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DON'T BE AVERAGE: DISTINGUISHING BENIGN SOCIAL COMPARISONS
FROM MASTERY GOALS AND HARSH SOCIAL COMPARISONS

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COMPARISONS

A Master's Thesis

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By Enise Akay

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 Psychology.

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ABSTRACT

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This thesis explores the concept of benign social comparisons within the framework of achievement goal theory (Dweck, 1986) and their impact on motivational factors including perceived competence, psychological pressure, usefulness, and enjoyment, alongside behavioral measures such as effort and performance. Benign social comparisons, an unexplored area, propose an alternative approach where individuals aim to perform at an average level rather than striving to surpass (any) other, as traditionally implied through performance-approach goals. The study consists of two experiments involving computerized tangram puzzles. The first study investigated whether benign social comparison differed from harsh social comparisons (traditional performance goal approach) and mastery goals in relation to motivational and behavioral outcomes. The results revealed that participants reported higher perceived competence and usefulness in the mastery goal condition compared to the benign social comparison condition. Additionally, participants in the harsh social comparison

condition reported greater usefulness compared to those in the benign social comparison condition. The second study examined whether feedback would moderate the effects of social comparisons versus mastery goals. Although the results revealed no main effects of feedback, an interaction effect between conditions and feedback was found regarding usefulness. Participants reported greater usefulness in the mastery goal condition than in the benign social comparison condition when positive feedback was provided. Additionally, participants reported experiencing less psychological pressure, perceiving greater usefulness, and investing more effort in mastery goals compared to benign social comparisons. These findings underscore the non-adaptive nature of benign social comparisons compared to mastery goals, contradicting initial hypotheses. Surprisingly, benign comparisons may be even more detrimental than harsh social comparisons. However, these findings underscore the need for additional research in this field.

Keywords: achievement goal theory, effort, mastery goals, motivation, performance goals

ÖZET

ORTALAMA OLMA: İYİ HUylU SOSYAL KARŞILAŞTIRMALARI USTALIK HEDEFLERİNDEN VE SERT SOSYAL KARŞILAŞTIRMALARDAN AYIRMAK

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Bu tez, başarı hedefi teorisi (Dweck, 1986) çerçevesinde iyi huylu sosyal karşılaştırmalar kavramını ve bu karşılaştırmaların çaba ve performans gibi davranışsal ölçütlerin yanı sıra algılanan yeterlilik, psikolojik baskı, yararlılık ve keyif gibi motivasyon faktörleri üzerindeki etkisini araştırmaktadır. Henüz keşfedilmemiş bir alan olan iyi huylu sosyal karşılaştırmalar, bireylerin diğerlerini geçmeye çalışmak yerine ortalama bir düzeyde performans göstermeyi hedefledikleri alternatif bir yaklaşım önermektedir. Çalışma, bilgisayarlı tangram bulmacalarını içeren iki deneyden oluşmaktadır. İlk çalışma, iyi huylu sosyal karşılaştırmının, motivasyonel ve davranışsal sonuçlarla ilgili olarak sert sosyal karşılaştırmalardan (geleneksel performans hedefi yaklaşımı) ve ustalık hedeflerinden farklı olup olmadığını araştırmıştır. Sonuçlar, katılımcıların iyi huylu sosyal karşılaştırma koşuluna kıyasla ustalık hedefi koşulunda daha yüksek algılanan yeterlilik ve kullanışlılık bildirdiklerini ortaya koymuştur. Ayrıca, sert sosyal karşılaştırma koşulundaki katılımcılar, iyi huylu sosyal karşılaştırma koşulundakilere kıyasla daha fazla

yararlılık bildirmiştir. İkinci çalışma, nötr ve olumlu geri bildirimin iyi huylu sosyal karşılaştırmalar ve ustalık hedefleri üzerindeki etkisini incelemiş ve bir kez daha bu iki hedef arasında ayrım yapmayı amaçlamıştır. Sonuçlar geribildirim ana etkilerini ortaya koymasa da, yararlılıkla ilgili olarak koşullar ve geribildirim arasında bir etkileşim etkisi bulunmuştur. Katılımcılar, olumlu geri bildirim sağlandığında ustalık hedefi koşulunda iyi huylu sosyal karşılaştırma koşuluna kıyasla daha fazla yararlılık bildirmiştir. Ayrıca, katılımcılar daha az psikolojik baskı yaşadıklarını, daha fazla yararlılık algıladıklarını ve iyi huylu sosyal karşılaştırmalara kıyasla ustalık hedeflerine daha fazla çaba harcadıklarını bildirmişlerdir. Bu bulgular, ilk hipotezlerle çelişerek, iyi huylu sosyal karşılaştırmaların ustalık hedeflerine kıyasla uyarlanabilir olmayan doğasının altını çizmektedir. Şaşırtıcı bir şekilde, iyi huylu karşılaştırmalar sert sosyal karşılaştırmalardan bile daha zararlı olabilir. Ancak bu bulgular, bu alanda daha fazla araştırma yapılması gerektiğinin altını çizmektedir.

Anahtar kelimeler: başarı hedefi teorisi, efor, motivasyon, performans hedefleri, ustalık hedefleri

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CHAPTER I

INTRODUCTION

In the realm of daily existence, the phenomenon of social comparisons permeates various facets of human interaction. Its implications have garnered significant attention and have been widely studied in the literature for a considerable time. Among the frameworks dedicated to dissecting social comparisons, the achievement goal theory (Dweck, 1986) stands out as a prominent framework that is widely utilized. The achievement goal theory posits that individuals are driven by two primary motivations. First is the pursuit of mastery goals, which involves striving to gain competence through learning or enhancing one's skills with personal improvement and bench-marking progress against past performances (Senko et al., 2011), and the second is the pursuit of performance goals, which revolves around the desire to outperform others (Elliot, 2005).

Furthermore, the adoption of mastery-oriented objectives often yields favorable outcomes such as enhanced life satisfaction (Diseth & Samdal, 2014), heightened positive affect (Tuominen-Soini et al., 2008), increased persistence in academic settings (Umemoto & Inagaki, 2023; Miller et al., 1996; Wolters, 2004; Sideris & Kaplan, 2011), and reduced pressure on individuals (Duchesne & Larose, 2018). On the other hand, while many studies have shown that striving for performance-based goals is associated with positive outcomes (e.g., Senko, et al., 2013; Lee, et al., 2003; Hulleman, et al., 2010), it is also often coupled with maladaptive consequences that include increased self-consciousness, anxiety, aversion to

challenges (Senko & Dawson, 2017), depression (Elliot & Moller, 2003) as well as a pervasive need to validate one's self-worth (Vansteenkiste et al., 2014).

Instead of striving to outperform others, as advocated by the performance goal approach—a less adaptive strategy that tend to end up resulting in hazardous consequences and —what if individuals aim to perform at an average level, thereby still engaging in social comparisons but in a more optimal manner? Could this benign social comparison strategy mitigate the adverse consequences associated with more assertive forms of comparison and ultimately lead to more adaptive outcomes while still enhancing performance? To address the potential drawbacks of the traditional harsh social comparison approach -performance goal approach-, this thesis explores a novel concept: benign social comparisons. Thus, this study seeks to investigate the efficacy of benign social comparisons in promoting adaptive outcomes and their potential benefits compared to performance, and mastery approach goals.

In two consecutive studies employing computerized tangram puzzles, these questions were addressed. Firstly, the research explored whether adopting benign social comparisons, compared to harsh comparisons, could offer greater adaptive consequences, potentially rivaling the benefits of pursuing mastery goals in terms of perceived competence, psychological pressure, enjoyment, usefulness, effort, and performance. Additionally, it is investigated whether positive feedback in the context of benign social comparisons yields comparable benefits to that in mastery goal setting.

Consequently, the primary goal was to comprehensively address the gap in prior research concerning benign social comparisons and to introduce an alternative and more adaptive form of social comparison goal. This approach holds the potential for yielding fewer adverse outcomes while still fostering achievement. By pursuing this, the aim is to contribute to the advancement of learning and achievement literature while also offering practical implications for education. With this innovative perspective, educators and parents could effectively guide students to pursue achievement goals with diminished risks, particularly concerning mental well-being, while witnessing notable improvements in performance.

Defining Achievement Goals

Defining achievement goals has a crucial importance, yet its theory has been revised over time. Theorists stated that the dichotomous model that was based on performance-oriented and mastery-oriented goals might be insufficient to explain achievement goals (Elliot & McGregor, 2001). Therefore, the achievement goal perspective requires a clear definition and conceptualizations, as operating with a vague definition might lead to misleading results in the literature. As a result, a 2x2 model of achievement goal theory was proposed, where the goals were distinguished based on how individuals define and valence competence, and the subsequent outcomes of success. According to this model, when individuals define competence using self-referential or absolute criteria, they tend to endorse mastery goals. Conversely, when they define competence against normative standards, they tend to endorse performance goals. In line with this, when

individuals positively value competence and strive for success, they pursue an approach goal. On the other hand, when they hold a negative perception of competence, they seek to evade failure, thus adopting avoidance goals. In summary, approach goals—whether centered on mastery or performance—direct individuals toward success, while avoidance goals, be it mastery or performance, direct individuals to avert failure (Elliot & Church, 1997; Elliot & Harackiewicz, 1996).

Among the four achievement goals, mastery approach goals lead to a wide array of positive affective and adaptive behavioral processes, distinguishing them as the most beneficial form of goal orientation (Guo et al., 2022; King, 2016). These outcomes encompass heightened self-efficacy (Huang, 2016), increased engagement, perseverance, and effort (Hulleman et al., 2010; Upadaya & Salmela-Aro, 2013), intrinsic motivation (King, 2016), positive affect (Datu et al., 2022), enjoyment (Goetz et al., 2016), and the adoption of elaborative learning strategies (Elliot, 2005; Bernardo, 2004). Although some studies have found positive consequences associated with mastery avoidance goals, such as increased interest (Baranik et al., 2010), research indicates that mastery avoidance goals are often associated with negative outcomes compared to mastery approach goals, including anxiety, poor performance, and low self-efficacy (Hulleman et al., 2010; Senko, 2011). Despite this, there has been limited investigation into mastery avoidance goals, possibly due to the prevailing evidence highlighting mastery approach goals as a more beneficial form (Senko & Dawson, 2017).

Performance avoidance goals have been identified as the most detrimental goal framework and particularly harmful, leading to a range of negative outcomes, including work avoidance, a lack of interest in seeking challenges, low achievement, and decreased motivation (Hulleman et al., 2010; King, 2016). On the other hand, performance approach goals have produced ambiguous and contradictory results. While embracing them may lead to feelings of anxiety, negative affect, self-consciousness, and decreased effort (Senko & Dawson, 2017), there are also studies indicating positive outcomes associated with performance approach goals, such as enhanced self-regulation (Payne et al., 2007) and improved task focus (Lee et al., 2003). One of the most consistent findings regarding performance approach goals is their association with increased achievement (Hulleman et al., 2010), particularly in academic settings, which will be discussed in more detail in the “Performance” section.

Among these four achievement goals, researchers typically either examine all four goals collectively or, similarly to the present thesis, focus solely on mastery and performance approach goals (Senko et al., 2011). Thus, this study concentrates on performance approach and mastery-approach goals, and compared them to a newly proposed goal that involves normative criteria, although not as high as performance-approach goals, termed “benign social comparisons.” To facilitate the distinction between the conventional performance-approach goal, which entail outperforming others, and the herein introduced goal, which entails outperforming *some others*, the terms *harsh social comparisons* and *benign social comparisons* will be utilized, respectively. The former will be employed each time the

conventional performance-approach goals are referred to, while the latter will be used to describe the normative goal of outperforming an average performer.

The rationale behind proposing benign social comparisons is grounded in empirical observations. While mastery approach goals often yield the most favorable outcomes (Guo et al., 2022), particularly in terms of well-being and motivation (Datu et al., 2022; King, 2016), increased achievement tends to align with performance approach goals (Hulleman et al., 2010). Consequently, benign social comparisons, which prompt participants to perform at an average level, are designed to enhance performance by fostering competition and normative criteria. However, the level of competition is carefully set to be manageable, aiming to minimize or eliminate the potential detrimental effects associated with heightened competition. Thus, benign social comparisons can be seen as a blend of both performance and mastery approach goals.

The discussion on achievement goals should be followed by the factors contributing to them, such as perceived competence, enjoyment, usefulness, psychological pressure, performance, and effort. Thus, in the following sections, these factors will be briefly defined and discussed along with their influences on achievement goals.

Perceived Competence

Perceived competence refers to individuals' perceptions or beliefs regarding their capacity to plan and execute actions required for successful task completion (Niemiec & Ryan, 2009). Essentially, it serves as a cognitive shortcut, enabling

individuals to determine their likelihood of success in a given task. These assessments of self-achievement are often influenced by factors such as past performance, received feedback, and normative comparisons (Duchesne & Larose, 2018).

Perceived competence exerts a significant influence across diverse domains, spanning educational settings, sports contexts, and intrinsic motivation. Thus, it influences individuals' attitudes, behaviors, and outcomes. In educational settings, individuals' beliefs regarding their competence significantly impact their approach to learning tasks and their readiness to confront academic challenges.

Research has shown that students possessing a high level of perceived competence demonstrate a greater propensity to invest effort and maintain perseverance when confronted with tasks perceived as challenging (Schunk & DiBenedetto, 2016). Conversely, those with a lower level of perceived competence are more prone to avoid tasks, often perceiving them as more difficult than they truly are (Schunk & DiBenedetto, 2016).

Moreover, perceived competence is a predictor of achievement goals (Cury et al., 2006). Students who possess higher levels of academic competence are predisposed to pursue approach goals, whereas those with lower levels of academic competence are more likely to pursue avoidance goals, which suggests a positive (Bong et al., 2014; Maltais et al., 2015; Elliot, 2005).

Furthermore, possessing a high level of perceived competence yields positive outcomes. It is negatively correlated with anxiety (Maltais et al., 2017).

Additionally, a higher perceived competence increases the likelihood of success, while a lower perception of competence is associated with a greater likelihood of failure, as it often leads to avoidance (Law et al., 2012). That is to say, perceived competence not only influences achievement goals but also a wide array of other factors such as performance, emotional states, effort, etc.

Performance

The conventional belief suggests that pursuing mastery goals typically results in more favorable outcomes, notably improved performance, particularly within academic contexts, compared to pursuing performance goals (Senko, 2019).

While numerous studies support this notion, indicating that striving for performance approach goals often leads to poorer achievement compared to mastery approach goals (Bereby-Meyer & Kaplan, 2005; Senko, 2019), other research has found both types of goals to be equally effective (Elliot et al., 2006; Kavussanu et al., 2009).

However, inconsistencies frequently arise in the literature concerning the influence of performance goals on performance. Contrary to the prevailing assumption, studies have found that performance approach goals better and more reliably predict performance than mastery approach goals (Elliot et al., 2005; Senko & Harackiewicz, 2005; Harackiewicz et al., 1998; Hulleman et al., 2010).

Scholars have attributed the inconsistent findings in the achievement goal literature to how studies frame and assess each goal. Several factors can elucidate the identification of negative associations between performance goals and performance: **1)** the failure to distinguish between performance approach and performance avoidance goals; **2)** framing performance goals based on a desire for self-presentation; and **3)** the flexible nature of mastery goals (Senko & Harackiewicz, 2005; Elliot & Moller, 2003).

Regarding the non-differentiation between performance-approach and performance-avoidance goals, it is posited that the adverse impact of performance goals on performance may stem from their association with performance avoidance goals. Approach goals, whether mastery-oriented (MAp) or performance-oriented (PAp), typically exhibit positive correlations with performance, whereas avoidance goals often demonstrate negative associations with performance (Van Yperen, Postmas 2015).

The second explanation suggests that if the definition of a performance approach goal includes not only outperforming others but also preference to demonstrate one's ability to others, reflecting a self-presentational desire, it would result in more unfavorable outcomes (Grant & Dweck, 2003). Therefore, it is important to distinguish between outperforming others and appearing talented in the eyes of others.

The third explanation revolves around the subjective and adaptable assessment inherent in mastery goals. Unlike performance goals, which are confined by rigid

criteria for success and restrict success to the most skilled individuals, mastery goals offer a more flexible evaluation process (Senko & Harackiewicz, 2005). This flexibility facilitates success for individuals pursuing mastery goals and makes them easier to attain. Consequently, when studies are meticulously framed, both performance approach and mastery goals have the potential to enhance performance, while avoidance goals are likely to result in poor performance (Senko et al., 2011).

Enjoyment

When discussing enjoyment, the concept of task enjoyment will be elucidated as the positive affective experiences encountered during an activity or task driven by intrinsic motivation (Lee, 2012). Task enjoyment frequently manifests itself in tasks that are interesting and cognitively demanding (Abuhamdeh & Csikszentmihalyi, 2012), thereby enhancing the learning process (Goetz & Hall, 2013).

Furthermore, examining the outcomes of task enjoyment is crucial for comprehending the broader impact of emotional experiences on individuals' cognitive processes and behavior. Numerous studies have underscored the advantageous effects of task enjoyment, including its positive correlation with attention (Lee et al., 2003), heightened persistence during tasks (Hidi, 2000; Lee et al., 2003), enhanced performance (Ford, 1992; Lee et al., 2003), and its role as a determinant of academic achievement (Hulleman et al., 2010; Goetz & Hall, 2013).

Task enjoyment is closely tied with achievement goals, with mastery approach goals consistently correlating with enjoyment (King et al., 2012; Goetz et al., 2016). For example, mastery goals predicted enjoyment and interest in both psychology and chemistry courses (Elliot & Church, 1997; Church et al., 2001), while performance avoidance goals showed a negative association with enjoyment in these studies.

However, the relationship between performance goals and enjoyment is mixed.

Performance approach goals display a positive correlation with enjoyment in some studies (Daniels et al., 2008; King et al., 2012; Wang et al., 2007), while only mastery goals consistently emerge as a positive predictor of enjoyment in some others (Pekrun, 2006; Adie et al., 2008; Morris & Kavussanu, 2009).

Furthermore, in a study on participation in physical education classes, performance avoidance goals negatively predicted enjoyment, while performance approach goals were found to be unrelated (Papaioannou et al., 2007).

Additionally, a meta-analysis identified a consistent trend of positive academic emotions, including enjoyment related to both mastery-approach and performance-approach goals (Huang, 2011). Consequently, mastery goals reliably forecast enjoyment, whereas the relationship between performance goals and enjoyment varies across studies (Kavussanu et al., 2009).

Effort

Effort encompasses the investment of mental and physical resources toward achieving a goal, demanding persistence and determination (Capa et al., 2008).

Moreover, distinguishing between effort and persistence proves challenging, as

persistence entails sustained and repeated efforts despite obstacles and setbacks (Cardon & Kirk, 2015). Consequently, effort and persistence are intertwined concepts, warranting joint discussion. Moreover, it is positively correlated with interest (Cole et al., 2008), beliefs in competence (Chouinard et al., 2007), academic self-efficacy (Zimmerman, 2000), and the type of achievement goals pursued (Phan, 2012).

Yet, the relationship between achievement goals and effort yields contradictory results. Some studies indicate that mastery goals have been directly or indirectly related to effort and hence persistence (Guan et al., 2006; Schiefele & Schaffner, 2015; Chouinard et al., 2007). Additionally, there is a prevalent assumption in the achievement goal literature that mastery goals outperform performance goals in multiple aspects, including increased task effort and interest (Payne et al., 2007). Bostan and her colleagues' study (2022) supports this traditional assumption by finding that mastery-oriented goals exhibit greater levels of motivational persistence compared to performance-oriented goals.

However, some studies have yielded contradictory results. For instance, certain research found that mastery-approach or mastery-avoidance goals had no discernible relation to effort in the workplace (Tanaka & Otuno, 2013), while others revealed that performance-approach goals result in greater engagement and exertion compared to mastery goals (Elliot & Moller, 2003; Harackiewicz et al., 2002).

Regarding performance goals, it was discovered that performance-approach goals foster greater effort (Van Yperen & Janssen, 2002; Tanaka & Otuno, 2013), whereas performance-avoidance goals show a decrease in effort (Tanaka & Otuno, 2013). Thus, it was concluded that the lack of effort might stem from a failure to differentiate between performance approach and performance-avoidance goals (Tanaka & Otuno, 2013). In conclusion, both mastery goals may positively influence effort and persistence. However, performance goals influence effort in certain circumstances, such as when avoidance and approach goals are differentiated.

Usefulness

Perceived usefulness refers to the subjective evaluation of how a specific system or strategy can assist individuals in accomplishing their goals or tasks, thereby enhancing their performance and effectiveness (Nugroho et al., 2018; Daneji et al., 2019). Perceived usefulness is particularly influential in education, shaping e-learning experiences, attitudes toward learning materials, and more. For instance, educational effectiveness is seen as heavily influenced by usability (Virvou & Katsionis, 2008).

Numerous studies have demonstrated that perceived usefulness significantly impacts various aspects, including productivity (Zhai & Shi, 2020), performance (Vogel et al., 2007), persistence in using specific systems or products (Mouakket, 2015; Wu & Chen, 2017), and overall satisfaction (Lin & Lu, 2011). Moreover, perceived usefulness serves as a predictor of self-regulation in e-learning contexts (Liaw & Huang, 2013), facilitating learners' ability to manage their learning

process effectively. Tsai (2009) also suggests that enhancing learners' perception of usefulness can further bolster self-regulation skills in e-learning.

The perception of usefulness also influences attitudes toward the method employed and the likelihood of using the technique (Bradley, 2009). Graf and her colleagues (2014) stated that the effectiveness of intervention programs or specific methods is highly influenced by the extent to which individuals perceive them as useful. A study investigating a parent training program found results supporting this argument, indicating that parents who perceive the program as more useful reported observing more positive changes in their children's behavior and expressed higher confidence in their parenting skills compared to parents who rated the usefulness lower (Graf et al., 2014). That is to say, usefulness is a crucial factor that potentially influences learning.

Psychological Pressure

Psychological pressure can be understood as any element or combination of elements that elevates the significance of achieving success and leads individuals to act in a specific way (Baucus, 1994). This can encompass performance pressure and, time pressure, with self-doubt, or fear of failure, exerting distinct influences on such psychological pressure during individuals' pursuit of goals and outcomes.

While time pressure often facilitates the streamlining of tasks, it remains a significant contributor to students' exam-related stress (Erkutlu & Chafra, 2006). Alongside stress, time pressure often results in heightened exhaustion and eventual burnout (Sonnentag, 2011). Furthermore, research indicates that mastery

approach goals yield superior performance compared to performance approach goals in the presence of time pressure (Van Yperen & Postmas, 2015).

Performance pressure, which is also a type of psychological pressure, involves the interaction between internal and normative expectations, motivating individuals to feel the need to reach certain levels of success, which might affect their abilities and cognitive load (Ness & Connelly, 2017). Research demonstrates that performance pressure is associated with unethical decision making (Goldberg & Greenberg, 1994) and a decrease in performance (Lewis & Linder, 1997). Yet, there are also studies stating that performance pressure facilitates greater expectations and effort (Senko & Hareckiewicz, 2005).

Overall, psychological pressure can induce stress, and if left unregulated, it can adversely affect individuals (Sideris, 2020). However, those who strive for performance goals may experience increased pressure to conform to societal norms, resulting in elevated stress levels (Dunning, 2017) along with more pronounced adverse effects.

CHAPTER II

Study 1

In Study 1, it is examined whether embracing benign social comparisons, as opposed to harsh ones, could produce more positive outcomes, potentially aligning with the advantages of pursuing mastery goals in terms of perceived competence, psychological pressure, enjoyment, usefulness, effort, and performance.

To assess this, a computerized tangram task was employed, where participants were randomly assigned to either a mastery (i.e., “do your best”) condition, a benign social comparison (i.e., “try to reach an average score”) condition, or a harsh comparison (i.e., “try to be among the top 10 percent”) condition. Upon task completion, the participants evaluated their perceived competence, psychological pressure, enjoyment, and usefulness of their engagement. In addition, I assessed participants’ performance and effort during the tangram puzzles.

The hypotheses are grounded in widely studied empirical findings concerning mastery and performance approach goals. Previous studies have demonstrated that adopting a mastery approach goal, which involves striving to learn within a task rather than aiming to outperform others, leads to various positive outcomes (Adie et al., 2008; Morris & Kavussanu, 2009; Puente-Diaz, 2012; Harackiewicz, et al., 1997; Elliot & McGregor, 2001; Pekrun, et al., 2009; Rakoczy et al., 2013; Duchesne et al., 2017). However, it is imperative to underscore the dearth of antecedent research on benign social comparisons, highlighting the need to explore this uncharted territory.

Given this research gap, the hypotheses are designed to delve into and offer insights into this unexplored domain. Furthermore, while mastery approach goals primarily focus on learning, benign social comparisons serve to introduce normative comparisons with “average others,” that is, representing a reasonably attainable standard. This distinguishes benign social comparisons from performance-approach goals, where the comparison standard is to outperform others, implying a harsh, absolute reference that lies at the top of the pecking order.

It was anticipated that benign social comparisons would be less detrimental than harsh social comparisons (i.e., performance-approach goals) due to their less stringent standards and potentially less harmful nature. Unlike the rigid and sometimes unrealistic standards often associated with harsh social comparisons, benign social comparisons may mitigate feelings of inadequacy and pressure.

Consequently, it is hypothesized that the participants in the benign social comparison condition would report higher perceived competence, usefulness, enjoyment and, effort, better performance, and lower pressure than their counterparts in the harsh condition (Hypothesis 1a) and that they would not differ from those in the mastery condition (Hypothesis 1b).

CHAPTER III

METHODS

Participants

One hundred Turkish adults ($M_{age} = 21.53$ years, $SD = 2.66$ years) participated in Study 1. Three of them were excluded from the final analysis because they failed to correctly answer a manipulation check question asking them to what extent they were trying to master and understand the underlying logic of the tangram. Thus, the final sample consisted of 97 people ($M_{age} = 21.57$; $SD = 2.67$ years; age range = 18- 31 years). There were 37 (38.1%) people in the harsh social comparison condition, 26 (26.8%) in the mastery condition, and 34 (35.1%) in the benign social comparison condition. The gender distribution of the final sample was as the following: 62% female ($n = 61$), 37% male ($n = 38$), and 1% who identified themselves as “other” ($n = 1$). In this final sample, three participants (3.09%) were high school graduates, 85 (84.6%) were undergraduate university students, four (4.12%) were university graduates, five (5.15%) were graduate students, three (3.09%) had Master’s degrees.

This research was conducted after obtaining approval from Ihsan Dogramaci Bilkent University’s Ethical Committee. Participants were notified that their participation was voluntary, and they had the right to withdraw from the research at any time or request the deletion of their data. In addition, anonymity and confidential treatment of the data was guaranteed.

Procedure

The experiment took place in the Bilkent University Psychology Labs, where participants engaged in computerized tangram tasks created by a software program called Unity. After providing consent, a trained observer read instructions to both the participant and a confederate, who played the role of a participant. The decision to use a confederate was based on pilot testing which indicated that participants in the two comparison conditions were not as eager to endorse the assigned competitive goal. Consequently, to render more salient a comparison atmosphere through social norms induced simply by the mere presence of others (Van Meurs, et al., 2022) a confederate was introduced to the design to maximize participants' compliance with the randomly assigned instructions.

The instructions in the task were articulated as follows: "In this study, participants need to complete a warm-up session of tangram, followed by 3 actual tangram sessions, and respond to some questions about the experiment. However, these questions do not have right or wrong answers; we only aim to learn your genuine opinions. You will have 5 minutes to solve each tangram session but have the option to skip the tangram after 2 minutes. Upon completion of the tasks, you will be rewarded with 100 TL (approximately 5 USD) or GE250 points-extra course credit."

After receiving the information, participants commenced with a warm-up session designed to familiarize them with the functioning of the computerized Tangram task (see Figure 1). The research assistant remained in the lab during the warm-up session but then left the room as a precautionary measure for COVID-19.

Following the warm-up, the participants were randomly assigned to one of three

experimental conditions—mastery, benign social comparison, and harsh social comparison conditions—using a between-subject design.

The three conditions differed according to the written instructions that the participants read on the computer screen, which aimed to guide them to specific goals. Specifically, those in the benign social comparison condition were instructed to “to perform better than half of the other participants,” whereas individuals in the harsh social comparison condition were directed to “perform better than 90 percent of the other participants”. Participants in the mastery condition were requested to “learn the task and become proficient in it.” The instructions appeared on the computer screen before each tangram session, ensuring that participants understood their goals and could recall them accurately.

Specifically, participants engaged in three tangram sessions lasting five minutes each, excluding the warm-up session. The figures that they were asked to solve in each session are shown in Figure 1. They were permitted to skip the task after two minutes. Participants were informed that the difficulty level of puzzles would increase with each session. However, unbeknownst to them, only the first tangram puzzle was solvable, and the second and third puzzles were intentionally created as unsolvable—the rationale for which will be explained in the next paragraph. Following the completion of the tangram puzzles, participants were required to respond to demographic and dependent variable questions.

To maximize the anticipated differences due to pursuit of different achievement goals, the second and the third sessions were set up in a way where success was

doubtful (Dweck & Leggett, 1988). Consequently, the initial plan included a gradual escalation of difficulty levels in the tangram sessions. However, pilot tests uncovered the highly subjective nature of participants' perceptions of tangram difficulty. In these preliminary trials, participants successfully solved tangram puzzles with easy, medium, and hard difficulty. Surprisingly, some participants excelled at hard tangram puzzles but struggled with easy or medium ones, while others managed medium difficulty but faced challenges with hard or easy ones. This revelation questioned the gradual increase in tangram difficulty levels.

To amplify the pressure on participants, confederates were strategically introduced into the experiment. Ten undergraduate research assistants underwent training and participated in mock trials before serving as confederates in the actual experiments. The gender of each confederate varied and was randomly assigned to participants. Participants were seated next to their assigned confederate, with a partition placed between desks to guarantee that neither the participant nor the confederate could see each other's screen or face.

Measures

Manipulation Checks. To determine the effectiveness of the experimental conditions, two manipulation check questions were employed. The initial question aimed to reveal participants' agreement or disagreement with the statement: "My objective during the experiment was learning to solve the tangram and improve my ability in solving tangram puzzles." Respondents provided their responses on a 5-point Likert scale ranging from completely agree to completely disagree. This question was purposefully crafted to evaluate the mastery condition. The second manipulation check question required participants to fill in the blank in the

sentence, “My objective was to,” by choosing one of three options presented in a multiple-choice format. The options included were (a) “Learn to solve the tangram and improve my ability to do so” – (supposedly indicating the mastery condition), (b) “To perform better than at least half of other participants” (presumed to reflect the benign social comparison condition) and (c). To perform better than at least 90 percent of other participants” – (thought to represent the harsh social comparison condition).

Motivational Measures

The Intrinsic Motivation Inventory. Upon completion of the third session, the participants were given a short questionnaire where they were asked to rate their experience regarding their participation. All items were taken from the Intrinsic Motivation Inventory (McAuley et al., 1989), which was translated, back-translated, and pilot tested. Each scale consisted of three items, which were presented in a five-point Likert-type format (1 = *Strongly disagree*; 5 = *Strongly agree*). Specifically, the participants were asked to evaluate how competent they felt (e.g., “I think I am pretty good at these activities”; $\omega = .79$) to what extent they enjoyed the activity (e.g., “These activities were fun to do”; $\omega = .93$) and whether they found it useful (e.g., “I believe doing these activities could be beneficial to me”; $\omega = .84$). Also, they rated how much pressure they were feeling while they were attempting to solve the tangram puzzles. (e.g., “I felt very tense while doing these activities”; $\omega = .93$).

Behavioral Measures. Performance was assessed by how many pieces participants assembled correctly in the first and only solvable tangram session whereas effort was assessed by investigating how much time participants spent on each puzzle.

Plan of Analysis

Preliminary analyses involved examining the means, standard deviations, and bivariate correlations among the study variables. Following these initial steps, a Multivariate Analysis of Variance (MANOVA) was conducted to assess the primary hypotheses, followed by one-way Analysis of Variance (ANOVA) tests for each motivational variable (perceived competence, enjoyment, pressure, and usefulness). Post hoc analyses were performed to explore pairwise comparisons and delineate the nuances of the observed differences.

Additionally, behavioral variables (performance and effort) were evaluated using a mixed Analysis of Variance (ANOVA) design, accounting for both within-subjects (as there were three sessions and thus three behavioral outcomes per participant) and between-subjects factors. Post hoc tests, including Bonferroni corrections, were employed to pinpoint specific contrasts and elucidate the source of significant effects. The freeware R program (*R* Core Team, 2023), a statistical computing language, served as the analytical tool for all computations. The integration of preliminary analyses, MANOVA, one-way ANOVA, and mixed ANOVA techniques provides a robust foundation for drawing comprehensive conclusions.

CHAPTER IV

RESULTS

Preliminary Analyses

As stated, preliminary checks showed that three participants did not comply with the Manipulation Check, asking what instructions the participants had to follow. Therefore, the final sample consisted of 97 people ($M_{\text{age}} = 21.53$, $SD = 2.66$). The means, standard deviations, and bivariate correlations among the measured variables of the study are shown in Table 2c.

Further, although there were no statistically significant differences across the three experimental groups in the first manipulation check which assessed mastery condition ($F(2, 97) = 1.84$, $p = .17$, $\eta^2 = .04$), the second manipulation check question, asking participants' goal revealed a significant difference among the three groups ($F(2, 94) = 4.89$, $p = .009$, $\eta^2 = .09$). Post-hoc comparisons using Tukey's HSD revealed a statistically significant difference between mastery ($M = 1.27$, $SD = 0.60$) and harsh social comparison condition ($M = 1.84$, $SD = 0.87$), $p = .01$, with benign social comparisons lying in between ($M = 1.53$, $SD = 0.61$) and not differing from the other two conditions.

When the two manipulation checks were jointly considered (by aggregating their scores into one variable, a statistically significant difference was also found among the three groups ($F(2, 94) = 5.96$, $p = .003$, $\eta^2 = .11$). Post-hoc Tukey's test, which controls for multiple comparisons demonstrated a statistically significant difference between mastery ($M = 3.35$, $SD = 0.52$) and harsh social comparison group ($M = 2.76$, $SD = 0.71$), $p < .001$; as well as benign social

comparison group ($M = 2.87$, $SD = 0.77$), $p = .02$). Yet, no significant difference was found between benign and harsh social comparison groups, which meant our manipulation was partly successful.

Main Analyses

First, a multivariate analysis of variance (MANOVA) was performed to examine the degree to which the linear combination of the four self-reported outcomes (i.e., perceived competence, enjoyment, perceived usefulness, and pressure) differed across the three conditions. The MANOVA was statistically significant, Wilk's $\Lambda = .78$, $F(8, 182) = 3.03$, $p = .003$, a finding which suggests that the participants reported different levels of the four measured variables when jointly considered. As a result, follow-up post-hoc ANOVA for each dependent variable was performed to investigate where these differences occurred.

Analysis of Motivational Measures. A one-way analysis of variance (ANOVA) was conducted to investigate the impact of experimental conditions—mastery goals, benign social comparison, and harsh social comparison—on participants' perceptions of competence, enjoyment, pressure, and usefulness. The results revealed a statistically significant difference among groups concerning perceived competence and usefulness. Additionally, marginal differences were observed in psychological pressure among groups, but no significant difference was identified in enjoyment (see Table 1a).

Post-hoc comparisons, utilizing Tukey's HSD test, revealed that participants in the mastery condition significantly differed from those in the benign social comparison condition in both perceived competence and perceived usefulness.

There was also a significant difference between the mastery and harsh social comparison conditions for competence, though not for usefulness. Conversely, benign and harsh social comparisons significantly differed in terms of usefulness but not competence. Notably, there were no significant differences between harsh and benign social comparisons for competence.

Analysis of Behavioral Measures. A 3 (sessions) x 3 (conditions) mixed-subjects factorial Analysis of Variance (ANOVA) was conducted to determine the main effects of experimental conditions—mastery, benign social comparison, and harsh social comparison—and time (Session 1, Session 2, Session 3) on participants' performance and effort.

The means and standard deviations for assembled pieces and time participants dedicated per condition and session are shown in Table 1b. A significant main effect of time was observed concerning effort ($F[1.50, 140.06] = 64.25, p < .001$) and performance ($F[1.42, 133.10] = 81.42, p < .001$), while the main effect of condition was not found for either effort ($F[2, 94] = 0.35, p = .70$) or performance ($F[2, 94] = 0.92, p < .40$). Additionally, the time-by-condition interaction was non-significant for both effort ($F[4, 188] = 0.71, p = .50$) and performance ($F[4, 188] = 1.45, p = .20$).

Since session 1 contained only solvable tangram puzzles, sessions 2 and 3 were not examined for performance. Additionally, significant differences in effort were noticed between session 1 and session 2, as well as between session 1 and session 3. However, no significant difference was found between session 2 and session 3.

This suggests that, regardless of the condition, participants spent significantly less time in Session 1 compared to Sessions 2 and 3.



Table 1 a *Group Comparison of the Motivational Measures Across Three Conditions in Study 1 (N=97)*

Variables	Mastery		Benign Social Comparison		Harsh Social Comparison		$F(2, 94)$	η^2
	M	(SD)	M	(SD)	M	(SD)		
1. Enjoyment	3.87	(0.77)	3.40	(1.10)	3.56	(1.04)	1.64	.03
2. Perceived Competence	2.38 _a	(0.84)	1.83 _b	(0.72)	1.77 _b	(0.69)	5.99*	.11
3. Psychological Pressure	2.62	(1.00)	2.58	(1.39)	3.21	(1.22)	2.84	.05
4. Usefulness	3.85 _a	(0.67)	3.21 _b	(0.97)	3.71 _a	(0.92)	4.70*	.09

Note. * $p < .01$. Cells sharing different subscripts across a row are statistically significant at $\alpha = .01$ (Tukey, two-tailed comparison)

Table 1 b Means (*M*) and Standard Deviations (*SD*) of the Behavioral Measures Across Three Conditions in Study 1 (*N*=97)

Dependent variables		Conditions							
		Mastery		Benign		Harsh		Average	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Performance	Session 1	5.35	(2.26)	4.06	(2.90)	4.65	(2.77)	4.63	(2.71)
	Session 2	1.15	(1.41)	1.38	(1.58)	1.43	(1.50)	1.34	(1.49)
	Session 3	1.65	(1.06)	1.79	(0.84)	1.97	(1.04)	1.82	(0.98)
	Average	2.72	(2.49)	2.41	(2.28)	2.68	(2.37)		
Effort	Session 1	216.40	(71.80)	195.57	(83.52)	208.41	(73.18)	206.05	(76.28)
	Session 2	278.09	(51.99)	263.61	(51.77)	272.57	(46.24)	270.91	(49.61)
	Session 3	278.47	(52.26)	286.96	(37.45)	281.76	(44.81)	282.70	(44.25)
	Average	257.65	(65.57)	248.72	(71.63)	254.25	(64.68)		

Table 1 c Means (M), Standard Deviations (SD), and Bivariate Correlations of the Variables of the Study 1 (N=97)

Variables	M	SD	1	2	3	4	5
1. Usefulness	3.57	0.91	-				
2.Perceived Competence	1.96	0.78	.21*	-			
3.Psychological Pressure	2.83	1.25	-.04	-.31**	-		
4.Enjoyment	3.59	1.01	.51**	.42**	-.27**	-	
5.Performance	2.60	0.99	.03	.30**	-.09	.17	-
6.Effort	253.22	41.33	.16	-.20*	.09	.19	-.05

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

Supplementary Analyses

Supplementary checks were conducted after excluding participants who did not respond appropriately to the two manipulation check questions. The first question assessed their understanding of mastery goal, while the second evaluated their own goal. The final sample consisted of 46 people ($M_{\text{age}} = 21.78$, $SD = 2.94$).

A one-way analysis of variance (ANOVA) was conducted to investigate the impact of experimental conditions—mastery, benign social comparison, and harsh social comparison—on participants' perceptions of competence, enjoyment, pressure, and usefulness. The results are presented in Table 3a and revealed statistically significant differences among groups concerning perceived competence, enjoyment, usefulness, and psychological pressure.

Post-hoc comparisons, using Tukey's HSD test, demonstrated that participants in the mastery condition differed significantly from those in the benign social comparison condition regarding perceived competence, enjoyment, usefulness, and pressure, while those in the harsh social comparison condition did not differ significantly from the other two conditions except in enjoyment. Additionally, participants in the harsh social comparison condition differed significantly from those in the benign social comparison condition in terms of enjoyment. However, no significant differences were found between the harsh social comparison and mastery conditions regarding enjoyment.

A 3 x 3 ANOVA for behavioral measures revealed that there were no significant main effects of condition on performance ($F[2, 43] = 0.84, p = .43$) and effort ($F[2, 43] = 1.30, p = .20$). However, a significant main effect of time was observed for both performance ($F[1.34, 57.71] = 62.84, p < .001, \eta^2 = .49$) and effort ($F[1.32, 56.67] = 45.19, p < .001, \eta^2 = .34$). Lastly, there was no significant interaction effect between time and condition for either performance ($F[4, 86] = 0.71, p = .58$) or effort ($F[4, 86] = 1.98, p = .10$).

Additionally, post-hoc tests demonstrated that there were significant differences in both effort and performance between session 1 and session 2, as well as between session 1 and session 3. However, there were no significant differences observed between session 2 and session 3.

CHAPTER V

Study 2

In the present study, the dynamics of benign social comparisons and mastery goals were further explored by examining the effects of positive feedback in both benign social comparison and mastery conditions. Building on Study 1, the aim was to determine whether positive feedback within the benign social comparison context can be as beneficial as in a mastery goal setting.

To achieve this, the same computerized tangram task was employed as in the previous study, with the difference being the inclusion of bogus feedback; harsh social comparisons were excluded from this study. Participants were randomly assigned to either the benign social comparison or the mastery condition. Within

each condition, participants were further randomly assigned by receiving either positive bogus feedback, indicating performance beyond expectations, or neutral bogus feedback, suggesting task completion.

This design allows for a systematic assessment of the impact of positive feedback in benign social comparison, compared to mastery goals. By doing so, the aim is to gain insights into the effectiveness of positive feedback across different motivational contexts, contributing to a deeper understanding of adaptive motivational processes. Additionally, mastery goals and benign social comparisons will once again be compared to further explore their relative effectiveness.

Therefore, it is hypothesized that receiving positive feedback in the benign social comparison condition would be as beneficial as receiving positive feedback in the mastery condition in terms of motivational and behavioral measures (Hypothesis 2a). Receiving neutral feedback in the benign social comparison condition would be worse in terms of behavioral and motivational measures compared to receiving positive feedback in the benign social comparison condition (Hypothesis 2b) and mastery condition (Hypothesis 2c) and receiving neutral feedback in the mastery condition (Hypothesis 2d).

Participants

A hundred and seventeen Turkish adults ($M_{age} = 21.34$ years, $SD = 2.04$) participated in Study 2 (1d). Nevertheless, 9 of them were excluded from the analysis since they failed to correctly answer a manipulation check question

asking them what was requested from them during the experiment. This question also serves as an attention check. Thus, the final sample consisted of 108 people ($M_{age} = 21.28$; $SD = 2.04$; 58% females). In this final sample, five participants (4.63%) were high school graduates, 96 (88.88%) were undergraduate students, one (0.93%) was a university graduate, five (4.63%) were graduate students, and one (0.93%) had a Master's degree. There were sixty-three people in the mastery condition and forty-five in the benign social comparison condition. Among the sixty-three people in the mastery condition, 28 of them received neutral feedback and 35 people received positive feedback at the end of the tangram session. Accordingly, among the forty-five people in the benign social comparison condition, 24 of them received neutral feedback, and 21 received positive feedback.

Procedure

Participants were randomly assigned to two experimental conditions: mastery goal or benign social comparison condition. The instructions remained consistent with those of the first study, detailing the warm-up session, three tangram sessions, and subsequent questionnaire. Additionally, the same computerized tangram tasks were used. However, unlike the first study, an experimenter was present in the room during the task. Also, as employing a confederate was not feasible, they were not part of the study. In the mastery condition, participants were instructed to “Try to learn the task and become proficient in it,” while those in the benign social comparison condition were directed to “Try to perform better than half of the other participants.” As in the first study, these instructions appeared on the

computer screen before each tangram session to ensure clarity and accurate recall of goals.

Following the completion of the tangram puzzles, participants received feedback, which was either positive or negative, depending on the experimental condition they were assigned to. Participants in the neutral feedback condition received this message: “Your performance has been evaluated according to your completion time, number of clicks, pieces correctly assembled, and the difficulty levels of the three tangram puzzles. You completed the experiment. Thank you very much for your contribution.” Whereas people in the positive feedback condition read the following message: “Your performance has been evaluated according to your completion time, number of clicks, pieces correctly assembled, and the difficulty levels of the three tangram puzzles. Congratulations! You successfully completed the experiment. Results show that you have achieved the desired competency in solving tangram puzzles.”

Measures

Manipulation Checks. Manipulation checks were implemented to test the effectiveness of the experimental conditions. These checks consisted of two questions aimed at assessing participants’ perceptions regarding their self-endorsed goals and the goals requested during the experiment. The first question asked participants, “What was your goal during the experiment?” presenting two options: (A) “During the experiment, I aimed to solve the tangram and improve my ability to solve them”, and (B) “During the experiment, I aimed to perform better than approximately half of the participants”. Participants were instructed to choose the option that best reflected their self-endorsed goal. The second question

inquired about the requests made during the experiment, asking, “What was requested from you?” offering two options: (A) “I was requested to learn to solve the tangram and improve my ability to solve them”, and (B) “I was requested to perform better than approximately half of the participants”. These questions were designed to evaluate whether participants accurately perceived the experimental conditions, distinguishing between the mastery condition and the benign social comparison condition. Additionally, they aimed to assess both the requested goal and the self-endorsed goal. Participants’ responses were collected using a multiple-choice format, allowing for a comprehensive assessment of the manipulations’ effectiveness.

Motivational Measures.

Intrinsic Motivations Inventory. The motivational measures utilized in this study were identical to those employed in the first study.

Behavioral Measures. The behavioral measures used in this study were the same as those employed in the first study.

Plan of Analysis

In this study, the same statistical analyses as in Study 1 were used, except a two-way ANOVA was conducted instead of a one-way ANOVA.

CHAPTER VI

RESULTS

Preliminary Analyses

As stated, preliminary checks showed that nine participants did not comply with the Manipulation Check question 2, asking what was requested of them during the

experiment, which also served as an attention check question. Therefore, the final sample consisted of 108 people ($M_{age} = 21.28$; $SD = 2.04$). The means, standard deviations, and bivariate correlations among the measured variables of the study are shown in Table 2a.

Further, results indicated statistically significant differences between the conditions ($F(1, 104) = 19.86, p < .001, \eta^2 = .16$), but no significant differences were found in feedback ($F(1, 104) = 0.27, p = .60$) or the interaction of feedback and conditions ($F(1, 104) = 0.10, p = .74$) in the first manipulation check, which assessed self-endorsed goals. Similarly, significant differences were found between experimental conditions for the second manipulation check, assessing requested goals ($F(1, 104) = 7.21, p < .001, \eta^2 = 1.00$), with no significant differences in feedback ($F(1, 104) = 1.51, p = .22$) or the interaction of feedback and conditions ($F(1, 104) = 6.34, p = .42$).

Post-hoc Tukey's tests revealed a statistically significant difference between the mastery group ($M = 1.19, SD = 0.39$) and the benign social comparison group ($M = 1.58, SD = 0.49$) for the self-endorsed goal. Additionally, significant differences emerged, as expected, between the mastery group ($M = 1.00, SD = 0.00$) and the benign social comparison group ($M = 2.00, SD = 0.00$) for the second manipulation check asking the participants whether the goal they were asked to pursue was a mastery goal (coded as "1") or a benign social comparison goal (coded as "2").

Main Analyses

First, a factorial multivariate analysis of variance (MANOVA) was conducted to examine the extent to which the linear combination of the four self-reported outcomes (perceived competence, enjoyment, perceived usefulness, and pressure) varied across the experimental conditions (mastery and benign social comparison conditions), types of feedback (neutral and positive feedback), and their interaction. The MANOVA revealed a significant effect of experimental conditions, Wilk's $\Lambda = .91$, $F(4, 100) = 2.42$, $p = .05$, indicating that the experimental conditions had a significant multivariate effect on the dependent variables. However, neither the main effect of feedback nor the interaction effect reached statistical significance. As a result, follow-up post-hoc ANOVA for each dependent variable was performed to investigate where these differences occurred.

Analysis of Motivational Measures. A two-way ANOVA was performed to test the effects of feedback (positive vs neutral) and conditions (mastery vs benign social comparison) on perceived competence, enjoyment, usefulness, and pressure (see Table 2b).

A significant main effect of the condition was found for pressure, and marginally significant effects were observed for usefulness. Additionally, there was no significant main effect of feedback on any of the variables except for perceived usefulness which revealed a significant interaction. Post-hoc comparisons using Tukey's HSD test revealed that participants in the benign social comparison condition significantly differed from those in mastery condition for both perceived pressure and usefulness.

Furthermore, the interaction between conditions and type of feedback for perceived usefulness showed a significant difference between mastery and benign social comparison conditions, specifically in the positive feedback condition. However, this difference was not observed in the neutral feedback condition.

Analyses of Behavioral Measures. A 3 (sessions) x 2 (conditions) mixed-subjects factorial Analysis of Variance (ANOVA) was conducted to determine the main effects of experimental conditions—mastery and benign social comparison—and time (Session 1, Session 2, Session 3) on participants' performance and effort. The means and standard deviations for assembled pieces (performance) and the time participants dedicated per session (effort) are shown in Table 2c.

A 3 x 3 ANOVA for behavioral measures indicated significant main effects of time on both effort ($F[1.36, 143.31] = 81.82, p < .001, \eta^2 = .03$) and performance ($F[1.47, 156.24] = 143.37, p < .001, \eta^2 = .48$), while significant main effects of conditions were observed only for effort ($F[1, 106] = 7.99, p = .005, \eta^2 = .02$), but not for performance ($F[1, 106] = 0.04, p = .82$). Additionally, there was no significant interaction effect between time and condition for either effort ($F[2, 212] = 0.46, p = .62$) or performance ($F[2, 212] = 1.69, p = .18$).

Post hoc tests revealed a significant difference in participants' effort between the mastery and benign social comparison conditions. This difference was observed in the first and second sessions but not in the third session. Moreover, both effort and performance significantly differed between session 1 and session 2, as well as between session 1 and session 3, but not between session 2 and session 3.

Table 2 a Means, Standard Deviations, and Bivariate Correlations of the Variables of the Study 2 (N=108)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Usefulness	3.56	0.90	-			
2. Perceived Competence	2.23	0.81	.13	-		
3. Psychological Pressure	2.85	1.02	-.06	-.30**	-	
4. Enjoyment	3.87	0.82	.32**	.23*	-.26**	-

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

Table 2 b Means (M) and Standard Deviations (SD) and Group Mean Comparison of the Motivational Measures Across Conditions in Study 2 (N=108)

	Mastery				Benign				Condition		Feedback		Condition*Feedback	
	Positive		Neutral		Positive		Neutral		F(1,104)	η^2	F(1,104)	η^2	F(1,104)	η^2
	M	SD	M	SD	M	SD	M	SD						
1.Enjoyment	3.90	0.81	3.99	0.80	3.78	0.86	3.78	0.87	1.02	.01	0.09	.00	.065	.00
2.Perceived Competence	2.41	0.87	2.18	0.68	2.11	0.81	2.14	0.87	1.30	.012	0.61	.00	0.66	.00
3.Psychological Pressure	2.61	1.09	2.67	0.93	3.14	1.09	3.14	0.87	6.69*	.06	.03	.00	.024	.00
4.Usefulness	3.81	0.82	3.55	0.99	3.13	0.96	3.60	0.77	3.35	.03	.07	.00	4.48*	.04

Note. * $p < .05$

Table 2 c *Group Comparison of the Behavioral Measures Across Conditions in Study 2 (N=108)*

Dependent variables		Conditions					
		Mastery		Benign		Average	
		<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Performance	Session 1	5.02	(2.57)	5.02	(2.69)	5.02	(2.61)
	Session 2	1.35	(1.54)	0.82	(1.03)	1.13	(1.37)
	Session 3	1.63	(0.96)	2.02	(1.06)	1.80	(1.01)
	Average	2.67	(2.46)	2.62	(2.50)		
Effort	Session 1	222.92	(77.41)	203.50	(79.58)	214.83	(78.55)
	Session 2	295.90	(15.21)	273.36	(45.04)	286.51	(33.06)
	Session 3	295.68	(21.08)	285.75	(32.50)	291.55	(26.76)
	Average	271.50	(58.19)	254.21	(66.43)		

Supplementary Analyses

Supplementary checks were done after dropping participants who did not comply with the manipulation check questions assessing self-endorsed and requested goals. The final sample consisted of 77 people ($M_{age} = 21.32$, $SD = 2.15$). Again, a two-way ANOVA was performed to test the effects of feedback (positive vs neutral) and conditions (mastery vs benign social comparison) on perceived competence, enjoyment, usefulness, and pressure (see Table 3b).

Significant main effects of conditions were observed for perceived usefulness and pressure. Additionally, marginally significant main effects of conditions on perceived competence were noted. However, no significant main effect of feedback nor interaction on any of the variables was found. Participants in the mastery condition significantly differed from participants in the benign social comparison condition for psychological pressure and usefulness. Moreover, the difference between benign social comparison group and mastery condition was marginally significant.

A 3 x 3 ANOVA for behavioral measures indicated significant main effects of time on both effort ($F[1.32, 98.86] = 56.44$, $p < .001$, $\eta^2 = .31$) and performance ($F[1.45, 108.6] = 79.84$, $p < .001$, $\eta^2 = .41$), while significant main effects of conditions were observed only for effort ($F[1, 75] = 5.00$, $p = .02$, $\eta^2 = .02$), but not for performance ($F[1, 75] = 0.07$, $p = .78$). Additionally, there was no significant interaction effect between time and condition for either effort ($F[2, 150] = 0.63$, $p = .53$) or performance ($F[2, 150] = 0.82$, $p = .40$).

Post hoc tests revealed a significant difference in participants' effort between the mastery and benign social comparison conditions. However, this difference was only observed in the first session; it was absent in sessions 2 and 3. Moreover, both effort and performance significantly differed between session 1 and session 2, as well as between session 1 and session 3, but not between session 2 and session 3.

CHAPTER VII

DISCUSSION

In this thesis, benign social comparisons were explored, an under-explored field of research where individuals strive to adopt a non-threatening social comparison strategy, seeking to perform at an average level. Specifically, the influence of benign social comparisons on self-reported motivational measures, such as perceived competence, psychological pressure, perceived usefulness, and enjoyment, along with behavioral measures, such as effort and pressure was investigated.

Study 1

In the first study, the objective was to differentiate between benign social comparisons, mastery goals, and harsh social comparisons while delving into the effects of benign social comparisons on motivational and behavioral outcomes. The primary analysis of Study 1 revealed that the conditions to which participants were assigned—mastery goals, benign social comparisons, and harsh social

comparisons—did not significantly impact enjoyment, psychological pressure, effort, or performance. However, significant differences and intriguing results concerning perceived competence and perceived usefulness were identified.

Although it is hypothesized that participants' motivational and behavioral measures would not differ from those in the mastery condition (Hypothesis 1b), the findings demonstrated that participants reported significantly higher levels of perceived competence and usefulness in the mastery condition compared to those in the benign comparison condition. Contrary to the initial assumption, this suggests that benign social comparisons may not be as advantageous as initially hypothesized, as they fail to yield results that are equally adaptive as those achieved under the mastery goal condition. Furthermore, in direct opposition to Hypothesis 1a, participants reported higher usefulness in the harsh social comparison condition compared to the benign social comparison condition. This finding led to inference that benign social comparisons may be even less advantageous than harsh social comparisons.

Moreover, participants reported higher perceived competence in the mastery goal condition than in the harsh social comparison condition. However, a significant difference was not observed between the mastery and harsh social comparison conditions concerning usefulness. Furthermore, this research partially failed to identify differences between mastery goals and harsh social comparisons, which may be attributed to my manipulation check question. Participants were asked to state their goal, which was intended to identify the condition to which they were assigned. However, for several participants their personal goal and the assigned

condition did not align, as they indicated when they were asked to report their own goals during their task engagement.

In the achievement goal literature, most studies assess students' goals through self-reports and compare these with their academic performance or other learning-related outcomes (Senko & Dawson, 2017). However, in this study, instead of asking participants about their goal adoption, participants were specifically instructed to embrace a certain goal. This methodology may introduce certain complications. One notable issue occurs when a highly competitive participant is assigned a mastery goal. Despite explicit instructions to pursue a mastery goal, the participant's competitiveness may lead them to report that their primary objective remains outperforming others, rather than focusing on the learning process. The second issue arises when participants, despite embracing the prescribed goal, find it misaligned with typical personal goals. For instance, a competitive person might adopt a mastery goal for the study's purpose. However, strategy-based frameworks theorize that a goal only facilitates achievement when there is a 'match' between the strategy promoted by the goal and the method used to measure achievement (Senko, 2019). Therefore, it is crucial to distinguish between the goal participants were instructed to embrace during the experiment and their self-endorsed goal. Consequently, in the second experiment, manipulation check questions were revised to assess both the assigned goal -requested goal- and the participants' self-endorsed goal.

Regarding behavioral measures, the research failed to find statistically significant differences across the different conditions. Although it is observed that

participants performed well and exerted less effort in the first session compared to sessions two and three, these findings could be attributed to the nature of the design. As the first session consisted of an easy solvable tangram puzzle, significant differences between session one and sessions two and three were expected.

Supplementary analyses were also conducted in which the responses to the manipulation check question— “What was your goal?” (with possible answers including performing at an average level, performing better than 90% of other participants, or learning the task)—aligned with the conditions to which participants were assigned.

Contrary to Hypothesis 1b, but in line with the main analysis, participants in the mastery condition reported higher levels of perceived competence, usefulness, and enjoyment, as well as lower levels of psychological pressure, compared to those in the benign social comparison condition. Interestingly, and contrary to Hypothesis 1a, the results revealed that participants in the harsh social comparison condition reported greater enjoyment than those in the benign social comparison condition. Although the primary and supplementary analyses rarely differentiated between harsh and benign social comparisons, when they did, they consistently revealed that benign social comparisons resulted in the poorest outcomes. Consequently, the initial assumptions were reassessed, considering the possibility that benign social comparisons might entail adverse effects.

Moreover, mirroring the previous analyses, greater performance and reduced exertion were observed during the first session compared to subsequent ones, a trend attributable to the inherent design of the study. Contrary to expectations drawn from the extant literature, no substantial distinction emerged between the mastery goal and harsh social comparison conditions, which may stem from the failure to differentiate between self-endorsed and induced goals, as proposed above.

Study 2

The Feedback Effects

In the second study, the aim is to explore the impact of feedback on benign social comparisons while once again trying to differentiate mastery goals and benign social comparisons. Contrary to hypotheses, the main effects of feedback were absent across all behavioral measures.

One plausible explanation for the absence of significant main effects of feedback could be linked to the nature of the feedback employed in the study. Unlike conventional methodologies, which typically incorporate both positive and negative feedback, this research utilized feedback categorized as positive and neutral. This departure from the traditional positive-negative feedback paradigm may have played a pivotal role in shaping the outcomes observed. The aim was to investigate the influence of positive, negative, and neutral feedback. However, due to the necessity for a large volume of participants, the focus was solely on assessing the effects of neutral and positive feedback.

The second explanation could be attributed to the study's design. Participants received feedback after completing all three tangram puzzles. This decision stemmed from the concern that offering randomly positive feedback following failure to solve the unsolvable second and third puzzles might trigger suspicion among participants, potentially leading to the realization of deception.

Consequently, the evaluation was limited to the assessing effects of feedback on motivational measures (such as perceived competence, psychological pressure, enjoyment, and usefulness) but was unable to assess its impact on behavioral outcomes (performance and effort). Nonetheless, a vast body of literature delves into the effects of feedback on performance. For instance, research suggests that when individuals are assigned performance goals, positive feedback tends to enhance their performance, whereas negative feedback bolsters the performance of those pursuing mastery goals (Cianci et al., 2010). Conversely, it has been revealed that performance decline following failure feedback occurs if the feedback is provided after a more complex task (Vancouver & Tischner, 2004). Therefore, the study's design constraints prevented an assessment of the impact of feedback on behavioral outcomes, which could potentially illuminate significant insights. Consequently, it is concluded that feedback that participants randomly received should have been designed more carefully.

Interestingly, an interaction effect between conditions and feedback emerged, particularly in relation to usefulness. Notably, participants distinguished between the benign social comparison and mastery conditions solely when exposed to positive feedback. Conversely, this differentiation was absent under neutral feedback conditions. Thus, participants reported more usefulness in the mastery

goal condition than benign social comparison condition when positive feedback was provided.

Furthermore, participants in the mastery condition reported experiencing less psychological pressure compared to those in the benign social comparison condition. Similarly, participants invested more effort in solving tangram puzzles in the mastery goal condition than in the benign social comparison condition during the first and second tangram sessions. However, this distinction was not apparent during the third session. This finding regarding effort underscores the effectiveness of differentiating between self-endorsed and requested goals.

As observed in the first study, the results concerning performance demonstrated the main effects of time, yet it was not meaningful. While participants assembled more pieces in the initial session compared to sessions 2 and 3, this discrepancy stems from the exclusive inclusion of solvable tangram puzzles in the first session. The failure to differentiate between benign and mastery goals during the initial session may be ascribed to the simplistic nature of the puzzle presented. Consequently, the absence of the main effects of conditions could be attributed to the simplicity of the first tangram puzzle.

In Study 2, supplementary analyses were conducted to ascertain alignment between responses to manipulation check question 1, evaluating self-endorsed goals, and manipulation check question 2, assessing requested goals. The supplementary analysis yielded results nearly identical to the main analysis, with the exception that the interaction effect of feedback and condition was not present

for usefulness. Additionally, participants in the mastery condition exerted greater effort than those in the benign social comparison condition only during session 1 rather than in both sessions 1 and 2.

Limitations

There were several limitations in the studies. In the first study, a confederate acted as a participant to heighten the pressure. However, the gender of the confederate varied depending on the availability of the individuals, which may have potentially influenced the participants' self-assessment of skills and perceived psychological pressure. For example, in digital gaming competitions, female participants reported experiencing more stress and evaluated their skills as lower when they believed they were competing against a male, as opposed to when they thought they were competing against another female (Vermeulen, et al., 2014). As female participants were exposed to both male and female confederates in the first study, fluctuations in the perceived competence and psychological pressure might be affected by this circumstance.

One particular issue exclusive to the first study related to manipulation checks. To determine the condition (mastery, benign, harsh) assigned to participants, a manipulation check question was employed, prompting participants to complete the sentence "My objective during the experiment was to...". The choices included striving to learn the task (mastery), outperforming more than half of the participants (benign), and surpassing 90 percent of others (harsh). Nonetheless, this question could potentially mislead participants, as they might prioritize

personal goals over accurately indicating their assigned condition. Nevertheless, this issue was resolved in the second study.

The third limitation concerns the incorporation of unsolvable tangram sessions. The theoretical framework necessitates participants to experience feelings of failure or at least doubt their success to discern differences among groups (Dweck & Leggett, 1988). However, sourcing tangram puzzles that all participants would fail proved exceedingly difficult due to the subjective nature of these puzzles.

While the tangram puzzles failed to present uniformly challenging tasks to each individual, evaluating performance became challenging due to the utilization of unsolvable tangram puzzles.

The final limitation concerns the incentives provided for participants. Evaluating motivational or behavioral measures using incentives presents challenges, as these incentives may influence participants' behaviors and self-reported motivational measures. For instance, a study indicated that when extrinsic incentives are high, the impact of intrinsic motivation on task effort decreases (Ling et al., 2018).

Moreover, perceptions of incentives can vary. For example, one study found that performance on IQ tests decreased when payments were low (Gneezy & Rustichini, 2000), while another study demonstrated that higher incentives resulted in participants cracking more walnuts (Fahr & Irlenbusch, 2000).

However, participants' perceptions of the incentives as high or low may vary depending on their backgrounds, potentially posing a limitation.

Conclusion

The benign social comparison is a very new area that needs to be investigated.

While the results of this thesis show that benign social comparisons might be even more detrimental than harsh social comparisons, it should be noted that with different tasks and designs, the result might change. However, based on the results of these studies, individuals should strive for harsh social comparisons instead of benign ones if they are in a competitive environment. That being said, pursuing mastery goal is the most effective strategy. Since challenging tasks can induce anxiety and divert attention, potentially diminishing learning and achievement for people who embrace normative goals, it's advisable to prioritize mastery goals, especially in difficult tasks, as they provide ample opportunity for learning (Senko, 2019).

One potential implementation of this study's implications is to guide educators in motivating students through various tailored strategies. Although this thesis does not delve into the educational implications of the findings, different teaching and motivational approaches may be better suited for specific goals. For instance, encouraging students to strive to be the best among their peers might yield more adaptive outcomes than promoting an average performance. However, in general, adopting a mastery goal approach is likely to lead to the most favorable outcomes. That is to say, either strive to master the task or aim to be the best among others, but do not settle for being average.



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APPENDICES

APPENDIX A. Group Comparisons of Study 1 and Study

Table 3 a *Group Comparison of the Motivational Measures Across Three Conditions in Study 1 (N=46)*

Variables	Mastery		Benign Social		Harsh Social		$F(2, 43)$	η^2
			Comparison		Comparison			
	M	(SD)	M	(SD)	M	(SD)		
1. Enjoyment	3.83 _a	(0.79)	3.07 _b	(1.07)	3.91 _{ab}	(0.94)	3.57*	.14
2. Perceived Competence	2.21 _a	(0.80)	1.52 _b	(0.69)	2.12 _{ab}	(0.72)	3.75*	.15
3. Psychological Pressure	2.48 _a	(0.93)	3.52 _b	(1.56)	3.39 _{ab}	(1.17)	3.86*	.15
4. Usefulness	3.81 _a	(0.62)	2.98 _b	(1.08)	3.73 _{ab}	(1.21)	3.64*	.14

Note. * $p < .01$. Cells sharing different subscripts across a row are statistically significant at $\alpha = .01$ (Tukey, two-tailed comparison)

Table 3 b Means, Standard Deviations, and Correlations of the Variables of the Study1 (N= 46)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
2. Usefulness	3.54	0.99	-				
2.Perceived Competence	1.98	0.79	.40**	-			
3.Psychological Pressure	3.01	1.28	-.28	-.36**	-		
4.Enjoyment	3.62	0.97	.55**	.48**	-.42**	-	
5.Performance	5.00	2.56	.22	.38*	-.14	.25	-
6.Effort	247.39	42.17	.04	-.12	-.01	.09	-.04

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

Table 3 c *Group Comparison of the Motivational Measures Across Three Conditions in Study 1 (N=46)*

Dependent variables		Conditions							
		Mastery		Benign		Harsh		Average	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Performance	Session 1	5.19	(2.29)	4.21	(3.04)	5.64	(2.38)	5.00	(2.56)
	Session 2	1.19	(1.50)	1.21	(1.76)	1.00	(1.09)	1.15	(1.47)
	Session 3	1.62	(1.02)	1.43	(0.75)	1.73	(1.10)	1.59	(0.96)
	Average	2.67	(2.46)	2.28	(2.45)	2.79	(2.61)		
Effort	Session 1	217.15	(74.54)	156.83	(72.34)	175.16	(88.95)	188.75	(80.48)
	Session 2	275.16	(57.42)	263.31	(51.78)	267.61	(39.25)	269.75	(51.09)
	Session 3	281.55	(46.61)	287.28	(31.98)	283.09	(50.10)	283.66	(42.72)
	Average	257.95	(66.40)	235.81	(78.27)	241.95	(77.97)		

Table 4 a Means, Standard Deviations, and Correlations of the Variables of the Study 2 (N=77)

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Usefulness	3.60	0.87	-			
2. Perceived Competence	2.18	0.79	.11	-		
3. Psychological Pressure	2.85	1.02	-.06	-.27*	-	
4. Enjoyment	3.89	0.82	.33**	.19	-.22	-

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

Table 4 b *Group Comparison of the Motivational Measures Across Three Conditions in Study 2 (N=77)*

	Mastery				Benign				Condition		Feedback		Condition*Feedback	
	Positive		Neutral		Positive		Neutral							
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1,73)	η^2	<i>F</i> (1,73)	η^2	<i>F</i> (1,73)	η^2
1.Enjoyment	3.93	.74	3.93	.84	4.00	.89	3.64	.92	0.29	.00	0.42	.00	0.80	.01
2.Perceived Competence	2.42	.86	2.13	.59	2.03	.92	1.90	.74	3.02	.03	1.71	.02	0.18	.00
3.Psychological Pressure	2.43	.91	2.74	.97	3.36	1.10	3.44	.84	13.06***	.14	1.13	.01	0.26	.00
4.Usefulness	3.81	.68	3.70	.96	3.26	.94	3.33	.90	5.09*	.06	0.06	.00	0.22	.00

Table 4 c *Group Comparison of the Motivational Measures Across Conditions in Study 2 (N=77)*

Dependent variables		Conditions					
		Mastery		Benign		Average	
		<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)
Performance	Session 1	4.78	(2.69)	4.81	(2.94)	4.79	(2.75)
	Session 2	1.35	(1.57)	1.04	(1.22)	1.25	(1.46)
	Session 3	1.57	(0.90)	2.08	(0.98)	1.74	(0.95)
	Average	2.57	(2.44)	2.64	(2.48)		
Effort	Session 1	226.45	(77.14)	200.74	(86.91)	217.77	(80.93)
	Session 2	294.94	(16.79)	275.35	(43.79)	288.32	(30.05)
	Session 3	294.71	(23.36)	287.43	(29.53)	292.25	(25.65)
	Average	272.03	(57.23)	254.50	(69.62)		

APPENDIX B. Tangram Puzzles

Figure 1 Screenshots from Tangram Puzzles



APPENDIX C. Motivational Measures

Table 5 a Motivational Measures' Questions

	Kesinlikle katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Kesinlikle katılıyorum
1. Bu aktiviteleri yapmaktan çok keyif aldım. (enj1)	1	2	3	4	5
2. Bu aktivitelerde oldukça iyi olduğumu düşünüyorum. (comp1)	1	2	3	4	5
3. Bu aktiviteleri yapmanın eğlenceliydi. (enj2)	1	2	3	4	5
4. Bu aktiviteleri yaparken kendimi çok gergin hissettim. (pres2)	1	2	3	4	5
5. Bu aktiviteleri yapmanın benim için faydalı olduğunu düşünüyorum. (use2)	1	2	3	4	5
6. Bu etkinliklerdeki performansımdan memnunum. (comp4)	1	2	3	4	5
7. Bu aktivitelerin oldukça keyifli olduğunu düşündüm. (enj6)	1	2	3	4	5
8. Lütfen bu sorunun cevabını “Katılıyorum” olarak işaretleyiniz. (attention check)	1	2	3	4	5
9. Bu aktiviteleri yapmanın bana başka aktivitelerde yardımcı olabileceğini düşünüyorum. (use5)	1	2	3	4	5
10. Bu aktivitelerde oldukça becerikliydim. (comp5)	1	2	3	4	5
11. Bu görevler üzerinde çalışırken endişeliydim. (pres4)	1	2	3	4	5
12. Bu aktiviteleri yapmanın hayatımın bir noktasında benim için yararlı olabileceğine inanıyorum. (use6)	1	2	3	4	5
13. Bu aktiviteleri yaparken kendimi baskı altında hissettim. (pres5)	1	2	3	4	5

Note. enj = İlgi/Beğenme; comp = Algılanan Yeterlik; pres = Algılanan Baskı; use = Algılanan Faydalılık