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### The effects of achievement goals and feedback on performance: with a prologue on an individual search for meaning

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**THE EFFECTS OF ACHIEVEMENT GOALS AND  
FEEDBACK ON PERFORMANCE**  
*WITH A PROLOGUE ON AN INDIVIDUAL SEARCH FOR MEANING*

A thesis submitted to  
Regis College  
The Honors Program  
in partial fulfillment of the requirements  
for Graduation with Honors

by

James Estes

**May 2012**

**The Effects of Achievement Goals and Feedback on  
Performance**

*With a Prologue on an Individual Search for Meaning*

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Director, University Honors Program



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# I. PROLOGUE: *AN INDIVIDUAL SEARCH FOR MEANING*

## Introduction

*Coach Boone: What are you?*  
*Players: Mobile, Agile, Hostile!*  
*Coach Boone: What is pain?*  
*Players: French Bread!*  
*Coach Boone: What is fatigue?*  
*Players: Army Clothes!*  
*Coach Boone: Will you ever quit?*  
*Players: No, we want some mo', we want some mo'.*

It is only appropriate to begin a paper and discussion on individual motivation with one of the most inspirational movie scenes I have ever encountered. The above disclosure comes from the movie, Remember the Titans, a story about breaking the color barrier in school and sports and one football team's aspiration to defy the odds and achieve perfection. Not only does this scene excite me, it also triggers many questions essential for understanding personal motivation: What are you? What is pain? What is fatigue? Will you ever quit? These questions are recurrent throughout this paper and a major catalyst for why I pursued motivation as the topic for my thesis project.

Before we examine these questions, however, it is important to understand what led me here to Regis and, ultimately, this project. It was only four years ago that I myself was a Titan, an Arcadia Titan. When I first began my high school career and my life as a Titan, I thought I knew what was motivating my behavior and had a clear idea of the goals I had, both short- and long-term. From a very early age, I dreamed of becoming a professional basketball player. I ate, drank, and breathed basketball. When I had free time, I played basketball. When I had other things that I needed to work on, I would

complete them while I watched basketball. And since my dad had season tickets for the Phoenix Suns, our hometown professional basketball team, I was privileged and spoiled by the opportunity to go to games on a regular basis.

My life was an extended basketball game where everything I did revolved around the dream of playing professionally. Early on in my high school career, the goal I kept in mind was being the starting point guard on my school's varsity team. Any other goal that I set was in light of this overarching goal. For example, I did not really care about my school grades, but because my parents would not let me play sports if my grades were low, academics became part of the goals I set. Playing high school basketball became the motivation for most of what I did early on in high school. It was the reason I did chores around the house, the reason why I behaved in the classroom, and the reason why I did anything that my coaches asked me to do.

Unfortunately, and in retrospect, fortunately, I never did achieve my goal of being the starting point guard on my high school's varsity team. In fact, I came up just short. During my sophomore season, I was called up from the JV team to be the Varsity's back-up point guard. At the time, I was still competing under Coach Denning. In the summer between my sophomore and junior season, Coach Denning was fired and replaced by Coach Lovely. Along with Coach Lovely came a new vision for the program which involved recruiting transfer students and forging a new mindset among the players. When Coach Lovely was brought in, I was ready to center my goals on working hard for him and proving myself as a starting varsity basketball player. I attended all of his summer workouts and camps and put in even more hours working on my game than I had

in previous off-seasons. This most likely led to my back injury which kept me out of workouts and in physical rehabilitation up until the start of the season. When I told Coach Lovely that I would miss the first couple of days of tryouts but would still like to play for the team, he told me, “Don’t bother, I’ve already got my squad picked out for this year.”

With that one sentence, my basketball career ended along with my lifelong dream and the overarching motivation for anything I was doing. Without basketball, I was left with one question: Who am I? I was a junior in high school, a Titan, but really that was it. At the time, I was not involved in any clubs, school organizations, after school jobs, or anything that I could cling to as my own. Without basketball, I did not know how to define myself as an individual or what might motivate my future. I was a Titan, but so were 2,000 other students. Differentiating yourself as a person becomes highly difficult when there are hundreds of peers who are aside you and seemingly just like you.

I finished my high school career without any flair or spectacle that I could solely and directly call mine. Yet, even without basketball, I continued to pursue academic pursuits and volunteer opportunities. I was accepted into the Honors Program at Regis University and given an academic scholarship. Nobody else at my school, with perhaps the exception of the guidance counselor, had even heard of Regis. Many of my fellow peers did not go on to college. Some of my former basketball teammates did not graduate from high school. Somehow, amongst all my fellow Titans I was unique; I was an individual; I was motivated differently.

These questions of individuality and motivation stayed with me throughout my time at Regis and I began to think of Coach Boone's questions in slightly different ways. He asks what are you? The simple response is that I am a human being. But I am more fascinated by what separates me from others. What makes someone an individual? And what does it mean to be an individual in a world of so many people? This is the first underlying question in my thesis journey.

## What Does it Mean to be an Individual?

*“There are 1,198,500,000 people alive now in China. To get a feel for what this means, simply take yourself – in all your singularity, importance, complexity, and love – and multiply by 1,198,500,000. See? Nothing to it.” –Annie Dillard (1999, p. 47)*

The commonly known saying, “You’re one in a million” does not even begin to capture the magnitude of the numbers that surround us. As of earlier this year, you and I both became one of seven billion people living in the world. If we consider the several hundred generations buried beneath us, we start to appear extremely insignificant, indeed. When I look at the numbers, I struggle to believe my mother when she reminds me how special I am. However, the point behind all of these numbers is not to scare or depress, but to identify the struggle that we as humans face when we try and define ourselves as individuals.

The development of an individual is not something that occurs instantaneously. Instead, over time we use our experiences and life stories to help us define and elaborate on our identities. One of the more widely accepted theories of development is Erik Erikson’s life cycle consisting of eight stages. For each stage of life, a central question is posed that guides the thinking for the person in that stage. For example, the football players from Remember the Titans would be considered to be in the late childhood stage and still facing the question of “how can I be good?” Thus, their response to Coach Boone’s question of “what are you?” is fitting. Mobile, agile, and hostile are characteristics for being good at football. In this sense, their identity is focused around being good.

After the end of childhood we enter the adolescent stage, or what Dr. Arnett calls emerging adulthood. In this stage, the questions of focus are “who am I?” and “how do I fit into the adult world?” At this point we are no longer motivated just by the need to be good or competent, but we become motivated to create our individual identities. We yearn to be different from the seven billion other people who inhabit this planet. During this period of emerging adulthood, faced by the majority of college students, we begin to explore and identify our ideologies, religions, relationships, and career goals. It is from these explorations that we establish our own identities and define for ourselves what it means to be an individual.

Everything considered, there are many ways to be different and stand out from one’s peers. The simplest observable difference would be our traits. This includes our physical traits and characteristics. For instance, despite sharing a genetic background, my brother, sister, and I each vary in our height and eye color. Beyond our physical traits, we also differ on our personality traits. The Big Five Traits is the most common perspective for describing personality. These are: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Each of these five traits exists on a continuum with scores on each suggesting something about how you typically act on average. While these traits can tell us something about ourselves and distinguish us from others, they are not as useful in helping us define ourselves as individuals. They don’t tell us why we get up in the morning or what makes us happy. For this, we need goals.



Goals entice people toward action. Actions are given meaning, direction, and purpose by the goals we seek. Every goal is a desired outcome situated in the future. By examining goals, we better understand a person's needs and their motivation for their behavior. Our needs, and thus our goals, vary based on the situations we find ourselves in throughout our lives. According to Abraham Maslow, there is a hierarchy of needs in which the level experience will determine what type of goals you set. For example, at the bottom of the hierarchy are physiological needs, such as food, water, shelter, etc. Someone who is starving will not be motivated to complete a thesis dissertation because they have not had their physiological needs met.

By identifying our traits and knowing our goals, both past and present, we are able to weave together our storied self. Our storied self is our narrative identity. It is what separates us from every single other person who is currently living, has lived, or ever will live. Along each stage of life development, we add more experiences to our life stories in the hope that by the end of our lives we will have "written" a story that is personally meaningful and memorable. Thus, being an individual means writing a meaningful story, having the potential to live life with purpose, and, in my case, living to seek the magis.

## **What gives Life Meaning?**

*“For we are God’s workmanship, created in Christ Jesus to do good works, which God prepared in advance for us to do.” – Ephesians 2:10*

Why are you striving these days? What is it that gives you the strength to wake up in the morning? While I have no intention of defining the meaning of life, it is beneficial to understand what provides life its meaning (at least for the majority of people). In this section, I will examine a collection of factors that contribute to a meaningful life.

When people are asked about their life goals, one of the most common answers is, “I just want to be happy.” Surely, this makes sense because living a meaningful life should equate to happiness. Yet, this is not quite the case. The bad news: happiness is not a goal you can set out to achieve. It is not something you can put on your task list and cross off once you’ve accomplished it. Happiness is a byproduct of what you do and what you choose to engage in. The good news is that you can do things to make yourself happier, but you cannot successfully seek to feel happy as a goal of life.

A second common goal people set is financial success. We have all met that person, or might be that person, who fantasizes about being wealthy and having enough capital to buy whatever the heart desires. Yet, this is another myth that must be debunked. To a certain degree, money does not make you happy. Once we have enough money to adequately provide for our families and basic necessities, increased wealth contributes little to greater happiness level. Those who are obsessed with amassing wealth do not become happier the more money they make. They end up adjusting to their new higher income, comparing themselves to people who make just a little more than

they do, and then seek to make more money. In this process, these people end up feeling deprived and shed the activities that foster happiness (e.g. friendships) so that they can pursue making more money. So if we cannot strive to be happy and money can't buy us happiness, how ought we to live? What gives life meaning and creates happiness?

For the answer to these questions, we turn to Victor Frankl, psychologist and Holocaust survivor. Frankl (1984, p. 98) in Man's Search For Meaning states, "We had to learn ourselves...that it did not really matter what we expected from life, but rather what life expected from us. We needed to stop asking about the meaning of life, and instead to think of ourselves as those who were being questioned by life – daily and hourly." Frankl hints at what perhaps nobody wants to admit: we are all responsible for finding meaning in our own lives. Meaning and happiness will never be handed to us. They are not objects to be obtained by observing and waiting. Instead, they require us to initiate action and to find what we provide to the living world.

According to Jesuit spirituality, we are all called by God to show the world His glory. In this instance, glory is representative of God's divine power, beauty, and wisdom. We give glory to God in situations where we help people realize His goodness. In addition, we are asked to constantly seek the *magis*. *Magis* is Latin for "more" or "greater." In seeking the *magis*, we are adhering to the unofficial motto of the Society of Jesus (the Jesuits): *Ad Majorem Dei Gloriam*, which means, "For the Greater Glory of God." Essentially, we are called to find where and how we can make the greatest positive impact on people and the world. In other words, we are here on earth to discover how we might best aide humanity and the global community.

Psychological studies suggest that this is true; interaction with others is necessary for living a meaningful life. Research has shown that those who rate their lives as being high in meaning invest in a cause larger than themselves. Often this is done through the pursuit of a career and by altruistic acts. While the Jesuits label it seeking the *magis*, Annie Dillard describes the idea of *tikkun*: “Only redemption – restoration, *tikkun* – can return the sparks of light to their source in the primeval soul; only redemption can restore God’s exiled presence to his being in eternity” (1999, p. 51-52). To me, redemption is indicative of action. It asks that we set goals to help us reach our unique purpose.

Redeeming the world and seeking the *magis* require us to understand our role. In order to do this, we must live and engage the world. “The work is not yours to finish, Rabbi Tarfon said, but neither are you free to take no part in it” (Dillard, 1999, p. 202). You might be just one of seven billion people in the world, but you are still a unique individual with your own purpose. The only way you can know this purpose is by engaging with the world, encountering other people’s stories, and setting goals that will allow you to be the best tenant of the world you can possibly be. When we take action, set goals, motivate and allow ourselves to be motivated, and seek the *magis*, we become significant as people; we become more than just another speck of dust in the history of time. We become redeemers of the world and in so doing, we bring meaning and happiness to our lives.

## Will You Ever Quit?

*“If there is meaning in life at all, then there must be a meaning in suffering. Suffering is an ineradicable part of life, even as fate and death. Without suffering and death human life cannot be complete.” –Viktor Frankl (1984, p. 88)*

In many ways, the value of an individual life is dictated by the environment and the expectations it puts on us. Constantly, we receive feedback from others and the world at large. This feedback often acts as the reinforcement that impacts and directs future behavior (Ilies & Judge, 2005). In times of personal persecution and tragedy, the message seems clear: the world does not value your life. This certainly was the message received by those imprisoned in concentration camps during World War II: “There were still naïve prisoners among us who asked...if they could keep a wedding ring, a medal or good-luck piece. No one could yet grasp the fact that everything would be taken away...all we possessed, literally, was our naked existence” (Frankl, 1984, p.32, 34). These prisoners lost everything that might remind them of their uniqueness. All of their material goods and physical features that identified them as specific individuals were taken away. To the German soldiers, they were not unique individuals with purpose, but a group of worthless Jews whom the world would be better off without. When your environment tells you that you are insignificant to the world, it seems unlikely that you would maintain a sense of purpose. Why seek *magis* and the betterment of the world when the world does not appreciate you?

In times of tragedy, especially in foreign lands, we are usually removed from the individuals who suffer and die. It is with our close relationships that we begin to value the significance of a single life. When a relative, friend, mentor, or other close relation

passes or leaves us, we are often affected deeply. If a life was truly insignificant, then the loss of that life would be just as insignificant. “Ralph Touchett, in *The Portrait of a Lady*, says, “There’s nothing makes us feel so much alive as to see others die. That’s the sensation of life – the sense that we remain”” (Dillard, 1999, p. 110). For our close relationships, a death is significant because of that life’s meaning. We know the stories of our family and friends. We have seen how they have influenced the world, and more so how they have impacted us. It is through our encounters with them and their actions that they have become valuable to us as unique individuals.

While the world often gives us negative feedback, our encounters with others have the capability of reminding us of our significance, uniqueness, and value as individuals and such experiences can motivate us to keep striving. This was true for Viktor Frankl during his time in concentration camps. There was death surrounding him, but he still found a purpose to live, a drive to keep going. “Man can preserve a vestige of spiritual freedom, of independence of mind, even in such terrible conditions of psychic and physical stress...It is this spiritual freedom – which cannot be taken away – that makes life meaningful and purposeful” (Frankl, 1984, p. 86-87). In this passage, Frankl asserts that it is this spiritual freedom, the freedom of conscience, which provided his life meaning in its darkest moments. The ability to choose one’s attitude and one’s thoughts is something unique to a human individual that cannot be stripped away. No matter what feedback the environment provides, the individual is capable of retaining a unique purpose.

## Conclusion

*“When I would ask our teachers what they were working on, or what they were aiming toward, I would hear a range of answers. For some, the emphasis seemed to be mostly on their development as teachers. Others said they would be happy if they could truly ‘reach one child.’ Still others defined success as inspiring a love of learning. Some of the most ambitious of our teachers were undertaking dramatic feats to expand students’ horizons or to engage them in serving their communities.”*  
– Wendy Kopp (2011, p. 16)

Like most college students and individuals my age, I struggled throughout my time at Regis with trying to identify myself and answer the question of who am I.

However, reaching the end of my college career I can claim I have discovered ways over these four years to identify myself as a unique individual and I have a better understanding of what gives me meaning. It started with a summer job and has transformed into a two year commitment and on-going quest to find my purpose.

The summer following my freshman year at Regis I was struggling to find summer employment. The only work I could obtain was a one month teaching job at an elementary school for homeless children. It was my first experience teaching and at the time I had no real interest in the profession. At the school, many of the children I worked with came from difficult to horrible home situations, from abusive parents to starvation or even worse. Yet, these children loved and appreciated more than anyone I had ever met. They, like me, strived to be great, to be their own unique self. Working with those kids and helping them grow, learn, and succeed generated in me a depth of happiness I had never before experienced. In my own way, I felt like I was making a meaningful difference in this world.

I returned to the same school the following summer and my appreciation and love for those students grew even more. This past summer I was not able to go home, but I still found a way to work with children. This past year I interned as an assistant basketball coach for the Mullen High School boys' basketball program. Here I was able to combine my passion for basketball with my desire to teach and influence the lives of young people. It was here that I also had a chance to meet a version of my high school self, perhaps even several stand-ins. During the tryout process I met students who, like me, seemed to have basketball as their main motivation. Often my value to them was not in what I could teach them about the game, but what I could tell them about living a meaningful life.

Through conversations with my players I realized that my value to the world is best reflected through influencing the actions and thoughts of young people. I knew that I wanted to teach or coach or do some combination of the two. For that reason, I applied to Denver Teaching Fellows in the fall. Denver Teaching Fellows is a program that places individuals in the Denver School District to teach math, special education, or bilingual education. I was accepted for a final interview and felt positive about my chances until I received the one line email letting me know that I would not be accepted into the program.

Even though this was a setback, it did not deter me from my goal of teaching. Immediately after being rejected from the Denver Teaching Fellows, I applied for Teach For America. This past Spring, I was informed that I would be part of the 2012 Teach For America corps. My placement is in the Las Vegas Valley and for the next two years



I will be teaching middle school math. While just four years ago I did not know who I was or what was motivating me, I now know what my purpose is and what will bring my life meaning over at least the next two years. My hope is that I will be able to be an advocate for my students and that my actions will help close the achievement gap and decrease the inequality of educational opportunities in the Las Vegas area.

Who am I? I am a Regis college graduate who is looking to redeem a small part of the world by giving back to those whose opportunities are less than my own. What is pain? Pain is being told that you can't fulfill your goals; that you are unable to help others. What is fatigue? Fatigue is the day when I doubt myself and my goals. Will I ever quit? No. I know what my purpose is and I am determined to meet my goals no matter what obstacles I face as I create my life story.

## II. RESEARCH EXPERIMENT: *THE EFFECTS OF ACHIEVEMENT GOALS AND FEEDBACK ON PERFORMANCE*

### **Abstract**

This study examined the effects of achievement goal orientations and feedback type on task enjoyment and performance on a cognitive task. Participants were sixty-eight volunteers from Regis University's undergraduate program. An Achievement Goal Scale was used to determine a participant's goal orientation before he or she was randomly placed into either a positive feedback condition or a no feedback condition. The cognitive task used in this study was the WAIS-R Block Design performance subtest. This test was used as a measure of cognitive abilities, specifically spatial reasoning. Following the Block Design test, all participants completed a task enjoyment scale. Results suggested that goal orientations and feedback type were not significant factors in determining a participant's task enjoyment for or performance on the overall Block Design test. Upon examining the sub-variables of the scoring of the Block Design, speed and accuracy, it was found that goal orientation and feedback type both had significant effects on task accuracy. Participants with mastery goal orientations were more accurate in completing designs than participants with performance goal orientations. Contrary to the hypothesis, participants in the no feedback condition were more accurate than participants in the positive feedback condition. This study suggests that feedback type and goal orientation may be significant factors in task performance, but in ways that were not previously predicted.

## The Effects of Achievement Goals and Feedback on Performance

### Achievement Goal Theory

*“Achievement Goal theories presume that a focus on task goals will increase the probability that a person will exhibit maximal performance and high effort, prefer optimally challenging tasks, and demonstrate persistence regardless of whether or not the individual thinks he or she is good at an activity.”*

-Joan L. Duda in Glyn C. Roberts Advances in Motivation in Sport and Exercise

The underlying aim of achievement goal theory is to better understand inequalities in motivation so that we might be able to help all people obtain their full potential. The goal is to have everyone perform at the highest level. As a result, the focus of achievement goal theory is to identify the various behavioral patterns that people display, given different types of goals (Nicholls, 1989). These behavioral patterns include level of effort, task choice, task persistence, task enjoyment, and task performance. By examining these behavioral patterns, achievement goal theorists believe that they can discover how individuals are able to perform at a maximal level. Achievement Goal theorists maintain that for each domain or task a person encounters, they set an achievement goal for that task. In general, goals are what entice people towards action. Goals give actions meaning, direction, and purpose and when goals change, the quality and intensity of a person's behavior will change as well (Covington, 2000). Specifically, individuals set achievement goals in activities that act as a measure or perceived measure of competence (Ames, 1992; Maehr, 1989; Rawsthorne & Elliot, 1999). Competence is a personal perception of how good someone believes they are at a given activity. Competence can be both measured in comparison to others and in

comparison to one's own previous performance. For example, a person who places in the 90<sup>th</sup> percentile on a national test is seen as competent because he or she has performed better than 90% of all test takers. In addition, a person who runs the same race twice and outperforms his or her initial time is seen as competent because he or she improved on the previous performance. Often, perceived competence can impact a person's self-esteem and self-worth. As a result, the variations of goals that people set are determined by how people judge their competence and define successful accomplishment (Duda, 2001). Achievement Goals are divided into two distinct goal types: Performance and Mastery Goals. The variations between performance and mastery goals are based off of how a person judges competence and defines success.

Performance goals, also known as ability goals (Rawsthorne & Elliot, 1999) or ego involvement (Butler, 1987), focus on one's ability. Therefore, when a person has a performance goal, comparative performance to other people is primary (Butler, 1987; Covington, 2000; Lee, McInerney, Liem & Ortega, 2010; Rawsthorne & Elliot, 1999; Spray, Wang, Biddle, & Chatzisarantis, 2006). By comparing their performance to others, people with performance goals hope to either demonstrate high ability or mask low ability relative to their peers (Butler, 1987).

Within performance goals, individuals can either have performance-approach goals or performance-avoidance goals. With approach goals, individuals engage in a task in order to be successful while with avoidance goals, individuals engage in a task in order to avoid failing (Lee et al., 2010). When individuals have confidence in their ability, they typically have performance-approach goals because they believe that they can appear

successful compared to their peers. When individuals doubt their competence, they are more likely to have performance-avoidance goals because they desire to avoid an unfavorable judgment compared to their peers. As a result, people with performance-approach goals tend to be more motivationally stable because they are confident in their ability, whereas people with performance-avoidance goals tend to be motivationally fragile due to self-doubt regarding their competence (Spray et al., 2006). To clarify, someone who is motivationally fragile typically has performance-avoidance goals because they do not believe they can appear competent in comparison to their peers. Instead, people who are motivationally fragile will choose tasks where either the average person is not expected to succeed, thus making failure seem acceptable, or where the average person is expected to perform succeed with little effort, so that their success is viewed as in line with their peers' performance. Motivationally fragile individuals will avoid challenging tasks or tasks where they could potentially fail while putting forth great effort. Often, individuals who maintain a performance goal orientation but have a low perceived ability will set performance-approach goals. Because they are motivationally fragile, they will likely demonstrate low achievement (Duda, 2001).

In addition to being highly related to ability, performance goals are often found to be related to a person's self-worth. This self-worth is determined by one's perceived ability compared to others (Lee, McInerney, Liem, & Ortega, 2010). In fact, the relationship between one's perceived ability and one's self-worth could be considered linear. By this I mean that when perceived ability is high, self-worth is high as well. Similarly, when perceived ability is low, self-worth is low as well. As a result, it has

been found that even successful athletes, having perceived their ability as low, often experience low self-worth leading them to demonstrate low achievement (Hall & Kerr, 1997).

Research has even suggested that performance goals often produce evaluative pressures and elicit anxiety in an individual (Deci & Ryan, 1985; Dweck, 1986; Nicholls, 1989) which affects achievement. Therefore, performance goals appear to act as a double-edged sword. As long as a person is able to maintain high self-worth and a sense of high perceived ability, high achievement is not only possible, but common for people who maintain performance goals. However, as soon as a person doubts their competence and has a low perceived ability, maintaining performance goals leads to low achievement.

In contrast to performance goals, where the emphasis is on ability compared to others, mastery goals are self-referenced. Mastery goals, also known as task involvement (Spray et al., 2006; Butler, 1987) or learning goals (Covington, 2000; Rawsthorne & Elliot, 1999), focus on task mastery, self-improvement, and effort (Spray et al., 2006). People with mastery goals maintain that effort is what leads to success and that failure does not suggest incompetence but not having employed the right learning strategies (Nicholls, 1984; Schunk, 1996). However, in studies that examine mastery goals, success and failure are not explicitly or consistently defined. In people with performance goals, success is defined by one's performance in comparison to others; effort and improvement appear to play little or no role in how the person achieves success or succumbs to failure. With mastery goals, effort and self-improvement are more primary. As a result, it is highly possible that people with mastery goals identify success as putting forth the

greatest effort or improving upon a previous performance. Following this logic, failure for them might instead be defined as not putting in enough effort to be successful. For people with mastery goals, greater effort acts as a sign of greater competence (Butler, 1987). Yet, the research literature on mastery goals lacks a finite definition of success and failure for people with mastery goals. While it is difficult to determine the success of mastery goal individuals, it has been found that individuals with mastery goals tend to be more motivated regardless of their perceived competence or ability (Spray et al., 2006). Unlike people with performance goals, people with mastery goals appear to be motivated regardless of whether they perceive their ability to be high or low.

Given the impacts of the two goal types on achievement and motivation, it is important to distinguish where these goals originate. Research indicates that a person's goal type can be either task specific or part of their inherent orientation. When goals are task specific, the goal type is determined by the type of instructions and demands of task at hand. For example, a performance goal can be set for a task by instructing the participant to try to perform better than his or her peers. A mastery goal can be set by instructing the participant to try to improve on every trial of a task. As a result, mastery and performance goals can be set for any task. It is possible for the same person to have a mastery goal for one task and a performance goal for another task.

Several studies have attempted to manipulate participant goal type by giving them tasks with varying goal emphases. Spray et al. (2006) did this through a golf putting task with secondary school students. In both groups, the aim was to putt the golf ball into the hole from a line 1 m away with one putt. Subjects were split into two groups where they

were either given task-involving instruction (mastery goal) or an ego-involving instruction (performance goal). The mastery group was told that their job was to learn and master the techniques of golf putting. The performance group was told that the purpose of the task was to outperform other students in golf putting. They found that the mastery group subjects were more likely to employ adaptive self-regulatory processes, such as concentration, which allowed them to perform at a higher level than the performance group. On the other hand, the performance group paid less attention to process-based factors that would lead to mastery of the activity (Spray et al., 2006). Likewise, Elliott and Dweck (1988) performed a study where subjects received instructions that highlighted either a performance (look competent) or a mastery (increasing competence) goal. In this study, the fifth grade subjects were given a pattern recognition task adapted from Glanzer, Huttenlocher, and Clark (1963), which was used to manipulate perceptions of ability. They found that when the performance goal was salient and children had low perceived ability, they responded in a helpless manner, making attributions that their mistakes reflected a lack of ability, having negative affect, and giving up on finding ways of overcoming their mistakes. In contrast, when the mastery goal was salient, regardless of a high or low perceived ability, the subjects sought to increase competence (Elliott & Dweck, 1988). Instead of making attributions for their mistakes, they focused on improving and finding ways to come up with correct solutions to their mistakes.

In contrast to being task-specific, a person can also have an inherent orientation of performance or mastery (Dweck, 1975). Goal type orientation in individuals can be seen



as a continuum with performance goal orientations on the left side and mastery goal orientations on the right side. The natural inclination for a person to set one type of goal over the other dictates where they fall along the goal type continuum. For example, someone who naturally sets (without environmental influence) more performance goals than mastery goals will fall farther left on the continuum. A person's goal orientation has been shown to have effects on task behavior. Research with children has shown that individuals who display a performance orientation are more likely to avoid challenges and suffer performance deficits in the face of obstacles. Meanwhile, children with a mastery orientation sought out challenging tasks and continued their pursuit of these tasks even after failure (Dweck & Leggett, 2000).

Learned helplessness, the perceived inability to surmount failure (Dweck, 1975; Dweck & Bush, 1976; Dweck & Reppucci, 1973), is associated with attributing failure to factors that the individual cannot control (Diener & Dweck, 1978). Essentially, they believe that their performance is outside of their own control. For example, children who demonstrate learned helplessness are more likely to attribute failure to lack of ability, rather than to controllable factors such as effort. Diener and Dweck (1978, 1980) examined some of the differences between helpless and mastery-oriented children by having them work on a discrimination task while monitoring the strategies the children employed to try and solve the task. In the study, children were asked to perform a task that consisted of a three-dimension, two-choice discrimination problem in which the children searched for the one solution that was correct. Each child was presented with eight training problems and four test problems. A problem consisted of a set of stimulus

cards with each card containing two figures that varied on three dimensions: color (red or blue), form (triangle or square), and a symbol in the center of the form (dot or star). The child was asked to make a hypothesis about which dimension was the correct answer. A hypothesis was defined as the consistent selection of a particular stimulus property over four trials prior to feedback. After the last test problem, each child was asked for an attribution for his/her performance. Diener and Dweck (1978) found that helpless children made the expected attributions to uncontrollable factors, while the mastery-oriented children did not offer explanations for their failures. Instead, mastery-oriented children seemed to be directed towards the attainment of a solution. In a follow-up study, Diener and Dweck (1980) further discovered that helpless children are more likely to devalue their present performance and be pessimistic about their future performance. The helpless children viewed failure as a greater indicator of their true level of ability. Similar studies have suggested that performance goals may be adaptive when people feel confident but maladaptive when they encounter setbacks (Butler, 2000; Dweck & Leggett, 1988; Nicholls, 1984).

Considering the findings of achievement goal theorists, the question that is left to ask is: which goal type is best for performance? Based on prior research, the answer is not clear or obvious. Both types of goals are natural, necessary and universal. People want to have their ability recognized by others and also continue to learn new things (Duda, 2001). The difference between goal orientations lies in the frequency of how often a person sets each type of goal and how willing they are to sacrifice setting one type of goal in favor of the other (Dweck, 1999). As mentioned before, goal type orientation

appears to align on a continuum in which a person either sets more performance goals or more mastery goals, but is still capable of setting either type of goal. Performance goals by themselves have not been shown to have a detrimental effect on performance or other task variables. Instead, it has been shown that the combination of performance goal orientations and low perceptions of competence that lead to performance deficits (Hardy, 1997). For example, Elliot and Dweck (1988) discovered that when people have performance goals and high perceived ability they act similarly to those with mastery goals in that they do not make attributions for failure or express negative affect. Another example is a study run by Harackiewicz and Elliot (1993) in which university students were asked to perform a pinball task. They manipulated goal type by telling one group that the purpose of the study was to see how well they played pinball compared to others (performance goal) and telling the other group that the study was examining how students develop their pinball skills (mastery goal). In this study, Harackiewicz and Elliot were examining the effects of different achievement goals on intrinsic motivation, participating in an activity for enjoyment. They found that both types of achievement goals appeared to help people concentrate on the pinball game and promote interest in performance and competence. Also, the different types of goals did not have a significant effect on levels of intrinsic motivation (Harackiewicz & Elliot, 1993). This finding was replicated in a study by Senko and Harackiewicz (2002) in which subjects were given a performance goal for a puzzle-solving task under either an evaluative or non-evaluative context. Having a performance goal, as opposed to having a mastery goal, appeared to have a null effect on performance and intrinsic motivation.

The academic world focuses on student performance and more importantly performance in comparison to other students. Current evaluation practices emphasize social comparison, in which students are given grades and continuous public evaluation. Since social comparison is based off of performance in comparison to others, students are constantly given performance goals where correctness, absence of errors, and normative success are highlighted (Ames, 1992).

### **Feedback Type**

Theories on feedback are based on operant conditioning principles. According to operant conditioning, our behaviors are influenced, and eventually controlled, by manipulating consequences (Schacter, Gilbert & Wegner, 2009, p. 277-280). There are two main types of consequences that dictate future behavior: reinforcement and punishment. Furthermore, both types can be either positive or negative. However, in operant conditioning, positive and negative do not refer to “good” and “bad.” Instead, positive suggests that a stimulus was added and negative suggests that a stimulus was taken away. With reinforcement, the frequency of a behavior is increased. Positive reinforcement occurs when a behavior is followed by a stimulus that is rewarding, increasing the frequency of that behavior. Negative reinforcement occurs when a behavior is followed by the removal of an aversive stimulus, increasing the behavior’s frequency. On the other hand, with punishment, the frequency of a behavior is decreased. Positive punishment occurs when a behavior is followed by an aversive stimulus, such as a shock or loud noise, resulting in a decrease in that behavior. Negative punishment

occurs when a behavior is followed by the removal of a stimulus, one that is usually pleasant, which causes a decrease in that behavior.

Feedback often acts as the reinforcement that impacts and directs future behavior. As stated by Ilies and Judge (2005, p. 454), “performance feedback is a process variable that explains motivation within individuals.” This feedback can be either real or manipulated. Real feedback involves giving feedback that reflects actual performance. This means that in studies using real feedback, no feedback can be given until a subject’s performance is measured and then the subject is informed specifically how they performed on the task. Meanwhile, manipulated feedback does not have to be truthful and is independent of actual performance. Because the value of manipulated feedback is independent of actual performance, the effect that the manipulated feedback has on a person’s subsequent goals reflects how individuals process and incorporate it into their goal regulating strategies (Ilies & Judge, 2005). Since manipulated feedback does not truthfully indicate an individual’s actual performance, any effect that occurs following manipulated feedback is attributed solely to the feedback and not to the individual’s actual performance. For this reason, feedback is manipulated in the majority of feedback studies.

The type of feedback a person receives can have a significant impact on how they behave during a task. Similar to the different types of reinforcement, feedback can be split into positive, negative, and neutral types. With positive feedback, people are told that they are performing well, whereas with negative feedback, people are told that they are performing poorly. In most studies, neutral or no-feedback conditions are used as the control variable. Positive feedback has been shown to have various effects on

performance depending on the context in which it is received. In general, the positive approach to feedback aims at strengthening desired behaviors through the use of encouragement, positive reinforcement, and sound technical instruction carried out within a supportive environment (Weinberg, 2009). In this manner, positive feedback acts like the operant conditioning concept of positive reinforcement. The feedback is seen as a rewarding stimulus that encourages the participant to continue a specific behavior.

In a study by Harackiewicz and Elliot (1993) the relationship between goal type (performance vs. mastery) and feedback (positive vs. none) was examined with a pinball task. The goal of the study was to measure participants' intrinsic motivation during a free-choice period, while task enjoyment and competence were measured through self-report measures following the trials. During the free-choice period, participants were left alone with the pinball machine for 5 minutes. The time that a participant played pinball during this period was recorded and was used as a physical measure of intrinsic motivation. With regard to motivation, they found that subjects who received positive feedback, in the performance and mastery goal groups, reported higher levels of perceived competence and task enjoyment (Harackiewicz & Elliot, 1993). Positive feedback had the same effect on people regardless of their achievement goal orientation. Similarly, Goudas, Mirandou, and Kotis (2000) found that positive feedback regarding the achievement of a set goal increased participants' rated competence.

Positive feedback can be given in multiple ways. In the studies mentioned above, positive feedback was received through the verbal comments of the experimenter. However, positive feedback can also be received by manipulating an individual's affect,

also known as the emotional state of the participant. In a study by Orehek, Bessarabova, Chen, and Kruglanski (2011), it was hypothesized that increasing positive affect should lead to increased goal activation when it signals commitment to the goal, whereas positive affect should lead to decreased goal activation when it signals that sufficient progress to the goal has been made. To clarify, activation of a goal occurs when the goal becomes the main focus of the individual. People often are motivated by several goals at one time but are not capable of attending to all of them at once. Thus, goal activation indicates which goals are being pursued at a given time. To induce positive affect, Orehek et al. showed participants pictures that had been pretested to arouse positive affect, such as a smiling baby. Confirming their hypothesis, they found that when positive affect is experienced after a promise to complete a goal, it leads to a decrease in activation of the goal, but leads to an increased activation of the goal. This study supports research by Fishbach and Dhar (2006), who found that information implying goal progress leads to deactivation of the goal, while info implying required commitment leads to increased goal activation. In this particular instance, when positive affect was indicative of goal progress, the participant was more likely to shift their cognitive resources to a competing goal. Yet, when positive affect indicated commitment to the goal, the participant was more likely to maintain activation of the goal.

As previously stated, feedback can be positive, negative, or neutral. While it is termed negative, in this context negative feedback is actually more closely associated with the operant conditioning concept of positive punishment. With positive punishment, an aversive stimulus is given in order to stop a participant from behaving in a certain

manner. Negative feedback acts as the aversive stimulus because it lets the participant know that their current behavior is not getting them desired results. Currently, the literature of research regarding feedback studies has mostly focused on positive and neutral feedback manipulation. As a result, the known effects of negative feedback are limited. However, this limited research appears to confirm the results of studies focused on positive feedback. One of the areas examined in negative feedback studies is goal revision. Goal revision suggests that people often will change the difficulty of their goals based on their performance on prior goals. Feedback on a task acts as an indicator of either goal attainment or nonattainment. As predicted by social cognitive theories (Bandura, 1997; Bandura & Locke, 2003; Latham & Locke, 1991), individuals who receive negative performance feedback (goal nonattainment) will adjust their goals downward by setting easier goals. In contrast, when feedback is positive and signals goal attainment, individuals will adjust their goals upward by setting more difficult goals. In both instances, the degree of the goal revision should match the magnitude of the feedback (i.e. the more negative the feedback, the greater downward goal revision). This notion was confirmed in a study by Ilies and Judge (2005) where they also found evidence for both downward goal revision following negative feedback and upward goal revision following positive feedback. This finding is logical and fits nicely with the idea that people are motivated to feel competent. If you are unable to obtain a goal, it makes sense to decrease the difficulty of your goal to one that is more attainable.

Perhaps what is more intriguing is what Ilies and Judge (2005) found in a follow-up study. In this study, they reexamined the effects of feedback type while including the



distinction between nominal and relative goals. In a nominal goal, a person is asked to set a goal against their own ability. The goal is self-referenced and thus highly similar to a mastery goal. In a relative goal, a person is asked to choose a goal that reflects their ability compared to others. The goal is other-referenced and like a performance goal. For the sake of using consistent terms, mastery goals are equivalent to nominal goals and performance goals are equivalent to relative goals. In this study, participants in the performance goal condition were asked to choose from nine different goal levels (doing better than 10% of others to better than 90% of others). Ilies and Judge (2005) found that positive feedback predicted future goals (upward goal revision) in the mastery goal condition. Meanwhile, negative feedback predicted future goals (downward goal revision) in both the mastery and performance goal conditions. This suggests that negative feedback causes downward goal revision regardless of a person's goal type. However, positive feedback only causes upward goal revision when a person has a self-referenced goal.

### **Variables Affected by Goal Type**

In much of the past research on achievement goals, the purpose was to examine the effect of goal type on measures such as level of effort, task choice, task persistence, and task enjoyment rather than task performance. In addition, task-specific goal studies, including those that did examine task performance, typically have not addressed performance on cognitive tasks. Those that have looked at task performance involved motor performance tasks like golf putting (Spray et al., 2006) or pinball (Harackiewicz & Elliot, 1993). For this reason, the current study uses the Block Design performance

subtest of the Wechsler Adult Intelligence Scale-Revised (WAIS-R) as a cognitive performance measure.

The WAIS-R is a test designated for use with adults aged 16 to 74 and was designed to assess the quantifiable aspects of intelligence (House, 1996). David Wechsler, the publisher of the scale, believed that:

Intelligence is multifaceted as well as multidetermined. What it always calls for is not a particular ability but an overall competency or global capacity, which in one way or another enables a sentient individual to comprehend the world and to deal effectively with its challenges. Intelligence is a function of the personality as a whole and is responsive to other factors besides those included under the concept of cognitive abilities (Wechsler, 1981, p. 1703).

Given this understanding of intelligence, the WAIS-R consists of the grouping of eleven tasks, known as subtests, for the assessment of global intelligence and functioning in the adult individual. The subtest that is used in the current study is the Block Design. While not part of the original design of this test, this subtest acts as a measure of general intelligence and requires a certain level of visual-spatial ability.

### **Achievement Goals and Feedback**

Both achievement goals and feedback have implications on a person's behavior and performance on cognitive tasks. However, prior studies on the effects of achievement goals and feedback have been limited. A person's goal type can be either task specific or part of their inherent orientation. Many previous studies focus on task specific goals in which the instructions and demands of a task are determinant of a person's goal type (Elliot & Dweck, 1988; Spray et al., 2006). While task specific goals are important to understand and have implication on daily life, inherent goal orientations also play an essential part of daily tasks and motivation. While there is research on

inherent goal orientations (Dweck, 1975; Dweck & Bush, 1976; Dweck & Leggett, 2000; Dweck & Reppucci, 1973), these studies have not examined the effect of goal orientation on actual task performance.

While feedback studies have examined task performance, there is limited research that has tested the interaction between different types of feedback and inherent achievement goal orientations (e.g. Harackiewicz & Elliot, 1993). Understanding this interaction is important because it occurs frequently in many different settings, especially in education. On a day-to-day basis, children and adults alike are asked to perform cognitive tasks. To each of these tasks, an individual carries a preset goal orientation and often receives feedback on his or her performance. Essentially, when people receive feedback, they evaluate it and react to it against a feedback-standard comparison. A feedback standard can either be the type of feedback that a person has personally received or the type of feedback that their peers have received (Kluger & DeNisi, 1996). When the individual compares the feedback to prior personal feedback, the individual likely has self-referenced, or mastery goals. When the feedback is compared to the feedback given to peers, the person likely has other-referenced, or performance goals. In this way, feedback can influence a person's future goal orientation towards a specific task. Thus, the purpose of this study is to examine the effects of an individual's goal orientation and the type of feedback they receive on their level of task enjoyment and performance on a cognitive task, the WAIS-R Block Design test.

Positive feedback acts as reinforcement for a person's behavior, especially on a novel task such as the Block Design. People with mastery goals are focused on learning

and self-improvement. We anticipate the positive feedback to reinforce these behaviors leading to higher performance. However, since people with performance orientations focus on how they compare to peers, we expect positive feedback to have no effect on their performance. This feedback will be indicative of high performance in comparison to others and there will be no motivation to improve. By examining how achievement goals and feedback types interact, we hope to add to the ongoing research on motivational theories and impact how educators teach to differently motivated students.

## **Hypotheses**

With regard to task enjoyment, I hypothesize that participants in the positive feedback group will enjoy the task more than participants in the no feedback condition. I hypothesize that goal orientation will not have an effect on task enjoyment. With regard to performance on the Block Design, I hypothesize that participants in the positive feedback condition will outperform those in the no feedback condition and that there will be a significant interaction between feedback type and achievement goal orientation. Specifically, I predict that positive feedback will significantly impact the performance of participants with mastery goals, but have a lesser effect on the performance of participants with performance goals. I do not expect goal orientation to have a significant effect on task performance beyond the interaction.

## **Method**

### **Experimental Design**

This experiment had a 2 (goal orientation: mastery or performance) x 2 (feedback type: positive or no feedback) between-subjects factorial design, resulting in 4 conditions:

mastery orientation receiving positive feedback, mastery orientation receiving no feedback, performance orientation receiving positive feedback, and performance orientation receiving no feedback. There were two dependent measures: the score on the Task Enjoyment Scale and the score on the Block Design test.

### **Participants**

Participants in this study were 68 Regis University undergraduate students. Most of the participants were recruited through the Psychology and Neuroscience Subject Pool. These participants fulfilled a course requirement or received extra credit for their participation. The other participants were volunteers. There was no monetary compensation for participating in this study.

### **Materials and Measures**

**Achievement Goal Scale.** The Achievement Goal Scale was adapted from Elliot & McGregor (2001). Participants are asked to indicate on a scale from 1 to 7 the extent to which a set of statements are true about them. A response of 7 indicates the statement is very true; 1 indicates the statement is not true at all. Statements 2, 3, 6, 7, 10, and 11 are indicative of how likely a person is going to have a mastery orientation. Statements 1, 4, 5, 8, 9, and 12 are indicative of how likely a person is going to have a performance orientation. The participant's orientation tendency was determined by which set of statements had the higher overall sum of scores. Published reliabilities for mastery and performance orientations ranged from *Chronbach's alphas* of .83 to .92 (Elliot & McGregor, 2001). Research done to assess the validity of this measure of performance and mastery goals used confirmatory factor analysis to assess goodness of fit of the

measures and constructs. They concluded that it is an accurate indicator of these two types of achievement goals (Muis et al., 2009). This scale provides a score for the two types of achievement goals (mastery and performance). See Appendix A for full scale.

**WAIS-R Block Design.** Rules and instructions for administering this test came from the WAIS-R manual. Research has shown that the WAIS-R has high reliability for the individual subtests. This means that participants taking the WAIS-R are likely to have similar scores for all measures if they retake the test. A big reason for the WAIS-R's high reliability comes from its strict administration guidelines outlined in the test manual. An examiner should not administer the test without knowing the basic instructions, scoring rules, examples, and decision rules.

The subtest that is used in the current study is the Block Design. In this subtest, the participant is presented with cards depicting geometric designs in white and red, and with a number of identical plastic cubes each having two red, two white, and two red and white sides split on the diagonal. The task is to reproduce the design on the card with the cubes. The participant's performance is timed; after the second item, additional points are awarded for rapid, errorless performance. Testing continues until the series is completed or until three consecutive designs are incorrect. The WAIS-R manual was used to score a participant's performance on the test.

**Feedback Statements.** These statements were developed based on phrasing designs utilized in previous studies (Harackiewicz & Elliot, 1993; Mirandou & Kotis, 2000). These statements were chosen to neither suggest performance goal feedback nor mastery goal feedback. Instead, these phrases were designed to be inherently positive

and suggest high performance by the participant. In this condition, the phrases were used in the following set order in correspondence to each card completed: 1, 2, 3, 1, 2, 3, 1, 4, 2, 3, 4.

1. “Well done.”
2. “Nicely done.”
3. “You did very well on that design.”
4. “Good job. That was a tough design.”

**Task Enjoyment Scale.** This scale was designed by the experimenter to measure the level of task enjoyment that a participant experiences when completing the Block Design test. It consists of three questions, each using a seven-point Likert scale. All participants were asked to complete the scale following completion of the Block Design test. The ratings from the three questions were summed, so scores on this variable were out of 21, with 21 = highest level of task enjoyment and 3 = lowest level of task enjoyment. See Appendix B for full scale.

## **Procedure**

This study was composed of three parts. First, participants filled out the Achievement Goal Scale to determine if they were mastery goal oriented or performance goal oriented. Second, each participant completed the WAIS-R Block Design performance test. The instructions given to the participants followed the instructions in the WAIS-R manual, except for the feedback given by the experimenter. In the positive feedback condition, after the completion of any card, the experimenter presented the participant with one of the Positive Feedback statements (see Materials). The procedure was the same for the no feedback condition except that the participants in this condition

received no feedback during the test. For this group, no feedback was given after the completion of any card. The participant continued until the test was complete. Third, the participant filled out the Task Enjoyment Scale. Following completion of this scale, participants were debriefed on the use of manipulated as opposed to real feedback.

### **Analyses**

Separate 2 x 2 between-subjects ANOVAs were computed on four variables. The first variable was the Task Enjoyment score. The second variable was the overall score on the Block Design test. The overall Block Design score was then broken down into two component scores: speed and accuracy. Speed was analyzed by examining the mean time proportion for participants to complete designs correctly. The mean time proportion is the percentage of the allotted time a participant took on average to complete a design correctly. This was first done for all designs, and then computed again without the last four designs, which were more commonly completed incorrectly by the participants. Accuracy was analyzed by examining the percentage of total designs completed correctly by each participant.

### **Results**

Two participants were not included in any of the analyses because both had identical scores for mastery and performance orientations on the Achievement Goal Scale, making them unqualified for clear grouping into either condition. The data was then cleaned to remove outliers. For each dependent variable, any data point that was more than two standard deviations away from the group mean was excluded from



analysis. Two scores were removed from the Task Enjoyment score and three scores from the Block Design score analyses.

The first variable analyzed was task enjoyment. The means and standard errors for task enjoyment are shown in Figure 1. There was not a significant main effect of feedback type ( $F(1, 60) = 0.31, p = .68, d = -.07$ ). There was not a significant main effect of goal orientation ( $F(1, 60) = 2.46, p = .36, d = .32$ ). The interaction between feedback type and goal orientation was not significant ( $F(1, 60) = 0.61, p = .44$ ).

The Block Design score variable was first examined as a whole score before being broken down into its sub-variables of accuracy and mean proportion of time per design. Figure 2 shows the means and standard errors for the overall Block Design score. There was not a significant main effect of feedback type ( $F(1, 59) = 0.34, p = .66, d = -.11$ ) or goal orientation ( $F(1, 59) = 0.20, p = .73, d = .14$ ). The interaction between feedback type and goal orientation was not significant ( $F(1, 59) = 1.66, p = .20$ ).

After examining the Block Design score as a whole, analyses were run on the two sub-variables. With regard to mean proportion of time per design, we first analyzed the data for all designs. The means and standard errors for the mean time proportion for all designs are found in Figure 3. In the analysis of mean time proportion for all designs, there was not a main effect of feedback type ( $F(1, 62) = 14.25, p = .17, d = -.31$ ). There was not a main effect of goal orientation ( $F(1, 62) = 0.05, p = .86, d = .03$ ). The interaction between feedback type and goal orientation was not significant ( $F(1, 62) = 0.08, p = .77$ ). In addition, analysis was conducted on the mean time proportions for all designs except the last four, which were more commonly missed or left incomplete by

participants (see Figure 4). When analyzing the mean time proportions for just designs 3-9, there still was not a significant effect of feedback type ( $F(1, 62) = 0.01, p = .95, d = -.04$ ), goal orientation ( $F(1, 62) = 0.21, p = .73, d = -.07$ ), nor a significant reaction between feedback type and goal orientation ( $F(1, 62) = 0.46, p = .50$ ).

With the variable of accuracy, there was a significant main effect of feedback type ( $F(1, 62) = 245.44, p = .04, d = -.15$ ) such that participants who received no feedback had higher accuracy than participants who received positive feedback. There was a significant main effect of goal orientation ( $F(1, 62) = 529.00, p = .03, d = .22$ ) such that participants with mastery orientations had higher accuracy than participants with performance orientations. The interaction between feedback type and goal orientation was not significant ( $F(1, 62) = 0.001, p = .97$ ).

## **Discussion**

### **Task Enjoyment Findings**

The results of this task enjoyment measure were not significant. In fact, the trend was in the opposite direction of what I expected. In previous studies, it has been shown that individuals who receive positive feedback while working on a task tend to rate the task higher for enjoyment (Butler, 1987; Harackiewicz, 1979; Harackiewicz & Elliot, 1993). Based on these studies, I expected that participants who received positive feedback would enjoy the task more than participants who received no feedback. However, the results suggest a trend in the opposite direction, with the participants in the no feedback condition tending to enjoy the task more than participants in the positive feedback condition.

One possible explanation for these findings is the type of task that I used in my study compared to previous studies which examined task enjoyment. The Block Design test is often used in clinical settings as a measure of general intelligence and spatial reasoning. For this reason, it is often a novel task for the majority of people who take it, which is part of the reason why it was chosen for this study. In addition to being a novel task, the participants only completed the Block Design test once, allowing them only one impression of how much they enjoyed the task. In comparison, the tasks performed in the other studies, pinball (Harackiewicz & Elliot, 1993), hidden-figure puzzles (Harackiewicz, 1979), and divergent thinking tests (Butler, 1987) were all tasks that the participants had done previously and multiple trials were done with each task.

Participants in these studies had more experiences with the task they were rating and were able to give feedback based on these multiple experiences. The participants in my study only had one experience with the Block Design and may have attributed their enjoyment with the task to its novelty. It is possible that with multiple experiences with the Block Design test, the task enjoyment ratings might shift to fit the expected trends. It is also a possibility that the Block Design is an inherently enjoyable task compared to others. The Block Design might contain intrinsic value to the participant and be rated as highly enjoyable regardless of the feedback type that the participant receives. If the majority of people find the Block Design enjoyable, then there would be less variability in the scores between conditions and account for the different results obtained in this study. The data showed that 17 participants had a score of 21, the highest possible score, on the Task Enjoyment Scale. Furthermore, 44 of the 66 participants had scores of 18 or

higher. This suggests that it is possible that the Block Design task is inherently enjoyable and that scores on this test were near the ceiling.

Another, and possibly better, explanation for the opposite trend demonstrated in the results is how the feedback was interpreted by participants. As part of the procedure for this study, participants in the positive feedback condition were given positive feedback on their performance after the completion of every design regardless of their actual performance. In other words, they received positive feedback for doing the task, not for their performance on the task. In this sense, the positive feedback was a task-contingent reward because it was given to the participant on the contingency that they did the task (Harackiewicz, 1979). This is in comparison to performance-contingent rewards, in which the reward (positive feedback) is only given if the participant performs at a level deemed acceptable by the experimenter. The interpretation of the positive feedback as a task contingent reward can lead to what Lepper and Greene (1976) originally described as the overjustification effect. The overjustification effect states that task contingent rewards produce a decrease in intrinsic motivation. When intrinsic motivation is high, we are motivated to do a task because we find it enjoyable. Thus, as intrinsic motivation decreases, an individual is less likely to find a task enjoyable. Because the positive feedback could have been interpreted as a task contingent reward, participants in this condition may have experienced a decrease in intrinsic motivation leading them to find the Block Design task less enjoyable. This would explain why the results of this study show a tendency for participants in the positive feedback condition to rate the task as less enjoyable than participants in the no feedback condition.

In addition to these specific factors, task enjoyment may have also been affected by some other, more general features of this study. First, it is possible that the feedback given was not interpreted as it was supposed to be. For example, this study used positive feedback statements that were not designed to directly targeted performance or mastery oriented individuals. This was purposefully done with the intention of having the positive feedback be perceived as positive by individuals with both types of orientations. However, it is possible that these statements were not actually neutral to orientation. When Harackiewicz and Elliot (1993) demonstrated a strong correlation between feedback type and task enjoyment, they used feedback that was designed differently for people with mastery and performance goal orientations. For instance, performance goal subjects were told that they had done well compared with others, while mastery goal subjects were told that they showed good improvement. These positive feedback statements were interpreted as positive to each type of person because they centered around their task goals. In the current study, the positive feedback was designed to focus on neither mastery nor performance goals. For that reason, it may have been that the feedback was not considered positive by either mastery or performance oriented individuals. If the feedback had been more specific to the goal orientation of each participant, it may have been that the effects would be more consistent with prior research.

Another general factor that may have impacted the study was the sample used. Prior studies examining task enjoyment, feedback type, or goal orientation have mostly used younger populations, elementary through high school students, as their sample (e.g.

Butler, 1987; Diener & Dweck, 1978; Diener & Dweck, 1980; Duda & Nicholls, 1992; Dweck, 1975; Dweck & Leggett, 2000; Elliot & Dweck, 1988; Harackiewicz, 1979; Spray et al., 2006). Past research along with the findings from this study suggest that while the effects of feedback and goal orientation have been validated in younger populations, there is a possibility that they do not impact older individuals or college students in the same manner. These younger populations are likely to have a wider range of abilities and skill levels than college students. In the current study, all of the participants were college undergraduates. As such, they likely have higher ability or perceived higher ability on cognitive tasks and likely spend more of their time working on cognitive tasks than the average person from the general population. It is likely that their higher ability attributed to reduced variability in task performance scores. Without variability in the task performance scores, it becomes more difficult to distinguish which factors had significant effects on task performance. There is also a strong possibility that as undergraduate students they are exposed to cognitive tasks more often and that they are more likely to enjoy cognitive tasks than the average person. So whether it is because college students have less variable ability levels, they interpret the feedback differently, or if they evaluate their goal orientations differently, there may be something about this sample that creates divergent patterns of results from those demonstrated in younger populations. To answer these questions, future research should use measures from studies with younger populations and replicate them while using college students.

## **Block Design Findings**

The results of this study also showed that the overall Block Design scores were not significantly influenced by feedback type or goal orientation, nor was there an interaction between feedback type and goal orientation. Seemingly, this suggests that an individual's performance on a cognitive task is not affected by the feedback they receive or by the type of goals that they set. This, like findings with the task enjoyment scores, is not what was hypothesized, but also could be explained by other factors in the experiment.

As stated in the introduction, feedback works on operant conditioning principles. In operant conditioning, behaviors are influenced and controlled by manipulating consequences (Schacter, Gilbert & Wegner, 2009, p. 277-280). In the current study, positive feedback was used as a form of reinforcement for completion of a design in the Block Design task. The intention was to reinforce the behavior of making the design quickly and accurately. However, due to the design of this study, this may not be what actually happened. Instead, participants in the positive feedback condition were reinforced (given positive feedback) for completing each design. This meant that participants received positive feedback even if they completed a design incorrectly or ran out of the allotted time. As a result, instead of reinforcing the behavior of completing the designs quickly and accurately, the behavior of doing the task was reinforced. The participant never had to discriminate between a behavior that was rewarded with positive feedback and behaviors which were not rewarded. Thus, it is possible that these participants did not have any motivation or incentive for going faster or being accurate

because they received a reward no matter what they did. Future research should attempt to ameliorate this problem by only giving the participant positive feedback for designs that are completed correctly or quickly.

On a related note, one of the reasons why mastery-oriented individuals would outperform performance-oriented individuals is because people with performance goals are susceptible to displaying a helpless pattern. The helpless pattern is an avoidance of challenges and a decline in performance in the face of obstacles (Dweck & Leggett, 2000). Thus, with experiences of failure, performance oriented individuals are expected to demonstrate a decline in performance on a task. If these individuals are never made aware that they failed or performed poorly, then they will not experience a decrease in self-esteem that leads them to perform poorly in the future. This was the case in my study. Even if they completed the design incorrectly, those in the positive feedback condition received a statement of approval from the experimenter and those in the neutral condition never received any feedback. So when they completed a design incorrectly or did not finish in the allotted time, they were never told that they had performed at a sub-par level. As a result, it is possible that they did not experience the drop in self-esteem necessary to elicit poor future performances and therefore did not show the expected decline.

Another factor to consider is the degree to which the Achievement Goal Scale and Block Design task matched up. The Achievement Goal Scale is designed to measure an individual's goal orientation with regard to the classroom setting (Elliot & McGregor, 2001). Meanwhile, the Block Design task is used to measure an individual's cognitive



abilities, specifically spatial reasoning (House, 1996). What has not been determined is if the goals that people typically set in the classroom setting are the same goal orientations that they have toward cognitive tasks like the Block Design test. The Block Design task is an unfamiliar task to many undergraduate students and spatial reasoning is rarely a part of the cognitive tasks that are involved in a classroom setting. It is possible that the goal orientations that individuals have in a classroom setting are different from the orientations they might have on a cognitive task emphasizing spatial reasoning. If this is true, then it would not have been appropriate to use the Achievement Goal Scale to determine the participants' goal orientation for the Block Design test.

### **Block Design Subcomponents: Speed and Accuracy**

The results of the overall Block Design score suggest that feedback type and goal orientation were not significant influences. However, the Block Design is composed of two sub-components: speed and accuracy. When each of these variables were examined individually, the results showed that feedback type and goal orientation were significant with regard to accuracy but not speed.

One possible explanation for the results for speed, as measured by mean time proportion, is the way in which data was collected with the standardized task administration. The amount of time it took for an individual to complete a design was only recorded for designs that were completed correctly. Thus, participants who either completed a design incorrectly or did not complete the design in the allotted time did not receive a time score for that design. Without time scores, these designs were not included in the analysis of the participant's mean time proportion. This means that in the

analysis of the mean time proportion it took for a participant to complete a design only included designs that were completed correctly. It makes sense then that mean time proportions across the various conditions would be biased because correct designs are all likely to be completed in smaller proportion of time than designs that are completed incorrectly or not completed.

A more likely explanation for why mean time proportion was not significantly affected by feedback type and goal orientation is the speed-accuracy tradeoff. In the speed-accuracy tradeoff, novices at a task will perform at a higher level if they focus on accuracy instead of the speed at which they do the task (Beilock, Bertenthal, Hoerger, & Carr, 2008). It is possible that participants in all conditions were more concerned with correctly making designs than on doing the designs quickly. This is made even more likely by the fact that the Block Design instructions administered to participants never explicitly stated that they were being scored for their speed. As a result, on designs that were completed correctly, there may have been less variability with regard to speed because the participants were focused on accuracy instead. At the same time, the speed-accuracy tradeoff suggests that it is possible that those who tried to work faster may have gotten more designs incorrect. As noted before, incorrect designs were not included in the analysis for mean time proportion. Thus, it is possible that faster times were not included in the time proportion analysis, creating biased results.

In contrast, the results of the accuracy score suggest that feedback type and goal orientation both have a significant effect on this aspect of task performance. While both feedback type and goal orientation were found to be significant, they were not consistent

with my original hypotheses. I had predicted that individuals who received positive feedback would outperform individuals who received no feedback. The analysis of the accuracy results suggests the exact opposite: individuals who received no feedback outperformed individuals who received positive feedback. One possible explanation for this is that the positive feedback was interpreted as goal achievement and the individuals in this condition became less motivated to perform well on the test.

Previous studies have suggested that positive feedback can encourage the pursuit of goal-congruent actions when it signals an increase in commitment to the goal (Fishbach, Eyal, & Finkelstein, 2010; Orehek et al., 2011). For example, in the Block Design test the goal is to perform well and get a high score on the test. Positive feedback received while working on the test should increase the individual's commitment to the goal of performing well on the test. However, positive feedback can also decrease motivation when it signals that sufficient progress was made on a goal (Fishbach, Eyal, & Finkelstein, 2010; Orehek et al., 2011). In other words, positive feedback can act as an indicator of goal achievement. The positive feedback functions to confirm an individual's competence and thus eliminates motivation to further engage with the task (Rawsthorne & Elliot, 1999). It is possible that when participants in this study received positive feedback, they felt as if they accomplished their goal, were competent at the task, and no longer needed to put forth as much effort. This could lead to the opposite pattern of results from what was predicted.

What is even more interesting is the finding that goal orientation had a significant effect on a person's accuracy on the Block Design task. I originally predicted that goal

orientation alone would have no effect on performance beyond the predicted interaction. Yet, the finding that goal orientation was significant for a person's accuracy raises the possibility that goal orientation may have a significant effect on task performance for this type of cognitive task. Specifically, these findings suggest that people with mastery orientations made a higher proportion of designs correctly than people with performance orientations. Prior literature has suggested that people with mastery goals will outperform people with performance goals, but only following the experience of failure (Dweck, 1975; Diener & Dweck, 1978; Diener & Dweck, 1980). On the other hand, this study suggests that within a college undergraduate population people with mastery goals will outperform people with performance goals even without the incidence of failure during this type of task.

These findings could be caused by the type of task used. Because the Block Design task is used as a measure of cognitive ability and intelligence, scores and performances on it are considered to be less changeable and more fixed. In contrast, tasks used in previous research, such as math problems (Dweck, 1975) and stimulus discrimination (Diener & Dweck, 1978; Diener & Dweck, 1980), were considered more achievement based and it is likely that performances on these tasks were more malleable to training, effort, and manipulation. Considering this, it is possible that the type of task used might also play a role in determining the effect of goal orientation on task performance.

Furthermore, this finding may be explained by the fact that mastery goals are self-referenced and performance goals are other-referenced. In this study, participants were

never able to compare their own scores to the scores of others. For those with mastery goals, this was not a concern because their goals were self-centered and focused around effort and improvement. Whereas, those with performance goals were never able to determine how they were doing in relation to their goal because they were never given any information regarding how they compared to other people who had taken the test. Their performance may have suffered because they had no way of knowing if they were achieving their goal of being better than others. What this could suggest is that comparative performance measures might be necessary for individuals with performance goals to perform their best on a cognitive task. It also could suggest that individuals with mastery goals may perform better when they know that they are not being compared to others.

## **Conclusion**

The overarching goal of this study was to evaluate the motivational factors that affect students in their educational and cognitive tasks. Specifically, this study was designed to determine if there is an interaction between an individual's goal orientation and the type of feedback they receive. In general, the hypotheses stated at the outset were not supported by the results of this study. However, this is not to say that there was not valuable information obtained about the effects of feedback type and goal orientation. In fact, the findings of significant effects of feedback type and goal orientation on task accuracy suggest that both may be important factors in an individual's task performance, just not in ways that were originally assumed. This study provides evidence that a

complete understanding of task performance and goal setting in the classroom will require further research on feedback type and goal orientation.

The results of this study leave many questions to be answered by subsequent research. There are four questions in particular that I believe must be addressed. First, does the sample population matter? In contrast to earlier studies, this study used a college undergraduate population and found results that did not match those found in studies using younger populations. Second, does the type of task matter? Not only does the type of task have to match up with the goal orientation being assessed, it has to be capable of being impacted by experimenter manipulation or it has to involve a cognitive skill where consistent improvement can be seen. Third, should the feedback given be real instead of manipulated? By manipulating the feedback in this study, it is possible that participants experienced goal achievement or positive reinforcement for behaviors that did not produce the desired performance. Finally, why do feedback type and goal orientation have significant effects on accuracy, but not speed? Considering that overall performance is composed of speed and accuracy, it is puzzling that feedback type and goal orientation would only impact one of these factors without impacting the other. Are the results of the current study true across many situations or were the results a confounded effect of the type of task used? In order to better understand factors of motivation and to help establish the best way to motivate students to perform at the highest level, these questions must be addressed.

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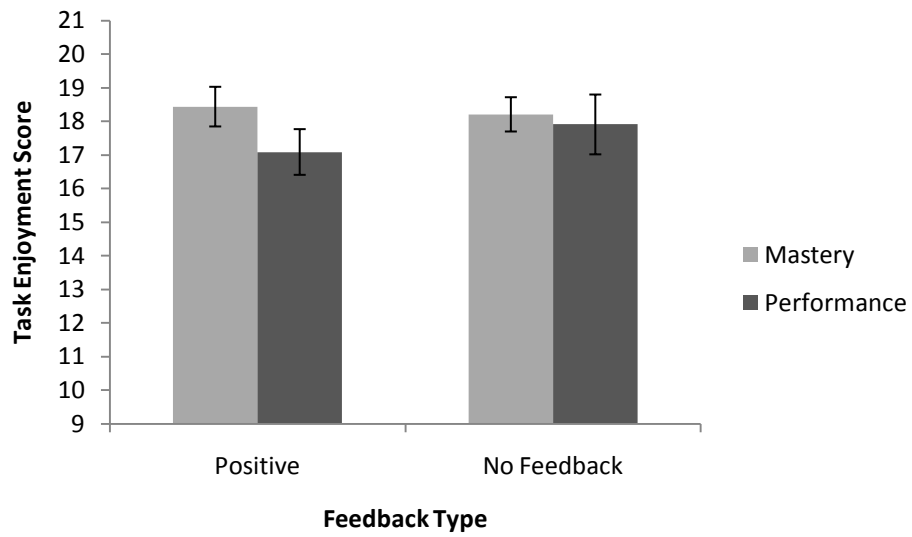


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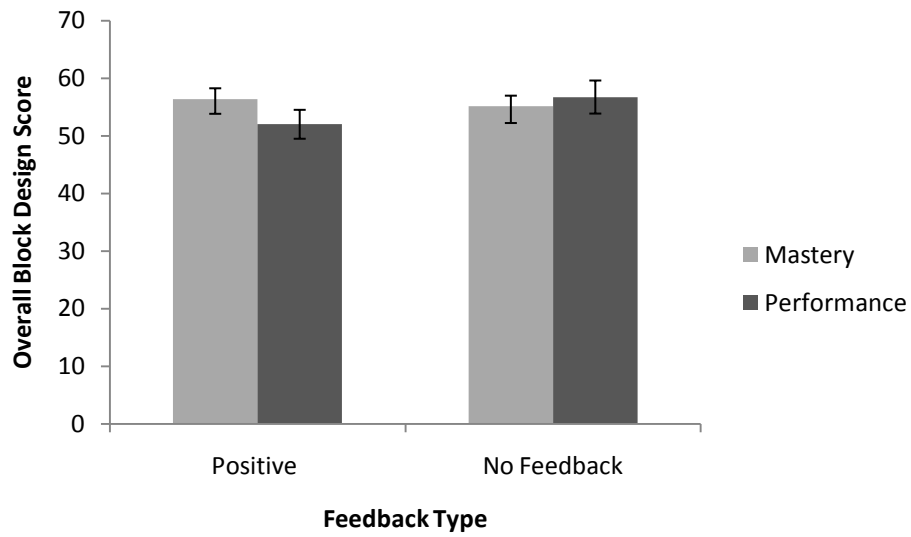
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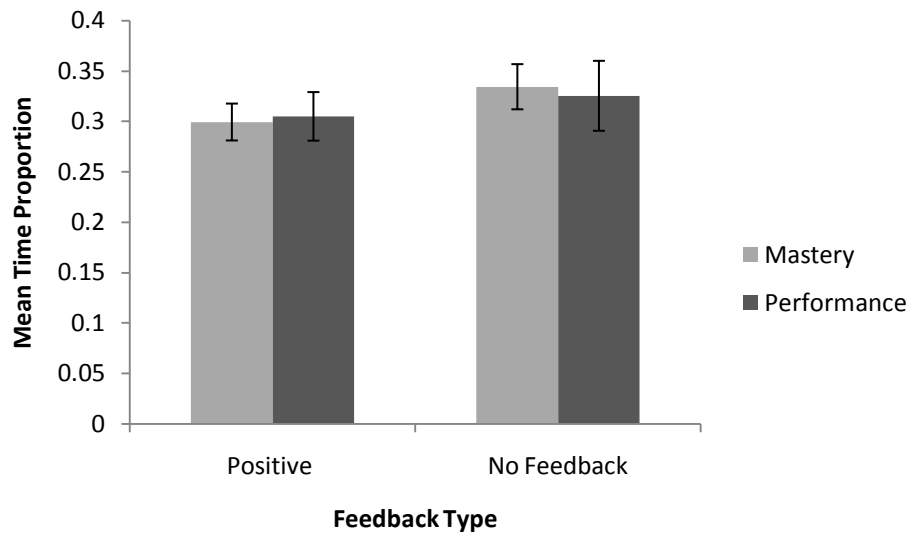
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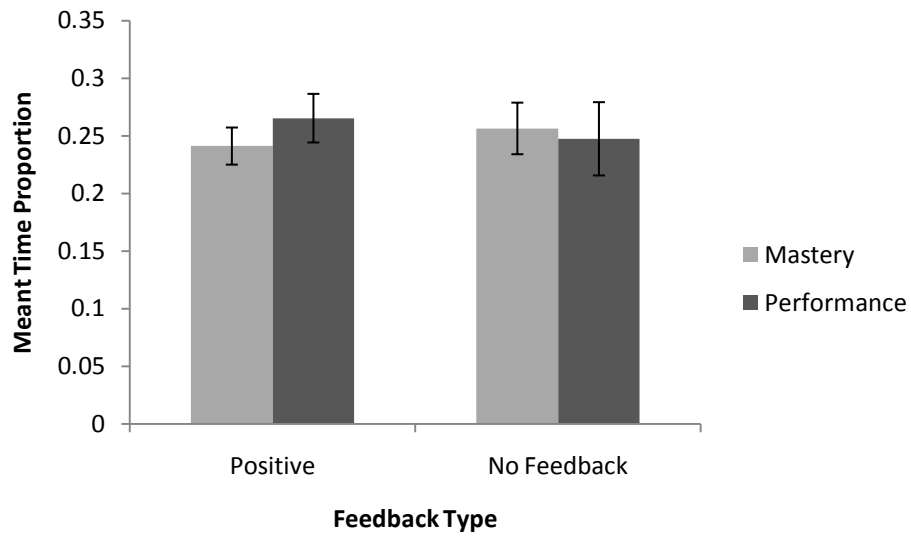
*Figure 1.* Task enjoyment score in positive and no feedback conditions by mastery and performance goal orientations. Error bars represent standard errors.



*Figure 2.* The overall Block Design score in positive and no feedback conditions by mastery and performance goal orientations. Error bars represent standard errors.

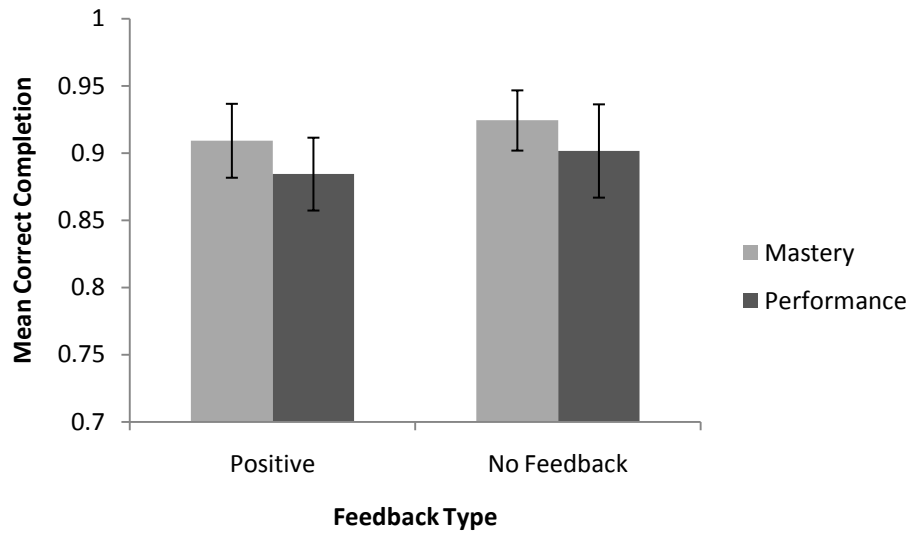


*Figure 3.* The mean time proportion for all designs in positive and no feedback conditions by mastery and performance goal orientations. Error bars represent standard errors.



*Figure 4.* The mean time proportion for designs 3-9 in positive and no feedback conditions by mastery and performance goal orientations. Error bars represent standard errors.





*Figure 5.* The average proportion of designs completed correctly in positive and no feedback conditions by mastery and performance goal orientations. Error bars represent standard errors.

## Appendix A

### Achievement Goals

Indicate with a number from 1 to 7 the extent to which each of the following statements is true about you. A response of 7 indicates the statement is very true about you; 1 indicates the statement is not at all true about you.

- \_\_\_\_\_ 1. It is important for me to do better than other students.
- \_\_\_\_\_ 2. I worry that I may not learn all that I possibly could in my classes.
- \_\_\_\_\_ 3. I want to learn as much as possible in my classes.
- \_\_\_\_\_ 4. I just want to avoid doing poorly in my classes.
- \_\_\_\_\_ 5. It is important for me to do well compared to others in my classes.
- \_\_\_\_\_ 6. Sometimes I'm afraid that I may not understand the content of my classes as thoroughly as I'd like.
- \_\_\_\_\_ 7. It is important for me to understand the content of my classes as thoroughly as possible.
- \_\_\_\_\_ 8. My goal in my classes is to avoid performing poorly.
- \_\_\_\_\_ 9. My goal in my classes is to get a better grade than most of the other students.
- \_\_\_\_\_ 10. I am often concerned that I may not learn all that there is to learn in my classes.
- \_\_\_\_\_ 11. I desire to completely master the material presented in my classes.
- \_\_\_\_\_ 12. My fear of performing poorly in my classes is often what motivates me.

## Appendix B

### Task Enjoyment Scale

On the following three statements, you will be asked to rate your level of agreement on a scale from 1 to 7. In this scale, 1 = I strongly disagree and 7 = I strongly agree.

- 1) I enjoyed taking the Block Design test.

Strongly  
Disagree

1

2

3

4

5

6

Strongly  
Agree

7

- 2) The Block Design test was fun and engaging.

Strongly  
Disagree

1

2

3

4

5

6

Strongly  
Agree

7

- 3) I would want to do a task similar to the Block Design in the future.

Strongly  
Disagree

1

2

3

4

5

6

Strongly  
Agree

7