially designed chemistry course aimed at increasing positive experiences of chemistry through lectures and weekly discussion groups. This may be a

different instructional environment than what it typically found in Catholic secondary schools (Bryk et al., 1993).

#### *Relationship Between Religiosity and Achievement Motivation*

It was hypothesized that religiosity would predict mastery-approach and performance-approach achievement goals. While there were positive relationships found, religiosity accounted for 6.8% of the variance in mastery approach and less than 1% of variance for performance approach. These relationships are consistent with correlations between religiosity and academic motivation found in earlier research (Bryk et al., 1993; Jeynes, 2003) mirroring the positive outcomes found with both mastery-approach and performance-approach orientation and academic motivation and achievement (Elliot & Church, 1997; Elliot & McGregor, 1999; Elliot, McGregor, & Gable, 1999; Harackiewicz, Barron, Tauer, et al., 2002; McGregor & Elliot, 2002). Religiosity was not a significant predictor of performance-approach motivation when combined with classroom context predictors. For this Catholic sample, religiosity is most clearly related to mastery-approach orientation.

#### *Relationship Between Religious Beliefs and Achievement Motivation*

It was hypothesized that students with more gracious images of God and benign images of the world and human nature would adopt mastery-approach or mastery-avoidance goals. It was further hypothesized that students with less gracious images of God and pessimistic images of the world and human nature will adopt performance-approach or performance-avoidance goals. However God imagery was not related to any of the motivation orientations, and sacramentality predicted only mastery-approach orientation. When religiosity was added as a predictor with classroom context variables, sacramentality was no longer a significant predictor

of mastery-approach orientation. This would seem to indicate that religious beliefs do not play a major role in achievement goal adoption in comparison to classroom context and religiosity.

Thus in this study, the best predictors of goal orientation were variables within the classroom. This is not surprising given that religious beliefs are considered to be more stable and internal (Shand, 1990), whereas motivation is viewed as more situational in character (Kaplan, Middleton, Urdan, & Midgley, 2002; Elliot & Harackiewicz, 1996).

#### *Limitations of the Present Study*

The results showing a gender/school type difference in mastery-avoidance and performance-avoidance motivations in math are difficult to interpret without all-girls catholic schools in the sample. Girls in coeducational schools were more likely to adopt mastery-avoidance goals and less likely to adopt performance-approach goals than both boys in coeducational schools and boys in all boys schools. Since the present sample did not include female single-gender secondary schools, the results indicating differences may simply reflect gender differences in mathematics (Simpkins, Davis-Kean, & Eccles, 2006), rather than a difference in school environment. Middleton & Midgley (2002) found that an interaction of gender and academic press in mathematics negatively predicted avoiding help-seeking when needed. Academic press in this case was clearly more beneficial for girls than for boys. If Zusho's (2005) analysis that Catholic schools emphasize academic press is correct, then the beneficial results of Catholic all-girls schools on academic outcomes reported by Bryk et al. (1993) may be pointing to a similar phenomenon. Gender/school type did not predict mastery-avoidance when perceived classroom variables theorized to be tied to academic press were predictors (namely, classroom engagement and evaluation focus). This may seem to support an academic press/gender interaction similar to what may be occurring in Bryk et al.'s (1993)

findings. But this could not be examined fully without students attending all-girls schools in the present sample.

*Possible Further Research to Explore Motivation in Catholic Schools*

Zusho (2005) indicates that the organizational features of Catholic schools emphasize academics with high standards, caring and mutual respect, and decentralization. These elements may have a significant impact on classroom and school variables related to motivation, such as academic press and social support (Goodenow & Grady, 1993; Middleton & Midgley, 2002; Wentzel, 1997).

Classroom observations would be a logical next step. Based on student perception of classroom variables that are related to differential goal adoption, classrooms that differ profoundly in their goal orientations for observations could be selected for observation. This methodology is similar to that employed by OPAL (“Observing Patterns of Adaptive Learning”), a line of research that uses TARGET to delineate relationships between classroom practices and goal adoption by students (Patrick et al., 1997).

More elements of the TARGET model could also be investigated. Three elements of TARGET are not addressed in this investigation: Authority, Grouping, and Time. Of these three, the strongest case for inclusion is Authority. It represents how much control and choice is given to students and how much opportunity they have to take leadership positions and develop a sense of independence. OPAL subdivides Authority into Rules and Management and Autonomy. Elliot & McGregor (2001) found that self-determination was a positive predictor of mastery-approach and a negative predictor of mastery-avoidance goal adoption. This would seem that mastery-approach oriented students would be more autonomous than mastery-avoidant students. Measuring the perceived autonomy in the classroom could help clarify the relationship between

autonomy and mastery-approach and mastery-avoidance orientations. It is possible that a lack of autonomy in the classroom could foster mastery-avoidance. (A lack of autonomy at home may be reflected in Elliot & McGregor (2001)'s findings that mastery-avoidance is predicted by parental worrying and negative person-focused feedback.) Greene, Miller, Crowson, Duke, & Akey (2004) used a measure of 3 TARGET goals: Tasks (motivating tasks), Authority (autonomy support), and Evaluation (mastery evaluation). Using some or all of Green et al. (2004)'s autonomy support items may be useful in future research measuring Authority.

Another line of research that may be helpful is PALS (Midgley, et al., 2000) PALS uses generalized classroom goal orientation or teacher goal orientation scales that mirror the personal achievement goal orientation scales. Given the research with PALS and research focusing on general classroom goal orientation or structure, it may be informative to measure mastery-avoidance classroom goal orientation as well. That would also help with the current debate whether mastery-avoidance goals are salient in classrooms. Karabenick (2004) and Lisa Linnenbrink (personal communication, March 11, 2005) both think that mastery-avoidance orientation doesn't conceptually translate to classroom goals, but other researchers disagree (C. Rhee, personal communication, March 25, 2005; A. Zusho, personal communication, March 25, 2005). PALS was not used in the present study because the existence of personal mastery-avoidance goals in Catholic schools needed to be determined first before generalized classroom mastery-avoidance goals and their measurement could be considered.

However, the importance of developing a mastery-avoidance classroom goal orientation measure is evident by Karabenick's (2004) findings with college students on the relationships between personal goal orientations and classroom goal orientations. Not surprisingly, "correlations between students' personal achievement goal orientations and perceived goal

structure...were larger when both personal orientations and perceived class goal structure referred to the same goal than when referring to different goals” (p. 574). Although Karabenick (2004) used a 2 x 2 measure for personal goal orientation, he did not include mastery-avoidance in assessing perceived classroom goal orientation. Using a 10 item measure of mastery-approach, performance-approach, and performance-avoidance classroom goal orientation, he found that personal mastery avoidance was correlated ( $p < .001$ ) with perceived classroom mastery-approach (.09), performance-approach (.27), and performance-avoidance (.42). These correlations may mirror the importance placed on fear of failure over workmastery in mastery-avoidance found in Elliot & McGregor (2001). The need to see if mastery-approach and mastery-avoidance can be separated in assessments of the perceived classroom environment is important in the conceptual understanding of mastery-avoidance.

One classroom variable that was not included in this study but is included in PALS is academic press (Middleton & Midgley, 2002). As mentioned earlier, Zusho (2005) thinks that academic press may be at play in Catholic schools. In their discussion of their findings, Elliot & McGregor (2001) suggest “that the adoption of [mastery-avoidance] goals may be most likely among individuals who bring non-optimal motivational dispositions into optimally structured achievement settings that foster intrinsic interest and the pursuit of challenge” (p. 516). Their finding that classroom engagement predicted mastery-avoidance motivation fits this, as the measure they used may have measured intrinsic interest in the class itself rather than classroom engagement per se. Using PALS’ Academic Press scale could possibly allow for measuring student perception of the classroom environment’s pursuit of challenge. This would be different from the Mastery scale of the Work and Family Orientation Questionnaire that measured personal interest in challenge as part of workmastery in Elliot & McGregor (2001). This would

also be different from perceived mastery classroom goals, which had a small relationship with mastery-avoidance.

More research examining how an individual is religious may also be beneficial in examining religiosity's role in motivation. The Christian Religious Internalization Scale (CRIS), alternately known as the Religious Self-Regulation Scale (SRQ-R) (Ryan, Rigby & King, 1993) measures two subscales of internalization within self-determination theory (Deci & Ryan, 1991, 2000): introjected regulation and identified regulation of religious beliefs and practices. These two subscales represent the dynamically meaningful reasons why people engage in religious behaviors.

People who act for more intrinsic or identified ("autonomous") reasons in religious (Ryan, Rigby & King, 1993), academic (Ryan & Connell, 1989; Vallerand & Bissonnette, 1992) and close relationship (Blais, Sabourin, Boucher & Vallerand, 1990) domains have been shown to be better adjusted than people who act for more external or introjected ("controlled") reasons in those domains (Sheldon, Ryan & Reis, 1996, p. 1271).

Given the findings on self-determination and goal orientation by Elliot & McGregor (2001), and the possible confusion surrounding trait versus classroom autonomy in that study, this measure would provide a trait measurement of autonomy that could be compared to the perception of classroom autonomy. Using the SRQ-R could also help bridge the religious and academic motivation literature, as it could address religious motivation using a motivational construct (self-determination) about which educational researchers would be more familiar. However, the SRQ-R has been used primarily with undergraduates and adults. The only high school sample used consisted of evangelical and Baptist youths at a summer project in NYC which is not representative of Catholic secondary students (Ryan, Rigby & King, 1993). It is hoped that more research utilizing SRQ-R with a Catholic sample may help in determining the relationship between motivation and religiosity.

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## Appendix A

## Grace Scale

Directions: There are many different ways of picturing God. We'd like to know the kinds of images you are most likely to associate with God. Here is a list of contrasting images on a scale of 1-7. Where would you place your image of God between the contrasting images –

Mother/Father, Master/Spouse, Judge/Lover; Friend/King?

1	2	3	4	5	6	7
*Mother						Father
Master						Spouse
Judge						Lover
*Friend						King

## Tracy Scale

Directions: People have different images of the world and of human nature. We'd like to know the kind of images you have. Below are two sets of contrasting images. On a scale of 1-7, where would you place your image of the world and human nature between the two contrasting images?

1	2	3	4	5	6	7
The world is basically filled with evil and sin.						There is much goodness in the world which hints at God's goodness.
*Human nature is basically good.						Human nature is fundamentally perverse and corrupt.

Note: \* indicates reverse coding

## Appendix B

## Religiosity Measure Questionnaire

Instructions: The following questionnaire consists of seven multiple-choice items with one fill-in-the-blank item. Please answer the following questions by circling the appropriate letter for the multiple-choice items and providing the most accurate number for the fill-in-the-blank question.

1. How many times have you attended religious services during the past year? \_\_\_\_\_ times.
  
- \*2. Which of the following best describes your practice of prayer or religious meditation?
  - a. Prayer is a regular part of my daily life.
  - b. I usually pray in times of stress or need but rarely at any other time.
  - c. I pray only during formal ceremonies.
  - d. I never pray.
  
- \*3. When you have a serious personal problem, how often do you take religious advice or teaching into consideration?
  - a. Almost always
  - b. Usually
  - c. Sometimes
  - d. Never
  
4. How much influence would you say that religion has on the way you choose to act and the way that you choose to spend your time each day?
  - a. No influence
  - b. A small influence
  - c. Some influence
  - d. A fair amount of influence
  - e. A large influence

- \*5. Which of the following statements comes closest to your belief about God?
- a. I am sure that God really exists and that He is active in my life.
  - b. Although I sometimes question His existence, I do believe in God and believe He knows of me as a person.
  - c. I don't know if there is a personal God, but I do believe in a higher power of some kind.
  - d. I don't know if there is a personal God or a higher power of some kind, and I don't know if I ever will.
  - e. I don't believe in a personal God or in a higher power.
- \*6. Which one of the following statements comes closest to your belief about life after death (immortality)?
- a. I believe in a personal life after death, a soul existing as a specific individual spirit.
  - b. I believe in a soul existing after death as part of a universal spirit.
  - c. I believe in a life after death of some kind, but I really don't know what it would be like.
  - d. I don't know whether there is any kind of life after death, and I don't know if I will ever know.
  - e. I don't believe in any kind of life after death.
- \*7. During the past year, how often have you experienced a feeling of religious reverence or devotion?
- a. Almost daily
  - b. Frequently
  - c. Sometimes
  - d. Rarely
  - e. Never

8. Do you agree with the following statement? “Religion gives me a great amount of comfort and security in life.”

- a. Strongly agree
- b. Disagree
- c. Uncertain
- d. Agree
- e. Strongly agree

Note: \* indicates reverse coding

## Appendix C

## Perceived Classroom Environment Measures

Participants will indicate their response to each item on a 1 (strongly agree) to 7 (strongly disagree) scale.

*Classroom Engagement*

I find my math class to be very engaging.

The way that the math teacher helps us learn the material holds my interest.

My math teacher presents the material in an interesting manner.

\*I find my math class boring.

*Evaluation Focus*

The focus of my math class seems to be more on evaluating us than on teaching us.

My math teacher is more concerned with our grades than with what we learn.

It seems like all my math teacher cares about is how we do on the exams.

*Harsh Evaluation*

The grading for my math class is pretty harsh.

The grading structure makes it almost impossible to get an A in my math class.

High grades are seldom obtained by students in my math class.

\*The grading in my math class is pretty easy.

Note: \* indicated reverse coding.

## Appendix D

### Achievement Goals Questionnaire

Participants will be asked to rate the degree to which each item applies to them on a 1 (not at all true) to 5 (completely true) scale.

#### *Mastery Approach*

I like my math work best when it really makes me think.

In a math class like this, I prefer class material that arouses my curiosity, even if it is difficult to learn.

An important reason why I do the work in my math class is because I like to learn new things.

When I have the opportunity in my math class, I choose class assignments that I can learn from even if they don't guarantee a good grade.

I like math work that I'll learn from even if I make a lot of mistakes.

#### *Mastery-Avoidance*

I'm concerned that I may not learn all there is to learn from my math class.

I'm afraid that I may not understand the content of my math class as thoroughly as I'd like.

I'm afraid that I won't do my very best in my math class.

I'm concerned about the possibility of not completely mastering the material in my math class.

#### *Performance-Approach*

My goal is to get a higher grade than the other students in my math class.

I want to do better than the other students in my math class.

It is important for me to do well compared to others in my math class.

I'd like to show my math teacher that I'm smarter than the other students in my math class.

*Performance-Avoidance*

The reason why I do my math work is so others won't think I'm dumb.

I am afraid that if I can't answer all of the problems on my math assignments and on my math tests, my math teacher will think I am dumb.

It is important to me that I don't look stupid relative to the other students in my math class.

One of my main goals is to avoid looking like I can't do the work in my math class.

An important reason why I study and do the work in my math class is so that I don't embarrass myself in front of others.

## Timothy R. Balliett

3712 Charlotte St.

Erie, PA 16508-2232

Phone: (814) 866-1171

E-mail: trb133@psu.edu

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### EDUCATION

Ph.D., Educational Psychology, The Pennsylvania State University, 2008

M.Div., St. Mary's Seminary & University, 2008

S.T.B., St. Mary's Seminary & University, 2008

M.S., Educational Psychology, The Pennsylvania State University, 2000

B.A., Psychology/Social Sciences, Gannon University, 1995

### CERTIFICATION

Instructional I, Secondary Education - Social Studies

Pennsylvania Department of Education

### EMPLOYMENT

April 2007 – present

Clergy

Roman Catholic Diocese of Erie, PA

May 1999 – Aug. 2000

Academic Advisor

First-Year Testing, Counseling and Advising Program

Division of Undergraduate Studies

The Pennsylvania State University

May 1999 – Aug. 1999

Instructor

EDPSY 421, Learning Processes in Relation to Ed. Practices

The Pennsylvania State University

Aug. 1996 – May 2000

Instructor/Supervisor

Office of Pre-Service Teaching Experiences

The Pennsylvania State University

Aug 1995 – May 1996

Teaching Assistant

EDPSY 014, Learning and Instruction

EDPSY 400, Introduction to Statistics in Ed. Research

The Pennsylvania State University

### PRESENTATIONS AND PUBLICATIONS

Stevens, R. J., Hammann, L. & Balliett, T. R. (1999). Middle school literacy instruction. In R. J. Stevens (Ed.), *Teaching in American schools*. Upper Saddle River, NJ: Merrill.

Parkes, J., Balliett, T. & DiCintio, M. J. (1998, April). *The influence of goal orientation on working memory capacity: The task demands matter*. Roundtable presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.