IS IT PROMOTED OR ENDORSED ACHIEVEMENT GOALS AND
UNDERLYING REASONS THAT PREDICT STUDENTS' INTRINSIC
MOTIVATION?

A MASTER'S THESIS

BY

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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Arts in Curriculum and Instruction.

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ABSTRACT

IS IT PROMOTED OR ENDORSED ACHIEVEMENT GOALS AND UNDERLYING REASONS THAT PREDICT STUDENTS' INTRINSIC MOTIVATION?

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Supervisor: Asst. Prof. Dr. Aikaterini Michou

June 2016

The aim of this research was to investigate (a) the effects of mastery-approach (MAp) and performance-approach (PAp) goals induced in an autonomous or a controlling condition to students' intrinsic motivation through an experiment (Study 1), and (b) the relation of an endorsed achievement goal during a specific computerized game and the autonomous or controlling underlying reasons to students' intrinsic motivation (Study 2) by using a cross-sectional design. In Study 1, 66 students from a private non-profit university in Ankara, Turkey were randomly assigned to four experimental conditions (mastery-approach goal with autonomous reasons, mastery-approach goal with controlling reasons, performance-approach goal with autonomous reasons, performance approach goal with controlling reasons) to play a computerized tennis like game. After the game they reported their intrinsic motivation as well as their achievement goal and underlying reasons during the

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game. The results of a MANOVA showed that there were no differences in participants' intrinsic motivation across the four conditions. In Study 2, 110 students from a private non-profit university in Ankara, Turkey were asked to play the computerized tennis like game; they were not induced any conditions. The participants reported after the game their intrinsic motivation as well as their achievement goal and underlying reasons during the game. The results of hierarchical regression analyses indicated that reasons underlying achievement goals (AGs) were related to students' intrinsic motivation. The findings of this study are discussed as well as implications for education and for further research.

Key words: Achievement goals, Self-determination theory, autonomous and controlled motivation, intrinsic motivation

ÖZET

TEŞVİK EDİLEN VE ÖĞRENCİLER TARAFINDAN BENİMSENEN BAŞARI HEDEFLERİ VE ALTINDA YATAN SEBEPLERİ TAHMİN ETMEDE ÖĞRENCİLERİN İÇSEL MOTİVASYONUNUN ROLÜ

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Bu araştırmanın amacı (a) deneysel tasarım kullanarak ustalık yaklaşım hedefleri ve performans yaklaşım hedeflerinin otonom ya da kontrolcü bir durumla teşvik edilmesinin öğrencilerin içsel motivasyonuna olan etkilerini (Çalışma 1), ve (b) kesitsel tasarım kullanarak bilgisayarlaştırılmış bir oyun sırasında öğrenciler tarafından benimsenen başarı hedefinin ve altında yatan otonom ya da kontrolcü sebeplerin öğrencilerin içsel motivasyonu ile ilişkisini (Çalışma 2) incelemektir. Birinci çalışmada kar amacı gütmeyen özel bir üniversiteden 66 öğrenci tenise benzer bilgisayarlaştırılmış bir oyunu oynamak üzere rastgele dört duruma (ustalık yaklaşım hedefi ile otonom sebepler, ustalık yaklaşım hedefi ile kontrolcü sebepler, performans yaklaşım hedefi ile otonom sebepler, performans yaklaşım hedefi ile kontrolcü sebepler) atanmıştır. Oyun sonrasında öğrenciler oyun sırasında edindikleri içsel motivasyon ile başarı hedefleri ve altında yatan sebepleri bildirmiştir. Yapılan

MANOVA analizinin sonuçları katılımcıların edindikleri içsel motivasyonun atandıkları dört farklı durumla bir ilişkisi olmadığını göstermiştir. İkinci çalışmada kar amacı gütmeyen özel bir üniversiteden 110 tane öğrenciden aynı oyunu oynamaları istenmiştir, bu çalışmada öğrenciler hiçbir duruma atanmamıştır. Oyun sonrasında katılımcılar oyun sırasında edindikleri içsel motivasyon ile başarı hedefleri ve altında yatan sebepleri bildirmiştir. İkinci çalışma için yapılan hiyerarşik regresyon analizi sonuçları başarı hedeflerinin altında yatan sebeplerin önemli bir biçimde öğrencilerin içsel motivasyonu ile ilişkili olduğuna işaret etmiştir. Bu çalışmanın sonuçları ile eğitim ve ileri araştırma için çıkarımları tartışılmıştır.

Anahtar Kelimeler: Başarı hedefleri, Öz denetim teorisi, otonom ve kontrolcü motivasyon, içsel motivasyon

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CHAPTER 1: INTRODUCTION

Introduction

There are many underlying reasons for students' completion of given tasks and set achievement goals. Some students may fulfill the given tasks in order to feel competent and thriving, and some students may complete these tasks to surpass their classmates' performances. When it comes to the underlying reasons of these achievement goals, it can be seen that students can endorse the same achievement goals for different reasons. For instance, two students may set the same achievement goal to pass a particular class with the highest grade possible; but they could have different underlying reasons to endorse this goal. While one of the students endorses this goal because he/she knows that if he/she can achieve this goal, it will enhance his/her self worth in the eyes of his/her peers, while the other student endorses this goal to prove to him/herself that he/she learned from this class as much as possible to improve him/herself. It can be understood that even though the goal is the same, the motivation to pursue the particular goal is different. It is suggested that these different motives of students to pursue a particular goal can affect the educational outcomes (Elliot & Thrash, 2001). Recent studies have shown that achievement goals and underlying autonomous (i.e., volitional) and controlling (i.e., pressuring) reasons can predict achievement outcomes. In the present study, these two aspects of students' motivation (that is achievement goals and underlying reasons) will be taken into consideration. In an experimental study, the effects of specific achievement goals and their underlying reasons on students' intrinsic motivation will be studied

Background

Achievement goals

The development of the achievement goal construct was initiated by the separate and collaborative work of Ames, Dweck, Maehr, and Nicholls in the 1980s to declare motivation in achievement settings (Elliot, 2005). This model defined an achievement goal as the purpose for participating in achievement demeanor. There were two goal types in this initial construct: mastery goals (where the goal is developing competency) and performance goals (where the goal is demonstrating competency) (Elliot, Murayama, & Pekrun, 2011). Initially, the construct was referred as "the dichotomous achievement goal model" as it distinguished achievement goals in two specific concepts; mastery goals in which the purpose is to improve competency and task mastery, and performance goals in which the purpose is to manifest competence. Both of them have been interpreted as approach goals (Elliot, Murayama, & Pekrun, 2011).

Elliot and colleagues offered a set of achievement goal models in the 1990s and 2000s to expand the dichotomous model through the combination of avoidance and approach goals; this trichotomous achievement goal model, which was proposed by Elliot and Harackiewicz in 1996, the performance goal construct was bisected by approach-avoidance and advancing to three independent goals; mastery, performance-approach, and performance-avoidance. Elliot (1999) improved the trichotomous model by bisecting mastery goals as approach-avoidance as well, and mastery-avoidance -a fourth goal- was incorporated into the model. Another improvement carried out by Elliot and colleagues made the model more precise in terms of definitions of the achievement goals (Elliot & Thrash, 2001; Elliot, 1999).

Since the word "purpose" includes two aspects of achievement striving, namely the intention and the reason of this intention, they separated the "reason" aspect and the "aim" aspect of achievement goals, and defined achievement goals in the "aim" aspect alone (Elliot, Murayama, & Pekrun, 2011).

The achievement goals of the trichotomous model were conceptualized as 2 x 2 achievement goal model (Elliot & McGregor, 2001). According to 2 x 2 framework:

- a mastery-approach goal focused on the obtainment of task-based competence −also known as task-based approach− (that is to complete correctly a task) or self-based competence −also known as intrapersonal approach− (that is to improve one's performance/skills on a task);
- a mastery-avoidance goal focused on the eschewed task-based incompetence −also known as task-based avoidance− (e.g., to not complete wrongly a task) or self-based incompetence −also known as intrapersonal avoidance− (e.g., to not impair one's skills on a task);
- a performance-approach goal focalized on the obtainment of other-based competence –also known as other-based approach− (e.g., to outperform others);
- a performance-avoidance goal focalized on the eschewal of other-based incompetence –also known as other-based avoidance− (e.g., to not perform worse than others) (Elliot, Murayama, & Pekrun, 2011).

Self-determination theory

The main focus of self-determination theory (SDT) is the optimal functioning of humans according to their innate heredity. In the framework of this innate heredity, SDT claims that there are three basic psychological needs that ought to be satisfied in order to enhance people's well-being: the need for autonomy (a sense of volition/choice), the need for relatedness (a sense of connectivity), and the need for competence (a sense of effectiveness) (Ryan & Deci, 2000). These three psychological innate needs of human nature generate the essence of SDT as they have been related to self-determined motivation in human behavior (Deci & Vansteenkiste, 2004).

SDT designates that people can be motivated for different reasons; the reasons underlying people's behavior are modeled as a continuum of autonomy (Ryan & Deci, 2000). According to SDT's continuum of autonomy model, human's motivation can be distinguished in extrinsic and intrinsic motivation. The intrinsic motivation is the most autonomous end in the SDT continuum. The extrinsic motivation is consisted of four types of behavioral regulation and each of these types has a different degree of autonomy. The types with the lowest degree of autonomy are considered as controlled motivation (the less autonomous end in the SDT continuum), whereas the types with the highest degree of autonomy are considered as autonomous motivation.

Starting from the lowest level of autonomy, *external regulation* indicates a controlling form of motivation that arises when people carry out activities or tasks to acquire prizes or thwart sanctions and punishments (Ryan & Deci, 2000). In external

regulation people feel forced to follow a course of actions and that is why this kind of regulation is considered as controlled motivation. *Introjected regulation* is another form of motivation that involves a pressure for ego validation; it occurs when one feels proud when he/she accomplishes a goal, and derogates himself/herself after failing a given task or not attaining a goal (Ryan & Deci, 2000). Introjected regulation is also a form of controlled motivation as people are coerced by internal forces to behave in a certain way. *Identified regulation* is a more autonomous form of motivation; it takes place when a person performs an activity for that activity being important to him/her or sees that activity as beneficial for himself/herself (Ryan & Deci, 2000). In the case of the identified regulation, the person has internalized and identified himself/herself with the value of the activity that is why identified regulation is included in autonomous motivation. *Integrated motivation* is described as the most autonomous form of motivation which occurs when one deeply internalizes reasons to attain a goal and integrate them to a coherent sense of self (Ryan & Deci, 2000). Lastly, *intrinsic motivation*-the highest form of autonomous motivation- occurs when one participates in an activity due to its inherent pleasure such as interest, entertainment or challenge it provides (Gagne, Ryan, & Bargmann, 2003).

In the context of education, work or sport, when an individual participates in an activity or endorses an achievement goal, the contentedness or dissatisfaction of these three needs may influence his/her reasons of doing so; depending on that, one's pursuit of achievement goals can be for autonomous or controlling reasons (Vansteekiste, Mouratidis, & Lens, 2010; Vansteenkiste et al., 2010). Autonomous reasons connote that an individual willingly participates in an activity or pursues a

goal. On the contrary, controlling reasons indicate that an individual feels coercion to involve in an activity or pursue a goal from within or from external settings (Vansteekiste, Mouratidis, & Lens, 2010; Vansteenkiste et al., 2010).

In classroom settings, a teacher can motivate his/her students to complete a task by using an autonomous support system or a controlling support system. In order to facilitate learning by addressing students' three basic psychological needs (autonomy, competence, and relatedness), teachers need to use a motivating style (which is called autonomy support) that will give students choices and acknowledge their inner motivational resources (Jang, Deci, & Reeve, 2010). As was suggested by Reeve (2006), nurturing students' inner motivational resources is beneficial for students' well-being and a healthy classroom environment.

Problem

In a classroom environment, a teacher can transfer messages related to students' goal endorsements. The teacher can suggest his/her students to improve their skills or to outperform their classmates. Teachers' promotion of achievement goal can be induced in an autonomous way or a controlling way. There are still questions to this action that needs answers: what happens to students' intrinsic motivation when an achievement goal is promoted in an autonomous way or a controlling way? What happens to students' intrinsic motivation when an achievement goal is endorsed for autonomous or controlling reasons? Recent studies that combine the achievement goal perspective and self-determination theory have shown that when achievement goals are endorsed for autonomous reasons, they are related with positive educational (e.g., higher levels of enjoyment or interest) and psychological outcomes (e.g., lower

levels of tension and anxiety) (Benita, Roth, & Deci, 2013; Gaudreau, 2012; Gillet, Lafreniere, Vallerand, Huart, & Fouquereau, 2012; Michou, Vansteenkiste, Mouratidis, & Lens, 2014; Vansteenkiste et al., 2010). Nevertheless all of these studies were correlational (the study of Benita, Roth, & Deci (2013) was a combination of experimental and correlational studies) which indicates that it is still unclear if the endorsed achievement goals and their underlying reasons affect educational outcomes. Furthermore, it is unclear if the promoted achievement goals and the autonomous or controlling manner of their promotion affect educational outcomes. For the purpose of overcoming the limitations of previous studies, the present study will test the finding of studies mentioned above in an experiment in which causal effects will be inferred.

Purpose

The purpose of this research is twofold: (a) to ascertain the effects of mastery-approach (MAp) and performance-approach (PAp) goals induced by either autonomous or controlling condition to students' intrinsic motivation during a specific computerized game (Study 1), and (b) to investigate the relation of the endorsed achievement goal during a specific computerized game and the autonomous or controlling underlying reasons to students' intrinsic motivation (Study 2). In the first study, students will be assigned randomly to four conditions. In the four experimental conditions, the students will be asked to play the computerized game either by pursuing the goal to improve themselves from round to round (i.e. MAp goal) or by pursuing the goal to achieve the highest score among the other students (i.e. PAp goal). The conditions will induce these two goals using either an autonomous wording or a controlling wording. This way, the four conditions will

represent a MAp autonomous, a MAp controlling, a PAp autonomous and a PAp controlling environment. The effects of the four conditions on students' intrinsic motivation (indicated by students' interest for the task, tension during the task, and intention to repeat the task) will be measured. In the second study, no goal will be induced to students who will report their endorsed goal during the game. Furthermore the reasons for endorsing this goal, as well as their intrinsic motivation indicated by their interest for the task, less tension experience during the task, and intention to repeat the task.

Research questions

The specific research questions of the present study are:

- Does the promotion of MAp or PAp goals in an autonomous or controlling way during an activity lead the students to endorse the promoted goal for autonomous or controlling reasons respectively?
- What is the effect of the induction of MAp or PAp goals an autonomous or a controlling way on students' intrinsic motivation?
- What is the relation of the endorsed MAp or PAp goals and their underlying autonomous or controlling reasons to students' intrinsic motivation?

Significance

The results of this study will give educators specific suggestions on using which methods, wording, and strategies to promote achievement goals in their classrooms and enhance optimal functioning of students.

This study is also significant for the literature of achievement goal perspective and self-determination theory; as it is going to be one of the first studies to conduct an experiment to investigate the relation of achievement goals and underlying reasons with outcomes. Specifically, in the present study, the effects of MAp or PAp goals induced by either an autonomous or a controlling way on students' intrinsic motivation, and the relation of the endorsed MAp or PAp goals and their underlying autonomous or controlling reasons to students' intrinsic motivation are going to be investigated.

Definitions of key terms

Achievement goals are defined as the purpose of involving in an activity in a behavior that is related to competence (to improve or exhibit competence) (Elliot & McGregor, 2001).

Autonomous reasons emerge when one sees a goal or a task important to self and one's feelings of volition and preference surfaces to attain the goal or the task (Vansteenkiste, Mouratidis, & Lens, 2010).

Controlling reasons emerge when one feels pressure to attain a goal or complete a task due to external forces (sanctions or punishments) (Vansteenkiste, Mouratidis, & Lens, 2010).

Intrinsic motivation refers to being motivated to accomplish a goal or a task because of its pure enjoyment and interest (Ryan & Deci, 2000).

CHAPTER 2: REVIEW OF RELATED LITERATURE

Introduction

This chapter aims to review the literature related to research findings in the framework of two well-known motivational theories: the achievement goal perspective (Elliot, 2005) and the self-determination theory (Deci & Ryan, 2000). Specifically, this chapter reviews findings regarding achievement goals and their relation to educational outcomes as well as regarding autonomous and controlled motivation and their correlates in educational settings. The chapter also reviews the very recent studies that have combined these two motivational approaches by conceiving them as related to the "what" and "why" aspect of achievement motivation (Vansteenkiste, Lens, Elliot, Mouratidis, & Soenens, 2014).

In achievement situations (i.e., education, sport, work) people set a particular achievement goal that directs them to a specific behavior. This is considered as the "what" aspect of achievement motivation. At the same time, each achievement goal is adopted for a more profound reason than the goal itself; this is the underlying reason for pursuing an achievement goal, and represents the "why" aspect of achievement motivation. In schooling, this means that two students can endorse the same goal for different underlying reasons. According to Vansteenkiste et al. (2014), the underlying reasons could be either autonomous motives (i.e., coming from one's self free volition) or controlling motives (i.e., coming from others' volition or one's self pressure to comply with others' volition) that differentiate the achievement goals functioning in the motivational process.

To understand better what the consequences of endorsing these goals are and why they are endorsed, studies will be reviewed through the lens of achievement goal perspective and self-determination theory. The first subsection of this chapter will cover research about the achievement goals and their relation to educational outcomes. The second subsection will cover the types of motivation (autonomous vs. controlled) and their relation to educational outcomes, and finally, the third subsection will examine the studies that combine the achievement goal perspective with the self-determination theory.

The achievement goals and their relation to educational outcomes

According to the 2 x 2 framework that was introduced by Elliot and McGregor (2001), in achievement goal perspective there are four types of achievement goals (AGs): mastery-approach goals (MAp), mastery-avoidance goals (MAv), performance-approach goals (PAp), and performance-avoidance goals (PAv) (Elliot & McGregor, 2001).

Mastery-approach (MAp) goals are the ones that are endorsed by students who aim to learn as much as possible, improve their current selves from a given task, and/or accomplish a given task successfully (Wolters, 2004). Among AGs, MAps are the goals that are most correlated with positive educational and psychological outcomes such as intrinsic motivation, task-absorption, deep-level learning and psychological well-being (Dweck & Leggett, 1988, Elliot & Church, 1997, Kaplan & Maehr, 1999). A study that was conducted by Pekrun, Elliot, & Maier (2009) −among undergraduate students prior to their exam− indicated that MAp goals positively predicted emotions such as enjoyment, hope, and pride; concurrently MAp goals

negatively predicted hopelessness and shame. These results replicated the findings of their study from 2006 and highlighted the importance of emotions acting as mediators between achievement goals and performance (Pekrun, Elliot, & Maier, 2006; Pekrun, Elliot, & Maier, 2009).

Mastery-avoidance (MAv) goals are endorsed by students who want to avoid losses or impairment of their skills (Elliot & McGregor, 2001). According to Senko and Freund (2015), MAv goals are often endorsed by older people; because of their advanced age, they focus on not losing the skills they have developed over the years. MAv goals have been correlated in literature with both positive and negative outcomes but depending usually from the age of the person who endorse those (Senko & Freund, 2015). Regarding the young students, MAv goals may be harmful for their well-being due to self-pressure not to lose what they have gained or developed (Gillet, Lafreniere, Vallerand, Huart, & Fouquereau, 2012). Van Yperen, Hamstra, Klauw & Van Der (2009) suggested that MAv goals have detrimental effects on performance improvement in both young adults and older adults. A study that was conducted by Senko and Freund (2015) depicted indirect evidence that older adults found the MAv goal easy, more achievable, and enjoyable compare to MAp goal and therefore while pursuing MAv goal, they felt less pressure and experienced a number of positive outcomes.

Performance-approach (PAp) goals are endorsed by students who want to achieve a given task out of the desire of outperforming other students or proving their self-worth (Wolters, 2004). PAp goals are generally correlated with both positive (e.g., high academic performance) and negative educational outcomes (e.g., critical self-

assessment after failure), and negative psychological outcomes (e.g., test anxiety) (Vansteenkiste et al., 2010). There are some studies that showed PAp goals can bring positive psychological outcomes as well (if the student achieves his/her goal, this could satisfy him/her) (Dompnier, Darnon & Butera, 2013). Some other studies also indicated that performance-approach goals are linked with increased effort, intrinsic motivation and performance (Harackiewicz, Barron, Pintrich, Elliot, & Thrash, 2002). Darnon, Butera, & Harackiewicz (2007) suggested that PAp goals, when not associated with uncertainty, have favorable effects on performance. Another key finding of this study was that in academic learning it is almost impossible to eliminate uncertainty; therefore, in such environments, PAp goals may be detrimental to learning (Darnon, Butera, & Harackiewicz, 2007).

Performance-avoidance (PAv) goals are endorsed by students who want to avoid performing a task worse than other students (Darnon, Butera, & Harackiewicz, 2007). A study by Elliot and Church (1997) showed students who endorse PAv goals achieve a given task only to avoid failure which indicates that these type of goals are only correlated with negative educational (e.g. task distraction) and psychological (e.g., anxiety) outcomes. This study also showed that endorsing PAv goals are related to fear of failure and low expectancies of competence. Elliot and McGregor (2001) posited that students who adopted PAv goals are more prone to use idle studying techniques like memorizing, and reported having difficulties with time management and concern regarding to exams. Dissimilarly, Darnon, Butera, Haraciewicz (2007) found out that when PAv goals are endorsed in combination with PAp goals, they are not detrimental to performance.

Although until recently the 2 x 2 goal construct is widely accepted; a 3 x 2 achievement goal model was proposed by Elliot, Murayama, & Pekrun (2011); indicating that there is a need for updating the structure of AGs by dividing the mastery goals to task-based −also known as task-based approach− (the focus of the student is on the task at hand) and self-based −also known as intrapersonal approach− (the focus of the student is on his/her improvement) goals and keeping the performance goals as other-based goals. With this suggestion and taking also into consideration the approach and avoidance distinction of achievement goals, a 3 x 2 model suggests 6 goal constructs, such as task-approach, task-avoidance, self-approach (intrapersonal approach), self-avoidance (intrapersonal avoidance), other-approach, and other-avoidance.

Autonomous vs. controlled motivation and their correlates

Self-determination theory (SDT; Deci & Ryan, 1985) is a theory for human motivation. In SDT, different types of motivation are distinguished (Ryan & Deci, 2000). People can be motivated intrinsically or extrinsically. Autonomous motivation means that a person engages in an activity willingly. In other words, as suggested in SDT, autonomous motivation represents the utmost standard of regulation (Ratelle, Guay, Valledrand, Larose, & Senecal, 2007). In contrast, controlled motivation means that one engages in an activity when one feels coerced to do so. Controlled motivation reflects intermediate or low levels of the standard continuum (Ratelle et al., 2007).

According to SDT, when it comes to students, what type of motivation they will adopt can depend on the satisfaction or frustration of three psychological needs

(Deci, Vallerand, Pelletier & Ryan, 1991). These three psychological needs are autonomy, relatedness and competence. Autonomy refers to sense of alacrity when making decisions and determining the behaviors that one will engage by oneself (Vansteenkiste et al., 2010). Relatedness means a sense of connectivity and familiarity (Vansteenkiste et al., 2010). Lastly, competence is one's feeling of effective when engaging in an activity (Niemiec & Ryan, 2009).

Ryan & Deci (2000) found out that social circumstantial conditions that buttress one's feelings of competence, autonomy, and relatedness are the foundation for one sustaining intrinsic motivation and being more self-determined. They also pointed out that the importance of facilitating classroom environments that allow self-determined learning more and satisfy the three psychological needs (that is feeling connected, related and competent). As Koestner, Otis, Powers, Pelletier & Gagnon (2008) stated, pursuing a goal out of autonomous motivation rather than controlled motivation is beneficial for individuals due to autonomous motivation being importantly related with goal progress and implementation plans. They also suggested that rather than decreasing controlled motivation, it is better to increase autonomous motivation. Pulfrey, Buchs, & Butera (2011) suggested that students' anticipation of a grade or grade based comment (i.e. controlled by external resources) on a task or exam engendered low levels of autonomous motivation. Another study that was carried out by Pulfrey, Darnon, & Butera (2013) revealed that in a nongraded circumstance, where the levels of perceived autonomy is higher, continuum of motivation is more likely to occur in comparison to a circumstance that is grade related.

Deci et al. (1991) also supported the idea of satisfying psychological needs (autonomy, competence, relatedness) would bring positive outcomes and should be satisfied not only at school, but also at home. This study concluded that self-determination, in the shapes of intrinsic motivation and autonomous internalization, directs to certain outcomes such as creativity, intellectual resilience, and self-respect that are advantageous for both individuals and society. Therefore, promoting intrinsic motivation and autonomy in students should be a priority, in order to have a better education system (Deci et al., 1991).

Thus far, it can be understood that SDT and achievement goal perspective are two major models in educational psychology, and they complement each other.

Combining the achievement goal perspective with the self-determination theory

This subsection will cover the recent studies of achievement goal perspective with the SDT. The studies have been conducted in this research area for more than three decades now. In 2014, Vansteenkiste, Lens, Elliot, Soenens & Mouratidis examined systematically the frameworks of achievement goal theory and SDT and suggested that reasons underlying each achievement goal is as important as aims.

The findings of Vansteenkiste et al. (2010) showed that when performance-approach goals are endorsed autonomously and volitionally, they are positively correlated with adaption and learning; and when PAp goals are endorsed out of controlling reasons, they are correlated with decreased outcomes. Another study, which was conducted by Vansteenkiste, Mouratidis, and Lens (2010) among soccer players, also demonstrated that when soccer players endorse PAps out of autonomous motivation,

they tend to perceive games more compelling and improving, when these goals

endorsed out of controlled motivation, soccer plays are more likely to display

immoral (e.g., cheating) behavior.

A study that was conducted by Gaudreau (2012) suggested that when mastery-

approach goals endorsed for self-concordant (i.e., autonomous) reasons, they could

relate to higher academic interest/satisfaction and performance. The study also found

out that self-concordance of both mastery-approach goals and performance-approach

goals were substantially related to lower anxiety and high academic satisfaction.

Gillet et al. (2012) supported the importance and prominence of considering the

autonomous and controlling reasons underlying one's endeavoring and well-being.

The results of this study suggested that individuals with the pursuit of performance-

approach goals for autonomous reasons stated greater levels of satisfaction and

positive effect, on the contrary when individuals pursued performance-approach

goals out of controlling reasons (e.g., internal or external demands), they exhibited

decreased levels of positive effect (Gillet et al., 2012).

Benita, Roth & Deci (2013) conducted an experimental research to find out whether

mastery goals are more adaptive when individuals feel more autonomous and have a

sense of choice. They also investigated whether mastery goals that were adopted

under autonomy-supportive context would predict positive emotional and

psychological outcomes more than mastery goals that were adopted under autonomy-

suppressive context. The results of this study revealed that students who were in an

autonomy supportive context reported higher levels of interest or enjoyment

comparing to those who were in a autonomy suppressive context; in terms of sense of choice, the study also revealed that when the level of sense of choice was higher mastery approach goals were more likely to predict interest or enjoyment and behavioral involvement (Benita, Roth, & Deci, 2013). The researchers concluded by pointing out that when an autonomy supportive environment and a sense of choice is provided, mastery approach goals can act as a powerful predictor of positive psychological outcomes (Benita, Roth, & Deci, 2013).

Michou, Vansteenkiste, Mouratidis & Lens (2014) indicated the importance of underlying reasons of one's choice of particular achievement goals by saying specific type of reasons for endorsing achievement goals are also the indicators of achievement motives.

A study that conducted by Vansteenkiste, Mouraditis, Van Riet & Lens (2014) among volleyball players revealed that both types of achievement goals and the reasons that the players endorse during a season may vary; this variation is dependent on their psychological functioning. When volleyball players pursued mastery-approach goals with a more willing or autonomously motivated way, it raised game-specific gains such as prosocial behavior, pleasure, and performance satisfaction (Vansteenkiste et al., 2014).

In 2015, a study that was carried out by Özdemir, Lane, and Michou demonstrated that when achievement goals −regardless of their types− are endorsed for autonomous reasons, they are positively associated with adaptive outcomes (e.g., academic satisfaction). This study also pointed out that underlying reasons behind

achievement goals –again regardless of the type– can be predictors of intrinsic motivation (Özdemir, Lane, & Michou, 2015).

Concluding statement

After reviewing the related literature of achievement goal perspective and SDT, it can be understood how the present study will contribute to this field of research. From the achievement goal perspective, it seems that MAp goals are related to positive educational outcomes, whereas research findings are conflicted regarding the correlates of PAp goals. In some studies, PAp goals have been correlated with positive outcomes and in some others with negative ones. From the SDT perspective, autonomous motivation is related to optimal functioning in educational settings, whereas controlled motivation is related to ill-being. When both the achievement goal and the SDT perspectives are combined, it seems that the autonomous reasons underlying either MAp or PAp goals account for learning, performance and educational satisfaction, while the controlling reasons underlying MAp and PAp goals are related to anxiety. It seems timely, therefore, to investigate the causal relationship of MAp and PAp goals and their underlying reasons to an outcome important for learning that is intrinsic motivation. Through such a study it would be further clarified what is the effect of each aspect of achievement striving (i.e., the "what" and the "why') on students functioning.

CHAPTER 3: METHOD

Introduction

The aim of this study was to examine (a) the effects of mastery-approach (MAp) and performance-approach (PAp) goals −induced by either autonomously or in a controlling way− on students' intrinsic motivation, and to find out (b) the relation of the endorsed MAp or PAp goals and their underlying autonomous or controlling reasons to students' intrinsic motivation. Consequently, experimental and cross sectional studies were developed.

Research design

Experimental design

Experimental design is one of the best ways to determine cause-and-effect relationships between variables (Fraenkel & Wallen, 2006). In an experimental design, researchers can manipulate the conditions to investigate the outcomes. An experimental study has independent and dependent variables. Independent variable refers to the variables that were manipulated by the researchers in order to find out its effects on the dependent variable. Dependent variable refers to the variables that are expected to be influenced by the independent variables.

Cross-sectional design

Cross-sectional design is a kind of design that gathers data from a population at one specific point in time or during the period when the study is being conducted. Cross-

sectional studies are implemented over a short period of time, and they are performed to approximate the prevalence of the outcome of interest for target population.

In this research project, two studies were carried out to examine:

(a) The effects of MAp and PAp goals −endorsed in an autonomous or a controlling way− to students' intrinsic motivation through an experiment. Therefore an experimental study was designed to manipulate students' achievement goals and underlying reasons to enable researchers to explore their effects on students' intrinsic motivation during a specific task. In this study, the independent variables were the four conditions (two achievement goals [MAp and PAp] by two reasons [autonomous and controlling]), and the dependent variable was students' intrinsic motivation.

(b) The relation of endorsed MAp and PAp goals and their underlying reasons in a specific game to participants' intrinsic motivation through a cross-sectional design.

Context

The studies were carried out in a private non-profit university which is located in Ankara, Turkey. This particular private non-profit university currently has around 13,000 students. The sample of the study came from various departments (such as Banking and Finance, English Language and Literature, American Culture and Literature, Psychology, Economics, Philosophy, Business Administration, Translation and Interpretation, Law, International Relations, Computer Engineering, Electrical and Electronic Engineering etc.) of this non-profit university.

Study 1

Participants

The participants of this study were 66 −both undergraduate and graduate− students from a private non-profit university; 48 of the participants were female; 18 of the participants were male. The age of the participants ranged between 18 and 31; the mean age of the participants was 22.06 ($SD = 2.92$).

The participants were briefly informed about the study and voluntarily agreed to participate by signing a consent form (see Appendix D and I). The students participated anonymously.

Instrumentation

The following sections were the parts of the experiment:

Content of the experiment

The purpose of the experiment was to investigate mastery-approach (MAp) and performance-approach (PAp) goals that are promoted in an autonomous or a controlling way and their effects on students' intrinsic motivation.

For that reason, a computerized tennis like game named "Pong" which was developed by Allan Alcorn in 1970s was modified. The modified version of Pong that was used for the experiment consisted of 10 screens including the consent form. The language of the Pong was Turkish. Participants had to read and agree the consent form in order to play the game (screen 1). After signing the consent form, the

participants were asked to enter their ID numbers (screen 2) so that they can be awarded points for their class; if the participants did not need the points they were asked to enter a number randomly. The next page that the participants needed to fill out was the information page (screen 3) where they needed to declare their gender, age, department, and academic year. Afterwards, the participants were informed about Pong and assigned to a condition randomly to pursue during the game (i.e., either to achieve a better score in the second round of the game [MAp goal] or to achieve the highest score among the other participants [PAp goal]) (screen 4); this page contained information about the trial session and two rounds of the game, and the given condition. The information and condition were given piece by piece so that participants cannot skip it without reading it. Thereafter, participants could start practicing Pong in their trial session (screen 5) as long as they want. After finishing the trial session, participants could play the first round of the game (screen 6). When they finished playing the first round, they were shown a score and they were reminded of their condition with a hint (screen 7). After playing the second round (screen 8), the participants were asked to complete an 11-item questionnaire on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree) (screen 9) in order to see their score from the second round. Having completed the survey, the participants were shown their total scores and were asked to identify their most important goal during the game by choosing one of the given two options; they were also asked to identify their reasons to attain that goal by rating their intentions by answering a 4 item questionnaire on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree) (screen 10). Afterwards, they faced a page where the researchers thanked them and gave them information if the participants would want to contact them. The screenshots of the Pong can be found in Appendix E and J.

Conditions (independent variables)

In the first study, there were four conditions. These conditions were: mastery approach goal supported with an autonomous reason, performance approach goal supported with an autonomous reason, mastery approach goal supported with a controlling reason, and performance approach goal supported with a controlled reason. The conditions were introduced to the participants at the beginning of the game. Participants of this experiment were not able to play the game before reading their given condition.

The experimental conditions that were used in the first study were adapted from Özdemir's study (2014) as well as from Benita, Roth, and Deci (2013). The conditions can be found in Appendix A and F. Below are some excerpts from the conditions:

- In order to promote mastery-approach goal supported with an autonomous reason, statements such as "*…try to improve yourself in the second round by achieving a higher score…try to do better next round and feel the joy of self-improvement."* were used.

- To endorse mastery approach goal with a controlled reason, statements such as "*improve yourself as you move from the first round to the next one …your participation in the task will be valuable to us only to the extent that you can show clear improvement from trial to trial."* were used.

- For inducing performance approach goal supported with an autonomous reason, statements like "*…try to achieve a score that will be among the top*

> *10% of the test takers' scores…try to attain one of the highest scores and feel the joy of outperforming others.''* were used.

- Lastly, performance approach goal with a controlled reason was endorsed with using statements like "*...achieve a score that will be among the top 10% of the test takers' scores… attain one of the highest score in order for your participation to be valuable to us.''*.

Practice of 'Pong'

'Pong' is a tennis like computerized game that is played with a mouse on a computer online. The goal of the game is to catch the ball with a log before it hits the wall.

After reading their randomly assigned conditions, the participants of the experiment were given a trial session prior to game. The aim of the trial session was to introduce and familiarize students with the game.

Two sets of 'Pong' and score (manipulated)

For participants who were assigned mastery approach goal conditions (supported with an autonomous reason and a controlling reason), regardless of the real score that they achieved during the second round, the score of the second round was shown as higher than their first round score.

For participants who were assigned performance approach goal conditions (supported with an autonomous reason and a controlling reason), regardless of the real score that they attained during the second round, their score that was displayed

as their second round score was always higher than the highest score of other participants. Thus participants would think that they attained their given goal, and it would avoid the failure effect when they answer the manipulation test (see below).

Intrinsic motivation (dependent variable)

The Intrinsic Motivation Inventory (IMI) is a multidimensional questionnaire (Deci, Eghrari, Patrick, & Leone, 1994) that was designed to assess the intrinsic motivation: interest/enjoyment, intention, value/usefulness, felt pressure and tension, perceived competence, and effort of its participants. This study used three subscales of the IMI to assess participants' interest/enjoyment (four items: with internal consistency represented by Cronbach's alpha $\alpha = .93$), pressure/tension (four items: Cronbach's alpha $\alpha = .70$), and intention (three items: Cronbach's alpha $\alpha = .94$); for interest/enjoyment items included statements such as *"...I enjoyed doing them very much... They didn't hold my attention at all."*, for pressure/tension items consisted statements like *"...I did not feel nervous while doing them... I felt pressured while doing them."*, and finally, for intention to repeat the game items had statements such as *"...I would be willing to do this again... I would like to do more exercises like these another time".*

In total, there were 11 items in the three subscales, and they were estimated on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree). All the items were in Turkish, and they were also adapted from Özdemir's study (2014) who already translated the items from English to Turkish (see Appendix B and G).

Manipulation test

A manipulation test was performed; in order to find out whether the participants indeed endorsed the goals for the specific reasons to which they were assigned. At the end of the game, participants were asked what their most important goal was while they were playing the game. There were two items for achievement goal that the participants adopted during the game. One of the items was to indicate mastery approach goals ("*To have a higher score in the second round than the previous one*"), and the other item was to indicate performance approach goals *("To achieve one of the highest scores among the test takers").* In order to find out the underlying reasons for endorsing a goal, participants were asked to answer a 4-item questionnaire; two of the items referred to autonomous reasons (Cronbach's alpha α = .72) and included statements such as "*I find this a personally valuable goal*"; two of the items referred to controlling reasons (Cronbach's alpha α = .40) and included statements such as "*I would feel bad, guilty or anxious if I didn't".* In this questionnaire they rated their reasons on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree). The manipulation test can be found in Appendix C and H.

Study 2

Participants

The participants of this study were 110 −both undergraduate and graduate− students from a private non-profit university; 66 of the participants were female; 44 of the

27

participants were male. The age of the participants ranged between 18 and 33; the mean age of the participants was 22.45 ($SD = 2.61$).

The participants were briefly informed about the study and voluntarily agreed to participate by signing a consent form. The students participated anonymously.

Instrumentation

In this study, it followed the same procedure and instruments as in Study 1 with the exception that no goal was induced to the participants. Following were the parts of the participants' task:

Content of the task

The purpose of the experiment was to investigate the relation of the endorsed achievement goal during a specific computerized game and the autonomous or controlling underlying reasons to students' intrinsic motivation. For that reason, a computerized tennis like game named "Pong" which was developed by Allan Alcorn in 1970s was modified. The modified version of Pong that was used for the cross-sectional study consisted of 10 screens in Pong including the consent form. The language of the Pong was Turkish. Participants had to read and agree the consent form in order to play the game (screen 1). After signing the consent form, the participants were asked to enter their ID numbers (screen 2) so that they can be awarded points for their class; if the participants did not need the points they were asked to enter a number randomly. The next page that the participants needed to fill out was the information page (screen 3) where they needed to declare their gender, age, department, and academic year. Afterwards, the participants were informed

about Pong (screen 4); this page consisted of information about the trial session and two rounds of the game. The information was given piece by piece so that participants cannot skip it without reading it. Thereafter, participants could start practicing Pong in their trial session (screen 5) as long as they want. After finishing the trial session, participants could play the first round of the game (screen 6). When they finished playing the first round (screen 7), they were shown their score from the first round. After playing the second round (screen 8), the participants were asked to complete an 11-item questionnaire on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree) (screen 9) in order to see their score from second round. Having completed the survey, the participants were shown their total scores and they were asked to identify their most important goal during the game by choosing one of the given two options; they were also asked to identify their reasons to attain that goal by rating their intentions by answering a 4 item questionnaire on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree) (screen 10). Afterwards, they faced a page where the researchers thanked them and gave them information if the participants would want to contact them. The screenshots of the Pong can be found in Appendix E and J.

The 'Pong' game

Similar to Study 1, the 'Pong' computerized game was administrated to the participants. After a trial session the students were asked to play the game in two sets. However, there were things that were different from the game that was administered for the first study. For the second study, participants were shown their real score after each set, and they were not assigned to any conditions.

Intrinsic motivation (dependent variable)

The three subscales of the Intrinsic Motivation Inventory (IMI; Deci, Eghrari,

Patrick, & Leone, 1994) was used to assess participants' interest/enjoyment (four

items: with internal consistency represented by Cronbach's alpha $\alpha = .82$),

pressure/tension (four items: Cronbach's alpha $\alpha = .56$), and intention (three items:

Cronbach's alpha $\alpha = .92$).

In total, there were 11 items in the three subscales, and they were estimated on a 5-

point Likert type scale from 1 (Totally disagree) to 5 (Totally agree). All the items

were in Turkish, and they were also adapted from Özdemir's study (2014) who

already translated the items from English to Turkish (see Appendix B and G).

Endorsed achievement goal and underlying reasons (predictors)

At the end of the game, participants were asked what their most important goal was

while they were playing the game. There were two items for achievement goal that

the participants adopted during the game. One of the items was to indicate mastery

approach goals ("*To have a higher score in the second round than the previous*

one"), and the other item was to indicate performance approach goals *("To achieve*

one of the highest scores among the test takers"). In order to find out the underlying

reasons for endorsing a goal, participants were asked to answer a 4-item

questionnaire; two of the items referred to autonomous reasons (Cronbach's alpha α

$= .70$) and included statements such as "*I find this a personally valuable goal*"; two

of the items referred to controlling reasons (Cronbach's alpha $\alpha = .54$) and included

statements such as "*I would feel bad, guilty or anxious if I didn't".* In this

questionnaire they rated their reasons on a 5-point Likert type scale from 1 (Totally disagree) to 5 (Totally agree). The predictors can be seen in Appendix C and H.

Data collection

For data collection, permission was granted from the ethical committee of the private non-profit university. The researcher contacted instructors from several departments of the university to conduct the experiment during their class time by taking students to the computer labs. The students of the instructors who agreed to give their class time for the experiment completed the experiment or the cross-sectional study in the computer labs while the researcher was present. Therefore, some of the participants completed the experiment or the cross-sectional study while the researcher was present in the computer labs with them, and some of the participants completed the experiment or the cross-sectional study using their own computers and in a place of their own choice. The participants who were undergraduate students and taking an orientation course were awarded 10 points for their participation. The participants who completed the experiment in the computer labs while the researcher was present were asked to read the instructions carefully before and during the experiment. At the beginning of the experiment –before the computerized game begins− participants were asked their ID numbers (to be awarded points that they need for their orientation class), age, department, and academic year.

Data analysis

The collected data was analyzed by using Statistical Package for the Social Sciences (SPSS). For two studies, the analysis had subsections of preliminary and main analyses.

For the first study, the preliminary analysis descriptive statistics and bivariate correlations represented: a Multivariate Analysis of Variance (MANOVA) was also performed to find if the gender differences affected the outcome. For the main analysis of the first study, a nonparametric 2-independent-sample test (Mann-Whitney U test) was conducted to explore if the conditions worked as they were induced autonomously or in a controlling way. A MANOVA was carried out to discover the effects of the conditions. Lastly, three hierarchical three-step regression analyses were conducted to see the effects of the endorsed goal and underlying reasons to the intrinsic motivation.

For the second study, the preliminary analysis descriptive statistics and bivariate correlations were reported: a MANOVA was also performed to find if the gender differences affected the outcome. For the main analysis of the second study three hierarchical three-step regression analyses were conducted to look for the relation of the endorsed goal and underlying reasons to the intrinsic motivation.

CHAPTER 4: RESULTS

Introduction

The present chapter represents the results of the experiment that was performed to find out (a) the effects of mastery-approach (MAp) goals and performance-approach (PAp) goals induced with both autonomous reasons and controlling reasons on students' intrinsic motivation, and (b) the relation of the endorsed MAp or PAp goals and their underlying autonomous or controlling reasons to students' intrinsic motivation.

The analysis of the data was divided into two studies. The first study contained two segments; in the preliminary analysis, descriptive statistics and bivariate correlations of the studied variables are provided. Additionally, to detect the gender differences between participants MANOVA (Multivariate Analysis of Variance) was used. In the main analysis a nonparametric 2-independent-sample test (Mann-Whitney U test) was performed to ascertain whether conditions worked in terms of autonomous and controlling inducing way. To find out about the effects of the conditions on the outcomes (interest, tension and intention), a MANOVA was performed with interest, tension and intention as the dependent variables (DVs) and the four experimental conditions as the independent variable (IV). Finally, in order to investigate about the effects of the endorsed goal and their underlying reasons to the outcomes (interest, tension and intention), three hierarchical three-step regression analyses were performed.

The second study included two segments as well; in the preliminary analysis, descriptive statistics and bivariate correlations of the studied variables are presented.

In addition, to determine the gender differences between participants MANOVA (Multivariate Analysis of Variance) was used. The main analysis of the second study consisted of three hierarchical three-step analyses to find out about the relation of the endorsed goal and their underlying reasons to the outcomes (interest, tension and intention), and interactions between endorsed goal and underlying reasons.

Study 1

Preliminary analysis

The preliminary analysis of the first study consisted of two sections: descriptive statistics and bivariate correlations. Descriptive statistics –means and standard deviations of the studied variables- are presented in Table 1.

Table 1
Descriptive statistics of studied variables (Study 1)

	N	*M*	*SD*
Intrinsic motivation			
1.Interest	66	3.20	1.11
2.Tension	66	2.88	0.84
3.Intention	66	3.19	1.17
Reasons underlying endorsed achievement goals			
5.Controlling	66	2.48	0.90
6. Autonomous	66	3.02	1.09

Note. N = Number of participants for corresponding variable; *M* = Mean; *SD* = Standard Deviation.

The bivariate correlations of the studied variables are presented in Table 2. Regarding to intrinsic motivation, intention and interest were significantly and positively correlated ($r = .74$, $p < .01$).

In respect of reasons underlying endorsed achievement goals, controlling reasons were significantly and positively correlated with tension ($r = .20$, $p < .01$). Therewithal, autonomous reasons were significantly and positively correlated with interest ($r = .58$, $p < .01$), and intention ($r = .54$, $p < .01$). Additionally, controlling reasons were negatively correlated with interest nevertheless there was no statistical significance between controlling reasons and interest ($r = -.08$, $p > .05$). There was also a negative correlation between autonomous reasons and tension although it was not statistically significant ($r = -.03$, $p > .05$).

In order to investigate whether gender played a role on dependent variables, a MANOVA analysis was performed. The results did not indicate any statistical significance.

Table 2
Bivariate correlations of the studied variables (Study 1)

Variables	1	2	3	4	5
<u>Intrinsic motivation</u>					
1. Interest	-				
2. Tension	.01	-			
3. Intention	.74**	.13	-		
<u>Reasons underlying endorsed achievement goals</u>					
4. Controlling	-.08	.20**	.03	-	
5. Autonomous	.58**	-.03	.54**	.14	-

Note. * $p < .05$. ** $p < .01$

Main analysis

As it was mentioned in Chapter 3, the participants of this study were assigned to four

conditions randomly. An analysis was conducted to find out whether the participants

really endorsed the achievement goals (AGs) and underlying reasons as they were

asked to. The results of the analysis are presented in Table 3.

Table 3
Distribution of the endorsed goal and underlying reasons in the experimental
conditions (Study 1)

		Conditions			
		MAp aut	MAp cntr	PAp aut	PAp cntr
Endorsed goal	MAp	13	13	11	7
	PAp	3	3	6	10
	Total	16	16	17	17

In Table 3 it is indicated that 13 participants of the Mastery-approach (MAp) autonomous condition endorsed MAp goal in the game, 13 participants of the MAp controlling condition endorsed MAp goal, 6 participants of the Performance-approach (PAp) autonomous condition endorsed PAp goal, and 10 participants of the PAp controlling condition endorsed PAp goal as their main goal. There were 24 participants who did not endorse their given goal; these 24 participants were excluded from the further analysis.

A nonparametric test was carried out to ascertain whether conditions worked in terms of autonomous and controlling inducing way. Because the number of participants in each condition was few, a nonparametric 2-independent-sample test (Mann-Whitney U test) was performed. The nonparametric test was marginally statistically significant for the controlling reasons underlying the endorsed achievement goal ($U = 132.50$, $p = .027$). Those that participated in a controlling condition, they had higher ranking in their controlling reasons underlying the endorsed goal score compared to those participated in an autonomous condition (*Mean Rank* = 25.24 vs. *Mean Rank* = 16.97).

This finding was an indication that the conditions worked for the underlying reasons. The next step was to investigate to what extent (a) the conditions (i.e., the induced goal and reasons) or (b) the endorsed goal and underlying reasons were related to the

three indicators of intrinsic motivation, namely: interest of the game, tension during the game, and intention to repeat the game.

To check about the effects of the conditions on the outcomes (interest, tension and intention), a MANOVA was performed with interest, tension and intention as the dependent variables (DVs) and the four experimental conditions as the independent variable (IV). The MANOVA was not significant (*Wilks' Λ* = .716, $F[3,36] = 1.44$, p = .19 ns) showing that there were not significant differences in the three outcomes among the four conditions. This depicted that the conditions did not affect students' intrinsic motivation.

To check about the effects of the endorsed goal and their underlying reasons to the outcomes (interest, tension and intention), three hierarchical three-step regression analyses were performed.

In the first hierarchical three-step regression, interest was regressed on the endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2) and interactions between endorsed goal and underlying reasons (Step 3). Step 3 was not statistically significant; therefore analysis continued with two-step regression. The model of Step 2 was statistically significant ($F[3, 41] = 6.79$, $p < .01$, adjusted $R^2 = .30$). The results are shown in Table 4. As it can be noticed there, autonomous reasons underlying the endorsed goals were positively and significantly related to interest in the game. It is worthy to note also that controlling reasons underlying the endorsed goals were negatively related to interest but with a marginal significance ($\beta = -.26$, $p = .056$).

This result meant that students who endorsed their achievement goal during the game for autonomous reasons, reported higher interest in the game.

Table 4
The hierarchical two-step regression model for interest (Study 1)

Predictors	Interest					
	Step 1			Step 2		
	B	*SE*	B	*B*	*SE*	B
1. Goal	-0.30	(0.36)	-.13	-0.15	(0.32)	-.7
2. Autonomous	-	-	-	0.57	(0.14)	.54**
3. Controlling	-	-	-	-0.32	(0.17)	-.26
F change (2, 38)					9.68**	

Note. * $p < .05$. ** $p < .01$

In the second hierarchical three-step regression, tension was regressed on the endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2) and interactions between endorsed goal and underlying reasons (Step 3). None of the steps were statistically significant.

In the third hierarchical three-step regression, intention was regressed on the endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2) and interactions between endorsed goal and underlying reasons (Step 3). Again, Step 3 was not statistically significant; thus two-step regression was performed. The model of Step 2 was statistically significant ($F[3.41] = 3.86$, $p < .01$, adjusted $R^2 = .17$). The results are shown in Table 5. As it can be seen there, autonomous reasons underlying the endorsed goals were positively and significantly related to intention to repeat the

game. None significant interactions between endorsed goals and underlying reasons were found in the prediction of intention to repeat the game. This finding suggested that students who endorsed their achievement goal during the game for autonomous reasons, reported higher intention to repeat the game.

Table 5
The hierarchical two-step regression model for intention (Study 1)

Predictors	Intention					
	Step 1			Step 2		
	B	*SE*	B	*B*	*SE*	B
1. Goal	-0.66	(0.39)	-.26	-0.51	(0.38)	-.20
2. Autonomous	-	-	-	0.46	(0.17)	.40**
3. Controlling	-	-	-	-0.19	(0.20)	-.14
F change (2, 38)					4.11**	

Note. * $p < .05$. ** $p < .01$

Study 2

Preliminary analysis

The preliminary analysis of the second study consisted of two subdivisions: descriptive statistics and bivariate correlations. Descriptive statistics –means and standard deviations of the studied variables- are presented in Table 6.

Table 6

Descriptive statistics of studied variables (Study 2)

	N	M	SD
Intrinsic motivation			
1.Interest	110	3.24	0.89
2.Tension	110	2.54	0.82
3.Intention	110	3.03	1.18
Reasons underlying endorsed achievement goals			
5.Controlling	110	2.22	0.95
6. Autonomous	110	3.90	1.12

Note. N = Number of participants for corresponding variable; M = Mean; SD = Standard Deviation.

The bivariate correlations of the studied variables are presented in Table 7. In regards to intrinsic motivation, intention and interest were significantly and positively correlated (r = .66, p < .01).

Regarding to reasons underlying endorsed achievement goals, controlling reasons were significantly and positively correlated with tension *(r = .24, p <.05)*. In addition, autonomous reasons were significantly and positively correlated with interest (r = .31, p < .01), intention (r = .45, p <.01), and controlling reasons (r = .26, p <.01). Additionally, controlling reasons were negatively correlated with interest nevertheless there was no statistical significance between controlling reasons and interest (r = -.02, p >.05). There was also a negative correlation between autonomous reasons and tension although it was not statistically significant (r = -.10, p > .05).

A MANOVA analysis was performed to find out whether gender played a role on dependent variables. The results did not indicate any statistical significance.

Table 7
Bivariate correlations of the studied variables (Study 2)

Variables	1	2	3	4	5
Intrinsic motivation					
1. Interest	-				
2. Tension	-.10	-			
3. Intention	.66**	-.00	-		
Reasons underlying endorsed achievement goals					
4. Controlling	-.02	.24*	.03	-	
5. Autonomous	.31**	-.09	.45**	.26**	-

Note. * $p < .05$. ** $p < .01$

Main analysis

To disclose about the relation of the endorsed goal and their underlying reasons to the outcomes (interest, tension and intention), and the interactions between endorsed goal and underlying reasons three hierarchical three-step regression analyses were performed.

In the first hierarchical three-step regression, interest was regressed on the endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2), and interactions between endorsed goal and underlying reasons (Step 3). The models of Step 2 ($F[3.109] = 4.357$, $p < .01$, adjusted $R^2 = .09$) and Step 3 ($F[4.109] = 4.335$, $p < .05$, adjusted $R^2 = .11$) were statistically significant. The results are shown in Table 8. For Step 2, it can be understood that autonomous reasons underlying the endorsed goals were positively and significantly related to interest in the game. This result suggested that students who promoted their achievement goal during the game for autonomous

reasons, reported higher interest in the game. For Step 3, the interactions between endorsed goal and autonomous reasons were positively and significantly related to interest in the game Given that the endorsed goal had been coded with 0 for the PAp goal and 1 for the MAp goal, this finding indicated that participants who promoted MAp goal out of autonomous reasons reported higher interest in the game.

Table 8

The hierarchical three-step regression model for interest (Study 2)

Predictors	Interest								
	Step 1			Step 2			Step 3		
	B	*SE*	B	*B*	*SE*	B	*B*	*SE*	B
1. Goal	-0.07	(0.18)	-.4	-0.07	(0.18)	-.4	-0.06	(0.17)	-.3
2. Autonomous	-	-	-	0.27	(0.08)	.34**	-0.18	(0.24)	-.23
3. Controlling	-	-	-	-0.11	(0.09)	-.11	-0.09	(0.09)	-.10
4. AutonomousXgoal	-	-	-	-	-	-	0.29	(0.15)	.59*
F change (2.106)				6.448**					
F change (1.105)							3.912*		

Note. * $p < .05$. ** $p < .01$

In the second hierarchical three-step regression, tension was regressed on the

endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2), and

interactions between endorsed goal and underlying reasons (Step 3). Step 3 was not

statistically significant; therefore two-step regression was carried out. The model of

Step 2 was statistically significant (F[3.109] =3.337, $p < .01$, adjusted $R^2 = .06$). The

results are shown in Table 9. As it is indicated there, controlling reasons underlying

the endorsed goals were positively and significantly related to tension during playing

the game. This result was an indicative of students who endorsed their achievement

goal during the game for controlling reasons, reported higher tension when they were

playing the game.

Table 9
The hierarchical two-step regression model for tension (Study 2)

Predictors	Tension					
	Step 1			Step 2		
	B	*SE*	B	*B*	*SE*	B
1. Goal	-0.15	(0.17)	-.09	-0.13	(0.16)	-.8
2. Autonomous	-	-	-	-0.12	(0.07)	-.16
3. Controlling	-	-	-	0.24	(0.08)	.28**
F change (2, 106)				4.562**		

Note. * $p < .05$. ** $p < .01$

In the third hierarchical three-step regression, intention was regressed on the

endorsed goal (Step 1), and the reasons underlying the endorsed goal (Step 2), and

interactions between endorsed goal and underlying reasons (Step 3). Step 3 was not

statistically significant; therefore two-step regression was carried out. The model of
Step 2 was statistically significant ($F[3.109] =9.413$, $p < .01$, adjusted $R^2 = .19$). The
results are shown in Table 10. As it is indicated there, autonomous reasons
underlying the endorsed goals were positively and significantly related to intention to
repeat the game. This result depicted that students who endorsed their achievement
goal during the game for autonomous reasons, reported higher intention to repeat the
game.

Table 10
The hierarchical two-step regression model for intention (Study 2)

Predictors	Intention					
	Step 1			Step 2		
	B	*SE*	B	*B*	*SE*	B
1. Goal	-0.00	(0.24)	-.00	0.01	(0.22)	.1
2. Autonomous	-	-	-	0.50	(0.10)	.47**
3. Controlling	-	-	-	-0.12	(0.11)	-.10
F change (2, 106)					14.119**	

Note. * $p < .05$. ** $p < .01$

CHAPTER 5: DISCUSSIONS

Introduction

This chapter aims to discuss the findings of the present study. In this chapter, an overview of the study which will include the method of data collection, instruments that were used, and information about the participants will be presented; it will be followed by major findings and discussions of the results. The chapter will continue with implications for education, and suggestions for further research. Lastly, limitations of this study will be predicated.

Overview of the study

The aim of the present study was to find answers to the following research questions:

- Does the promotion of MAp or PAp goals in an autonomous or controlling way during an activity lead the students to endorse the promoting goal for autonomous or controlling reasons respectively?

- What is the effect of the induction of MAp or PAp goals in autonomous or controlling way on students' intrinsic motivation?

- What is the relation of the endorsed MAp or PAp goals and underlying autonomous or controlling reasons to students' intrinsic motivation?

The present study used an experimental design with the participation of 176 students from several departments (from social science departments to science/engineering departments). As part of the experiment, students were asked to play a specific

computerized game. In the first study, 66 students were assigned to four conditions

(MAp x aut, MAp x cntr, PAp x aut, PAp x cntr) randomly as they were informed

about their condition at the beginning of the trial session of the game. After the

experiment, a manipulation test was performed; to find out if the participants

endorsed the goals for the specific reasons that they were designated to. In the

manipulation test, there were two items from the 3x2 Achievement Goal

Questionnaire (Elliot, Murayama, & Pekrun, 2011) that were used in the assessment

of students' endorsed achievement goals, and there were four items from

Vansteenkiste, Mouratidis, and Lens' (2010) study that were used in the assessment

of students' underlying reasons for endorsing a goal; for the assessment of students'

intrinsic motivation, a three subscale questionnaire from the Intrinsic Motivation

Inventory (Deci et al., 1994) was used. The manipulation test demonstrated that the

conditions only worked for 42 students. Thus, analysis of the data was carried out

with only 42 students. In the second study, 110 students were not suggested or

induced to follow any goals or underlying reasons.

Major findings and discussions

Below are the findings and discussions for each research question of this study:

Research question #1: *Does the promotion of MAp or PAp goals in an autonomous*

or controlling way during an activity lead the students to endorse the promoting goal

for autonomous or controlling reasons respectively (Study 1)?

The analysis of the data for 66 students exhibited that only 42 of the students

endorsed during the game the promoted MAp or PAp goals as they were asked to do

so. Out of 42 students, 19 of them endorsed autonomous reasons as their underlying

reason, and 23 of them supported controlling reasons as their underlying reason. The results showed that students who participated in a controlling condition achieved higher scores in the controlling reasons underlying the endorsed goal than students who participated in an autonomous condition. It can be understood that the controlling induction worked for the participants and made them to score higher in controlling reasons underlying their endorsed goal.

These results suggest that it is possible to induce specific goals to students for specific underlying reasons. However this was not the case for all the participants, probably because most of the participants played the game at a place of their own choice which could be their houses, this indicates that students may not pay attention to their task. On the other hand, in the game, the goals and underlying reasons were promoted through short passages which may not be the most effective way of promoting the goal and the underlying reasons. In real life settings, for example for teachers, there are several other ways to induce a goal. These other practices of promoting a goal and underlying reasons may be more effective.

Research question #2: *What is the effect of the induction of MAp or PAp goals in autonomous or controlling way on students' intrinsic motivation (Study 1)?*

The results for 42 students showed that there were no significant effects of the induction of MAp or PAp goals in autonomous or controlling way on students' intrinsic motivation. Their induced goal and underlying reasons did not relate to their intrinsic motivation.

It is likely that the small sample size of the study affected notable outcomes; a bigger sample size could have given a different result. Moreover, inducing MAp or PAp

goals in autonomous or controlling way through short passages for a very short period of time (the students were able to read their condition only one time, and they were hinted their condition very briefly once more) might affect the results.

Research question #3: *What is the relation of the endorsed MAp or PAp goals and their underlying autonomous or controlling reasons to students' intrinsic motivation (Study 2)?*

The results demonstrated that reasons behind the endorsed goal are important for students' educational outcomes. Autonomous reasons appeared to be very important for students' intrinsic motivation; this suggested that when the students endorsed their goal out of autonomous reasons, they found the task challenging and enjoyed it. Also, controlling reasons predicted tension. Both autonomous reasons and controlling reasons seemed to be very substantial for the outcomes. Regarding to goal, the role it plays was not certain, since there was only one significant interaction between MAp goal with autonomous reasons. The goal was mainly not a positive predictor of intrinsic motivation; but underlying reasons seemed to be very substantial for intrinsic motivation. These findings are in line with previous studies in this area of research. In 2012, research findings of Gaudreau revealed that MAP goals with high levels of self-concordance predicted academic interest/satisfaction, and performance. Gaudreau (2012) also represented that both MAp and PAp goals were related with lower anxiety and high academic satisfaction when these goals are promoted with self-concordant reasons. Gillet et al. (2012) unfolded that when PAp goals are endorsed out of autonomous reasons they are positively related to need for satisfaction; when PAp goals are endorsed out of controlling reasons, they are negatively related with need for satisfaction. Gillet et al. (2012) suggested that the

outcomes of PAp goals are dependent on the reasons to pursue them. As Benita, Roth, and Deci (2013) depicted when mastery goals are promoted in an autonomy-supportive context students are more prone to find the task interesting, enjoy themselves and feel less tension during the task. Michou et al. (2014) indicated that when MAp, PAp, and PAv goals are supported with autonomous reasons, they predicted need for achievement and efficient learning methods; on the other hand, when these goals are supported with controlling reasons, they predicted fear of failure. A very recent study that was conducted by Özdemir, Lane, and Michou (2015) elicited autonomous reasons behind achievement goals are positively related to adaptive outcomes and irrespective of the endorsed achievement goal, intrinsic motivation was predicted by underlying reasons.

To recur, the result suggested that underlying reasons behind MAp and PAp goals are very important for the outcomes. Autonomous reasons and controlling reasons behind MAp or PAp goals predicted intrinsic motivation (i.e. interest, tension, intention).

Implications for education

The results of the present study may implicate substantial suggestions for instruction, curriculum design, teachers' training programs and teachers' professional development. Both studies indicated that autonomous reasons and intrinsic motivation (interest and intention) were significantly correlated. It can be argued that this result was an indication of integrating an autonomous support system into educational settings such as classrooms. Therefore, teachers need to be educated accordingly or taken classes in line with autonomous support system. When educators and professionals who work in educational domain are trained with the

knowledge of using a wording that will give students a sense of choice (autonomy), sense of relatedness, and sense of competence may help students to enhance their intrinsic motivation towards a specific class or a task (Deci et al., 1991). As Reeve (2006) and Jang, Deci, and Reeve (2010) suggested nurturing students' inner motivational resources (e.g. offering preferences, avoiding sanctions), using a noncontrolling language (i.e. not pressuring or pushing), and recognizing students' point view and emotions are more likely to lead a good quality teacher-student relationship.

Concurrently, the results for controlling reasons illustrated that controlling reasons and intrinsic motivation (tension) was also significantly but negatively correlated (albeit in the second study there was a marginal significance between controlling reasons and tension). This result may indicate that usage of controlling wording or controlling systems in educational settings can entail students' frustration towards a particular class or a task; therefore it may be suggested to limit the usage of such wording or system in educational settings.

Implications for further research

One implication for further research that the present study has is repeating the experiment with a bigger sample size. Conducting this type of experiment with a bigger sample size may change the results of it, as it was a limitation of this study. Moreover, some of the participants participated in the experiment or the cross-sectional study with the expectation of an award (10 points were awarded to the participants who were undergraduate students and taking an orientation class). This may affect the results of the study. Therefore, such practices should be avoided.

Another implication for further research can be constructing an experiment that will allow students/participants to read the conditions for a longer period of time. In this study, the students were shown the conditions once and reminded of their condition with a hint but for a short period of time. In order to make sure that the participants of an experiment understand their condition, it would be a better idea to expose them to the conditions longer. Another implication for further research can be conducting this kind of experiment with inducing other achievement goals, and see if the results vary with different type of achievement goals. The last implication for further research is to run the experiment under consistent conditions for all the participants. The presence of a researcher or not may affect the results. For this study, the instructors from several departments were not willing to give their class time to the researcher. Thus, some of the participants completed the task at a place of their own choice without any researchers present.

Limitations

The experiment that was conducted for this study was applied online; most of the participants played the game in their own computers and in a place of their choice (such as their houses). This was the first limitation of this study which meant that the experiment took place in a non-classroom environment. It is not certain that the results of this experiment can be replicated in real classroom events.

The second limitation of this study was its sample size. Especially, in the first study the valid number of the participants was 42 which is a very small number in terms of statistics. The results may not be pertinent for bigger sample sizes.

A third important limitation of these studies was the low Cronbach's alpha in controlling reasons underlying the endorsed goal in both studies as well as the low Cronbach's alpha for tension in Study 2.

The fourth limitation of this study was that the undergraduate students were promised to be awarded points for their orientation class in exchange for their participation to the study. This might have affected the results of the study.

Another limitation of this study was that the participants were undergraduate and graduate students in a private non-profit university in Ankara, Turkey, and this did not ensure the generalizability of the results to other age groups or socioeconomic, cultural and educational environments. When age range, location and cultural context changed, the results may not be consistent with this study.

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APPENDICES

APPENDIX A: Experimental Conditions in English

	Mastery Approach Goal	Performance Approach Goal
	Task's instruction: This is a tennis-like game called pong that requires attention, coordination, and effort regulation skills. At first, you will have the chance to practice and then you will perform two rounds of the game. After each round your score will be displayed.	**Task's instruction**: This is a tennis-like game called pong that requires attention, coordination, and effort regulation skills. At first, you will have the chance to practice and then you will perform two rounds of the game. After each round your score will be displayed.
Autonomy supportive induction of the achievement goal and provision of autonomous reasons	**Condition**: The aim here is for you to try to improve yourself in the second round by achieving a higher score. We know it might not be very easy, but if you are able to improve your score from trial to trial, it will help to clarify whether the task can serve as a flexible measure of the cognitive process we are investigating. So, see if you can improve yourself.	**Condition**: The aim here is for you to try to achieve a score that will be among the top 10% of the test takers' scores. We know it might not be very easy, but if you are able to do it, it will help to clarify whether the task can serve as a flexible measure of the cognitive process we are investigating. So, see if you can achieve one of the highest score.
	Hint: Even though it might not be very easy, try to do better next round and feel the joy of self-improvement.	Hint: Even though it might not be very easy, try to attain one of the highest scores and feel the joy of outperforming others.

Controlling induction of the achievement goal and provision of controlling reasons.	**Task's instruction**: This is a tennis-like game called pong that requires attention, coordination, and effort regulation skills. At first, we will give you the chance to practice and then we will ask you to perform two rounds of the game. We will inform you about your score after each round. **Condition**: What you should do here is to improve yourself as you move from the first round to the next one. We expect from you to achieve a higher score in the second round compared to the first one. Your participation in the task will be valuable to us only to the extent that you can show clear improvement from trial to trial. Thus, to be helpful, you have to improve. Hint: We expect from you to do better next round in order for your participation to be valuable to us.	**Task's instruction**: This is a tennis-like game called pong that requires attention, coordination, and effort regulation skills. At first, we will give you the chance to practice and then we will ask you to perform two rounds of the game. We will inform you about your score after each round. **Condition**: What you should do here is to achieve a score that will be among the top 10% of the test takers' scores. We expect from you to make it and thus be among the highest scorer. Your participation in the task will be valuable to us only to the extent that you can attain one of the highest scores. Thus, to be helpful, you have to make it. Hint: We expect from you to attain one of the highest score in order for your participation to be valuable to us.

APPENDIX B: Intrinsic Motivation Inventory (IMI) in English

Concerning this exercise…	Totally disagree	Disagree	Neither agree nor disagree	Agree	Totally agree
I enjoyed doing them very much					
They were fun to do					
I thought they were boring					
They didn't hold my attention at all					
I did not feel nervous while doing them					
I felt very tense while doing them					
I was very relaxed while doing them					
I felt pressured while doing them					
I would be willing to do this again					
I would like to do more exercises like these another time					
I'd like to do some more exercises like these in my spare time					

APPENDIX C: Manipulation Test in English

Which of the two goals mentioned below was **most** important to you during the exercise? Please select your uppermost goal:

1. To achieve one of the highest scores among the test takers
2. To have a higher score in the second round than the previous one

I wanted to achieve this goal because…	Totally disagree	Disagree	Neither agree nor disagree	Agree	Totally agree
I have to comply with the demands of the researcher					
I would feel bad, guilty or anxious if I didn't					
I find this a personally valuable goal					
I find this a highly stimulating and challenging goal					

APPENDIX D: Consent Form in English

In order to start the game you need to enter your ID so as to be possible for us to identify that you are a student so that you can be awarded 10 points for your GE 251 class. Your student number will not be associated with this research's report in any way. Information regarding to your participation will be kept confidential.

Participation in this research is voluntary and participants' right to leave the experiment is preserved. In case of leaving the experiment without completing it, the information will be deleted and point will not be awarded.

I agree

APPENDIX E: Screenshots of the Game 'Pong' in English

Screen 1: Consent form

Bu çalışmadaki katılımınız tenise benzer bir oyun olan "Pong" oynamaktır. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Oyunun tamamlanması ve oyun sırasındaki deneyimlerinizle ilgili birkaç sorunun yanıtlanması yaklaşık 15 dakika sürmektedir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz.

Oyuna başlayabilmeniz için öğrenci numaranızı girmeniz gerekmektedir, bu sayede GE 250 ve GE 251 derslerinden 10 puan alabileceksiniz. In order to start the game you have to enter your ID so as to be possible for us to identify that you are a Bilkent student. Oyuna başlamak için öğrenci numaranızı girmeniz gerekmektedir, bu sayede Bilkent öğrencisi olduğunuzu tespit edebileceğiz. Öğrenci numaranız, araştırmanın yazılı raporuyla herhangi bir şekilde ilişkilendirilmeyecektir. Katılımınızla ilgili her türlü bilgi gizli tutulacaktır.

Katılımınız isteğe bağlıdır ve istediğiniz zaman çalışmadan çıkma hakkına sahipsiniz. Çalışmadan çıkma durumunuzda, katılımınız silinecek ve puan almayacaksınız.

Katılıyorum

Screen 2: Student ID number

Öğrenci Numarası:

Submit

Screen 2: Descriptive variables

Cinsiyet: ●Erkek ●Kadın

Yaş:

Bölüm:

Eğitim yılı:

Continue

Screen 4: Information about the game & condition (for Study 1 only)

Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz.

Bu oyunda yapmanız gereken, en yüksek puanlar arasında ilk %10luk kısımda yer almak. Sizden bunu yapmanızı bekliyoruz, böylece en yüksek puanlar arasında olabileceksiniz. Eğer en yüksek puanlar arasına girebilirseniz, katılımınız bizim için değerli olacaktır. Bu yüzden yardımcı olmak istiyorsanız, başarmalısınız.

Devam et

Screen 5: Trial session

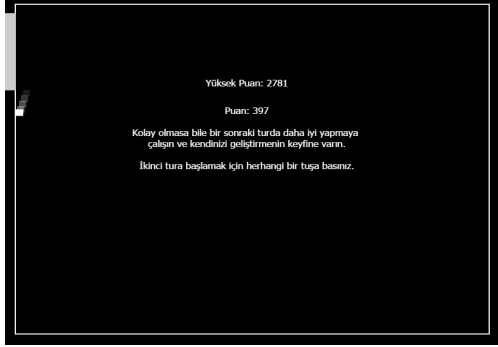
Alıştırma yapmayı bitirmek için herhangi bir tuşa basınız.
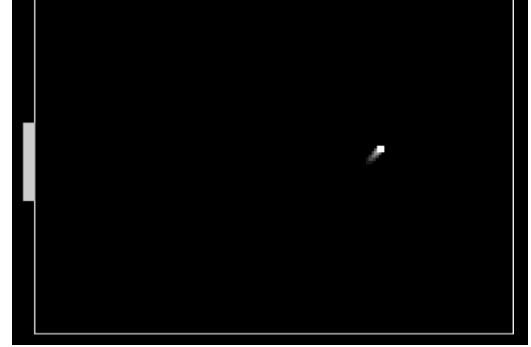
Screen 6: First round of the

Screen 7: First round score &

Hint of the condition (for Study 1only)

Screen 8: Second round of the game

Screen 9: IMI questionnaire

Bu problem çözme aktivitesine dair...	Kesinlikle Katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
Yaparken çok zevk aldım	●	●	●	●	●
Bunları yapmak eğlenceliydi	●	●	●	●	●
Bence sıkıcıydılar	●	●	●	●	●
Genel olarak dikkatimi çekmedi	●	●	●	●	●
Alıştırmaları yaparken kendimi gergin hissetmedim	●	●	●	●	●
Onları yaparken çok gergin hissettim	●	●	●	●	●
Onları yaparken çok rahatlamış hissettim	●	●	●	●	●
Onları yaparken üzerimde baskı hissettim	●	●	●	●	●
Bu alıştırmaları tekrar çözmek için istekli olurdum	●	●	●	●	●
Başka bir zaman bunun gibi daha fazla alıştırma yapmak isterdim	●	●	●	●	●
Boş zamanlarımda bunun gibi daha fazla alıştırma yapmak isterim	●	●	●	●	●

Screen 10: AGs questionnaire

Aşağıda belirtilen 2 amaçtan hangisi sizin için daha önemliydi? Lütfen birinci amacınızı yuvarlak içine alınız:

● Teste katılanlar arasında en yüksek puanlardan birini yapmak.
● İkinci turda bir öncekinden daha yüksek puan yapmak.

Bu amaca ulaşmak istedim çünkü...	Kesinlikle Katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
Araştırmacıların isteklerine uymak zorundayım	●	●	●	●	●
Yapamazsam kötü, suçlu ya da endişeli hissederim	●	●	●	●	●
Bunu kişisel değerli bir amaç olarak buluyorum	●	●	●	●	●
Bunu ilgi çekici ve zorlayıcı bir hedef olarak buluyorum	●	●	●	●	●

Gönder

APPENDIX F: Experimental Conditions in Turkish

	Ustalık Yaklaşım Hedefi	Performans Yaklaşım Hedefi
Başarı hedefinin otonomi destekleyici teşviki ve otonom sebeplerin karşılanması	**Görev talimatları:** Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve gayret kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz. **Durum:** Bu oyundaki amacınız kendinizi geliştirmeye çalışarak, ikinci turda daha fazla puan elde etmektir. Kolay olmayacağını biliyoruz, ama eğer ikinci denemede puanınızı artırabilirseniz; bu durum, oyunun araştırdığımız bilişsel işlem için uygun bir ölçüm aracı olduğunu netleştirmeye yardımcı olacak. O zaman, geçen seferkinden daha iyi yapabilecek misiniz görelim.	**Görev Talimatları:** Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz. **Durum:** Bu oyundaki amacınız, katılımcıların yaptığı en yüksek skorlar arasında ilk %10luk kesimde olmak. Kolay olmayacağını biliyoruz, ama eğer ikinci denemede puanınızı artırabilirseniz; bu durum, oyunun araştırdığımız bilişsel işlem için uygun bir ölçüm aracı olduğunu netleştirmeye yardımcı olacak. O zaman, en yüksek puanlardan birini elde edebilecek misiniz görelim.

	İpucu: Kolay olmasa bile bir sonraki turda daha iyi yapmaya çalışın ve kendinizi geliştirmenin keyfine varın.	İpucu: Kolay olmasa bile en yüksek puanlar arasına girmeye çalışın ve başkalarını geçmenin keyfine varın.
Başarı hedefinin kontrolcü teşviki ve kontrolcü sebeplerin karşılanması	**Görev talimatları:** Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz. **Durum:** Bu oyunda yapmanız gereken, bir turdan diğerine geçerken kendinizi geliştirmeniz. Sizden ikinci turda, birinciye göre daha fazla puan almanızı bekliyoruz. Eğer her turda açık bir gelişme kaydedebilirseniz, katılımınız bizim için değerli olacaktır. Bu yüzden yardımcı olmak istiyorsanız, kendinizi geliştirmelisiniz. İpucu: Katılımınızın bizim için değerli olması için bir sonraki turda daha iyi yapmanızı bekliyoruz.	**Görev talimatları:** Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz. **Durum:** Bu oyunda yapmanız gereken, en yüksek puanlar arasında ilk %10luk kısımda yer almak. Sizden bunu yapmanızı bekliyoruz, böylece en yüksek puanlar arasında olabileceksiniz. Eğer en yüksek puanlar arasına girebilirseniz, katılımınız bizim için değerli olacaktır. Bu yüzden yardımcı olmak istiyorsanız, başarmalısınız. İpucu: Katılımınızın bizim için değerli olması için en yüksek puanlardan birini yapmanızı bekliyoruz.

APPENDIX G: Intrinsic Motivation Inventory (IMI) in Turkish

Bu problem çözme aktivitesine dair..	Kesinlikle Katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
1.Yaparken çok zevk aldım					
2.Bunları yapmak eğlenceliydi					
3.Bence sıkıcıydılar					
4.Genel olarak dikkatimi çekmedi					
5.Alıştırmaları yaparken kendimi gergin hissetmedim					
6.Onları yaparken çok gergin hissettim.					
7.Onları yaparken çok rahatlamış hissettim.					
8.Onları yaparken üzerimde baskı hissettim.					
9.Bu alıştırmaları tekrar çözmek için istekli olurdum					
10.Başka bir zaman bunun gibi daha fazla alıştırma yapmak isterdim.					
11.Boş zamanlarımda bunun gibi daha fazla alıştırma yapmak isterim.					

APPENDIX H: Manipulation Test in Turkish

Aşağıda belirtilen 2 amaçtan hangisi sizin için daha önemliydi? Lütfen birinci amacınızı yuvarlak içine alınız:

1.	Teste katılanlar arasında en yüksek puanlardan birini yapmak.
2.	İkinci turda bir öncekinden daha yüksek puan yapmak.

Şimdi **neden** bu amacı başarmak istediğinizi düşünün ve aşağıdaki soruları cevaplandırınız.

Bu amaca ulaşmak istedim çünkü…	Kesinlikle Katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
Araştırmacıların isteklerine uymak zorundayım					
Yapamazsam kötü, suçlu ya da endişeli hissederim.					
Bunu kişisel değerli bir amaç olarak buluyorum.					
Bunu ilgi çekici ve zorlayıcı bir hedef olarak buluyorum.					

APPENDIX I: Consent Form in Turkish

Oyuna başlayabilmeniz için öğrenci numaranızı girmeniz gerekmektedir, bu sayede bu sayede öğrenci olduğunuzu tespit edebileceğiz ve GE 251 dersinden 10 puan alabileceksiniz. Öğrenci numaranız, araştırmanın yazılı raporuyla herhangi bir şekilde ilişkilendirilmeyecektir. Katılımınızla ilgili her türlü bilgi gizli tutulacaktır.

Katılımınız isteğe bağlıdır ve istediğiniz zaman çalışmadan çıkma hakkına sahipsiniz. Çalışmadan çıkma durumunuzda, katılımınız silinecek ve puan almayacaksınız.

Katılıyorum

APPENDIX J: Screenshots of the Game 'Pong' in Turkish

Ekran 1: Onay formu

Bu çalışmadaki katılımınız tenise benzer bir oyun olan "Pong" oynamaktır. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Oyunun tamamlanması ve oyun sırasındaki deneyimlerinizle ilgili birkaç sorunun yanıtlanması yaklaşık 15 dakika sürmektedir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz.

Oyuna başlayabilmeniz için öğrenci numaranızı girmeniz gerekmektedir, bu sayede GE 250 ve GE 251 derslerinden 10 puan alabileceksiniz. In order to start the game you have to enter your ID so as to be possible for us to identify that you are a Bilkent student. Oyuna başlamak için öğrenci numaranızı girmeniz gerekmektedir, bu sayede Bilkent öğrencisi olduğunuzu tespit edebileceğiz. Öğrenci numaranız, araştırmanın yazılı raporuyla herhangi bir şekilde ilişkilendirilmeyecektir. Katılımınızla ilgili her türlü bilgi gizli tutulacaktır.

Katılımınız isteğe bağlıdır ve istediğiniz zaman çalışmadan çıkma hakkına sahipsiniz. Çalışmadan çıkma durumunuzda, katılımınız silinecek ve puan almayacaksınız.

Katılıyorum

Ekran 2: Öğrenci numarası

Öğrenci Numarası:

[   ] Submit

Ekran 3: Tanımlayıcı değişkenler

Cinsiyet: ● Erkek ● Kadın
Yaş:
Bölüm:
Eğitim yılı:
Continue

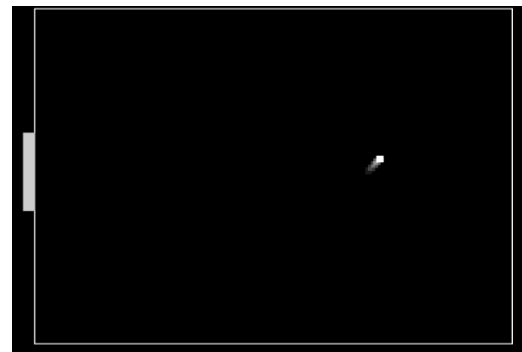Ekran 4: Oyun hakkında bilgi & durum (sadece Çalışma 1 için)

Oynayacağınız oyun Pong isimli tenise benzer bir oyundur. Pong; ilgi, koordinasyon ve efor kontrolü gerektirir. Başta pratik yapmanız için size zaman tanınacak, sonra iki turluk bir oyunda kendinizi göstereceksiniz. Her turun sonunda puanınızı görebileceksiniz.

Bu oyunda yapmanız gereken, en yüksek puanlar arasında ilk %10luk kısımda yer almak. Sizden bunu yapmanızı bekliyoruz, böylece en yüksek puanlar arasında olabileceksiniz. Eğer en yüksek puanlar arasına girebilirseniz, katılımınız bizim için değerli olacaktır. Bu yüzden yardımcı olmak istiyorsanız, başarmalısınız.
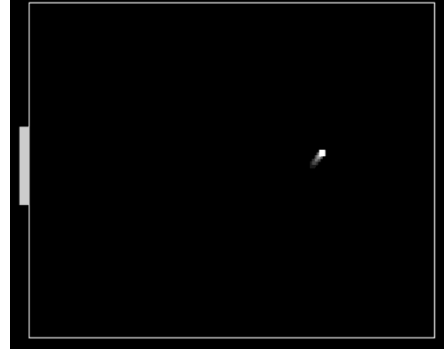
Devam et

Ekran 5: Deneme turu

Alıştırma yapmayı bitirmek için herhangi bir tuşa basınız.

Ekran 6: Birinci tur

Ekran 7: Birinci tur puanı & durumun ima edilmesi (sadece Çalışma 1 için)

Yüksek Puan: 2781

Puan: 397

Kolay olmasa bile bir sonraki turda daha iyi yapmaya
çalışın ve kendinizi geliştirmenin keyfine varın.

İkinci tura başlamak için herhangi bir tuşa basınız.

Ekran 8: İkinci tur

Ekran 9: IMI anketi altında

Bu problemi çözme aktivitesine dair...	Kesinlikle Katılmıyorum	Katılmıyorum	Katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
Yaparken çok zevk aldım	●	●	●	●	●
Bunları yapmak eğlenceliydi	●	●	●	●	●
Bence sıkıcıydılar	●	●	●	●	●
Genel olarak dikkatimi çekmedi	●	●	●	●	●
Alıştırmaları yaparken kendimi gergin hissetmedim	●	●	●	●	●
Onları yaparken çok gergin hissettim	●	●	●	●	●
Onları yaparken çok rahatlamış hissettim	●	●	●	●	●
Onları yaparken üzerimde baskı hissettim	●	●	●	●	●
Bu alıştırmaları tekrar çözmek için istekli olurdum	●	●	●	●	●
Başka bir zaman bunun gibi daha fazla alıştırma yapmak isterdim	●	●	●	●	●
Boş zamanlarımda bunun gibi daha fazla alıştırma yapmak isterim	●	●	●	●	●

Ekran 10: Başarı hedefleri ve yatan sebepler anketi

Aşağıda belirtilen 2 amaçtan hangisi sizin için daha önemliydi? Lütfen birinci amacınızı yuvarlak içine alınız:

● Teste katılanlar arasında en yüksek puanlardan birini yapmak.
● İkinci turda bir öncekinden daha yüksek puan yapmak.

Bu amaca ulaşmak istedim çünkü...	Kesinlikle Katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum
Araştırmacıların isteklerine uymak zorundayım	●	●	●	●	●
Yapamazsam kötü, suçlu ya da endişeli hissederim	●	●	●	●	●
Bunu kişisel değerli bir amaç olarak buluyorum	●	●	●	●	●
Bunu ilgi çekici ve zorlayıcı bir hedef olarak buluyorum	●	●	●	●	●

Gönder