

THE EFFECTS OF FEEDBACK SIGN, ACHIEVEMENT GOAL ORIENTATION
AND REGULATORY FOCUS ON TASK PERFORMANCE

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF SOCIAL SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

TOLGA ŞAHAN

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

AUGUST 2013

Approval of the Graduate School of Social Sciences

Prof. Dr. Meliha Altunışık
Director

I certify that this thesis satisfies all the requirements as a thesis for degree of Master of Science.

Prof. Dr. Tülin Gençöz
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

Ass. Prof. Yonca Toker
Co. Supervisor

Prof. Dr. H. Canan Sümer
Supervisor

Examining Committee Members

Prof. Dr. H. Canan Sümer (METU, PSY) _____

Dr. Savaş Ceylan (Hacettepe U., PSY) _____

Dr. Başak Şahin (METU, PSY) _____

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name : Tolga Şahan

Signature :

ABSTRACT

THE EFFECTS OF FEEDBACK SIGN, ACHIEVEMENT GOAL ORIENTATION AND REGULATORY FOCUS ON TASK PERFORMANCE

Şahan, Tolga

M.S., Department of Psychology

Supervisor: Prof. Dr. H. Canan Sümer

Co-Supervisor: Assistant Professor Yonca Toker

August 2013, 88 pages

The current study aimed to examine the effects of feedback on performance. In the feedback literature, a number of moderators have already been proposed for the relationship between feedback and task performance, such as task complexity, goal-setting intervention, regulatory focus and goal orientation. In this study, the effects of both dispositional and contextually induced goal orientation and regulatory focus, and the effects of feedback sign and self-efficacy were experimentally examined using a medium complexity computerized task.

A between-subjects factorial design was adopted in which, the performers were provided with a positive or negative feedback consistent with their task performance. 207 participants were randomly assigned to one of the four experimental conditions (i.e., situational mastery goal orientation (MGO); situational performance goal orientation (PGO); situational promotion focus; situational prevention focus) following the filling out of a set of questionnaire, measuring their goal orientation, regulatory focus and task-specific self-efficacy. Goal orientations and regulatory foci were situationally and temporarily activated by a number of experimental manipulations

conducted shortly before the experiment. Each participant individually took part in a computerized task, composed of two identical sessions which required estimating the arrival time of a moving object to a predetermined point on the computer screen. Upon the completion of the 1st session, participants were provided with feedback consistent with their actual task performance (i.e., estimation of the arrival moment). Following the feedback, participants completed the 2nd session. The change in the “estimation” performance was measured in terms of the direction and the magnitude (in milliseconds) and used as the dependent variable in the analyses.

The 1st hypothesis suggested the higher benefit of feedback in PGO condition than MGO condition. Results supported this hypothesis by showing that the mean performance was improved for both conditions and the magnitude of the performance improvement was significantly higher in PGO condition than MGO condition. The second hypothesis proposed the higher effectiveness of the positive feedback in promotion condition than prevention; and the higher effectiveness of the negative feedback in prevention condition than promotion. As opposed to the expectations, positive feedback was detrimental to performance in the promotion focus condition and negative feedback was effective in both conditions and the magnitude of the performance improvement was higher in the prevention condition. The last hypotheses asserted that compared to low, individuals with high task-specific self-efficacy would benefit more from feedback in PGO and promotion focus conditions. Results indicated that high self-efficacy individuals used feedback information more effectively than low self-efficacy individuals only in the situational PGO but not in the situational promotion focus condition.

Overall, results pointed out that negative feedback was more effective or functional than positive feedback for such short-term, moderate complexity tasks. Findings, their implications for research and practice in addition to the strengths and limitations of the study are discussed.

Keywords: Feedback, Feedback Sign, Goal Orientation, Regulatory Focus, Self-Efficacy.

ÖZ

GERİBİLDİRİMİN YÖNÜ, BAŞARI HEDEF YÖNELİMİ VE BENLİK DÜZENLEME ODAĞININ GÖREV PERFORMANSINA ETKİLERİ

Tolga Şahan

Yüksek Lisans, Psikoloji Bölümü

Tez Yöneticisi: Prof. Dr. H. Canan Sümer

Eş Danışman: Yrd. Doç. Dr. Yonca Toker

Ağustos 2013, 88 sayfa

Bu çalışmanın amacı, geribildirim performans üzerindeki etkilerini incelemektir. Geribildirim yazınında geribildirim-performans ilişkisine yönelik olarak, görevin zorluğu, hedef belirleme, başarı hedef yönelimi ve benlik düzenleme odağı gibi bazı belirleyici değişkenler bugüne dek öne sürülmüştür. Bu çalışmada hem durumsal hem de yapısal başarı hedef yönelimi ve benlik düzenleme odağı ile birlikte, geribildirim yönü ve göreve yönelik öz-yeterlilik algısının geribildirim-performans ilişkisine etkileri bilgisayar destekli bir görev üzerinde deneysel olarak incelenmiştir.

Denekler arası çoklu tasarımın kullanıldığı bu çalışmada toplam 207 katılımcı kendilerinin başarı hedef yönelimi, benlik düzenleme odağı ve göreve yönelik öz yeterlilik algılarını ölçen bir anket setini doldurmayı takip eden üç ila on gün içinde dört deneysel koşuldaki birine (durumsal öğrenme, durumsal performans hedef yönelimi; durumsal terfi, durumsal önleme odaklılık) seçkisiz olarak atanmıştır. Bu dört deney koşulu deneysel görevin icrasından hemen önce uygulanan bir takım manipülasyonlar ile uyarılmıştır. Her bir katılımcı birbirinin aynısı olan iki oturumdan

oluşan ve hareket eden bir cismin önceden belirlenmiş bir noktaya varış anının tahmin edilmesine dayalı bir bilgisayar görevine bireysel olarak katılmıştır. Birinci oturumun ardından katılımcıya görevde gösterdiği performansa uygun olarak olumlu veya olumsuz bir geribildirim verilmiştir. Geribildirimden sonra katılımcının ikinci bölümde ortaya koyduğu performanstaki değişimin yönü ve büyüklüğü (milisaniye) ölçülerek analizlerde bağımlı değişken olarak kullanılmıştır.

Araştırmanın birinci hipotezi, bireylerin durumsal performans hedef yönelimi koşulunda geribildirimden, durumsal öğrenme hedef yönelimi koşuluna kıyasla daha fazla yararlanacaklarını öngörmüştür. Analiz sonuçları her iki koşulda da geribildirim performansını arttırdığını ve bu artışın performans hedef yönelimi koşulunda anlamlı şekilde daha fazla olduğunu göstermiş ve hipotezi desteklemiştir. Araştırmanın ikinci hipotezi durumsal olarak tetiklenmiş benlik düzenleme odağı koşulları birbirleri ile kıyaslandığında olumlu geribildirim terfi odaklılık koşulunda, olumsuz geri bildirim ise önlenme odaklılık koşulunda daha etkili olacağını ileri sürmüştür. Analiz sonuçları olumlu geribildirim durumsal terfi odaklılık koşulunda performansı azaltıcı bir etkisi olduğunu ancak olumsuz geribildirim önleme odaklılık koşulunda daha etkili olmakla birlikte her iki koşulda performansı arttıran bir etkisinin olduğunu ortaya koymuştur. Bu durumda ikinci hipotez kısmen desteklenmiştir. Son olarak, durumsal performans hedef yönelimi ve durumsal terfi odaklılık koşullarında, öz yeterliliği yüksek olan katılımcıların geribildirimden öz yeterliliği düşük olanlardan daha fazla faydalanacakları hipotez edilmiştir. Analiz sonuçları bu öngörü durumsal performans hedef yönelimi koşulunda desteklemiş fakat durumsal terfi odaklılık koşulunda desteklememiştir.

Bütün olarak sonuçlar, bu çalışmadaki gibi kısa süreli ve geçici görevlerde olumsuz geribildirim olumlu geribildirimden daha etkili olduğunu göstermiştir. Araştırmanın sonuçları, sonuçların kuramsal ve uygulamaya dönük etkileri, çalışmanın kuvvetli ve zayıf yönleri tartışılmıştır.

Anahtar kelimeler: Geribildirim, Geribildirim Yönü, Başarı Hedef Yönelimi, Benlik Düzenleme Odağı, Öz Yeterlilik.

ACKNOWLEDGMENTS

With its distinct approach to science, learning, individual development and education, the institution which I have been affiliated with, offered me the opportunity to be educated and study in the area of I/O Psychology, with all kind of support provided generously. So, I would like to express my gratitude to the Turkish Land Forces at the outset of the acknowledgments.

I would like to express my deepest appreciation to my supervisor Prof. Dr. Canan Sümer, to whom I owe a lot for her guidance and support throughout my study. The value given and the respect exhibited by her toward her job, her students and their studies was a great inspiration, which enabled me to discover and more effectively use my potential during my education period. It was a great chance and honor to be her student and to work under her supervision, which has been marked by her fair, accurate, constructive and motivating criticism, a thorough approach for perfectionism, a value given to the theoretical understanding, and an embracement of different point of views and practical approaches.

I would like to appreciate to my co-advisor Assistant Professor Yonca Toker for her unconditional support and her detailed criticism at the crucial points of the study. Her idealistic approach and guidance provided a great value to my study.

I owe many thanks to Prof. Dr. Reyhan Bilgiç for her scientific support and enlightenment during my study, and to my fellow students for their sincere friendship.

I can never forget the support provided by Atahan Özer by creating the “turnkey” software of the computerized experimental task and for repeatedly revising it upon my requests without any complaint and without expecting any return.

I owe my never ending gratitude to a special woman, who has never withheld her support, patience and warm affection from me, and to a special daughter who is the greatest gift of the God to me. During this occasionally exhausting process, in which I

have stolen a good share of the time I had to spend with you, you were very supportive to me by all respect. I love you Asli, I love you Begüm.

TABLE OF CONTENTS

PLAGIARISM.....	III
ABSTRACT	IV
ÖZ.....	VI
ACKNOWLEDGMENTS.....	VIII
CHAPTER I	1
INTRODUCTION.....	1
1.1. OVERVIEW.....	1
1.2. FEEDBACK CONCEPT	2
1.3. FEEDBACK INTERVENTION AND RELATED THEORIES	5
<i>1.3.1. The Law of Effect.....</i>	<i>5</i>
<i>1.3.2. Goal-Setting Theory.....</i>	<i>6</i>
<i>1.3.3. Control Theory.....</i>	<i>8</i>
1.4. LIMITATIONS OF THE CLASSICAL APPROACHES TO FEEDBACK.....	9
1.5. FEEDBACK INTERVENTION THEORY (FIT).....	10
<i>1.5.1. FIT: Moderators.....</i>	<i>13</i>
1.6. FEEDBACK AND INDIVIDUAL DIFFERENCE VARIABLES.....	15
<i>1.6.1. Self-efficacy.....</i>	<i>15</i>
<i>1.6.2. Feedback and achievement regulatory perspectives.....</i>	<i>17</i>

CHAPTER II.....	24
CURRENT STUDY.....	24
2.1. OVERVIEW.....	24
2.2. RESEARCH HYPOTHESES.....	27
CHAPTER III.....	31
METHOD.....	31
3.1. PARTICIPANTS.....	31
3.2. MATERIALS.....	31
3.2.1. Measures.....	31
3.2.2. <i>The Speed-Distance Estimation Task</i>	34
3.3. DESIGN.....	36
3.4. PROCEDURE.....	36
3.4.1. <i>First phase</i>	37
3.4.2. <i>Second phase</i>	37
CHAPTER IV.....	42
RESULTS.....	42
4.1. OVERVIEW.....	42
4.2. DATA SCREENING AND CLEANING.....	42
4.3. MANIPULATION CHECK ANALYSES.....	42
4.3.1. <i>Goal orientation manipulation check</i>	42
4.3.2. <i>Regulatory focus manipulation check</i>	44

4.4. DESCRIPTIVE STATISTICS	45
4.5. INITIAL ANALYSES	49
4.6. HYPOTHESIS TESTING.....	52
4.7. EXPLORATORY ANALYSES	56
4.7.1. <i>Examining differences in performance change across conditions</i>	56
4.7.2. <i>Gender differences in use of feedback information</i>	61
CHAPTER V	63
DISCUSSION	63
5.1. OVERVIEW OF THE FINDINGS AND THEIR INTERPRETATIONS	63
5.2. IMPLICATIONS OF THE FINDINGS.....	70
5.3. STRENGTHS OF THE STUDY	71
5.4. LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FUTURE RESEARCH.....	73
REFERENCES	74
APPENDICES.....	84
APPENDIX A: WORK DOMAIN GOAL ORIENTATION SCALE.....	85
APPENDIX B: REGULATORY FOCUS QUESTIONNAIRE	86
APPENDIX C: TASK-SPECIFIC SELF-EFFICACY MEASURE	88

CHAPTER I

INTRODUCTION

1.1. Overview

Classical feedback-related theories have long dominated the feedback literature with the basic premise that feedback is always effective in performance improvement. However, a strong objection to this widely accepted assumption came from a renowned review by Kluger and DeNisi (1996), with meta-analytic results pointing out that a unilateral positive effect of feedback on performance is unlikely. Including 607 primary studies, the Kluger and DeNisi meta-analysis showed that, feedback intervention (FI) improved the subsequent performance by 0.4 of a standard deviation. Furthermore, it reported that in one third of the instances, feedback intervention was detrimental to performance. Mostly after this finding, several moderators to the feedback-performance relationship have been proposed. A number of individual difference variables, task type, and factors related to feedback message were proved to take effect in this process. Among the individual difference variables, mastery (i.e., learning) goal orientation and performance goal orientation, regulatory focus (i.e., promotion and prevention focus), and self-efficacy drew the most research attention. In addition to these personality factors, feedback message (e.g., feedback sign, the reference for the goal attainment), goal setting intervention, and task type were manipulated as well. These approaches shed some light on the nature of the feedback process. However, inconsistencies in the effect of FI have still been observed due mainly to the existence of additional moderators to be discovered. In the present study, the effects of situational cues activating contextual forms of goal orientation and regulatory focus were examined along with the dispositional forms of these constructs.

Although it is among the well acknowledged and well established individual difference variables, self-efficacy seems to receive little research attention in relation

to FI. Therefore, the effects of self-efficacy on the use of feedback information were also examined in scope of a proposed hypothesis.

The originality of this study comes from its inclusion of both forms (i.e., dispositional and contextual) of achievement regulatory mechanisms in same and single task with a between-subjects factorial design. In the following sections of this chapter, feedback concept, its theoretical background and the substantial individual difference variables affecting feedback process were briefed.

1.2. Feedback Concept

It is a widely accepted view that performance feedback is valuable and indispensable in ensuring individual and organizational performance improvement and development (e.g., Ashford & Cummings, 1981, 1983; Baker, 2010; McDowall & Mabey, 2008). Employee feedback is a resource obtained directly on the job (i.e., informal feedback) or through performance appraisal (De Luque & Sommer, 2000). In the most basic and general terms, London (2003) defines feedback as “the information people receive about their performance” (p. 11). Kluger and DeNisi (1996) define FI as “the actions taken by (an) external agent(s) to provide information regarding some aspect(s) of one’s task performance” (p. 255). As can be inferred, these statements portray the feedback recipient as a passive object of the information. Ashford and Cummings (1983, 1985) denote that as the value of the feedback for individual increases, employees may actively seek feedback or obtain valuable information about their performance by actively monitoring and interpreting social cues of the environment. In the present study, however, source of the feedback was designed to be external (i.e., the experimenter as the feedback provider), and “self-processed feedback” (i.e., feedback obtained by observations and social cues of the environment; Ashford, 1986) was not examined.

Human performance system is composed of input, process, output, consequences and performance review, or feeding back (Rummler & Brache, 1995). Although the Rummler and Brache model is characterized with high involvement of technology and automated system operations in the process, the need for a human

intervention and decision making is obvious at almost all stages. From the organization's perspective, feedback is a performance management tool with which deviances between individual and organizational objectives are eliminated, behaviors are directed and efforts are intensified (London, 2003). Organizations using feedback effectively are able to review their performance system at the performer level and secure an important part of competitive advantage by increasing the effectiveness of their employee capability (Carmeli & Weisberg, 2006). Unless a sound and effective feedback system and feedback culture are established within the organization, there are no clear expectations from the employees, no future goals to attain, and little hope for optimizing human performance and obtaining favorable organizational outcomes (Baker, 2010).

From the individual's perspective, the value of feedback is less straightforward. The complexity arises both from the environmental and individual differences affecting the feedback process and from the individual and social implications of the feedback message. For example, in the very basic terms, a feedback message implying the recipient's lack of effort, knowledge or skill is very likely to cause dramatically different reactions in different individuals, in different social environments or at different organizational levels. Because of the factors affecting the value of feedback, individual differences in feedback seeking behavior, cognitive and affective reactions to feedback message and the effect of FI on performance are likely. For example, motivation behind feedback seeking might be related to many different individual objectives; such as, reducing uncertainty about the valence of various goals, evaluating someone's position in the achievement of personal goals (Ashford & Cummings, 1985), showing that someone has released some early criticism due to the performance deficiencies (Larson, 1989), or getting social rewards by the recognition of good job (Morrison & Bies, 1991). However, it can be asserted that central to the motivation to seek feedback is a need to know yourself (i.e., how you're doing, how you're viewed by others, and how well your current behaviors are accepted; Dalessio, 1998). According to Ashford and Cummings (1985), the value of feedback for individuals stems from its instrumentality in the realization of various goals and its utility in

resolving uncertainties surrounding the attainment of goals. In organizational settings, the value of feedback is congruent with what it produces, how it helps obtaining desired results, and how well it portrays the recipient through the lenses of others (Ashford, 1986; Ashford & Cummings, 1985). In a nutshell, the value of feedback to the individuals might show significant diversity due to the factors arising from individual differences, task characteristics and environmental or situational factors.

The expected function of FI is enhancing performance. Job performance is crucial for both individuals and organizations in obtaining desired outcomes. Organizations increasingly need high performing individuals in their efforts to achieve a competitive edge (Carmeli & Weisberg, 2006). Differences in task performance have been explained by individual and situational differences, and performance regulation perspectives. For example, Campbell's (1990) prominent study, modeling performance differences from individual differences states that performance is a function of knowledge, skills and motivation. Within this perspective, learning is an essential part of job performance.

When performance differences are examined within performance regulation perspective, goal-setting (Locke & Latham, 1990) and feedback (Ilgen, Fisher, & Taylor, 1979) gain specific importance. Likewise, major approaches using the situational perspective (e.g., job characteristics model of Hackman and Oldham, 1976) also take feedback as a component of job characteristics and assume that job characteristics are related to critical psychological states, which affect job performance. It is worth noting that, many distinct perspectives take motivation as an essential antecedent of performance (Kanfer, 1992). Employees are motivated to perform well because they are more likely to obtain systematic rewards (Van Scotter, Motowidlo, & Cross, 2000), extrinsic (e.g., recognition, promotion, prestige) and implicit (e.g., enjoyment, satisfaction) benefits when they perform well. High performance, in turn, leads to increased motivation, performance, satisfaction, and perceptions of control over the outcomes (Lopez, 1981). Consistent with these diverse approaches to the concept of performance, feedback researchers suggest that feeding back should excite the recipient's potential to shift the work related behavior by means

of learning, goal setting and motivation (e.g., Ilgen et al., 1979; London & Smither, 1999). Appropriate FIs establish standards of performance, set goals and direct behavior. When the initially established performance goals are attained, feedback influences the level of future performance goals, helping to formulate career goals and leading to employee development (London, 2003).

In sum, the feedback literature consistently supports the idea that feedback is an indispensable corrective and developmental tool for both individual and organizational performance. However, the idiosyncratic and social-environmental variables should be taken into account so as to be effective in the attainment of the desired results.

1.3. Feedback Intervention and Related Theories

There are a number of diverse theoretical approaches relating to feedback concept. Palmer and McDowall (2010) assert that feedback concept has been fed from the *feedback intervention theory* (FIT; Kluger & DeNisi, 1996), *theory of possible selves* (Markus & Nurius, 1986), *goal-setting theory* (Locke & Latham, 1990), *control theory* (Carver & Scheier, 1981), *regulatory focus theory* (Higgins, 1997, 1998), and *appreciative enquiry* (Cooperrider & Srivastava, 1987). Likewise, Kluger and DeNisi (1996) suggest the *law of effect* (Thorndike, 1913), *control theory*, *goal-setting theory*, *social cognition theory* (Bandura, 1989), *action theory* (Frese & Zapf, 1994), *multiple-cue probability learning paradigm* (MCPL; Balzer, Doherty, & O'Connor, 1989), and *learned helplessness theory* (Mikulincer, 1994) as the underlying theories of the feedback concept. These theories do not take feedback as their central component except Kluger and DeNisi's FIT. In the following sections, some of these theories, their strengths and limitations are briefly discussed with reference to feedback concept.

1.3.1. The Law of Effect. Kluger and DeNisi (1996) acknowledge Thorndike's (1913) *law of effect* as "the single most influential theory in this area" (p. 258). One of the principles of the *learning theory of connectionism*, the law of effect, postulates that responses to a situation which are followed by a rewarding state of affairs (e.g., incentives, successes) will be strengthened and become habitual responses to that

situation and responses that reduce the likelihood of achieving a rewarding state (e.g., punishments, failures) will decrease in strength (Thorndike, 1913). Empirical studies showed that the associations between stimuli and responses become strengthened or weakened by the nature and frequency of the stimuli-response pairings, which in turn, lead to trial and error learning, in which certain responses become habitual over time due to punishment or reward. The theory acknowledges the function of reinforcers but ignores unobservable internal states (e.g., cognitive processing) in the learning process. With reference to FI, reinforcement corresponds to success (i.e., positive) feedback, and punishment corresponds to failure (i.e., negative) feedback (Kluger & DeNisi, 1996). Since both reinforcement and punishment are associated with feedback, it is not surprising that theory expects a unilateral effect of FI. Specifically, when a performer perceives negative feedback, as a punishment, motivation and effort to avoid negative feedback will increase, which is likely to lead to performance improvement. Likewise, when positive feedback is perceived as an incentive, the performer will be motivated and strive for the better. In other words, in both cases, feedback should affect performance in the desired direction. This was a view that inspired many of the feedback researchers for decades (Kluger & DeNisi, 1996). Nevertheless, the main problem with the law of effect is its simplistic approach to the phenomenon and the lack of conceptual depth in explaining the inconsistent empirical findings. For example, the law of effect is unable to explain why FI doesn't always lead to an increase in learning, motivation or subsequent performance (Kluger & DeNisi, 1996). However, the law of effect seems to have established a strong conceptual base over which more sophisticated feedback-related approaches have been built.

1.3.2. Goal-Setting Theory. Compared to the law of effect, *goal-setting theory of motivation* (Locke & Latham, 1990) is more intertwined with the feedback concept. Goal-setting theory postulates that setting goals essentially increases task performance compared to no or “do your best” goals (Locke & Latham, 1990). Meta-analyses support this notion by showing that compared to simply asking people to do their best,

setting difficult goals leads to higher performance with effect sizes ranging from .42 to .80 (e.g., Locke & Latham, 1990). Goal-setting *theory* was developed on the premise that conscious goals affect action. According to Locke and Latham (1990), specific and challenging goals along with appropriate feedback contribute to higher and better task performance. In other words, goals clarify the input and the amount of effort to put in, and give direction to the effort in order to attain desired end states. In their review, summarizing the empirical researches of the field, Locke and Latham (2002) report that, goals affect performance through four mechanisms. First, goals *direct* attention and effort toward goal-relevant activities. Second, goals *energize* effort, such that, higher goals lead to greater effort than lower goals. Third, goals affect *persistence* both in terms of duration and frequency. Fourth, goals affect action indirectly by leading to the *arousal*, *discovery*, and/or the use of task-relevant *knowledge* and *strategies*.

Goal-setting theory inspired primarily the research on the effects of goals on motivation and performance. Locke and Latham (2002) report that the motivational impetus derived from the goal-setting intervention is likely to be affected by some moderating variables. Goal commitment, task complexity and feedback are among the critical moderator variables. Appropriate feedback signals progress in performance with reference to goals and helps directing employee behavior toward the attainment of goal, thus, contributes to higher performance. Without the knowledge of performance, goal-setting intervention is unlikely to take effect, because it is the *negative feedback loop* that reveals the gap between the current and desired level of performance as stated by the control theory (Carver & Scheier, 1981). Feedback is a tool for making clarifications and for helping performer to overcome task difficulties. Appropriate feedback environments help employees to work with higher involvement and lead to greater job satisfaction (Anseel & Lievens, 2007; Spreitzer & Porath, 2012). There is no doubt that goal setting is an essential part of the FI because, without clear objectives and definite goals to achieve, there is no standard to make a comparison with the current performance.

On the other hand, goal-setting theory is limited in a number of ways. Locke and Latham (2002) admit that the theory comes short in explaining the effects of conflicting goals even within the individual's self (e.g., self-related goals, task-related goals, organizational goals) in cases where the goals are not aligned. In addition, when challenged, people are expected not only to increase effort but also to develop alternative strategies or to take risks. In such instances, even though an approaching action strategy is adopted, higher risk strategies sometimes cause performance decrement instead of improvement. Another possibility is adopting an avoidant behavioral response; losing interest to goals and task, which was not dealt by the goal-setting theory. Furthermore, goal-setting theory does not respond to what happens when both mastery and performance goals are in effect. Finally, this theory only deals with the conscious motivation. But as indicated by McClelland, Atkinson, Clark, and Lowell (1953), achievement motivation is also unconscious and humans can take action and make their decisions without being fully aware of the factors affecting their motivational processes. Despite these problems, goal-setting theory is an indispensable milestone for feedback research, and goal setting intervention per se, is proved to lead to higher levels of performance gains (Howard & Bray, 1988; Kluger & DeNisi, 1996; Tracy, Locke, & Renard, 1999).

1.3.3. Control Theory. *Control theory* (Carver & Scheier, 1981) has a considerable power of explaining human behavior in relation to an aspired or imposed goal. Control theory postulates that, like mechanical control systems, humans utilize feedback to ensure the attainment of goals. In human control system, *negative feedback loop* refers to a negative discrepancy between the standard and current level of outcomes and a *positive feedback loop* refers to the information denoting that one has exceeded the standard. There are two basic comparison mechanisms of goal attainment; cognitive and affective. The cognitive component consists of goals, the processing of information about the current state and comparison of the outcomes with the goals. Affective component involves comparison of the current states with desired end states. A discrepancy between the two initiates corrective actions. The theory

arranges complex goals into a hierarchy, such that the negative feedback loop between a higher-order goal and the current state assigns the standard for the lower-order goal. For example, the need for a higher level of wage might motivate someone for getting promoted. In this example, the means for the attainment of higher level goals become the standard for lower level goals (Brewer & Lichtenstein, 1981). Likewise, the desire for earning higher levels of wage might have stemmed from the desire for living in a better neighborhood or in a larger house. Since the human capacity for the cognitive processing is limited (Klein, 1989), classification of goals into the hierarchy is useful. Unless this classification is established, confusion arises in relation to the effects of different goals to the cognitive processing and selection of action strategies.

Since control theory was derived from cybernetic engineering (Powers, 1978), it has a mechanistic approach to human motivation, which is the primary limitation of the theory (Locke & Latham, 2002). Control theory ignores unconscious motivation and takes the negative feedback loop as the only source of motivation. In addition, it cannot explain the process by which higher level goals are set when the initial aspirations come true. Nevertheless, control theory has important contributions to the knowledge of feedback, such as the negative feedback loops and the hierarchical classification of goals. As such, control theory is important in explaining the basic motivational processes in connection with goals and FI.

1.4. Limitations of the Classical Approaches to Feedback

For decades, the proponents of the classical feedback theories assumed that feedback is unequivocally useful no matter what the situational or task-related attributes were (e.g., Ammons, 1956). This assumption was mainly an offspring of Thorndike's law of effect (1913), suggesting both negative and positive FIs to be effective in performance improvement, because the former operates as a negative and the latter, as a positive reinforcer to the recipient (Kluger & DeNisi, 1996). As opposed to the largely accepted assumptions of the classical feedback theories, Kluger and DeNisi (1996) reported that it is often unlikely to obtain unilaterally positive effects. Likewise, whereas London (2003) acknowledges feedback as an important managerial

and individual tool for development; he points out many contexts in which feedback might be ineffective or even detrimental due to the factors arising from feedback providers, recipients, task and the social environment. On the other hand, a contrasting view proposes that people's need to see themselves in a positive light (i.e., the self-enhancement motive) might turn decision makers to less than a rational problem solver and, more realistically, they might not always increase their effort for closing the gap between the actual performance and the aspiration level (Jordan & Audia, 2012; Kluger & DeNisi, 1996). Likewise, many diverse feedback-related theories seem not to comprehensively explain the cognitive and affective mechanisms by which the FIs take effect. This fact was also confirmed by Kluger and DeNisi (1996) as the starting point of the development of the FIT. Kluger and DeNisi (1996) criticized some early researchers for ignoring their own findings pointing out possible inconsistent effects of feedback and sticking on the mainstream research trend of the date. Reportedly, the inconsistencies and potential shortcomings of the early feedback-related theories (i.e., the law of effect, control theory, goal-setting theory, social cognition theory), led them to develop a thorough FIT and search for the potential moderators between FI and performance. They proposed FIT as a remedy for the simplistic assumptions of the classical feedback-related theories taking performance improvement for granted when feedback is provided. FIT doesn't dismiss the early feedback-related theories, instead does inspire from and attempts to integrate them.

1.5. Feedback Intervention Theory (FIT)

To my knowledge, being the first to conceptualize a thorough feedback theory, FIT seems to have received a great deal of interest and acknowledgement from the academic society, and have inspired many contemporary feedback studies as well. Based on the findings of their meta-analytic review, Kluger and DeNisi (1996) reported that feedback improved performance by approximately 0.4 of a standard deviation, but this effect was not consistent, such that, in over one third of the cases, feedback reduced performance. Their theory suggests that, in a variety of FIs, ranging from "knowledge of results" to "corrective feedback," inconsistencies in the beneficial

effects of feedback are likely. In other words, feedback does not always increase performance and is detrimental to performance under certain conditions (Kluger & DeNisi, 1996, 1998). After this finding, they examined feedback sign (i.e., a negative feedback, pointing out a decrement in performance or a positive feedback, pointing out an increase in performance) as a potential moderator to this relationship. They found that, these inconsistent effects were independent of feedback sign.

FIT has five basic assumptions: (1) The basic mechanism in behavior regulation is the evaluation of *feedback-standard comparison*, (2) goals and standards are organized *hierarchically*, (3) *attention is limited* and only feedback-standard gaps that receive attention are likely to stimulate behavioral regulation, (4) attention is normally directed to a *moderate level of the hierarchy* (i.e., the task level), (5) FIs change the *locus of attention*, therefore affect behavior (Kluger & DeNisi, 1996, p.259). These five assumptions are important in comprehending the mechanism by which FI takes effect on motivation and performance.

The first assumption postulates that, feedback-standard discrepancy is the main stimulus in behavioral regulation, which is also a fundamental assumption of the control and goal-setting theories as well. That is, when feedback points out a gap between the current and desired performance, people will be motivated to close this gap. When feedback motivates the recipient for the elimination of the feedback-standard gap, the effort is increased if the feedback sign is negative, and maintained or decreased if positive. Up to this point, what is proposed by the FIT is consistent with goal-setting and control theories, suggesting that only the negative feedback has the potential to motivate individuals for striving for improvement, because positive feedback signals a reduction in the gap toward the aspiration level, a message that is likely to comfort the recipient and cause maintained or reduced effort (Carver & Scheier, 1982; Locke & Latham, 1990; Lord & Hanges, 1987).

Being inspired from the control theory, the FIT organizes negative feedback loops in a hierarchy. As described and exemplified under the section 1.3.3, FIT recognizes that higher level loops have the potential to change the goals of lower level loops. By this way, the standards for lower-order goals are determined by the

aspiration level of higher-order goals. What were brought newly into the literature by the FIT are the meanings of the levels of hierarchy. The FIT categorizes the hierarchical levels as self, task, and physical action goals. Within this hierarchical construct, self, task, and physical action goals occupy the top, middle, and bottom levels, respectively. Kluger and DeNisi (1996) report that direct empirical support for this type of hierarchy comes from *action identification theory* research (Vallacher & Wegner, 1987). According to this theory, when people learn a task and automate their performance, attention is directed at the self-related aspects of the action, where, for example, the meaning of action (i.e., task performance) is questioned. In contrast, when performance of a task is not automated, attention is directed at the task learning processes. When the notion of hierarchy is applied to the actions, self-related goals are expected to direct task-related goals, which in turn, direct action goals.

FIT assumes that attention is normally directed to moderate level goals, where the task progress is monitored, due to the fact that human cognitive processing capacity is limited. When attention is directed to the moderate level goals (i.e., task) and kept at that level, the basic mechanism of behavioral regulation is expected to work, meaning that, FI conveying a message about the performance gap, by default, leads to an increase in *effort*. Increasing effort is a universal strategy that is usually useful in obtaining desired goals. Because, this option requires little incremental allocation of the cognitive resources. However, FI has the potential to shift the locus of attention by affecting task motivation. This last statement is the most crucial point of the FIT and makes it different from other feedback related theories. If feedback doesn't bring out motivation to reduce feedback-standard discrepancy, or increased effort doesn't reduce discrepancy, the feedback recipient has two options; *diverting attention* to higher (i.e., meta-task) or lower level (i.e., task learning) processes. When attention is shifted to meta-task processes (i.e., to the self), belief in one's success is questioned. In case a high goal commitment or belief in success exists (such as, self-efficacy), attention is likely to be diverted to task learning processes rather than to stay at the self. When the attention is diverted to learning process, the recipient generates alternative hypotheses about the details of task performance. In case the FI

communicates the cues for overcoming difficulties and rejecting erroneous strategies, the recipient is more likely to learn from appropriate strategy, rather than from errors. Thus, feedback messages that communicate the appropriate strategies have the potential to keep the recipient's attention at the learning process, instead of diverting it to the self. Therefore, such feedback messages are more helpful.

When feedback cues and outputs of task processes divert attention to meta-task processes; (a) the recipient may be motivated to reduce feedback-self discrepancy and the motivation for reducing discrepancy may induce *effort* on task when feedback sign is negative, or may make the recipient recognize an *opportunity* to attain self-related goals when the sign is positive; (b) the recipient may *abandon* or *devalue* the focal task and engage in other tasks that would signal the attainment of a positive self-view. As the salience of FI increases, the likelihood of engaging in meta-task processes increases. Even when the feedback sign is positive and praising, the effect of FI might attenuate performance when meta-task processes are activated, because the shift of attention away from the task requires reallocation of cognitive resources. As can be seen, one of the two options involve in performance attenuation or abandonment of the task even if the feedback message is welcomed by the recipient. Rejection of the feedback message is also possible when meta-task processes are activated.

1.5.1. FIT: Moderators. Kluger and DeNisi (1996) predicted that the effects of FI on performance are moderated by a number of variables. These are the cues of the feedback message, nature of the task performed, goal setting intervention, and personality variables. The results of the meta-analysis provided support for some of the proposed moderators.

1.5.1.1. Cues of the feedback message. Kluger and DeNisi's (1996) meta-analysis suggest that feedback cues affect performance by changes in locus of attention. When feedback cues activate meta-task processes, attention to self-related goals leads to disengagement from the task. Activation of meta-task processes might be initiated by both praise (e.g., a positive feedback sign) and discouraging feedback message (e.g., a negative feedback). The resulting cost of activating feedback

recipient's meta-task processes is the attenuation in the effects of FI on performance. Therefore, regardless of its sign, feedback messages diverting the recipient's attention to the self is something to be refrained. On the contrary, feedback cues that direct the recipient's attention to task execution or task learning processes increase the effects of FI on performance. The lower in the hierarchy the FI-induced locus of attention is, the stronger the benefit of an FI for performance. Accordingly, FI cues that direct attention to learning processes were given the highest credit. These kinds of FIs are endowed with the capacity to initiate a direct learning effect, unless these messages are impaired with the lack of cues that help the recipient to reject erroneous hypotheses.

1.5.1.2. Task characteristics. Kluger and DeNisi (1996) investigated the moderating role of task characteristics, as well. However, they were able to find only a limited and weak support for the proposition that FIs are more effective for the tasks requiring fewer cognitive resources. This proposition was based on the fact that feedback effect on performance via motivational processes increases when the task is relatively less complex (Ackerman, 1987). They reasoned that, the lack of meta-analytic support for the moderating effect of task complexity on FI-performance relationship is mainly due to the lack of a clear taxonomy of tasks.

1.5.1.3. Goal-setting intervention. FIT gives additional credit to goal-setting theory by recognizing goal-setting intervention as one of the moderators. Consistent with what Locke and Latham (1990, 2002) suggested, the meta-analytic results of Kluger and DeNisi (1996) study showed that goal setting interventions augment the effect of FI on performance by directing the recipient's attention to task processes.

1.5.1.4. Personality variables. Personality variables moderate the relationship between FI and reactions to feedback, such that, they affect type of goals that attention is directed and modes of resolving perceived feedback-standard discrepancy. For example, some people are more likely to pay attention to self-related goals than others as a result of receiving negative feedback. Unfortunately, Kluger and DeNisi (1996) could not analyze the effect of personality variables due to the lack of personality data in primary studies. However, several empirical studies report the moderating effects of

personality variables on the feedback process. In the following section, some of the individual difference variables critical for the feedback process are discussed.

1.6. Feedback and Individual Difference Variables

A number of individual difference variables are thought to moderate the effect of feedback on performance including self-efficacy, goal orientation, and regulatory focus. These constructs have been well established and seem to have received relatively extensive research attention. Most of the studies, however, focused on the dispositional aspects of these individual difference variables (Van Dijk & Kluger, 2004). In the present study, a situational approach to goal orientation and regulatory foci was adopted. Self-efficacy construct was also included with the expectation that increasing the belief in one's ability to a particular task might improve the effectiveness of FI in some circumstances. In this section, the literature on these individual difference variables is briefly reviewed.

1.6.1. Self-efficacy. As part of Bandura's social learning theory (1977), self-efficacy refers to the belief in one's ability to perform a particular task (Bandura, 1982). By definition, self-efficacy is an individual's assessment of his/her capabilities to organize and execute actions required to achieve successful levels of performance (Bandura, 1986). As a self-regulatory mechanism, self-efficacy has consistently been found to be an important predictor of human accomplishments in diverse areas, including sports (Coffee & Rees, 2008; Çetinkalp & Türksoy, 2011), workplace (Khurshid, Qasmi, & Ashraf, 2012; Olayiwola, 2011) education, learning, memory (Beaudoin & Desrichard, 2011; Hastings & West, 2011; Salmeron-Perez, Gutierrez-Braojos, Fernandez-Cano, & Salmeron-Vilchez, 2010; Wang & Wu, 2008), and arts and creativity (Bruning, Dempsey, Kauffman, McKim, & Zumbunn 2012; Tierney & Farmer, 2011). In addition to predicting performance, researchers established a substantial causal relationship between self-efficacy and performance, which demonstrates that self-efficacy influence a number of individual variables, such as,

goal level, goal commitment, reactions to feedback and subsequent performance (Locke, Frederick, Lee, & Bobko, 1984).

A number of studies report that compared to people with low self-efficacy, those with high self-efficacy are more likely to attribute failure to unstable causes, such as bad luck (e.g., Coffee, Rees, & Haslam, 2009; Coffee & Rees, 2008; Tolli & Schmidt, 2008). Consistently, individuals with high self-efficacy tend to increase their effort more than those with low self-efficacy in response to negative feedback (Podsakoff & Farh, 1989), because they perceive a more direct link between effort and performance (Bandura, 1986). Feedback also influences future self-efficacy, such that, negative feedback tends to lead to lower self-efficacy (Bandura, 1986). Consequently, destructive criticism, as opposed to constructive criticism, lowers subsequent self-efficacy (Baron, 2008).

Ilgén and Davis (2000) specifically focused on the recipient's evaluative mechanisms and affective reactions toward negative feedback. They proposed ways for framing negative feedback to make it more effective. Based on their review, Ilgén and Davis (2000) proposed a model in which factors affecting negative feedback process were identified. Causal attributions of perceived level of performance, and action alternatives form the model's main body. According to this model, task-specific self-efficacy affects the initial and subsequent levels of performance. Since self-efficacy is both an antecedent and a consequence of performance, those who are high in self-efficacy tend to perform better, and high level of performance, in turn, leads to the acquisition of higher levels of task-specific self-efficacy (Bandura, 1997). From a control theory perspective, self-efficacy may serve as a standard of the self and when lowered, it leads to a performance decrease in subsequent trials, as suggested by the hierarchical nature of the negative feedback loops (Kluger & DeNisi, 1996). Therefore, those high in self-efficacy set higher goals, are more committed to these goals, find and use better task strategies, and respond more positively to negative feedback than do people with low self-efficacy (Locke & Latham, 2002).

Repeated negative feedback has a destructive effect on performer's self-efficacy, which in turn affect subsequent task strategies and turn the attention to the

self. Self-efficacy is also an antecedent of the selection of an approaching or avoidant action strategy (Ilgen & Davis, 2000; Kluger & DeNisi, 1996). When the internal attributions threaten the maintenance of a positive self-concept, those who are high in self-efficacy are more likely to employ an approaching action strategy, embracing a set of action alternatives, of which, some contain the true paths. In case of receiving a negative feedback, they are more likely to increase effort or alter the action strategy toward obtaining the desired outcome. According to Kluger and DeNisi (1996), the effects of self-efficacy is higher in feedback situations in which self-related concerns are more salient.

Consequently, self-efficacy is a substantial individual difference variable affecting the reactions to feedback and the choice of approaching versus avoidant action strategies. As the effects of self-efficacy is higher in situations in which self-related concerns are salient (Kluger and DeNisi, 1996), this study examined self-efficacy in the feedback-performance process by taking it a moderating variable in experimental conditions in which self-related concerns are salient.

1.6.2. Feedback and achievement regulatory perspectives. The search for potential moderators to the feedback-performance relationship revealed that regulatory focus and goal orientation perspectives are useful in this process. In this section, these theories, their importance in feedback concept and the similarities between the two concepts are discussed.

1.6.2.1. Achievement goal orientation. Research on achievement goal tradition revealed two distinct forms of achievement goals referred to as *performance goals*, and *mastery goals*. Goal orientation theory (Dweck, 1986) proposes that motivation can be guided by these two distinct forms of achievement goals. According to this theory, whereas individuals with mastery goal orientation (MGO) want to learn new skills without developing a concern about their performance relative to others, those who operate with performance goal orientation (PGO) strive for demonstrating their ability and competence in order to avoid negative evaluations and to receive favorable ones from others. Performance goals provide an external perspective and an emphasis on

normative comparisons that individuals cannot generate on their own (Harackiewicz & Elliot, 1993). Individuals exhibiting a PGO tend to perceive achievement situations as the tests of their competence. On the other hand, they are aversive of the situations that reveal their relative incompetence or bear a threat to their positive image. Therefore, they want to prove their ability and competence and avoid from competitive situations that might reveal their weaknesses relative to others. In case of a task difficulty or failure, they tend to withdraw from the task, make negative ability attributions, are likely to feel helplessness, anxiety, and negative affectivity, and report decreased interest in the task. Consequently, they are likely to give up or strive for less following these emotional states (Ames & Archer, 1988; Butler, 1987; Dweck, 1986; Elliot & Dweck, 1988; Nicholls, 1984). Individuals, who exhibit mastery goals, on the other hand, are focused on advancing their competence through task mastery, learn something new, enjoy challenges arising from the task itself, and remain confident in generating and applying creative task strategies. In case of a task difficulty or failure, they tend to continue the task with positive affectivity and enjoyment. Consequently, they are likely to maintain effort and interest toward the task (Ames & Archer, 1988; Butler, 1987; Dweck, 1986; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Nicholls, 1984).

It was hypothesized that an individual's theory of intelligence is the primary factor in adoption of either one of the goal orientations (Elliott & Dweck, 1988). Individuals who possess an *incremental* theory of intelligence are likely to exhibit MGO. Because they believe that intelligence and ability are malleable and performance can be improved through increased effort. On the other hand, individuals who possess an *entity* theory of intelligence are likely to exhibit PGO (Ames, 1992), because they believe that intelligence and ability are fixed. They view exerting effort as a sign of the lack of intelligence or ability. When the gap between the standard and actual performance is attributed to the stable (i.e., unchangeable) and uncontrollable factors, like as in PGO, ego involvement becomes the way performance goal oriented individuals react in achievement situations; therefore, an *avoidant* action strategy is likely to be chosen. However, when the gap between standard and actual performance

is attributed to unstable and controllable factors, such as attention or effort, task involvement becomes the way mastery goal oriented people react in achievement situations; therefore, adoption of an *approaching* action strategy is more likely.

Ilgen and Davis (2000) recognize goal orientation as a personality variable to be considered in negative feedback process. According to these authors, goal orientation is mainly effective in the attribution of the causality of the perceived level of performance. Given that mastery goal oriented people have an incremental theory of intelligence and adopt an approaching action strategy, they are likely to sustain or increase effort, which in turn, leads to an increase in performance following negative feedback. On the contrary, performance oriented people view exerting effort as a sign of the lack of ability. Since they question their ability and abstain from exerting more effort, they are likely to adopt an avoidant action strategy, which in turn, leads to a decrement in the task performance following negative feedback. Compared to PGO, MGO is thought to reduce the pressure perceived due to negative performance feedback as mastery goals help perceiving the negative feedback as a natural consequence of the learning process (Dweck, 1986; Ilgen & Davis, 2000). Goal orientation literature suggests that positive performance feedback is motivating both for those who are mastery and performance goal oriented.

According to Nicholls (1984), goal orientation is both a personal disposition and a contextual condition. As the contextual MGO can be evoked by framing the task as a learning opportunity, contextual PGO can be activated by evaluating and/or comparing the individual's performance. Ilgen and Davis (2000) report that promoting a mastery goal is helpful in masking the potential negative effects of a failure feedback. In the present study, effects of both the contextually manipulated goal orientation and goal orientation as a dispositional factor are examined.

A neighboring theory, regulatory focus, seems to offer a similar set of motivational regulation. Like achievement goal orientation, regulatory focus divides human motivation into two distinct motivational drives. The similarities between the two theories are proposed by several researchers (e.g., Levontin & Kluger, 2004; Van Dijk & Kluger, 2004). Despite offering similar self-regulatory mechanisms, there exist

some differences in their effects as moderator to the feedback sign-motivation relationship (Levontin & Kluger, 2004). Therefore, regulatory focus theory, its similarities and differences with goal orientation theory are mentioned in detail below.

1.6.2.2. Regulatory focus. Higgins (1997, 1998) posits that people have two separate and independent general motivational systems which encompass various aspects of the self, termed as *promotion focus* (a discrepancy between the actual and ideal-self) and *prevention focus* (a discrepancy between the actual and ought-self). According to this theory, the promotion system regulates hopes, accomplishments, and advancement needs and focuses people to promotion goals. On the contrary, the prevention system regulates safety, responsibility and security needs and focuses people to avoidance of punishment. Essentially, promotion focus concerns with what people *want to* do, and prevention focus concerns with what people *have to* do. Prevention goals are viewed as “oughts” and responsibilities and promotion goals are characterized like ideals, hopes and aspirations (Higgins, Shah, & Friedman, 1997). Regulatory focus theory proposes that self-regulation aiming at the attainment of the ideal-self requires a promotion focus and self-regulation aiming at the attainment of the ought-self requires prevention focus (Higgins, 1997). Promotion focused individuals are likely to be concerned with their accomplishments, be more responsive to the presence or absence of rewards, tend to take more risks, accept changes and be more creative in problem solving. On the contrary, those who exhibit prevention focus are likely to be concerned with duties and obligations, be relatively conservative (Liberman, Idson, Camacho, & Higgins, 1999), and are likely to be responsive to the presence or absence of punishments (Crowe & Higgins, 1997; Friedman & Förster, 2001; Higgins, 1997).

Studies have shown that promotion and prevention foci and the corresponding strategic motivations can temporarily be evoked by situational cues, such as by the factors including the nature of the task, task instructions, the means for obtaining incentives, or the context in which it occurs (e.g., Crowe & Higgins, 1997; Friedman & Förster, 2001). For example, Kluger and Van Dijk (2010) argued that tasks requiring vigilance, such as identifying objects on radar screen, or detecting errors on

company reports activate prevention focus, and tasks requiring eagerness, such as taking initiative in changes and innovations, activate promotion focus. These authors even listed a sample of tasks promoting either one of the regulatory foci over the performer. In another study, a task, its incentives and the means for achieving those incentives framed differentially so as to become compatible with the motivation of those high in promotion focus or the motivation of those high in prevention focus (Shah, Higgins, & Friedman, 1998). To ensure this, either the loss of a tangible incentive was tied to failure from a predetermined threshold level (compatible with the prevention focus) or the gain of the incentive was linked to the attainment of an aspired performance level (compatible with the promotion focus). Regulatory focus elicited by this type of procedure is generally termed as “situational regulatory focus” to be distinguished from dispositional / chronic regulatory focus. In this respect, regulatory focus is both a dispositional state and a contextual condition.

Regulatory focus theory proposes that knowing an individual’s regulatory focus is useful in predicting a wide range of behaviors. An important implication of the regulatory focus theory is the finding that the effects of incentives and the means for the attainment of desired goals are moderated by the regulatory differences (Higgins, 1997). In feedback context, regulatory focus provides a strong insight about the relationship between the sign of feedback (i.e., positive-success feedback vs. negative-failure feedback) and motivation to succeed. Regulatory focus theory provides an answer to why neither positive nor negative FI affects performance in a constant manner (Förster, Higgins, & Idson, 1999; Kluger & Van Dijk, 2010). Van Dijk and Kluger (2004) report that, both dispositional and situational regulatory foci interact with feedback sign. The rationale for treating regulatory focus as a potential moderator in the feedback-performance relationship is discussed in the following sections.

1.6.2.3. Regulatory focus and the effect of feedback sign. According to Shah and Higgins (1997) regulatory focus influences the types of outcomes to which individuals will respond, and when there is compatibility between an individual’s goals and the types of incentives provided, motivation to succeed increases. Van Dijk and Kluger (2004) applied this principle to the prediction of the effect of feedback sign

on performance and proposed that positive feedback would increase motivation and performance under promotion focus, but debilitate motivation and performance under prevention focus. By contrast, negative feedback would be more motivating under prevention focus. Their predictions confirmed in a number of experimental settings (Kluger & Van Dijk, 2010; Van Dijk & Kluger, 2004, 2011). Likewise, Idson, Liberman, and Higgins (2000) suggest that an approaching action strategy (i.e., eagerness) adopted for the attainment of promotion focus goal(s) is maintained following positive feedback and an avoidant action strategy (i.e., vigilance) adopted for the attainment of prevention focus goal(s) is maintained following negative feedback. Förster, Grant, Idson and Higgins (2001) found similar results and reported that an increase in approach motivation associated with success feedback is more likely to occur when performers are in promotion focus and an increase in avoidance motivation associated with failure feedback is more likely to occur when performers are in prevention focus. Förster et al. (2001) proposed *goal looms larger effect* (Förster, Higgins, & Idson, 1998) to explain why promotion-focused people are motivated more by positive feedback. According to goal looms larger effect, as the performers progress toward their aspiration level (i.e., the goal), each successful step forward is more motivating than the previous ones because each step clears a higher proportion of the remaining discrepancy. That is, when the feedback message makes the promotion focused recipient to perceive his/her actions to be a successful step toward the goal, feedback is expected to be more motivating. In this case, motivation increases as the distance to goal decreases. Kluger, Van-Dijk, Kass, Stein, and Lustig's (1999) findings support this notion. These authors assert that, in contexts with self-regulatory foci, the effect of performance feedback is relatively well established for those with prevention focus compared to those with promotion focus. The point they argue is that, not all people with promotion focus distract from the task due to negative performance feedback. They proposed that promotion oriented people seek intrinsic satisfaction from success and respond well to positive feedback. But, negative feedback might not cause the opposing reactions in them.

1.6.2.4. Goal orientation and the effect of feedback sign. Mastery goal oriented individuals view the challenges and failures as the opportunities to learn. Adjustments in the existing behavioral strategies and exerting more effort after failure are perceived as the natural ways for learning. Therefore, a message indicating lack of effort or a missing action pattern is responded with intensified effort and change in behavior. That is, negative feedback does not impede in learning and performance. In addition, mastery goal oriented individuals are expected to benefit from positive feedback as well, since positive feedback communicates a favorable sign that their current action strategy is appropriate, and gives a reason to maintain exerting effort.

On the contrary, those who have PGO are concerned with their fixed ability and adequacy. They are focused on their image in other's eyes. In their view, exerting effort is a sign of lack of ability (Dweck, 1986; Dweck & Leggett, 1988; Nicholls, 1984). Therefore, they are more likely to adopt an avoidant action strategy with the concerns of their self-image, in case they are provided with negative performance feedback. On the other hand, positive feedback supports their eagerness to be viewed as competent by others and does not pose a threat to their self-image as being competent. Therefore, they are more likely to benefit from positive feedback compared to negative. These propositions are also supported by FIT. FIT postulates that when the meta-task processes are activated as it is the case in PGO-negative feedback association, the attention is likely to divert from the task itself.

In sum, relatively recent studies propose that goal orientation and regulatory focus perspectives are useful for understanding the effect of feedback sign on performance. These approaches might point out the proper use of success and failure feedback and give relatively higher credit to positive feedback compared to the classical approaches. On the other hand, empirical studies of classical feedback approach have, to a large extent, supported the need for demonstrating the performance gap to the performer for obtaining higher levels of performance.

CHAPTER II

CURRENT STUDY

2.1. Overview

The current study aimed to examine the effects of feedback sign in relation to regulatory focus and goal orientation concepts. As a major component of FI, the inconsistent effects of feedback sign still point out a research direction toward the further exploration of this matter. The attempts to clarify the role of feedback sign with achievement regulatory perspectives seem to have yielded a considerable progress toward understanding the mystery around the effect of FI. However, contrasting experimental findings have still been reported against the theoretical suggestions about the function of feedback sign in feedback-performance relationship and the moderating role of regulatory mechanisms.

Achievement goal orientation and regulatory focus theories approach behavioral regulation concept from quite similar perspectives. Van Dijk and Kluger (2004), and Levontin and Kluger (2004) point out the similarities between goal orientation and regulatory focus perspectives. According to Levontin and Kluger (2004), the similarities put the MGO and promotion focus in parallel on one side, and PGO and prevention focus on the other. Despite the proposed similarities, both theories do not agree on the effects of feedback sign on performance. For example, some empirical studies report that positive feedback is more motivating than negative feedback when provided under promotion focus and negative feedback is more motivating than positive feedback under prevention focus (Kluger & Van Dijk, 2010; Van Dijk & Kluger, 2004, 2011). However, as the theory parallels prevention focus and PGO, we should expect negative feedback to be more motivating than positive feedback in PGO situations as well. But, a number of studies report that when

performance goals are activated, positive feedback is more motivating (e.g., Dweck, 1986; Ilgen & Davis, 2000). So, despite the similarities between the two approaches to behavioral regulation, feedback sign seems to be an area on which the predictors of these two approaches fail to converge. Table 2.1 summarizes the predictions of goal orientation and regulatory focus theories under positive and negative feedback conditions. The current study aimed to test the predictions of these two theories using an experimental design in which both achievement regulatory mechanisms (i.e., goal orientation and regulatory focus) are induced contextually. In addition to examining the effects of contextually manipulated regulatory mechanisms, in the present study, the effects of dispositional components of both goal orientation and regulatory focus were also examined.

Table 2.1. Comparison of the Proposed Effects of Feedback Sign on Performance

Related Theory	Type of the Regulatory Mechanism	Effect of Feedback Sign
<i>Goal Orientation Theory</i>	<i>Performance goal orientation</i>	<i>Positive¹ > Negative²</i>
	<i>Mastery goal orientation</i>	<i>Positive = Negative</i>
<i>Regulatory Focus Theory</i>	<i>Prevention focus</i>	<i>Negative > Positive</i>
	<i>Promotion focus</i>	<i>Positive > Negative</i>

¹Effect of positive feedback; ²effect of negative feedback.

Self-efficacy is thought to clarify why activation of self-related concerns cause decrement in subsequent performance in some cases as suggested by FIT but not in others. Kluger and DeNisi (1996) state that the activation of self-related concerns might be triggered by both positive and negative performance feedback. When negative feedback is delivered, the recipient might question his/her abilities, and when feedback sign is positive, the recipient might see an opportunity for the attainment of the higher level (i.e., self-related) goals, which possibly divert the performer's attention away from the task in hand. Task-specific self-efficacy is a well-established construct that possibly provides insight about the exceptions of Kluger and DeNisi's (1996) premise that the subsequent task performance is likely to debilitate when the performer's attention is diverted from the task toward self-related concerns. Within the situations in which the performer's attention is possibly diverted toward self-related concerns, task specific self-efficacy might explain why some people benefit more from performance feedback compared to others. In this study, the effects of self-efficacy on feedback-performance relationship were examined and the situations in which the effects of self-efficacy are salient were represented as situational PGO and situational promotion focus in the current study.

This study is believed to have some distinct characteristics. First, goal orientation and regulatory focus constructs were contextually manipulated using the same task, a computerized speed and distance estimation task. This allowed for testing the effects of the situational forms of these constructs on feedback process independently. Second, this study examined the effects of dispositional forms of these constructs as well. By controlling for the effects of the dispositional forms of achievement regulatory mechanisms, the pure effects of the situational forms of these constructs could be examined. The effects of dispositional achievement regulatory mechanisms have been relatively well established, but still there is a need for examining the effects of their situational forms. Contextual manipulation of regulatory mechanisms has some important practical implications. Although dispositional factors are not easily subject to change, contextual manipulation of these mechanisms may

allow for example, managers and teachers to frame tasks in ways to augment task performance.

In the current study, four regulatory mechanisms (MGO, PGO, promotion and prevention foci) were contextually activated on the participants by means of task incentives or instructions for framing the task as suggested by a number of studies (see Crowe & Higgins, 1997; Dweck, 1986; Jagacinski & Nicholls, 1984; Liberman, Idson, Camacho, & Higgins, 1999). Each group of participants was in one of the four induced situations. The process by which the experimental conditions were implemented was detailed in the method section. The task was conducted in two sessions. Upon the completion of the 1st session, participants were provided either with positive or negative feedback, compatible with their genuine 1st session performance. Then, the effects of feedback were measured as the change between the session performances. The four regulatory situations were determined in a way that they would represent situations that could possibly be encountered in practice. For example, prevention focus represented the contexts in which punishment for the low performers is quite salient. Four hypotheses were proposed concerning the relationships between the variables of interest.

2.2. Research Hypotheses

As a dispositional motivation regulatory mechanism, MGO seems to be a more flexible and promising adaptation strategy within the situations in which people are tested about their abilities. This statement depends on the premise that, people who have MGO view achievement situations neither as a test of their abilities, nor as a social comparison platform. On the other hand, when MGO is contextually triggered, this would comfort the performer and reduce anxiety concerning making mistakes. In my opinion, MGO would increase achievement motivation as a dispositional trait but especially for the short-term tasks, situationally triggered MGO might not be effective for performance improvement. Sessions in which performance is measured would be perceived like “trial-error” or “learning from mistakes” sessions by the performer. On the other hand, individuals with dispositional PGO derive broader implications from

the achievement situations concerning their abilities. They are likely to compare their competence relative to others. When PGO is situationally triggered, the performer in whom the competitive motives are aroused (such as, the comparisons in which their skills and abilities are questioned) is expected to exert more effort and take the task more seriously at least compared to those who are in situational MGO condition. As a result, they are expected to use the feedback information more effectively and exert more effort for better performance. Consequently, for the same short-term task, contextually stimulated PGO is expected to bring about higher performance improvement than contextually stimulated MGO. Accordingly, the study's first hypothesis is:

H1: Situational activation of performance goal orientation results in a larger improvement in performance than does the activation of mastery goal orientation.

According to Higgins' (1997) regulatory focus theory, human motives can be classified in two broad categories as the promotion and prevention foci. While promotion focus refers to the gap between the ideal and actual self, prevention focus stems from the focus on the discrepancy between the actual and ought self. The basic hedonic principle recognizes that humans are motivated to approach pleasure and avoid pain. That is, promotion goals regulate the achievement of rewards and prevention goals regulate the avoidance of punishment. When individuals have promotion focus, they are likely to be concerned with their aspirations and accomplishments which bring about rewards. In this case, they are likely to use *approaching* as a strategy and apply creative and risky solutions in the face of challenges. When they receive positive feedback, they tend to be motivated for clearing as much impediments as possible for the attainment of their goals (i.e., goal looms larger effect; Förster, 1998). On the contrary, when individuals have a prevention focus, their primary motivation is to meet the obligations and not to be punished. Therefore, negative feedback has a value as to keep the prevention focused

recipient's vigilance at higher levels. Conversely, positive feedback causes a relief over the performer and the subsequent level of attention and effort is typically expected to drop. When regulatory foci are temporarily and contextually activated, as it was the case in the current study, the main stimulus for a better performance is the attainment of a desired outcome or a need to preserve an already obtained end state (a prize, reward etc.). Accordingly, the second hypothesis of the study proposes an interaction between the contextually activated regulatory foci and feedback sign:

H2: Positive FI is more effective than negative FI on subsequent performance when promotion focus is contextually activated and negative FI is more effective than positive FI on subsequent performance when prevention focus is contextually activated.

Theory suggest that, among the four achievement regulatory mechanisms, individuals who have PGO or promotion focus are more concerned with self-related aspects of the achievement situation as opposed to those who have MGO or prevention focus. For example, performance goal oriented individuals are characterized with their sensitivity in normative comparisons, desire to surpassing others, perception of achievement situations as tests of fixed abilities, desire to display the strong sides of the self and mask the weak sides. Similarly, promotion focused individuals tend to be motivated more when they realize an opportunity to obtain their self-aspirations. For example, their motivation might be to learn as much as possible, clear as more impediments as possible and become closer to the goals. Kluger and DeNisi (1996) assert that when self-related concerns are salient, success depends on keeping attention on the moderate level, namely on the task. In this study, it is believed that keeping attention on the task but not diverting it to the meta-cognitive level depends on the belief in one's capacity to succeed the task at hand. In other words, participants in PGO or Promotion condition can use the information derived from the feedback message and be more motivated when they have high level of self-efficacy. So, the third and fourth hypotheses are;

H3a: When performance goal orientation was contextually activated, participants who are high in task-specific self-efficacy benefit more from FI than those who are low.

H3b: When promotion focus was contextually activated, participants who are high in task-specific self-efficacy benefit more from the FI than those who are low.

In addition to the above hypotheses, the effects of dispositional achievement regulatory variables on feedback-performance relationship and the gender difference in the use of feedback information were examined on an exploratory basis.

CHAPTER III

METHOD

3.1. Participants

This study was conducted in two major phases. Two-hundred-and-seven participants (123 women) completed both phases of the study. Among the participants, 200 were students of a large state university and seven participants were students from other universities in Ankara. The age of the participants ranged from 19 to 33 years, with a mean and standard deviation of 21.94 and 2.13 years, respectively. Among the participants, 65 were students in Social Sciences, 49 in Economics and Administrative Sciences, 46 in Engineering, 19 in Basic Sciences, 16 in Educational Sciences, and 2 were students in Architecture. Ten participants did not state their faculty or department. One-hundred-thirty-four of the participants received experimental credit in their psychology courses for their participation in this study. In addition, all participants were equally eligible for a lottery in which there were six tablet PC prizes. The lottery draw was conducted following the end of data collection. The contact with most of the participants was made in their psychology classes and via the social media with the remaining.

3.2. Materials

A questionnaire package including measures of individual differences variables as well as a demographic information form was prepared. A computerized speed-distance estimation test was used as the experimental task subject to FI.

3.2.1. Measures. Questionnaire package was comprised of three measures and 33 items. These measures and their psychometric characteristics were briefly explained below.

3.2.1.1. Goal orientation measure. The Turkish version of the Work Domain Goal Orientation Scale (Vandewelle, 1997) was used for measuring participants' dispositional achievement goal orientations. The Work Domain Goal Orientation Scale measures three distinct types of goal orientation; performance-prove, performance-avoid and MGO. The original measure included a 6-point Likert type scale, ranging from "strongly disagree" to "strongly agree". Vandewelle (1997) reports that the internal consistency values of the subscales are .88 for mastery, .85 for performance-prove, and .83 for performance-avoidance goal orientation with a North American sample.

This scale was adapted to Turkish by Tayfur (2006). In the Turkish version, 5-point response options were used and some items were reworded differently since the sample was composed of students instead of working adults. For example, the item reading "I prefer to avoid situations at work where I might perform poorly" was reworded as "I prefer to avoid situations at school where I might perform poorly." Internal consistency values were reported to be .85 for mastery, .75 for performance-prove and .71 for performance-avoid subscales for Turkish adaptation in a student sample (Tayfur, 2006). The Turkish version of the Work Domain Goal Orientation Scale is presented in Appendix A. In this scale, MGO is measured by five items and PGO is measured by eight items. The average of the responses given to the Item 1, 6, 7, 8 and 13 represents participants' MGO scores and the average of the responses given to the remaining items represents their PGO scores. In the current study, alpha values were .75 for mastery, .82 for performance subscales.

3.2.1.2. Regulatory focus measure. To measure the participants' dispositional regulatory foci, the Turkish version of the Regulatory Focus Questionnaire (Doğruyol, 2008) was used. The original measure (Lockwood, Jordan, & Kunda, 2002) is composed of 18 items and developed to measure chronic promotion (9 items) and prevention (9 items) foci on a 9-point Likert type scale (1 = not at all true of me; 9 = very true of me). The alpha reliability coefficients of the original version were reported to be .81 for promotion focus and .75 for prevention focus subscales. In the Turkish version, the scale was transformed to have five response options ranging from

“strongly disagree” to “strongly agree” and 17 items (eight items measure promotion focus, nine items measure prevention focus) with alpha reliability coefficients .83 and .77, respectively. This scale is presented in Appendix B. In this scale, promotion foci was measured with items 3, 5, 6, 8, 13, 15, 16, and 17 (Eight items). The average of the responses given to these eight items was used to compute the participants’ promotion focus scores. The average of the responses given to the remaining nine items was used to compute the participants’ prevention focus scores. In the current study, alpha reliability coefficients were .83 and .74 for promotion and prevention focus subscales, respectively.

3.2.1.3. Task-specific self-efficacy measure. Measuring the participants’ efficacy perceptions concerning the task used to evaluate and provide performance feedback was essential for controlling for the effect of self-efficacy on feedback-performance relationship in the analyses. In addition, self-efficacy variable was used in testing the Hypothesis 3a and 3b. Thus, initially the elements of the computerized task were identified. The elements are “estimating the speed of a moving object” and “estimating the particular distance between two reference points.” Accordingly, a 3-item self-efficacy measure was developed particular to the speed and distance estimation task used in the present study. Initially, a longer list of items was populated. Based on the views of two psychology faculty members, the number of items was reduced to three. This task-specific self-efficacy questionnaire intended to measure participants’ perceptions of the efficacy about their speed and distance estimation ability, relying upon their real world experiences and the computer applications of both elements. The items were rated on a 5-point Likert type scale, ranging from “strongly disagree” to “strongly agree”. Task-specific self-efficacy scale is presented in Appendix C. As can be seen, one of the items asks how the respondent perceives his/her ability to estimate the speed of a moving object in real life. Remaining two items ask about the respondent’s perceptions of their efficacy of distance estimation between two points in a real life or a computer environment. Internal reliability (alpha) coefficient of this measure was found to be .92 for the sample of the current study.

3.2.1.4. Goal orientation manipulation check questionnaire. To check the experimental manipulations, a 4-item manipulation check questionnaire was developed. Initially, a longer list of items was developed. Three psychology faculty members examined the items and evaluated whether the idea expressed in the item represent mastery or performance goal orientation. A full congruency was observed in their evaluation for four of the initial items. Consequently, the manipulation check questionnaire was composed of the “agreed-upon” four items.

The Goal Orientation Manipulation Check Questionnaire is composed of four items rated on a 4-point Likert scale, ranging from “1 = not at all agree” to “4 = totally agree.” The first (I have perceived this application as an opportunity to get an idea about my speed-distance estimation skills) and the third (Repeating this application would enhance my speed-distance estimation skills) items represented the situational MGO condition. The second (I felt my ability was being tested by this application) and the fourth (I would like to know my performance relative to others) items represented the situational PGO condition.

3.2.1.5. Regulatory focus manipulation check questionnaire. Following the procedure described for the goal orientation manipulation check questionnaire development, a regulatory focus manipulation check questionnaire was developed. This questionnaire was composed of two items rated on a 4-point Likert type scale. Response options range from “1 = not at all agree” to “4 = totally agree.” A higher agreement to the statement in the first item (I have focused on attaining the best outcome) reflects promotion focus and a higher agreement to the statement in the second item (I have focused on avoiding a possible failure) reflects prevention focus.

3.2.2. The Speed-Distance Estimation Task. A speed-distance estimation task was used to assess and give feedback to the performance of the participants. The computerized task is a derivative of the Speed-Distance Estimation Test developed for the selection of blue-collar workers in the manufacturing sector (Sümer H. C., Er, Sümer N., Koku, Ayvaşık, & Mısırlısoy, 2010). In the present study, participants were individually asked to estimate the arrival moment of a moving object (in three different

speeds: slow, fast, faster) to a predetermined station on the screen. The paths on which the object moved (straight or wavy) had 15 stations, and every time the object disappeared after a predetermined time interval. Participants were asked to push the space button of the keypad at the time the moving object is estimated to be at station 12. The task is composed of two identical sessions, intervened by FI, and each session consists of 20 different estimation questions. Each question is composed of a different combination of the path and speed.

The speed-distance estimation task also offers two trial sessions with computerized feedback indicating the amount of deviance (i.e., premature or latent keystrokes) in milliseconds. At the end of each session, the program software also offers a performance report upon the command of the session administrator (i.e., the experimenter). The performance report includes the sign (i.e., positive-late or negative-early) and the amount of deviance (in milliseconds) for each response as well as the average of absolute deviances from the real arrival time in milliseconds. The speed-distance estimation task is characterized by relatively high ambiguity (prior to FI) since the participants cannot derive any self-feedback concerning their performance as they are performing the task.

Two performance measures were composed using the report provided by the program software. The first one is the *session performance* and the second one is the *performance change* (i.e., the change between the two session performances). The session performances were represented with the mean *deviation scores* in each session. Since the deviation scores were the mean of the absolute deviations of all responses in each session in milliseconds, lower deviation scores correspond to higher session performances. In other words, deviation scores are continuous and always positive in value since the absolute deviance in each estimation question were taken into account in computation by the software program. The difference in Session 1 and Session 2 deviation scores was used in the computation of the performance change score. As a continuous variable, a negative performance change score represents a performance decline from the 1st to 2nd session. A positive performance change, on the other hand, points out an improvement in performance following the FI.

3.3. Design

A between-subjects factorial design was adopted in this study. In testing the hypotheses, the first factor was the experimental conditions (experimental groups) relevant to the proposition of the hypotheses and the second factor was the sign of the feedback (i.e., positive feedback and negative feedback). In Hypothesis 1 and 2, as the *experimental condition* and *feedback sign* were the independent variables (IV), the change in performance scores of the two sessions due to FI (performance change = 1st session deviation score – 2nd session deviation score) was treated as the dependent variable (DV). In Hypothesis 3, self-efficacy was treated as IV and performance change as DV and performance change was regressed on self-efficacy. Participants were randomly assigned to one of the four experimental conditions and based on their 1st session performance, they were provided with feedback either positive or negative.

3.4. Procedure

This study was conducted in two phases. The first phase involved filling out of the questionnaire packages. Participants who completed the first phase were invited for participating in the second phase, in which the experiment was to be conducted. In the second phase (i.e., the experiment), the participants were randomly assigned to one of the four experimental conditions. Forty-eight participants were assigned to the situational *MGO* condition, fifty-five participants were assigned to the situational *PGO* condition, forty-eight participants were assigned to the situational *Promotion* condition and fifty-six participants were assigned to the situational *Prevention* condition. A pilot study was also conducted before these phases for testing the use of the computerized task, exercising the experimenter in the administration of the manipulative instructions and obtaining an idea about the good and bad task performances. The pilot study was conducted with 28 participants (17 female). After the pilot study, the median value for the 1st session performance was emerged as 1045 milliseconds. For the sake of simplicity, “1000 milliseconds” was designated as the cut-off value to make distinction

between satisfactory and unsatisfactory performance on the task in the second phase of the study.

3.4.1. First phase. The first phase involved in the making of contact with the possible participants, informing them about the study (including issuing of the informed consent) and filling out the questionnaire packages. Most of the participants were contacted in their psychology classes and the others were contacted by means of METU student groups on social media. After obtaining the informed consent of the participants, the package was administrated via internet. Participants were informed that the purpose of the study was to examine the relationship between their performance in the speed-distance estimation task and a number of individual difference variables (detailed information including the real purpose of the study was provided after all tasks are completed).

Participants were also informed that those who completed both phases of the study would participate in a lottery through which six tablet PCs would be given out. The questionnaire package was composed of three sections (i.e., the achievement regulatory mechanism questionnaire, task-specific self-efficacy questionnaire and demographic form) and 33 items in total, and included the three measures mentioned before.

3.4.2. Second phase. Participants who completed the questionnaire were invited to the experiment three to 10 days later. At the onset of the experiment, participants were randomly assigned to one of the four experimental conditions and were given different instructions according to their experimental condition. Each experimental condition corresponded to a dimension of the achievement regulatory mechanisms (i.e., goal orientation and regulatory focus). In each experimental condition, one of the dimensions of the regulatory mechanisms was temporarily and contextually activated. After the experimental manipulation was implemented by task instructions, the trial sessions of the speed-distance estimation task was conducted. Following the trial sessions, the 1st session of the task was carried out. At the end of the 1st session, the computerized performance report was checked by the experimenter.

Meanwhile, the participant was informed that the examination of a performance report was underway. The performance report was intentionally formatted in a complicated fashion so as not to be comprehended by the participant. Based on the average absolute deviations from the exact arrival time (i.e., estimation performance) and the designated cut-off value (i.e., 1000 milliseconds), a positive or a negative feedback was provided by the experimenter (those who scored equal to or “under 1000 milliseconds discrepancy” were given positive, those who scored “above 1000 milliseconds discrepancy” were given negative feedback). After the FI, the participants proceeded with the 2nd session of the task. Upon the completion of the task execution, a manipulation check questionnaire was administered to some participants so as to check the effect of the experimental manipulation. Manipulation check questionnaires were administered to 65 participants. Thirty-six participants filled the Regulatory Focus and twenty-nine participants filled the Goal Orientation Manipulation Check Questionnaire. The participants who were assigned to the MGO or PGO conditions filled the Goal Orientation Manipulation Check Questionnaire and those who were assigned to the Promotion or Prevention conditions filled the Regulatory Focus Manipulation Check Questionnaire. At the end of the 2nd session of the task, a feedback concerning the 2nd session performance based on the mean deviation score was provided to participants. The 2nd session deviation score was used to compute performance change scores and the knowledge about their 2nd session performance was provided to the participants just for the sake of satisfying their curiosity. When the data collection phase ended, participants were informed in detail about the feedback-related purpose and the scope of the study.

The experimental conditions and the corresponding manipulations were as follows:

a. Condition-1, Situational MGO: MGO was temporarily activated by framing the task as a learning and practice opportunity. Before the application of the speed-distance estimation task, participants were informed that the task was a part of a training battery, by which the operators of a production line improve their speed and

distance estimation ability with practice, which in turn increase their work performance.

b. Condition-2, Situational PGO: PGO was temporarily activated by framing the task as a test of an aspect of the performer's cognitive ability (namely, the ability to estimate). It is stated that, the computer task was a part of a selection battery, which was used to test the performers' cognitive ability by a leading automotive parts manufacturer and the performers were expected to get a satisfactory test score for being eligible for the applied position. By this way, a perception of "being tested and compared" was tried to be triggered on the participant.

c. Condition-3, Situational Promotion Focus: Promotion focus was temporarily induced with a performance incentive. At the end of the trial sessions, the participants were instructed that if their task performance exceeded at least the 75% of the participants they would earn an additional drawing right for the lottery, meaning that they would be able to double their odds to earn a tablet PC.

d. Condition-4; Situational Prevention Focus: In order to trigger a temporary situational prevention focus, upon the completion of the trial sessions, participants were instructed that they had already been given an extra right for the tablet PC draw and they would preserve the additional drawing right unless their task performance fell below the average, meaning that they would consent to half the initial chance if their performance corresponded to the lower 50% of the participants at the end of the task.

Because the participants were provided with real feedback based on their 1st session performances, the feedback sign represented their 1st session task performances as well. In other words, the feedback sign mirrored the real performance of the participants. Thus, in this study, the FI appeared essentially as the "knowledge of performance." At the end of the 1st session, the computerized performance report, giving the participant's performance in each estimation question and the mean performance in the whole session, was examined by the experimenter. To be consistent with the experimental manipulations, the feedback statements for the conditions were differed in content and wording. The statements of the positive and negative FIs for each condition were as followed:

a. Positive feedback statement for the MGO and PGO conditions: “Your performance is above the average on this task and is quite satisfactory as expected of you. Please keep in mind that you are only half way through the whole task and you are expected to do well in the second part as well, keep at least the same level of attention on the task.”

b. Negative feedback statement for the MGO and PGO conditions: “Unfortunately, your average 1st session performance is below the expected level. However, please bear in mind that you are only half way through the task and increasing your attention would be helpful for increasing your overall performance.”

c. Positive feedback statement for the Promotion Focus condition: “Your average 1st session performance is quite well and puts you in the upper 25% of the performers. However, please bear in mind that you are only half way through the task and maintaining your attention would be helpful in keeping you among the high performers.”

d. Negative feedback statement for the Promotion condition: “Unfortunately, your average 1st session performance keeps you below the best 25% of the performers. However, please bear in mind that you are only half way through the task and increasing your attention would be helpful for making you one of the high performers.”

e. Positive feedback statement for the Prevention Focus condition: “Your average 1st session performance is quite well and puts you above the average performer. However, please bear in mind that you are only half way through the task and maintaining your attention would be helpful in keeping you out of the low performing group.”

f. Negative feedback statement for Prevention Focus condition: “Unfortunately, your average 1st session performance puts you below the average performer. However,

please bear in mind that you are only half way through the task and increasing your attention would be helpful for keeping you out of the low performing group.”

After the data collection process was ended, the time for the draws of lottery was announced to the participants with a call that their participation in drawing process was encouraged. The lottery draws were conducted in front of a committee consisted of a senior faculty member and two psychology students. The drawing process was recorded by a camcorder as well. By draws, six of the participants were identified as the winners and the winners were announced to all of the participants with e-mail. One to six days following the lottery, all of the winners received their tablet PCs.

CHAPTER IV

RESULTS

4.1. Overview

The results of the analyses are presented under six headings: (1) data screening and cleaning, (2) manipulation check analyses (3) descriptive statistics, (4) preliminary analyses (5) hypothesis testing, (6) exploratory analyses. All the analyses were run using IBM SPSS-21.

4.2. Data Screening and Cleaning

Analyses conducted for data screening and cleaning purposes involved searching for out-of-range values and examining missing data and outliers. Since the online survey application was set for requiring participants to respond to all items for all scales, missing data was not a problem. Similarly, no out-of range value was observed since the survey software did not allow for it. Since the analyses were performed with grouped data, outliers were sought separately within each group. Nine univariate outliers were detected in performance change variable (used as the DV in the main analyses), of which four cases were in the MGO condition, two cases in the PGO, two cases were in the Promotion, and one case in the Prevention condition. These cases were deleted. Consequently, 198 cases were included in the main analyses. The number of participants was 44, 54, 47 and 53, in the MGO, PGO, Promotion, and Prevention conditions, respectively.

4.3. Manipulation Check Analyses

4.3.1. Goal orientation manipulation check. A between-subjects multivariate analysis of covariance (MANCOVA) was carried out with the items included in this

manipulation check questionnaire (see Table 4.1). The between-subjects factor was comprised of two conditions: MGO and PGO. The DVs were the scores on the manipulation check items. Feedback sign was taken as the covariate in order to eliminate the possible effect of the negativity or positivity of the FI. The multivariate result was significant for experimental conditions (manipulation groups), $F(4,23) = 10.50, p < .001$, partial $\eta^2 = .65$. No significant effect of feedback sign was observed based on the F -test by Wilk's criterion. The F -tests showed that there was a significant difference between the two experimental conditions for the first ($F(1,26) = 5.43, p < .0125$, partial $\eta^2 = .17$), second ($F(1,26) = 7.65, p < .0125$, partial $\eta^2 = .23$), third ($F(1,26) = 19.07, p < .0125$, partial $\eta^2 = .42$) and fourth ($F(1,26) = 5.60, p < .0125$, partial $\eta^2 = .18$) items. The item-wise descriptive statistics are presented in Table 4.1.

Table 4.1. Descriptive Statistics of the Goal Orientation Manipulation Check Questionnaire

Item	Experimental	N	<i>M</i>	<i>SD</i>
1. I have perceived this application as an opportunity to get an idea about my speed-distance estimation skills.	MGO	17	3.18	.73
	PGO	12	2.58	.67
	Total	29	2.93	.75
2. I felt my ability was being tested by this application.	MGO	17	2.18	1.02
	PGO	12	3.00	.74
	Total	29	2.52	.99
3. Repeating this application would enhance my speed-distance estimation skills.	MGO	17	3.65	.61
	PGO	12	2.52	.80
	Total	29	3.17	.89
4. I would like to know my performance relative to others.	MGO	17	2.29	.85
	PGO	12	3.00	.74
	Total	29	2.59	.87

Additionally, the manipulation checks were conducted using the aggregated scores in the Goal Orientation Manipulation Check Questionnaire. For this purpose, the scores obtained from the 1st and 3rd items given in Table 4.1 were aggregated for obtaining the participant MGO scores and 2nd and 4th items for obtaining the participant PGO scores. As can be seen in Table 4.2, there was a significant difference between the MGO and PGO conditions based on the aggregated MGO manipulation check scores ($t(27) = 5.35, p < .001$) and PGO manipulation check scores ($t(27) = -5.53, p < .001$). In other words, those who were in MGO condition scored significantly higher in MGO manipulation check test scores than those who were in PGO condition and the vice versa. These results showed that the manipulation check questionnaire scores (i.e., aggregated scores) were significantly different between the two experimental condition and yielded positive evidence concerning the effectiveness of the goal orientation manipulation.

Table 4.2. Comparison of Mean Scores in Manipulation Check Survey by Experimental Conditions

Manipulation Check Scores	MGO Condition		PGO Condition		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Mastery Goal Orientation	3.09	.43	2.29	.37	5.35*
Performance Goal Orientation	1.91	.43	2.73	.36	-5.53*

Note. * $p < .001$ (2-tailed)

4.3.2. Regulatory focus manipulation check. The procedure used in the goal orientation manipulation check analysis was followed for the regulatory focus manipulation check analyses. The fixed factors in these analyses were Promotion and Prevention conditions. Again, feedback sign was used as the covariate. No significant

effect of feedback sign was observed. With Wilk's criterion, multivariate result was significant ($F(2,35) = 6.27, p < .01$, partial $\eta^2 = .26$) indicating that as a combined set of DVs, the items discriminated between the two experimental conditions. The analyses revealed a statistically significant effect of the experimental condition for both the first, ($F(1,36) = 6.49, p < .025$, partial $\eta^2 = .15$) and the second ($F(1,36) = 6.54, p < .025$, partial $\eta^2 = .12$) items. The item-wise descriptive statistics are presented in Table 4.3. The first item represents promotion focus and the second item represents prevention focus. As can be seen in Table 4.3, the mean promotion focus score was significantly higher in Promotion condition ($M = 3.27$) than the Prevention condition ($M = 2.58$), $t(37) = 2.54, p < .05$. Similarly, the mean prevention focus score was significantly higher in Prevention condition ($M = 3.00$) than the Promotion condition ($M = 2.27$), $t(37) = -2.71, p < .05$. These results indicated that the contextual manipulation of regulatory focus was successful.

Table 4.3. Descriptive Statistics of the Regulatory Focus Manipulation Check Questionnaire

Item	Experimental Condition	N	<i>M</i>	<i>SD</i>	<i>t</i>
1. I have focused on attaining the best outcome.	Prom. ¹	15	3.27	.70	2.54
	Prev. ²	24	2.58	.88	
	Total	39	2.85	.88	
2. I have focused on avoiding a possible failure.	Prom.	15	2.27	.88	-2.71
	Prev.	24	3.00	.78	
	Total	39	2.72	.89	

Note. ¹Promotion. ²Prevention.

4.4. Descriptive Statistics

As mentioned in the method chapter, in each session of the experimental task, the mean deviation scores (in milliseconds) were used as the session performance

index and the difference between the session performance scores was called performance change. The deviation scores ranged from 521.33 to 3276.19 milliseconds in the 1st session and from 430.80 to 3588.80 milliseconds in the 2nd session. Performance change ranged between -1298.10 and 1696.03 milliseconds. Performance change scores were computed by subtracting the 2nd session performance scores from the 1st session performance scores. Therefore, the higher the change in scores, the higher the improvement in performance is. A negative score in performance change indicated a decline, whereas a positive score pointed out an improvement in participant performance. In Table 4.4, *MGO* and *PGO* represented the participants' dispositional goal orientation scores and *prevention* and *promotion* represented their dispositional regulatory focus scores. *Task self-efficacy* represented task-specific self-efficacy scores obtained with the measure specifically developed for the experimental task. Correlations and descriptive statistics concerning the variables of interests as well as the reliabilities of the scales employed are presented in Table 4.4.

As can be seen in Table 4.4, there was a positive correlation between the 1st and 2nd session deviation scores and between 1st session deviation score and performance change. The moderate correlation between the 1st and 2nd session deviation scores ($r = .51$) represents a consistency in participant performance throughout the task. The positive correlation between performance change and 1st session performance ($r = .56$) can be explained with the *law of initial values* (Wilder, 1962). Those who did relatively worse in the 1st session (i.e., got higher deviation scores) had more room to improve themselves in the 2nd session and hence obtained higher change scores, as expected. As a result, the performance change correlated negatively with the 2nd session performance since the higher performance change means lower 2nd session deviation scores.

MGO, PGO, promotion, and prevention variables (i.e., dispositional achievement regulatory mechanisms) had weak and non-significant correlations with performance variables (i.e., session deviation scores and performance change). These results might be the initial implications that none of the dispositional forms of achievement regulatory mechanisms has a strong effect on the use of feedback

information for a better performance. Thus, the effect of FI on performance could not be predicted by looking merely at participants' dispositional achievement regulatory mechanisms, at least in this study. On the other hand, task-specific self-efficacy positively correlated with performance change ($r = .19$), meaning that it might be an indication that those who are high in self-efficacy effectively use FI for performance improvement.

All of the dispositional achievement regulatory variables showed positive and statistically significant correlations with each other. The dimensions of goal orientation (i.e., MGO and PGO) showed a weak and positive correlation ($r = .15$). On the other hand, a moderate and positive correlation was observed between the dimensions of regulatory focus ($r = .37$). Moderate correlations were also observed between PGO and Promotion ($r = .36$), PGO and Prevention ($r = .45$), and MGO and Promotion ($r = .42$). In addition, a weak correlation was observed between MGO and Prevention ($r = .13$). The highest correlation coefficients were observed between MGO and Promotion ($r = .42$) and between PGO and Prevention ($r = .45$). These relatively high correlations between MGO and Promotion and between PGO and Prevention can be noted as a support for the similarity between achievement goal orientation and regulatory focus concepts, congruent with the expected correspondence between MGO and promotion focus and between PGO and prevention focus by Levontin and Kluger (2004).

Table 4.4. Means, Standard Deviations and Pairwise Correlations of the Analysis Variables

Variable	1	2	3	4	5	6	7	8	
1. 1 st Session Deviation Score Score ¹ .									
2. 2 nd Session Deviation Score	.51**								
3. Performance Change ²	.56**	-.42**							
4. DispositionalMGO	.05	.04	.01	.75					
5. Dispositional PGO	-.06	.04	-.10	.15*	.82				
6. Dispositional Promotion	-.03	.04	-.07	.42**	-.36**	.83			
7. Dispositional Prevention	-.02	.03	-.05	.13*	.45**	.37**	.74		
8. Task Self-Efficacy	.12	-.06	.19**	.22**	.03	.10	.17*	.92	
	<i>M</i>	1232.3	1086.6	145.7	3.12	2.88	3.32	2.68	3.2
	<i>SD</i>	557.8	507.9	527.6	.43	.43	.37	.37	.88

Note. * $p < .05$; ** $p < .01$ (all 2-tailed). Internal consistency estimates are presented at the diagonal in italics. ¹Deviation score measured in milliseconds and always positive, indicating the mean deviation from the exact arrival time and used as the performance index in each session. The lower the value in deviancy score, the better the session performance. ²Performance Change = 2nd session deviation score - 1st session deviation score.

The group-wise descriptive statistics of the performance variables (i.e., session performance and performance change) are presented in Table 4.5. In each experimental condition, the 1st session deviation scores seemed to be higher than the 2nd session deviation scores indicating that, as expected, the mean deviation in estimating the arrival time of the moving object was higher in the 1st session than the 2nd session. This was the initial indication of the effect of FI on subsequent performance before testing it statistically. As can be seen in Table 4.5, the mean 2nd session deviation score did not decrease, but increased for only two groups of participants: those who were in MGO condition and received positive feedback (i.e., MGO (+)) and those who were in promotion condition and received positive feedback (i.e., Promotion (+)). The increase in the mean deviation scores from the 1st through the 2nd session means that the mean estimation performance was deteriorated. As an initial finding, positive feedback seemed problematic at least for these two groups of participants. In addition, the high standard deviation in performance variables pointed out a large dispersion in the participants' estimation performance. In as much as the changes in session performances were observed, the significance of these change were tested and reported in the next section.

4.5. Initial Analyses

Before testing the hypotheses of the study, the difference between the performance scores of the two sessions were compared to examine whether a significant FI effect was evident for the entire sample. For this purpose, a paired-sample *t*-test was performed, which revealed a significant difference between the mean 1st session deviation ($M = 1208.34$, $SD = 551.98$) and 2nd session deviation ($M = 1072.75$, $SD = 493.33$), $t(188) = 3.65$, $p < .001$ across all groups (see Table 4.5). This finding revealed that there was a statistically significant change in session performances and this change was observed as an improvement through the 1st to 2nd session when the analysis was done for the entire sample. Following this finding, the analyses were repeated for each experimental condition as well.

Table 4.5. Group Based Descriptive Statistics¹ and Significant Mean Differences Between the Session Performances

Condition	Fb. Sign	N	1 st Session Deviation		2 nd Session Deviation		Performance Change		<i>t</i>
			<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
MGO ²	+	14	779.52	86.24	844.99	285.16	-65.47	301.23	-.81
	-	30	1432.5	487.39	1364.35	544.75	68.22	670.33	.56
	Total	44	1224.78	507.07	1199.10	495.49	25.68	578.31	.30
PGO ³	+	26	827.77	122.50	687.64	156.82	140.14	149.80	4.77***
	-	28	1455.85	382.80	1256.06	495.84	199.79	556.05	1.90
	Total	54	1153.44	426.43	982.38	468.01	171.07	411.10	3.06**
Prom. ⁴	+	24	756.99	133.99	954.97	371.84	-197.98	367.23	-2.64*
	-	23	1724.94	694.67	1272.13	494.82	452.81	554.52	3.91***
	Total	47	1230.67	692.09	1110.18	460.12	120.49	568.14	1.45
Prev. ⁵	+	20	827.84	124.70	824.81	312.09	3.03	267.85	.05
	-	33	1619.05	551.62	1232.07	616.05	386.98	619.22	3.59**
	Total	53	1320.48	585.47	1078.39	555.75	242.09	545.42	3.23**
Total	+	90	803.71	124.48	827.78	298.37	-24.06	295.87	-.77
	-	108	1589.53	526.05	1302.24	545.54	287.29	628.73	4.75***
	Total	198	1232.34	557.83	1086.57	507.90	145.77	527.65	3.89***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$ (all 2-tailed). ¹Values are in milliseconds (1 millisecond = .001 second). Lower scores in deviations represent better performances and higher scores in deviations represent lower performances. Positive scores in performance change represent performance improvement and negative scores represent performance decrement through the 1st to 2nd session; ²Situational MGO condition; ³Situational PGO condition; ⁴Situational Promotion Focus condition; ⁵Situational Prevention Focus condition.

Accordingly, the differences in the mean deviation scores were tested for statistical significance with *t*-tests for each condition. The test results revealed that the difference between the 1st and the 2nd session deviation scores was statistically significant for PGO ($t(53) = 3.06, p < .01$) and Prevention ($t(52) = 3.23, p < .01$) conditions and not significant for MGO and Promotion conditions. These findings indicated that in situationally activated MGO and promotion focus contexts, the FI as a whole, seemed ineffective, contrary to the situations in which PGO and prevention focus were activated. The fact that the positive feedback did lead to a performance decline, instead of improvement in MGO and Promotion conditions can be asserted as the reason of the statistical indifference between the two sessions' performances in these conditions.

As can be seen in Table 4.5, performance of the participants can be examined in eight groups (cells) composed of four experimental manipulations and feedback sign. When the comparison of the session performances was done separately for each cell, it was discovered that the difference between the 1st and 2nd session deviation scores was significant for those who were in PGO (+), Promotion (+), Promotion (-) and Prevention (-) conditions. However, as the significant change in deviation scores indicated performance improvement in PGO (+), Promotion (-) and Prevention (-) conditions, it indicated performance decrement in Promotion (+) condition. For the remaining cells, no significant changes in the deviation scores were observed. Among the four experimental conditions, the only increase in the mean deviation scores (i.e., performance decrement) between the two sessions was observed in MGO (+) and Promotion (+) conditions. These results showed that, for the current study, the situational activation of MGO resulted in ineffective FI. A detractive effect of the positive feedback was observed in MGO and Promotion conditions and negative FI was resulted in positive performance change in all conditions except the Prevention condition, in which the effect of negative FI was negligible.

Before the change in deviation scores of the two sessions being attributed merely to the FI, the possibility of "practice effect" (i.e., the possibility of participants improving their performance just because of the extended practice) was also examined.

For this purpose, 15 participants were randomly selected in each condition (the total number was 60), and for those randomly selected participants, the number of the 1st session responses was divided into two groups by which deviations in the first 10 items represented the first half and deviations in the following 10 items represented the second half. This way, the first and the second halves of the 1st session deviation scores could be compared to each other. A significant mean difference between the two halves, indicating lower deviations (i.e., better performance) in the second half across all conditions would suggest the existence of practice effect. A paired-sample *t*-test was conducted for each condition. For none of the conditions the tests resulted in a significant *t* value. This finding supported the assumption that the difference between the mean performances of the two sessions of the task can confidently be attributed to the effect of FI rather than to mere practice effect. The means and standard deviations of the first and second half deviation scores, as well as the results of the paired sample *t*-tests are presented in Table 4.6.

Table 4.6. Means, Standard Deviations and *t* Values of the Comparison of the Half Session Deviation Scores.

Experimental Conditions	First Half Performance		Second Half Performance		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
MGO	1293.93	514.07	1341.97	507.82	-.69
PGO	1204.93	448.12	1206.74	529.10	-.043
Promotion	1198.40	606.65	1085.65	499.66	1.59
Prevention	1380.66	575.92	1311.12	559.26	1.53

Note. None of the *t* values are statistically significant.

4.6. Hypothesis Testing

The first hypothesis proposed that the activation of PGO results in a larger performance improvement than the activation of MGO. To test Hypothesis 1, a one-

way between-subjects ANCOVA was conducted. Performance change was the DV and the experimental condition (MGO vs. PGO) was the fixed factor. After controlling for the effect of task self-efficacy and dispositional goal orientations (i.e., MGO and PGO variables), the analysis resulted in a significant mean difference between the two conditions ($F(1,98) = 5.04, p < .05, \text{partial } \eta^2 = .05$), with a higher mean Performance Change for those in the PGO condition ($M = 171.07, SD = 411.10$) than those in the MGO condition ($M = 25.69, SD = 578.32$). Fifty-one percent of the MGO condition participants improved their performance whereas the remaining MGO participants experienced a decrease in their performance following feedback. On the other hand, 75% of the participants in the PGO condition experienced an improvement in their performance. In this analysis, a marginally significant effect of dispositional MGO (taken as one of the covariates) was also observed ($F(1,98) = 2.96, p = .089, \text{partial } \eta^2 = .03$), meaning that those who were high in dispositional MGO had a higher level of improvement in task performance than those who were low. However, this interpretation should be taken with caution due to the lack of statistical significance. In sum, the feedback information was significantly more effectively used for performance improvement when PGO was contextually activated compared to the activation of MGO. As a consequence, Hypothesis 1 was supported.

Hypothesis 2 asserted the existence of an interaction between the feedback sign and situational regulatory foci. That is, positive FI was expected to be more effective than negative FI when promotion focus is situationally activated and negative FI was expected to be more effective than positive FI when prevention focus is situationally activated. Since the existence of an interaction was suggested, the first analysis required to test the proposed interaction. To test the interaction effect, an ANCOVA was performed. For this purpose, only the data pertaining to the Promotion and Prevention conditions were included in the analysis. The performance change variable was assigned as the DV, and the feedback sign and experimental condition were assigned as the fixed factors. The feedback sign X experimental condition interaction term was included in the model. Task-specific self-efficacy and dispositional regulatory foci (promotion and prevention) were taken as the covariates to be able to control their

effect on the performance change. Result of the analysis revealed that there was no significant interaction between the feedback sign and experimental conditions, contrary to the expectations. However, a significant main effect of feedback sign was observed, $F(1,97) = 24.83, p < .001$, partial $\eta^2 = .22$. The mean performance change was 420.61 ($SD = 598.27$) under negative feedback and -107.51 ($SD = 328.63$) under positive feedback for the whole of sample of the regulatory focus conditions. So, the results failed to indicate the existence of an interaction between feedback sign and regulatory focus.

To test Hypothesis 2, group differences in the mean performance change scores were compared between Promotion (+) and Promotion (-) conditions and between Prevention (+) and Prevention (-) conditions. For this purpose, two separate one-way between-subjects ANCOVAs were performed by assigning performance change variable as the DV and feedback sign as the fixed factor. Again, task-specific self-efficacy and dispositional regulatory foci were treated as the covariates. Results of the first ANCOVA revealed that the mean performance change of the Promotion (+) group was significantly lower than that of the Promotion (-) group, $F(1,44) = 17.23, p < .001$, partial $\eta^2 = .31$. Indeed, a negative performance change (a performance decrement) was observed in the Promotion (+) group. Specifically, the mean performance change of the Promotion (+) group was -202.82, ($SD = 360.24$) and that of the Promotion (-) group was 432.45, ($SD = 558.95$). Positive feedback seemed to have a detrimental effect over the performance of the participants in the Promotion condition. On the other hand, negative feedback had a remarkable positive effect on the performance of the Promotion group participants. This pattern was supported when the number of participants with performance improvement and decrement were compared as well. While 26% of the participants of the Promotion (+) group improved their performance, this ratio increased to 78% in the Promotion (-) group. When the mean performance change scores were compared, the difference between the participants in Promotion (+) and Promotion (-) groups was the highest when all possible binary comparisons among all cell means (equals to 28) were considered.

The second ANCOVA revealed that the mean performance change of the Prevention (-) participants was significantly higher than the Prevention (+) participants, $F(1,53) = 6.68, p < .05$, partial $\eta^2 = .12$. Specifically, the mean performance change of the Prevention (+) group was .78, ($SD = 255.27$) and that of the Prevention (-) group was 413.35, ($SD = 630.09$). It seemed that, while positive feedback had no effect on the mean performance change in Prevention condition, negative feedback strongly improved the subsequent performance. On the other hand, these findings should be interpreted with caution because when the ratios of the number of the improved performances to the total were compared, this figure was 60% for the Prevention (+) and 61% for the Prevention (-) participants. In other words, there was no significant difference in the number of participants with performance improvement between the two groups. However, as the results of the ANCOVA indicated, the magnitude of the change in performance was significantly different between Prevention (+) and Prevention (-) participants. Consequently, these results partially supported the predictions of Hypothesis 2.

Hypothesis 3 proposed that when participants are in situationally activated PGO or Promotion focus contexts, those who are high in task-specific self-efficacy would benefit more from the FI than those who are low. Two hierarchical multiple regression analyses (one for the PGO condition and one for the Promotion condition), were conducted to test these propositions. In these analyses, at the first step, performance change was regressed on dispositional achievement regulatory mechanism scores and then on task self-efficacy. For the PGO condition, the result of Step 1 indicated that the variance accounted for by dispositional PGO and MGO was non-significant. In Step 2, task-specific self-efficacy was entered into the regression equation. As presented in Table 4.7, the variance accounted for by task specific self-efficacy was 19% and significant, $F(3,53) = 3.91, p = .014$. For the Promotion condition, the results of both steps of the equation were non-significant, meaning that for the Promotion condition task self-efficacy did not predict performance change. In other words, for the situationally activated PGO but not promotion focus contexts, participants who were high in task-specific self-efficacy benefited more from the FI

than participants who were low. After these findings, Hypothesis 3a, was supported. Hypothesis 3b was failed to get support.

Table 4.7. Predicting the Effect of FI on Performance from Task-Specific Self-Efficacy for the Participants of the Situational PGO Condition: Summary of Hierarchical Regression Analysis.

Variable	R^2	R^2 Change	F Change	B	$SE B$	β
Step 1	.07	.07	1.99			
Dispositional PGO ¹				-.79	77.96	-.001
Dispositional MGO ²				-.151.38	76.99	-.27
Step 2	.19**	.12**	7.27**			
Dispositional PGO				-12.34	73.70	-.02
Dispositional MGO				-181.88*	73.53	-.32*
Task Self-Efficacy				193.16**	71.64	.35**

Note. $R = .27, p > .05$ in the first step; $R = .44, F(3,53) = 3.91, p < .05$ in the second step; * $p < .05$, ** $p < .01$. ¹Performance Goal Orientation. ²Mastery Goal Orientation.

4.7. Exploratory Analyses

In addition to testing the study hypotheses, two sets of supplementary analyses were conducted for exploratory purposes. First, experimental group differences in performance change were examined with variance analyses. Second, gender differences in the use of feedback information were examined in an exploratory fashion.

4.7.1. Examining differences in performance change across conditions.

Although the study hypotheses did not require it, a 4 (experimental conditions) X 2 (feedback sign) between-subjects ANCOVA, treating the dispositional variables (i.e., MGO, PGO, Promotion, Prevention) and self-efficacy as covariates, was conducted to

compare the performance change scores in all eight conditions. The effects of task-specific self-efficacy and dispositional regulatory mechanisms were controlled to be able to attribute the observed effects solely to the experimental manipulations and/or the feedback sign.

Levene's test of equality of error variances appeared significant, suggesting that at least a couple cell's variances were unequal. However, when a significant Levene Test F -value was obtained, Tabachnick and Fidell (2007) suggest that computing F_{max} as a complementary analysis is a good option before assuming the lack of the homogeneity of variance when ANOVA-like analyses are used. They particularly state that, when sample sizes are relatively equal (within a ratio of 4 to 1 or less for largest to smallest cell size), an F ratio of the largest cell variance to the smallest as great as 10 is acceptable. In our case, the ratio of the largest to smallest cell size is 1.94 and $F_{max} = 8.22$, so the lack of the homogeneity of error variances appeared to be within the acceptable ranges.

After controlling for the effect of the participants' task-specific self-efficacy and dispositional regulatory mechanism scores, the analysis revealed a significant main effect of feedback sign ($F(1,195) = 18.88, p < .001, \text{partial } \eta^2 = .09$). Specifically, the mean performance change of the participants who received negative feedback was 271.53 ($SD = 629.85$) and that of those who received positive feedback was -24.06 ($SD = 295.87$) across all groups. Negative feedback seemed to bear a stronger effect on subsequent performance in each condition than positive feedback. In addition, not statistically but a marginally significant main effect of experimental condition was observed when the experimental conditions were collapsed across feedback sign, $F(3,195) = 2.32, p = .08, \text{partial } \eta^2 = .04$. A marginally significant effect of experimental condition X feedback sign interaction was also observed, $F(3,195) = 2.56, p = .053, \text{partial } \eta^2 = .04$. This result means that changing the feedback sign did not produce the same effect on performance change in all conditions. Following this finding, post-hoc analyses for the interaction effect were conducted in order to identify the cell means that were significantly different from each other. For the post-hoc analyses of the significant experimental condition X feedback sign

interaction effect, Fisher's t-test was applied to each possible pairs of cell means. As suggested by Heiman (2006), Fisher's protected t-test was preferred over Tukey's Honest Significance Test (HSD), because Levene's test of the equality of error variances turned significant, and numbers in each cell were not equal. Pairwise comparisons of cell means with Fisher's t-test revealed 12 significant cell mean differences. The significant cell mean differences in feedback scores are presented in Table 4.8.

It seems that the four cells in achievement goal orientation conditions did not differ significantly from each other. On the other hand, the cells of opposite feedback signs (+ vs. -) in regulatory focus conditions differed significantly from each other, meaning that FI brought about group differences in the use of feedback information due to the sign of feedback only among the regulatory focus conditions but not among the goal orientation conditions. Examination of these differences revealed that, while the negative FI had a substantial performance improving effect in PGO, Promotion and Prevention conditions, positive feedback seems to be ineffective in Prevention and to have a strong detractive effect in Promotion condition.

Table 4.8. Means, Standard Deviations and Significant Differences in the Mean Performance Change Scores of the Cells Composed of Experimental Conditions and Feedback Signs

	Experimental Conditions							
	Goal Orientation				Regulatory Focus			
	MGO		PGO		Promotion		Prevention	
Feedback Sign	+	-	+	-	+	-	+	-
N	16	28	27	27	25	19	22	31
M	-55.63 _a	72.15 _{ad}	139.91 _a	202.22 _{abcd}	-202.81 _b	432.45 _c	.78 _a	413.35 _d
SD	281.97	694.49	146.89	566.49	360.24	558.95	255.27	630.09
Total M (SD)	25.68 (578.31)		171.07 (411.10)		71.51 (551.84)		242.09 (545.42)	

Note: All means and SDs are in milliseconds. Negative values mean performance decline and positive values mean performance improvement through the 1st to 2nd sessions. The means with the same subscripts didn't differ significantly from each other. The mean differences between Promotion (+), MGO (-) and Promotion (+), PGO (+); between Promotion (-), MGO (-) and Promotion (-), PGO (+); and between PGO (+), Prevention (-) conditions are significant at $p < .01$ level. The remaining mean differences are significant at $p < .05$ level.

The significant differences in cell means seemed not limited to the comparisons within the regulatory focus conditions but also existed when comparisons were made between the cells of the two regulatory mechanisms; goal orientation and regulatory focus. To elaborate, the cell mean differences due possibly to the difference in feedback signs could also be observed between Promotion (+) and PGO (+), Promotion (+) and MGO (-), Promotion (-) and PGO (+), Promotion (-) and MGO (+), Prevention (-) and PGO (+), and Prevention (-) and MGO (+) conditions. Additionally, three significant differences between the cells of the same feedback sign were identified within the all possible comparisons. These were between MGO (+) and Promotion (+), MGO (-) and Promotion (-), and between PGO (+) and Promotion (+) conditions. As can be seen, the cells of the Promotion condition are common in almost all significant comparisons. The reason why the mean performance change scores of the Promotion condition differed from other conditions was a consequence of the fact that the negative FI resulted in an impressive performance improvement and the positive FI unexpectedly caused to performance decrement in Promotion condition. Apparently, negative feedback seems to have been more effective in general and especially for the regulatory focus conditions and positive feedback seems to have been ineffective or detrimental for the subsequent performance except for the PGO condition.

The ANCOVA by which group differences were examined was also revealed that among the covariates (task-specific self-efficacy and dispositional achievement regulatory mechanisms), none but the effect of task-specific self-efficacy was statistically significant, $F(1,195) = 7.12, p < .01$, partial $\eta^2 = .04$. That is, overall, those who were high in task-specific self-efficacy benefited more from performance feedback than those who were low. To further investigate this finding, the predictive value of the task-specific self-efficacy for the performance change was separately investigated for MGO and Prevention groups since it was already examined for PGO and Promotion groups based on the propositions of the third hypothesis of the study. For this purpose, two different hierarchical regression analyses were conducted by entering dispositional achievement regulatory scores at the first step and the task-specific self efficacy scores at the second. No significant effect of task-specific self-efficacy was observed after these regression analyses,

meaning that task-specific self-efficacy did not predict performance change for MGO and Prevention group participants.

4.7.2. Gender differences in use of feedback information. Analyses related to gender differences pertained only to performance variables (i.e., session deviation scores and performance change). The performance change score of the female participants was consistently lower than male participants in all conditions. In order to examine whether there is any significant difference in performance variables based on gender, an independent samples *t*-test was conducted for each session's mean deviation scores and performance change scores for the whole sample as well as for each condition separately. The comparison of the 1st session deviation scores resulted in a marginally significant difference between male and female participants with a better (i.e., lower) mean deviation score in female ($M = 1178.95$, $SD = 528.35$) than male ($M = 1317.47$, $SD = 597.82$) participants, $t(193) = 1.71$, $p = .90$. No significant gender differences were observed in the 2nd session deviation scores. The comparison of the performance change scores resulted in a significant difference between male and female participants with male participants having higher performance change scores ($M = 266.65$, $SD = 536.93$) than female participants ($M = 64.65$, $SD = 510.39$), $t(193) = 2.66$, $p < .01$. This result showed that male participants, on the average, improved their performance more than their female counterparts. The finding that the mean 1st session performance of the male participants was lower than that of the female participants might be an explanation to the gender difference in performance change scores.

Gender comparisons were furthered by examining the performance differences separately in each experimental condition. These comparisons revealed that, gender differences in performance change scores were not evident in three of the four experimental conditions. Specifically, the mean performance change was significantly higher in male participants ($M = 271.06$, $SD = 564.24$) than female participants ($M = -185.29$, $SD = 512.17$) in the MGO condition, $t(41) = 2.78$, $p < .01$, but not in the remaining experimental conditions. The separate comparison of the 1st session deviation scores in each condition revealed that the mean 1st session deviation score of female participants ($M = 1048.20$, $SD = 324.38$) was

significantly lower (i.e., the mean 1st session performance was significantly better) than that of the male participants ($M = 1419.29$, $SD = 605.25$), $t(41) = 2.52$, $p < .05$. No significant gender difference in the 1st session deviation scores was observed in the remaining conditions. These results revealed that when MGO was situationally activated, the FI resulted in a mean performance decrement for female participants in contrast to male participants, who improved their performance. However, this result may be stemmed from the significantly better mean performance of the female participants in the 1st session.

CHAPTER V

DISCUSSION

5.1. Overview of the Findings and Their Interpretations

Feedback sign is theoretically expected to be a strong moderator in the feedback-performance relationship. However, the effect of feedback sign had remained unresolved even after the meta-analysis of 607 effect sizes conducted by Kluger and DeNisi (1996). Later on, several studies directed their attention to achievement regulatory mechanisms to dissolve the mystery about the high variance observed on task performance following FI. The question is why sometimes performance debilitates after FI whereas some other times it improves. The idea for conducting the current study emerged from the need to examine the effects of feedback sign along with goal orientation and regulatory focus on a short-term task.

The first hypothesis suggested that FI would be more effective in the PGO condition than in the MGO condition. The first hypothesis was supported. For the situationally activated PGO condition, the FI resulted in a statistically significant performance increment and this increment was especially strong following the delivery of negative feedback. Furthermore, FI resulted in the second highest performance improvement of all four conditions when delivered in PGO condition, first being the prevention focus condition (see Table 4.8). Furthermore, among the four conditions, the effect of positive feedback was the strongest in the PGO condition. For situationally activated MGO condition, slight performance changes were observed in the form of improvement as a result of negative, and in the form of decrement as a result of positive feedback. The literature on the dispositional form of goal orientation, characterize performance goals as largely negative and mastery goals as positive in terms of their influence in achievement-related behavior (e.g., Ames, 1992). Related to the feedback contexts, a number of studies give superiority to the MGO over PGO and report that feedback is effective

regardless of its sign for individuals with MGO and positive feedback is more effective than negative feedback for individuals with PGO (e.g., Butler, 2000; Grant, & Dweck, 2003). In the present study, the MGO condition represented a situation in which no clearly defined goals existed and no tangible reinforcers were presented. With these characteristics, MGO condition was the least demanding achievement situation in which no expectations were communicated to the participants. On the other hand, in the PGO condition, participants were presented with a strong motivator created by the joint effect of normative comparisons and the perception of being tested for abilities. The manipulation implemented in the PGO condition as “the testing of the participants’ cognitive ability” was probably a strong impetus especially for the young students of a prominent university. Compared to the MGO condition, the stronger motivating potential of the PGO manipulation seems to have made the difference for the participants of this condition. According to the expectancy-value theory (Fishbein & Ajzen, 1975), motivation is determined by the interaction between the probability of success and the incentive value tied to the success. In this case, even though the probability to succeed seemed high to the participants, the lack of incentives in the MGO condition might have impaired their motivation. In other words, when the consequences of the success or failure are fugitive (due mainly to the lack of the meaning of the consequences to the performer) and the relationship between the feedback provider and recipient is short-termed, the positive effects of the activation of MGO might not be attained. Consequently, for short-term tasks, such as the task used in the present study, contextually stimulating PGO seems to be more functional than the activation of MGO on the performers. All in all, the findings concerning the first hypothesis showed that the motivational power of the situational achievement regulatory mechanisms should be taken into account when they are contextually activated in achievement situations. Without clear objectives or attracting reinforcers, activating achievement motives just for the sake of learning seemed to be unlikely at least in the context of this study.

The analysis of the difference between the performance changes of the MGO and PGO conditions also revealed that dispositional MGO was a marginally significant covariate. That is, those who were high in the dispositional MGO

benefited more from performance feedback than those who are were low. This result was quite consistent with the literature (e.g., Dweck, 1986; Negru, 2009; Nicholls, 1984), suggesting that MGO is a useful disposition easing the use of feedback information and applying alternative task strategies without developing a self-related concern.

Consistent with the propositions of the extant regulatory focus literature (e.g., Shah & Higgins, 1997; Van-Dijk & Kluger, 2004), Hypothesis 2 proposed an interaction between the feedback sign and the dimensions of the situational regulatory focus in the feedback-performance relationship. That is, Hypothesis 2 suggested that positive feedback would be more effective than negative feedback in the situational Promotion condition and that negative feedback would be more effective than positive feedback in the situational Prevention condition. The feedback literature suggests that regulatory focus is a moderator to the feedback-performance relationship (e.g., Förster et al., 2001; Shu & Lam, 2011). According to this view, promotion and prevention mechanisms work in opposite directions when associated with the feedback of the same sign. Several studies report that both dispositional and situational promotion foci yield more favorable results when associated with positive feedback (e.g., Förster et al., 2001; Van Dijk & Kluger, 2004, 2011). For dispositional and situational prevention foci, the same studies report that performance increases more after the provision of negative and less after positive feedback. In the current study, the propositions of these approaches were adapted to “contextual” milieu, and adopted as they were.

The results did not reveal an interaction effect between feedback sign and regulatory focus in the feedback-performance relationship. Unexpectedly, promotion focus resulted in a substantial performance decline when associated with positive feedback. That is, positive FI was less effective (indeed, detrimental) than negative FI in Promotion condition. Moreover, the decrement in performance was the highest of all conditions. On the other hand, the results revealed that, in the Prevention condition, the effect of negative feedback on performance change scores was higher than positive feedback, as hypothesized. Indeed, the magnitude of the performance improvement due to the negative FI was the highest of all

conditions of this study. Positive feedback had no effect in the Prevention condition (see Table 4.8). Overall, these results partially supported Hypothesis 2.

Van Dijk and Kluger's (2011) findings may provide a plausible explanation for the unexpected findings concerning the second hypothesis of the study. These authors report that tasks requiring vigilance and error detection activate prevention; and tasks requiring creativity, taking initiatives or applying several strategies activate promotion focus on the performer. As a moderate-complexity task requiring maximum amount of concentration, the speed-distance estimation task seems to have more of the characteristics of the tasks described for prevention focus than promotion focus. Although the task was not an error detection task, it could have been perceived as an error avoidance task, which could have possibly activated a focus on the prevention of errors. With this respect, the experimental task of the study might have alleviated or neutralized the effect of promotion focus manipulation on the participants. On the other hand, the congruence between the characteristics of the task and prevention focus manipulation might have consolidated the effect of prevention focus manipulation. Kluger et al. (1999) assert that the findings of the studies reporting that prevention focus is more effective when associated with negative feedback than with positive feedback are more consistent compared to the studies reporting the relationship between feedback sign and promotion focus in performance contexts. The findings of this study, supporting the propositions related to feedback sign and prevention focus but failing to support the propositions related to feedback sign and promotion focus seems to contribute to the assertion of Kluger et al. (1999). These results suggest that the activation of both prevention and promotion focus, when associated with negative feedback, brings about a strong motivation to succeed over the performer, when the task is short-termed and the attainment of tangible rewards is salient.

In the 3rd hypothesis, it was asserted that when performance goal orientation or promotion focus is activated, individuals would benefit more from FI, especially when they are high in task-specific self-efficacy. This hypothesis was partially supported. The predictive effect of task-specific self efficacy was observed in the PGO condition but not in the Promotion condition. The underlying logic for expecting task-specific self-efficacy to be a predictor of the feedback-performance

relationship in both conditions was the self-related aspects of the PGO and promotion constructs. The reason for this inconsistency between the two conditions might be the difference between the two conditions in terms of threat assessment for the self. In the PGO condition, the self-related concerns probably stemmed from the perception that participants' cognitive abilities were evaluated and compared with others. In the Promotion condition, on the other hand, the self-related concern was probably about the attainment of a tangible reward. It seems that the former surpassed the latter. That is, the perception of "being tested and compared with some production-line workers in cognitive ability" created on the participants who are mostly accomplished students might have caused relatively more self-related concerns compared to the probability to attain the tangible reward (i.e., tablet PC). In other words, individuals might perceive the normative comparisons of their self-abilities a more direct threat to their self-concept than the attainment-related concerns. As a consequence, their self-efficacy perceptions may have a more important function in such situations. Eventually, the predictions of Hypothesis 3 seemed to be valid for only the PGO condition. This finding implies that direct threats to self-concept can be overcome by believing in self abilities. Especially for works in which high emotional pressure is experienced, a raised self-efficacy belief can be a good leverage for maintaining achievement motivation.

Consistent with the findings of the earlier studies, the variance in task performance following FI was considerably high in this study as well. However, the sign of feedback was an important determinant of the degree of variance observed. It seemed that the variance in performance change was smaller and constrained to the improvement side of the performance change when feedback sign was negative. On the other hand, performance change was not unilateral, and was more dispersed when positive feedback was provided. Hence, by and large, the current study showed that negative feedback was more effective than positive feedback in creating a performance improvement. Though varied considerably in magnitude, the mean change in performance was positive, yielding a performance improvement after the provision of negative feedback. After positive feedback, however, only in one of the four experimental conditions did the subsequent performance improve, whereas it decreased or remained constant in others. With

this regard, the overall findings of this study seemed to be in line with various research reporting the superiority of negative feedback (e.g., Campion & Lord, 1982; Podsakoff & Farh, 1989; Reilly, Smither, & Vasilopoulos, 1996; Walker & Smither, 1999).

Although a significant number of studies (e.g., Förster et al., 2001; Van Dijk & Kluger, 2004; Negru, 2009) refrain from suggesting a unilateral effect of feedback sign and relate the feedback sign-performance relationship to the type of achievement regulatory mechanisms, the present findings indicated the superiority of negative FI over the positive one. The observed advantage of negative feedback in improving subsequent task performance requires further consideration of the task, the context, the feedback message and participant characteristics of the present study.

In the present study, the expression of the performance deficit was made in such a manner that the recipients of the negative feedback messages might not have felt a direct threat to their self-concept. In other words, the self-related concerns were created by the task instructions but not by the negative feedback message. Because, the negative feedback was formed merely to communicate the performance deficit in an attentive manner. As a consequence, the negative feedback message used in FI might have been embodied with all positive aspects of a feedback message; meaning that, (a) it might not have been impaired by becoming a threat to the self-concept and (b) it might have clearly conveyed the message that performance was below the aspiration level. As a result, the negative feedback has been more effective than positive feedback in all the conditions.

The FIT proposes that task performance declines after FI if the recipient's attention shifts away from the task toward the self. Theoretically, negative feedback has a potentially high distracting effect over the performer since it is more likely than positive feedback to signal a threat to the recipient's self-concept. In a similar fashion, positive feedback can also lead the recipient to change his/her locus of attention toward self-related aspirations. In the present study, the positive FI seems to have had a more distracting effect than negative feedback on the participants. The fact that the negative feedback messages in this study refrained from directly communicating the self-related deficiencies but expressed task/performance-related ones, the threatening effect of the negative FI on the performer might have been diminished.

The experimental task adopted in this study can be characterized with high ambiguity, meaning that the task execution itself was not a source of inference about one's own performance. In this task, the way for increasing performance has been to increase and then to maintain the level of attention. Negative feedback seemed to be a strong motivator to increase attention. On the other hand, those who initially performed above average and thus received positive feedback might have thought that their strategy for estimating the arrival time was valid and following the same strategy would guarantee the success in the 2nd session. In other words, they might have made inferences about their response strategy instead of their level of attention in the case of positive feedback. This inference might have comforted them and reduced their level of arousal, which in turn caused performance decrements in such an ambiguous performance.

Another reason for these unexpected overall results might be the nature and span of the task. It was clear to the participants that the task was a one-time occasion and the experimenter was nothing more than a stranger for most of them. Therefore, the threats emerging from normative comparisons might not have operated as intensively as expected. As such, threat to self-concept might not be felt as intensive as expected. Consequently, avoidant action strategies, typically emerging as a joint consequence of self-threatening conditions (i.e., situational PGO and promotion focus) and negative feedback might not be adopted by the participants, which might have prevented performance losses.

Gender differences were observed in the mean performance change scores for the whole sample. First, the mean performance change of the male participants was consistently higher than female participants in all conditions. Second, this difference was statistically significant for the whole sample and for the participants of the MGO condition. Third, the mean 1st session deviation score of the female participants was marginally significantly lower than male participants. When analyzed within the experimental conditions, the significant gender difference in the 1st session deviation and performance change scores was evident only in MGO, but not in other conditions. This result implied that the significant gender difference observed in performance change scores for the whole sample mainly stemmed from the MGO condition participants' remarkable gender difference in performance scores. A quite plausible reason of the gender difference in the

performance change scores might be that the mean 1st session performance of the female participants were better (with lower mean deviance scores) than their male counterparts. In other words, since the mean performance of the female participants in the 1st session was better, the room for improvement was probably smaller, which might have caused lower performance change scores than male participants. Significant gender difference in the 1st session deviation scores and performance change found in MGO condition suggest that the female participants may have taken the task more seriously than males in MGO condition initially. Because of their relative success in the 1st session, more female participants than males received positive feedback, which might have led to a decrease in their 2nd session performance. These results imply that in loosely-founded achievement situations, as it was the case in the MGO condition of this study, female performers handle the task more seriously than their male counterparts initially, however, their interest and attention toward the task decrease more after receiving feedback.

5.2. Implications of the Findings

The findings of this study suggest that task type, framing of the task, task incentives, and task context should all be considered in the FI process. The use of tangible rewards based on the level of performance is a good option for reinforcing motivation in short-term tasks. On the other hand, stepping into the self-arousing matters; such as comparing the performance or ability of the recipient with others might temporarily be as effective as the use of the tangible rewards, but theoretically, this option seems risky if repeated frequently. When the task context is framed as a learning opportunity, learning may occur in the long term, but no satisfactory performance should be expected in the initial trials.

The fact that FI was the least effective for performance improvement in MGO condition suggests that, giving performers a clear goal and a meaningful reason to succeed would result in higher effects of FI on performance than exposing them to achievement situations in which no motivating interventions are made. This study also revealed that negative feedback is especially effective in situations in which the attainment of tangible rewards is salient as it was the case in Promotion and Prevention conditions. Thus, for short-termed tasks, feedback

providers can more confidently use appropriately worded negative feedback messages (i.e., a feedback message free of threatening implications) when the success is a precondition for the attainment of tangible rewards. In such instances, feedback providers should be aware that the use of positive feedback messages communicating the success of the performer in advance of the task completion might be detrimental to performance.

This study showed that the gap between the desired and current performance can more confidently be reduced by clearly and more directly communicating the lack of performance (i.e., by providing negative feedback) especially for short-term tasks. However, several studies report that in repeated provision of negative feedback, questioning self abilities may undermine self-concept and cause thoughts of helplessness, reducing performance since attention is almost totally allocated to the self, instead of the task execution (e.g., Roth, 1980; Thornton & Powell, 1974). So, confidence in the use of negative feedback might be detrimental to performance when the stakeholders of feedback process have/will have a long term relationship. Therefore, the finding that negative feedback is more beneficial compared to positive is believed to be valid for short-term tasks and with low frequency FIs. In addition, the negative feedback message must be free of the statements posing any threat to the recipients' self-concept.

5.3. Strengths of the Study

This study is believed to have a number of strengths and potential contributions. First of all, to my knowledge, this study is the first to examine both goal orientation and regulatory focus and their dispositional and situational forms at the same time in an experimental setting and on the same task. This feature of the study allowed a pure comparison of these two constructs with their simultaneous inclusion in the experimental setting.

Second, this study is believed to contribute to the emerging local literature on feedback and feedback interventions in Turkey. To my knowledge, this study has been the first to examine the effects of contextually triggered variables that are typically studied as individual differences variables (i.e., goal orientation and regulatory focus) and feedback sign on performance using an experimental design

in Turkey. With this respect this study is believed to be a unique contribution to the local literature.

Third, and related to the second contribution, this study is unique as it was conducted in a unique cultural context. Cross-cultural studies on motivation report that individuals from Western cultures are more persistent after success but individuals from Asian cultures are more persistent after failure (Heine, Lehman, Markus, & Kitayama, 1999). Not surprisingly, individuals from Western cultures are more inclined to adopt a promotion focus whereas the individuals from Asian cultures are more inclined to adopt a prevention focus (Lee, Aaker, & Gardner, 2000). Since the negative feedback was more effective in this study than positive feedback, this result can be asserted that our reactions to the achievement situations might bear a resemblance to that of the Asians. Examining the roles of the achievement regulatory constructs in the feedback process in the Turkish context was important in terms of shedding some light on the cultural differences perspective of the subject.

Forth, unlike some of the studies reported in the literature, this study tried to create an achievement situation using a real, short-term task. In some of the studies, which were very inspirational for the present study, the achievement situations had been created in the imagination of the participants (e.g., Kluger & VanDijk, 2004, 2010). For example, in the 2010 study of these authors, the participants were instructed to imagine “they were working in a job they had to keep because they were afraid of being left without income” or “they have always desired to have a job in which they wish to develop and advance.” The present study, on the other hand, was an attempt to create achievement situations in a pure experimental setting, which might be considered as a strength.

A final strength of the study is believed to be its methodological diligence. By using a purely experimental design, participants were randomly assigned to their conditions in which the manipulations were made in a consistent and standard manner for each participant consistent with his/her assigned condition. Manipulation checks suggested the success of the contextual manipulation of both goal orientation and regulatory focus types. Furthermore, use of performance feedback that was consistent with participants’ actual task performance was a

critical strength of the study. Computerized nature of the feedback report left no room for the subjective evaluations of the performance hence is believed to have enhanced the credibility of the feedback given.

5.4. Limitations of the Study and Suggestions for Future Research

This study was limited in a number of ways. Considering the factorial structure of the study design, the number of participants in each cell might be insufficient to show the proposed or existing relationships. In addition, the FI was made consistent with the real estimation performance of the participants. Since the number of the participants was not high enough, the provision of bogus feedback (feedback independent of the performers' actual performance) was not possible in this study. Examining the effects of bogus feedback would be an interesting avenue for future studies.

In this study, though a neutral task was intended to be created, the experimental task was more suited to prevention focus situations. The future studies might use the tasks that require taking initiative, choosing among various strategies or requiring creative thinking. To better understand and further explore the effects of the FI on performance, choosing different samples, implementing bogus feedback or conducting longitudinal or real-time studies would definitely be helpful.

REFERENCES

- Ackerman, P. L. (1987). Individual differences in skill learning: An integration of psychometric and information processing perspectives. *Psychological Bulletin*, *102*, 3-27.
- Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, *84*, 261-271.
- Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, *80*, 260-267.
- Ammons, R. B. (1956). Effects of knowledge of performance: A survey and tentative theoretical formation. *Journal of General Psychology*, *54*, 279-299.
- Anseel, F., & Lievens, F. (2007). The long-term impact of the feedback environment on job satisfaction: A field study in a Belgian context. *Applied Psychology: An International Review*, *56* (2), 254–266.
- Ashford S. J., & Cummings, L. L. (1981). Strategies for knowing: when and from where do individuals seek feedback? *Academy of Management Proceedings*, 161-165.
- Ashford, S. J., & Cummings, L. L. (1983). Feedback as an individual resource: Personal strategies of creating information. *Organizational Behavior and Human Performance*, *32*, 370-398.
- Ashford, S. J., & Cummings, L. L. (1985). Proactive feedback seeking: The instrumental use of the information environment. *Journal of Occupational Psychology*, *58*, 67-79.
- Baron, J. (2008). *Thinking and deciding*. Cambridge University Press.
- Baker, N. (2010). Employee feedback technologies in the human performance system. *Human Resource Development International*, *13* (4), 477–485.
- Balzer, W. K., Doherty, M. E., & O'Connor, R. E. (1989). Effects of cognitive feedback on performance. *Psychological Bulletin*, *106* (3), 410-433.

- Bandura, A. (1977). *Social learning theory*. NJ: Prentice-Hall.
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, *37*, 122-147.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Clinical and Social Psychology*, *4*, 359-373.
- Bandura, A. (1989). Social cognitive theory. *Annals of Child Development*, *6*, 1-60.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Beaudoin, M., & Desrichard, O. (2011). Are memory self-efficacy and memory performance related? A meta-analysis. *Psychological Bulletin*, *137* (2), 211–241.
- Brewer, W. F., & Lichtenstein, E. H. (1981). Event schemas, story schemas, and story grammars. *Attention and Performance*, *9*, 363-379.
- Bruning, R., Dempsey, M., Kauffman, D. F., McKim, C., & Zumbrunn, S. (2012). Examining dimensions of self-efficacy for writing. *Journal of Educational Psychology*. doi: 10.1037/a0029692
- Butler, R. (1987). Task-involving and ego-involving properties of evaluation: Effects of different feedback conditions on motivational perceptions, interest, and performance. *Journal of Educational Psychology*, *79*, 474-482.
- Butler, R. (2000). Making judgments about ability: The role of implicit theories of ability in moderating inferences from temporal and social comparison information. *Journal of Personality and Social Psychology*, *78* (5), 965-978.
- Campbell, J. P. (1990). Modeling the performance prediction problem in industrial and organizational psychology. *Handbook of Industrial and Organizational Psychology*, *1*, 687–732.
- Campion, M. A., & Lord, R. G. (1982). A control systems conceptualization of the goal-setting and changing process. *Organizational Behavior and Human Performance*, *30*, 265-287.
- Carmeli, A., & Weisberg, J. (2006). Exploring turnover intentions among three professional groups of employees. *Human Resource Development International*, *9* (2), 191-206.

- Carver, C. S. & Scheier, M. F. (1981). *Attention and self-regulation: A Control-theory approach to human behavior*. New York: Springer-Verlag.
- Çetinkalp, Z. K., & Türksoy, A. (2011). Goal orientation and self-efficacy as predictors of male adolescent soccer players' motivation to participate. *Social Behavior and Personality, 39* (7), 925-934.
- Coffee, P., & Rees, T. (2008). Main and interactive effects of controllability and generalizability attributions upon self-efficacy. *Psychology of Sport and Exercise, 9*, 775-785.
- Coffee, P., Rees, T., & Haslam, A. (2009). Bouncing back from failure: The interactive impact of perceived controllability and stability on self-efficacy beliefs and future task performance. *Journal of Sports Sciences, 27* (11), 1117-1124.
- Cooperrider, D. L., & Srivastava, S. (1987). Appreciative inquiry in organizational life. *Research in Organizational Change and Development, 1*, 129-169.
- Crowe, E., & Higgins, E. T. (1997). Regulatory focus and strategic inclinations: Promotion and prevention in decision-making. *Organizational Behavior And Human Decision Processes, 69* (2), 117–132.
- DeLuque, M. F., & Sommer, S. M. (2000). The impact of culture on feedback-seeking behavior: An integrated model and propositions. *Academy of Management Review, 25* (4), 829-849.
- Doğruyol, B. (2008). *The impact of parental control and support on the development of chronic self-regulatory focus* (Unpublished master thesis). METU Graduate School of Social Sciences, Ankara.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273.
- Eison, J. A., Pollio, H., & Milton, O. (1986). Educational and personal characteristics of four different types of learning and grade-oriented students. *Contemporary Educational Psychology, 11*, 54–67.
- Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology, 54*, 5-12.

- Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology, 72*, 218-232.
- Fishbein, M., & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioral criteria. *Psychological Review, 81* (1), 29-74.
- Frese, M., & Zapf, D. (1994). Action as the core of work psychology: A German approach. *Handbook of Industrial and Organizational Psychology, 4*, 271-340.
- Friedman, R. S., & Förster, J. (2001). The effects of promotion and prevention cues on creativity. *Journal of Personality and Social Psychology, 81* (6), 1001-1013.
- Förster, J., Higgins, E. T., & Idson, L. C. (1998). Approach and avoidance strength during goal attainment: Regulatory focus and the "goal looms larger" effect. *Journal of Personality and Social Psychology, 75* (5), 1115-1131.
- Förster, J., Grant, H., Idson, L. C., & Higgins, T. E. (2001). Success/failure feedback, expectancies, and approach/avoidance motivation: How regulatory focus moderates classic relations. *Journal of Experimental Social Psychology 37*, 253-260.
- Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology, 85* (3), 541-553.
- Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior & Human Performance, 16* (2), 250-279.
- Harackiewicz, J. M., & Elliot, A. J. (1993). Achievement Goals and Intrinsic Motivation. *Journal of Personality and Social Psychology, 65* (5), 904-915.
- Hastings, E. C., & West, R. L. (2011). Goal orientation and self-efficacy in relation to memory in adulthood. *Aging, Neuropsychology & Cognition, 18* (4), 471-493.
- Heiman, G. W. (2006). *Basic statistics for the behavioral sciences*. Boston: Houghton Mifflin.

- Heine, S. J., Lehman, D. R., Markus, H. R., & Kitayama, S. (1999). Is there a universal need for positive self-regard? *Psychological Review*, *106*, 766-794.
- Higgins, E. T. (1997). Beyond Pleasure and Pain, *American Psychologist*, *52* (12), 1280-1300.
- Higgins, E. T., Shah, J., & Friedman, R. (1997). Emotional Responses to Goal Attainment: Strength of Regulatory Focus as Moderator. *Journal of Personality and Social Psychology*, *72* (3), 515-525.
- Higgins, E. T. (1998). Promotion and prevention: Regulatory focus as a motivational principle. *Advances in Experimental Social Psychology*, *46*, 1-46.
- Howard, A., & Bray, D. (1988). *Managerial lives in transition*. New York: Guilford Press.
- Idson, L. C., Liberman, N., & Higgins, E. T. (2000). Distinguishing gains from non-losses and losses from non-gains: A regulatory focus perspective on hedonic intensity. *Journal of Experimental Social Psychology*, *36*, 252-274.
- Ilgen, D. R., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology*, *64*, 349-371.
- Ilgen, D. R., & Davis, C. A. (2000). Bearing bad news: Reactions to negative performance feedback. *Applied Psychology: An international review*, *49*, 511-526.
- Jagacinski, C, & Nicholls, J. (1984). Conceptions of effort and ability and related affects in task-involvement and ego involvement. *Journal of Educational Psychology*, *76*, 909-919.
- Jordan, A. H., & Audia, P. G. (2012). Self-enhancement and learning from performance feedback. *Academy of Management Review*, *37* (2), 211–231.
- Kanfer, R. (1992). Work motivation: New directions in theory and research. *International Review of Industrial and Organizational Psychology*, *7*, 1-53.

- Khurshid, F., Qasmi, F. N., & Ashraf, N. (2012). The relationship between teachers' self-efficacy and their perceived job performance. *Interdisciplinary Journal of Contemporary Research in Business*, 3 (10), 204-223.
- Klein, H. J. (1989). An integrated Control Theory model of work motivation. *Academy of Management Review*, 14 (2), 150-172.
- Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119 (2), 254–284.
- Kluger, A. N., & DeNisi, A. (1998). Feedback interventions: toward the understanding of a double-edged sword. *Current Directions in Psychological Science*, 7 (3), 67-72.
- Kluger, A. N., Van-Dijk, D., Kass, R., Stein, E. Z., & Lustig, H. (1999). Positive (negative) feedback: Encouragement or discouragement? Hebrew University of Jerusalem.
- Kluger, A. N., & Van Dijk, D. (2010). Feedback, the various tasks of the physician, and the feed forward alternative. *Medical Education*, 44 (12), 1166-1174.
- Larson, J. R. (1989). The dynamic interplay between employees' feedback-seeking strategies and supervisors' delivery of performance feedback. *Academy of Management Review*, 14 (3), 408-422.
- Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology*, 78 (6), 1122–1134.
- Levontin, L., & Kluger, A. N. (2004). A comparison between the predictions of goal orientation theory and self-regulation theory regarding the effect of feedback sign on motivation. 19th Annual Convention of the Society for Industrial and Organizational Psychology, Chicago, IL.
- Liberman, N., Idson, L. C., Camacho, C. J., & Higgins, T. E. (1999). Promotion and prevention choices between stability and change. *Journal of Personality and Social Psychology*, 77 (6), 1135-1145.

- Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. *Journal of Applied Psychology, 69* (2), 241-251.
- Locke, E. A., & Latham, G. P. (1990). Work motivation and satisfaction: Light at the end of the tunnel. *Psychological Science, 1* (4), 240-246.
- Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American Psychologist, 57* (9), 705–717.
- Lockwood, P., Jordan, C. H., & Kunda, Z. (2002). Motivation by positive and negative role models: Regulatory focus determines who will best inspire us. *Journal of Personality and Social Psychology, 83*, 854–864.
- London, M., & Smither, J. W. (1999). Career-related continuous learning: Defining the construct and mapping the process. *Research in Personnel and Human Resources Management, 17*, 81-121.
- London, M. (2003). *Job feedback: Giving, seeking, and using feedback for performance improvement*, NJ: Lawrence Erlbaum Associates.
- Lopez, E. M. (1981). Increasing intrinsic motivation with performance-contingent reward. *Journal of Psychology, 108*, 59-65.
- Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954–969.
- McDowall, A., & Mabey, C. (2008). Developing a framework for assessing effective development activities. *Personnel Review, 37* (6), 629 – 646.
- Mikulincer, M. (1994). *Human learned helplessness: A coping perspective*. New York: Plenum Press.
- Morrison, E. W., & Bies, R. J. (1991). Impression management in the feedback-seeking process: A literature review and research agenda. *Academy of Management Review, 15* (3), 522-541.
- Murayama, K., Elliot, A. J., & Yamagata, S. (2011). Separation of performance-approach and performance-avoidance achievement goals: A broader analysis. *Journal of Educational Psychology, 103* (1), 238–256.

- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, *91*, 328-346.
- Negru, O. (2009). Impact of achievement goals, normative feedback and task requirements on performance. *Cognition, Brain, Behavior*, *13* (1), 11-30.
- Olayiwola, I. O. (2011). Self-efficacy as predictor of job performance of public secondary school teachers in Osun State. *IFE Psychologia*, *19* (1), 441-445.
- Palmer, S., & McDowell, A. (2010). *The coaching relationship: Putting people first*. New York: Routledge.
- Podsakoff, P., & Farth, J. (1989). Effects of feedback sign and credibility on goal setting and task performance. *Organizational Behavior and Human Decision Processes*, *44* (1), 45-67.
- Powers, W. (1978). Quantitative analysis of purposive systems: Some spadework at the foundations of scientific psychology. *Psychological Review*, *85*, 417-435.
- Roth, S. (1980). A revised model of learned helplessness in humans. *Journal of Personality* *48*, 103–33.
- Rummler, G. A., & Brache, A. P. (1995). *Improving performance: How to manage the white space on the organizational chart (2nd edition)*. San Francisco: Jossey-Bass.
- Salmeron-Perez, H., Gutierrez-Braojos, C., Fernandez-Cano, A., & Salmeron-Vilchez, P. (2010). Self-regulated learning, self-efficacy beliefs and performance during the late childhood. *Relieve*, *16* (2), 1-18 . Retrieved from http://www.uv.es/RELIEVE/v16n2/RELIEVEv16n2_4eng.htm
- Scheier, M. F., & Carver, C. S. (1982). Self-consciousness, outcome expectancy, and persistence. *Journal of Research in Personality*, *16*, 409-418.
- Shah, J., & Higgins, E. T. (1997). Expectancy × Value Effects: Regulatory focus as determinant of magnitude and direction. *Journal of Personality and Social Psychology*, *73*, 447-458.

- Shah, J., Higgins, E. T., & Friedman, R. (1998). Performance incentives and means: How regulatory focus influences goal attainment. *Journal of Personality and Social Psychology*, 74, 285–293.
- Shu, T. M., & Lam, S. (2011). Are success and failure experiences equally motivational? An investigation of regulatory focus and feedback. *Learning and Individual Differences* 21, 724–727.
- Spreitzer, G., & Porath, C. (2012). Creating sustainable performance. *Harvard Business Review*, 90, 92-99.
- Sümer, H. C., Er, N., Sumer, N., Koku, B., Ayvaşık, H. B., & Mısırlısoy, M., (2010). Personel seçim amaçlı hız-mesafe tahmin testi. (Unpublished Manuscript). METU, Ankara.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*, 5th ed. Boston: Allyn and Bacon.
- Tayfur, Ö. (2006). *Antecedents of feedback seeking behaviors* (Unpublished master thesis). METU Graduate School of Social Sciences, Ankara.
- Thorndike, E. L. (1913). *Educational psychology (Vol. 2.): The psychology of learning*. New York: Teacher's College Press.
- Thornton, J. W., & Powell, G. D. (1974). Immunization to and alleviation of learned helplessness in man. *American Journal of Psychology* 87, 351–367.
- Tierney, P., & Farmer, S. M. (2011). Creative self-efficacy development and creative performance over time. *Journal of Applied Psychology*, 96 (2), 277–293.
- Tracy, K., Locke, E., & Renard, M. (1999). Conscious goal setting versus subconscious motives: Longitudinal and concurrent effects on the performance of entrepreneurial firms. Paper presented at the annual meeting of the Academy of Management, Chicago, IL.
- Vallacher, R. R., & Wegner, D. M. (1987). *A theory of action identification*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Van-Dijk, D., & Kluger, A. N. (2004). Feedback sign effect on motivation: Is it moderated by regulatory focus? *Applied Psychology*, 53 (1), 113-135.

- Van-Dijk, D., & Kluger, A. N. (2011). Task type as a moderator of positive / negative feedback effects on motivation and performance: A regulatory focus perspective. *Journal of Organizational Behavior*, 32 (8), 1084–1095.
- Van Scotter, J. R., Motowidlo, S. J., & Cross, T. C. (2000). Effects of task performance and contextual performance on systemic rewards. *Journal of Applied Psychology*, 85 (4), 526-535.
- VandeWalle, D. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement*, 57 (6), 995-1015.
- Wang, Shu-Ling, & Wu, Pei-Yi (2008). The role of feedback and self-efficacy on web-based learning: The social cognitive perspective. *Computers & Education* 51 (4), 1589-1598. doi: 10.1016/j.compedu.2008.03.004
- Wilder, J. (1962). Basimetric approach (law of initial value) to biological rhythms. *Annals of the New York Academy of Sciences*, 98, 1211-1228.

APPENDICES

APPENDIX A: WORK DOMAIN GOAL ORIENTATION SCALE

Bu bölümde, günlük hayatta karşılaşılabileceğiniz bazı durumlar, hayata dair hedefleriniz, beklentileriniz, çekince ve korkularınızla ilgili ifadelere yer verilmiştir. Lütfen her ifadeyi dikkatlice okuyun ve ne ölçüde katıldığınızı 5 basamaklı ölçekte belirtin. Bir ifadeye “tam olarak” katılıyorsanız 5, “oldukça katılıyorsunuz” 4, katılıyorsunuz 3 ve “kısmen katılıyorsunuz” 2 rakamını daire içine alın. Eğer ifadeye hiç katılmıyorsanız 1’i işaretleyin. Lütfen her soruya cevap verin.

	Katılmıyorum	Kısmen katılıyorum	Katılıyorum	Oldukça katılıyorum	Tamamen katılıyorum
1. Sıklıkla yeni bilgi ve beceriler edinebileceğim fırsatlar ararım.	1	2	3	4	5
2. Okuldaki insanlara yeteneğimi kanıtlayabilmenin yollarını bulmaya çalışırım.	1	2	3	4	5
3. Az yetenekli görünmekten kaçınmak, benim için yeni bir beceri öğrenmekten daha önemlidir.	1	2	3	4	5
4. Okuldakilerin (hoca ve diğer öğrenciler) işlerimi ne kadar iyi yaptığımı farkında olmalarından hoşlanırım.	1	2	3	4	5
5. Okulda, kötü performans göstereceğim durumlardan kaçınmayı tercih ederim.	1	2	3	4	5
6. Okulda yeni yetenekler edinebileceğim zorlayıcı ve meydan okuyucu derslerden hoşlanırım.	1	2	3	4	5
7. Yeteneklerimi geliştirmek için risk almaya değer.	1	2	3	4	5
8. Yüksek seviyede yetenek ve beceri isteyen durumlarda çalışmayı tercih ederim.	1	2	3	4	5
9. Eğer diğerlerine yetersiz görünme ihtimalim varsa, görev almaktan kaçınırım.	1	2	3	4	5
10. Kabiliyetimi diğer insanlara kanıtlayabileceğim projelerde çalışmayı tercih ederim.	1	2	3	4	5
11. Okuldaki arkadaşlarımdan daha iyi performans gösterebileceğimi göstermek benim için önemlidir.	1	2	3	4	5
12. Eğer bir durumdaki performansım az yeteneğe sahip olduğumu gösterecekse, o duruma katılma konusunda endişelenirim.	1	2	3	4	5
13. Kendisinden çok şey öğrenebileceğim zorlu bir dersi seçmeyi tercih ederim.	1	2	3	4	5

APPENDIX B: REGULATORY FOCUS QUESTIONNAIRE

Bu bölümde, günlük hayatta karşılaşılabileceğiniz bazı durumlar, hayata dair hedefleriniz, beklentileriniz, çekince ve korkularınızla ilgili ifadelere yer verilmiştir. Lütfen her ifadeyi dikkatlice okuyun ve ne ölçüde katıldığınızı 5 basamaklı ölçekte belirtin. Bir ifadeye “tam olarak” katılıyorsanız 5, “oldukça katılıyorsunuz” 4, katılıyorsunuz 3 ve “kısmen katılıyorsunuz” 2 rakamını daire içine alın. Eğer ifadeye hiç katılmıyorsanız 1’i işaretleyin.

	Katılmıyorum	Kısmen katılıyorum	Katılıyorum	Oldukça katılıyorum	Tamamen katılıyorum
1. Genellikle hayatımdaki olumsuz olayları engellemeye odaklıyım.	1	2	3	4	5
2. Sorumluluk ve yükümlülüklerimi yeterince yerine getiremeyeceğim diye kaygı duyarım.	1	2	3	4	5
3. Sık sık umutlarıma ve hedeflerime nasıl ulaşacağımı hayal ederim.	1	2	3	4	5
4. Gelecekte olmaktan korktuğum kişi hakkında sıkça düşünürüm.	1	2	3	4	5
5. Gelecekte idealimde olmak istediğim kişi hakkında sıkça düşünürüm.	1	2	3	4	5
6. Genellikle gelecekte elde etmeyi umduğum başarılarla odaklanırım.	1	2	3	4	5
7. Akademik hedeflerimi başaramayacağımdan dolayı sık sık endişelenirim.	1	2	3	4	5
8. Sıklıkla derslerimde nasıl başarıya ulaşacağımı düşünürüm.	1	2	3	4	5
9. Sıklıkla kendimi başıma gelmesinden korktuğum kötü şeyleri yaşarken hayal ederim.	1	2	3	4	5
10. Sıklıkla yaşamımdaki olası başarısızlıkları nasıl önleyebileceğimi düşünürüm.	1	2	3	4	5
11. Yaşamımda genellikle kazançlara ulaşmaktan ziyade kayıpları önleme eğilimi gösteririm.	1	2	3	4	5
12. Okuldaki şu anki temel amacım derslerim konusunda olası bir başarısızlıktan kaçınmaktır.	1	2	3	4	5
13. Kendimi temel olarak, “idealimdeki ben” e ulaşmaya çalışan; yani umutlarını arzularını ve hayallerini gerçekleştirmeye çalışan biri olarak görüyorum.	1	2	3	4	5
14. Kendimi temel olarak olmam beklenen kişi olmaya çalışan; yani görev, sorumluluk ve	1	2	3	4	5

yükümlülüklerini yerine getirmeye çalışan biri olarak görüyorum.					
15. Genellikle, yaşamımda olumlu sonuçlar elde etmeye odaklanırım.	1	2	3	4	5
16. Sık sık kendimi başıma gelmesini umut ettiğim güzel şeyleri yaşarken hayal ederim.	1	2	3	4	5
17. Genel olarak, başarısızlığı önlemekten ziyade başarıya ulaşmaya çaba gösteririm.	1	2	3	4	5

APPENDIX C: TASK-SPECIFIC SELF-EFFICACY MEASURE

Bu bölümde kendinizin hız ve mesafe tahmini ile ilgili becerinizi nasıl gördüğünüzü öğrenmeyi amaçlayan sorulara yer verilmiştir. Lütfen her ifadeyi dikkatlice okuyun ve bu ifadelere ne ölçüde katıldığınızı 5 basamaklı ölçekte belirtin. Bir ifadeye “tam olarak” katılıyorsanız 5, “oldukça katılıyorsunuz” 4, orta derecede katılıyorsanız 3, kısmen katılıyorsanız 2 rakamını daire içine alın. Eğer ifadeye katılmıyorsanız 1’i işaretleyin.

	Katılmıyorum	Kısmen katılıyorum	Katılıyorum	Oldukça katılıyorum	Tamamen katılıyorum
1. Hareket halindeki cisimlerin hızlarını doğru bir şekilde tahmin edebilirim.	1	2	3	4	5
2. Bilgisayar ekranındaki bir kroki üzerinde sabit hızdaki hareketi temsil edilen bir aracın 10 saniye içinde hangi noktaya varacağını doğru olarak tahmin edebilirim.	1	2	3	4	5
3. Bilgisayar ekranındaki bir kroki üzerinde sabit hızdaki hareketi temsil edilen bir aracın belli bir noktaya kaç saniye sonra varacağını doğru olarak tahmin edebilirim.	1	2	3	4	5