

**THE EFFECTS OF SELF-CONTROL AND SOCIAL INFLUENCE ON  
ACADEMIC DISHONESTY: AN EXPERIMENTAL AND  
CORRELATIONAL INVESTIGATION**

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## ABSTRACT

### THE EFFECTS OF SELF-CONTROL AND SOCIAL INFLUENCE ON ACADEMIC DISHONESTY: AN EXPERIMENTAL AND CORRELATIONAL INVESTIGATION

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The present study aimed to integrate situational and dispositional perspectives on the investigation of unethical and dishonest behavior through an experimental and a correlational study. More explicitly, the current study explored the effects of state self-control and social influence on cheating, and investigated the trait self control and conformity as predictors of academic dishonesty.

Two preliminary studies were conducted. First, a pilot study with 230 undergraduate students was conducted to assess the reliability of the Turkish versions of the four scales intended to measure the constructs of interest. All four scales were found to have sufficient reliabilities. A second preliminary study was conducted to observe and to ameliorate the effects of two manipulations constructed for the main study, namely the rewriting task (*depletory* versus *neutral*) and the norm induction (deciding *to cheat, not to cheat* or *to meet with a friend after the study*). The main study was conducted with 87 undergraduate students. Correlational results underlined the importance of low self-control and high susceptibility to social influence as predictors of past behavior of academic dishonesty. Experimental results revealed that first, groups' cheating levels and cheater frequencies did not differ as a function of ego depletion while they differed

as a function of norm induction in that ‘cheat’ norm groups had higher levels of cheating and higher frequencies of cheaters than ‘not cheat’ and neutral norm groups had. The implications of the study for theory, practice, and future research are discussed.

**Keywords:** Academic Dishonesty, Self-Control, Ego Depletion, Social Influence, Conformity

## ÖZ

### ÖZ DENETİM VE SOSYAL ETKİLERİN AKADEMİK USULSÜZLÜĞE ETKİLERİ: DENEYSEL VE CORELASYONEL BİR ARAŞTIRMA

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Bu çalışma deneysel ve korelasyonel yöntemler izleyerek usulsüz ve etik olmayan davranışın incelenmesinde bağlamsal ve eğilimsel bakış açılarını birlikte ele almayı hedeflemiştir. Diğer bir deyişle bu çalışma, anlık öz denetim ve sosyal etkilerin kopya çekmeye etkisini araştırmak ve eğilimsel öz denetim ile uydumculuğun geçmiş akademik usulsüzlük davranışlarıyla ilişkilerini incelemiştir.

İki öncül çalışma gerçekleştirilmiştir. Bunlardan ilkinde çalışmaya yönelik değişkenlerin ölçülmesi için Türkçe'ye çevirilen dört ölçeğin güvenilirlik çalışması amacıyla 230 lisans öğrencisi ile bir pilot çalışma yapılmıştır. Dört ölçeğin de uygun güvenilirlik katsayılarına sahip olduğu bulunmuştur. İkinci öncül çalışma, yeniden yazma görevi (*öz denetim tüketimi ve nötür öz denetim*) ve norm nüfuzu (*kopya çekmeye, çekmemeye veya bir arkadaşla buluşmaya karar verme*) olarak adlandırılan ve ana çalışmada kullanılacak olan deneysel manipülasyonların etkilerini incelemek amacıyla gerçekleştirilmiştir. Ana çalışma 87 lisans öğrencisi ile yürütülmüştür. Korelasyonel sonuçlar düşük öz denetimin ve sosyal etkiye yatkınlığın akademik usulsüzlüğü yordamada önemli faktörler olduğuna işaret etmiştir. Deneysel sonuçlar grupların kopya çekme seviyesi ve kopyacı sayısı açısından öz denetim bağlamında anlamlı farklılık göstermediğini fakat kopya

çekme normuna tabi olan katılımcı gruplarda daha yüksek seviyede kopya çekildiğive daha fazla kopya çeken katılımcı olduğu yönünde norm manipülasyonunun kopya çekme üzerinde etkisi olduğunu göstermiştir. Çalışmanın teorik ve pratik katkıları ile ileriki çalışmalara katkısından bahsedilmektedir.

**Anahtar kelimeler:** Akademik Usulsüzlük, Öz Denetim, Öz Denetim Tüketimi, Sosyal etki, Uydumculuk

*To The Precious Existence of My Parents Zühre & Galip*



*To The Breath of My Life Levent*



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§

*“Integrity has no need of rules”*

*Albert Camus*

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# CHAPTER I

## INTRODUCTION

### 1.1. Overview

Even a superficial look at the state of science of social psychology would reveal that the self and social influence have been major domains of theoretical discussions and empirical research motivation. For the last three decades, both social cognitive and motivational perspectives in social psychology have considered conformity, a crucial conceptual part of social influence, and self-control conceptualized as the executive function of the self, as fruitful domains of social scientific research.

In terms of pro-social and anti-social behaviors in society, self-control is one of the crucial factors relying on self-regulatory processes and affected by temporary depletion of the self's executive resource. The concept had been involved in explaining harmful or disruptive (to self or to others) behavior stemming from either short-term or long-term inability of suppressing urges not only in the realm psychology (e.g. Strength Model of Self-Control; Baumeister 2002; Muraven & Baumeister, 2000; Tangney, Baumeister, & Boone, 2004) but also in the realm of sociology and criminology (e.g. Gottfredson and Hirschi's General Theory of Crime; Gottfredson & Hirschi, 1990; Grasmick, Tittle, Bursik, & Arneklev, 1997). According to recent social psychological self-regulation theories and criminological sociology literature, self-control is a major variable in predicting academic or occupational success, task continuity, healthy life, ethical behavior and low criminal tendency (Gottfredson & Hirschi, 1990; Muraven, Tice, & Baumeister, 1998; Tangney, Baumeister, Boone, 2004). In addition to these general findings, Baumeister and his friends made an analogy between a muscle and self-control in a way that similar to a muscle's exertion, self-control has a limited capacity for tasks requiring urge or desire suppression (Muraven & Baumeister, 2000). A general finding of their multiple and various experimental studies revealed that self-control resource used in a task requiring the control of natural behaviors, habits or urges

may not be as powerful in a second depleting task as it was in the first task and would result in lower performance. However, in accordance with muscle strength, their results revealed that the more the self-control resource is used, the more strength it gains; thus, in long term, the resource is predicted to become less depletable in consecutive tasks. The empirical and experimental studies testing and improving the ‘depletable strength resource model’ of self-control used very different forms of ego depletion tasks including unsolvable problems, ‘not to think a white bear’ task in which the participants are induced not to think a white bear during a routine writing exercise, ‘cookies versus raddishes’ in which some participants are offered raddishes in a room with chocolate scent during an eating inhibition period and ‘suppress letters’ writing task in which participants are required to copy a neutral paragraph without writing the letters ‘e’ and ‘a’ as compared with control (neutral) conditions (Mead, Baumeister, Gino, Schweitzer, & Ariely, 2009; Baumeister, Bratslavsky, Muraven, & Tice 1998).

Self-control can be considered both as an individual trait factor and as a situational factor which may fluctuate across different tasks, as the difficulty level of tasks change in terms of suppressing one’s urges and as the temporal sequence of tasks require consecutive use of self-control. In addition to anger management and binge eating, self-control has been linked with ethical behavior and honesty.

Recent studies of self-control focused on the effects of self-control on cheating and lying behavior of especially high school and college year students and found that either low trait self-control or self-control depleted for short term is related with cheating and lying (e.g. Mead et al., 2009). However, the effects of social norms and social influence on neither criminal or negative behaviors nor positive behaviors such as managing a healthy life style have not been studied in detail especially in terms of regulatory processes (i.e., self-control); as a result, an inclusive literature on the possible interaction effects of (group based) social influence processes on the one hand and (individually shaped) regulatory processes on the other can be hardly found in social psychological publications.

Social influence processes have a critical impact on people’s thoughts,



decisions and actions. A crucial type of social influence in terms of large scale attitude or behavior formation and change in society, also conceptualized as peer influence in adolescence and adhering group norms in adulthood, is considered to be people's general tendency to conform since the processes involved in conformity depends basically on both informational and normative influence. Although conformity is generally conceptualized as indicative of low levels of deviance and criminal tendencies in society, the fact that many people conform to the societal norms does not always guarantee a well functioning social system in terms of ethical behavior and higher order humanitarian values. A salient example from the peer influence and social influence literature can be considered as the proven relationship between conformity and many types of unethical and dishonest behavior like cheating, lying, tax evasion or organizational dishonesty (Bartol & Bartol 2005; Gino, Ayal, & Ariely, 2009; Postmes & Spears, 1998). Regardless of different perspectives, many theories on social influence are in agreement that attitudinal and behavioral conformity of a given group's members may be affected both from injunctive and descriptive norms of that group. In addition to this general agreement, Cialdini and his friends provided empirical evidence within their Focus Theory of Normative Conduct, for the relatively differential effects of the nature of a situation on the level of conformity in a given group, though they stated that such effects are found to be clear in the pro-social behavior domain while one can only make approximal and tentative inferences regarding negative or anti-social behavior domain (Reno, Cialdini, & Kallgren, 1993).

In terms of a more general research tradition of social influence processes, it can be concluded that most of the research focusing on triggering conformity behavior through the induction of norm manipulation make use of majority group paradigms wherein confederates in a group constitute the majority (either in terms of quantity or social power and authority) and/or relies on the salience manipulation of an embedded group norm through normative and informational processes (Aarts, Dijksterhuis, & Custers, 2003; Asch, 1956; Cialdini & Goldstein, 2004; Sherif, 1936). Nonetheless, there is also empirical evidence that the minority can be source of social influence in case salience and plausibility levels of a given norm are

considered (Nemeth, 1986; Bond, 2005).

Conformity and self-control have been rarely united in theory and the effort of pairing these two major concepts both in theory and in applied research dates no more than a decade (Aarts, Dijksterhuis, 2003; Janssen, Fennis, Pruyn, & Vohs, 2008; Hertel & Kerr, 2001; Kay & Ross, 2003). A common finding of recent research is that self-control mechanisms have a subtle effect on social influence processes and especially on tendency to conform to norms. Unfortunately, these empirical findings have not been very powerful enough to include the ethical or societal valence of a given norm and its focal behavioral component or the individual motivational factors which may be responsible from changing the direction of this effect. In other words, “littering in the environment” and “being noisy in the library” are examples of behaviors that has negative effects on society in addition of being considered (or reported to be considered) as negative by the society in general. Thus, a pro-norm activation or salience concerning environmentalism or silence in library can be possibly effective in decreasing these kinds of negative behaviors. On the other hand, if the focus is on decreasing an unethical behavior that is not clearly considered as negative by society in general (i.e., not joining the end of a queue and breaking it) in spite of having negative effects on society on the long run (i.e., those who were at the back would have to wait one more person at least), one may have difficulty in predicting the effects of a pro-norm activation or salience concerning honesty and ethical behaviors. For instance, when people are waiting in a queue, there may be an intrusion by a newcomer. Following this event, people who were already waiting in the queue may chose (among many other options) to search for their rights either through reacting to the newcomer and putting him at the end of the queue or through breaking the queue and trying to come to the fore like the newcomer. In this condition wherein people create a conformist strategy to follow the newcomer, could anyone be sure about the effectiveness of a pro-norm activation such as warning the newcomer?

In the light of above stated findings on self-regulation and/or self-control literature and with the consideration of an integrative framework of intraindividual-

interpersonal orientation, the current thesis had two complementary focuses. The first focus aims to experimentally explore the situational component of self-control (namely ego depletion) with an emphasis on contextual differences based on social norms and social influence processes (i.e., cheating in an examination). In order to reach this aim, an experiment was designed in which self-control strength was manipulated through a suppressive (versus neutral) rewriting task and a normative and informational influence of minority was manipulated through the dialogue of two confederates either focusing on a honesty norm or a dishonesty norm beside a neutral situation in which a routine dialogue of meeting with a friend takes place during an opportunity to cheat in the examination. A preliminary study was also conducted to evaluate and ameliorate the effectiveness of the manipulations. The second focus aims to investigate the possible relationships between self-control, the tendency to conform and the susceptibility to social influence as trait factors in predicting (reported) academically dishonest behavior based on a correlational study. In order to reach this aim, first the self-report measures of trait self-control, conformity and past academic dishonesty were translated in Turkish and then, a preliminary study was conducted to investigate the scale reliabilities before the main study. These research focuses are expected to shed light on some major situational and dispositional factors which are already found to be related with unethical behaviors.

In the following sections of the introduction, first an overview of the self-regulation and self-control literature is presented with a main emphasis on the Strength Model of Self-Control, continuing with the explanation of conceptual and assessment related differentiation between trait versus state self-control which is followed by the implications of self-control on criminal, disruptive and unethical behavior. Secondly, an overview of the social influence and conformity literature is presented with a main emphasis on the effects of norms on social influence processes, followed by the implications of norms and conformity on unethical and dishonest behavior specifically. Thirdly, the main findings of the academic dishonesty literature would be resumed in order to provide the overall meaning of the current research. The introduction section will be ended with the presentation of

the current study's purpose and its hypotheses.

## **1.2. Self-regulation and self-control**

A main focus of social sciences and humanities in general and of social psychology in specific has been the construct of the self although the history of “self” curiosity probably dates back to the rise of *homo sapiens* in practical terms and the writings of Eastern thinkers as early as 500 B.C.E in philosophical terms. One can be certain that like every conceptualization, the conceptualization of the “self” has been changed, widened or manipulated in its historical and ideological existence and with the pure existence of thought, action and power of humankind. In other words, the “self” conceived as a tripartite structure of souls (i.e., *Rational soul*, *spirited soul*, and *appetitive soul*) analogous to the structure and functional operation of the State in Plato's *The Republic* is different from the “self” conceived as the “personhood” in Enlightenment as a result of a personal right for self-definition and the latter is different from the subjectivity of the post-modern “self” (a relative gain of industrial world and increased social mobility). In terms of a modern psychological view of “self”, selfhood is generally conceived as emerging from three basic sources: consciousness (e.g., self-knowledge), interpersonal domain (e.g. self-presentation) and executive functions (e.g., self-regulation) (Baumeister, 1998, 1992; Bandura, 1991). From this point of view, as inherent in these operational sources, the self is seen as an active agent capable of perceiving, processing and synthesizing both intrapersonal, interpersonal and environmental information (Epstein, 1973; James, 1910; Triandis, 1989). Although borders between consciousness, interpersonal and executive sources of the self may be semipermeable in that none of the basic functions of self operate in isolation, each one has different survival values for human social life and each one is differentially rooted in action, cognition and motivation.

The executive function of self, that is self's agency encompasses many supervisory processes the self operates including self-regulatory processes. Although the self's executive function category is generally operationalized in terms of regulatory processes (i.e., self-regulation) given that most of the research

emphasis has been on regulation, the agency is capable of executing not only self-regulation but also is thought to be responsible for making choices, exerting control over the physical and social environment, information monitoring, planning, task switching, goal maintenance and taking initiative (Baumeister, 2010). Despite the lack of a definitive consensus in the field of neuropsychology in terms of the executive functions of brain, there is a considerable overlap among different neuropsychological assumptions of the executive functions: *the actions of planning, inhibiting responses, strategy development and use, flexible sequencing of actions, maintenance of behavioral set, resistance to interference* are generally included in the operational definition of the human brain's executive functions (Barkley, 2001). From a social psychological point of view, as inspired from the socio-cognitive approach to self (Bandura, 1991) and *the control-theory approach to human behavior* of Carver and Scheier (see "feedback loop model" 1981, 1998) in specific, Forgas, Baumeister and Tice (2009) shortly defined self-regulation as the *regulation of the self by the self*. In other words, the executive function of self incorporates the "active agent" feature (i.e., the personal agency) in the self. In this framework, self-regulation is also conceived as the master function of the self incorporating many of its operations and actions (Higgins, 1996).

The conceptualization of self-regulation is considered to have three main ingredients: positive and negative standards (i.e., goals), monitoring (i.e., continuous evaluation of responses of the self), and willpower (i.e., expansion of the self's resources during acts of self-control) (Baumeister, 2010). Although it is a distinctive feature of the human kind and has a high survival value especially in terms of societal living, many social psychological books and chapters on self-regulation clearly ascertain that the concept of self-regulation was a late comer in the field of psychology: it did not have its impact on the field until the last few decades. However, there are also counter arguments stating that the research on self-regulation dates far more back than some current researchers ascertain (for a short review, see Block, 1996). Beside the general agreement that the crucial empirical root for the psychological study of self-regulation dates back to the studies of delay of gratification (e.g., Mischel, 1996), the concept is assumed to

have been introduced in the field as an attempt to gain more flexibility in the learning theory in order to explain a larger part of human behavior given that human beings as different from animals, have the power to regulate themselves by putting contingencies and rewarding or punishing themselves according to their own performance on their own contingencies (Baumeister, 1998). Regulatory functions of self have been studied by theorists and researchers from various disciplines of social sciences and many sub-disciplines of psychology (e.g., clinical and developmental psychology) given that self-regulation has been empirically linked with many self-, society- or system-destructive behaviors such as drug abuse, obesity, tax evasion, unethical work or academic behavior, violence and impulsive crime (Bartol & Bartol, 2005; Gottfredson & Hirschi, 1990; Tangney, Baumeister, & Boone, 2004). As a result, many overlapping but separate theories of self-regulation emerged within the psychology discipline, most of which consider regulatory functions of self as based on self-directed goals, actions and thoughts and negative and/or positive feedback loops (e.g., Carver & Scheier, 1981) .

In the framework of a general social cognitive theory of behavior, self-regulation is seen as an interactional result of personal, behavioral and environmental triadic processes (Zimmerman, 2005; Bandura, 1991). According to Bandura (1991), the self-regulation operates within three sub-functions namely self-monitoring of behavior, judgmental processes directed from personal and environmental criteria and affective self-reaction and it is also responsible from the effects of self-efficacy in terms of the motivational component of the self. In this view, together with self-efficacy, self-regulation becomes the core defining feature of the personal agency and has important implications on daily behavioral decisions including moral conduct. In congruence with this perspective, Zimmerman (1989, 2005) resumes self-regulatory processes as based on triadic sources which encompass three self-oriented feedback loops: behavioral self-regulation, environmental self-regulation and covert self-regulation. These triadic processes are considered to be cyclical with an open-loop view in terms of one's observations of self-performance and his/her adjustments through discrepancy reducing, goal setting and raising. In other words, self-regulation can be considered as composed

of cyclical phases which are *forethought phase* wherein task analysis and self-motivation beliefs (e.g. self-efficacy) precede and set the stage for action, *performance/volitional control phase* wherein self-control and self-observation regulate active efforts and attention for action, and *self-reflection phase* wherein judgmental and self-reactional processes accompany the performance, influence subjective reaction and future forethought for the next action. In short, self-regulation is described as *self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals* from a social cognitive perspective (Zimmerman, 2005).

In general, social cognitive approach to human behavior and self-regulation is criticized for underestimating the role of motivation in shaping self-regulatory processes. Specifically, within the social cognitive perspective, motivation is considered as having impact on regulatory mechanisms mainly through cognitive beliefs which can be summarized or abstracted as self-efficacy beliefs. In other words, motivation is included in the self-regulatory processes in terms of goal intentions without a specific emphasis on various means or ways for attaining these goals and as such the social cognitive motivation serves creating and reducing discrepancies between intentions and goals (Bandura, 1991). From another perspective which is also mainly supported in the framework of *Self-Determination Theory* (Deci & Ryan, 1985, 1987), self-efficacy beliefs as the sole source of motivation may not be sufficient to catalyze the performance of an intended behavior if other intrapersonal (e.g. intrinsic versus extrinsic motivation), interpersonal (e.g. social learning processes), environmental factors (e.g. adaptation to the society) or any combination of these factors intervene the initiation or the performance process of the behavior. For instance, in his *Action Control Theory*, Kuhl (1986, 1992) adopted a functional (systems) approach to self-regulation and introduced its relevant underlying mechanisms such as *emotion control*, *attention control* and *motivation control* in terms of subcognitive and metacognitive mechanisms. In his view, the failure of goal attainment is not the result of insufficient or negative cognitive beliefs; on the contrary, a failure of regulation may result in negative self-efficacy beliefs. In this framework, Kuhl (2005) defines

self-regulatory processes, each one embodying different levels, based on different strategies that keep the intention active and protect it from other divergent or incongruent action tendencies. According to Fuhrman and Kuhl (1998), leading this differentiation is the distinction he made between two volitional modes namely self-control and self-maintenance in terms their oppository and even mutually inhibitory functions on volitional action control (i.e., goal attainment versus intrinsic appeal/inner valued priorities). In a parallel tract (i.e., self-regulation or the *will* as a set of central executive processes regulating thoughts, feelings and actions in a top-down organization), nonetheless from a relatively different conceptualization approach (e.g. holistic approach to the volitional control), Baumeister and Vohs (2007) argued that self-regulation becomes especially needed where motivational clashes are overriding. In other words, similar to the social cognitive perspective, the motivation for action is considered as the catalyzer of intention realization and goal attainment; however, it does not always require the activation of self-regulatory processes on its own. Rather, self-regulation is required where a motivational conflict arise mainly among natural impulses and cultural demands in order to survive in a community of people (i.e., social acceptance).

A conceptual differentiation between self-regulation and self-control has also been attempted by different theorists such that, as a broader construct self-regulation generally refers to nonconscious and automatic regulatory processes including physiological regulations while self-control is meant to focus on more conscious or goal-directed processes and effortful control of impulses, though their usage is generally interchangeable in many writings (Baumeister, 2010; Vohs & Baumeister, 2004). In a similar manner, Kuhl (2005) differentiated these two close concepts which are strategies of action control in terms of consciousness: self-regulation (or self-maintenance) is largely involved in nonconscious (implicit) processes in support of a chosen action while self-control is a more conscious process serving as a suppressor of competing action tendencies which may sabotage the action root of a difficult intention. On the other hand, Kuhl (2005) also makes an analogy of democracy versus dictatorship in order to compare these two strategies. In other words, self-regulation is open to self-related thoughts and



feelings and requires a holistic approach of individual needs and obligations (i.e., self is not the object but the agent itself) whereas self-control is a rather momentary and short-term process and does not consider the needs of the individual given that it is based on inhibition of urges and impulses (i.e., self is the object); in this sense, it can be thought of as analogous to a dictator. Pursuing a developmental perspective Diaz, Neal and Amaya-Williams (1990) considered self-control as a preceding phase of self-regulation and defined it as an internalized but external directive (command) of the caregiver during the absence of the latter. On the other hand, in the self-regulation phase, the child is considered to gain the capacity for planning, guiding and monitoring his/her own behavior and this capacity is asserted to include in itself the flexibility to adapt to changing circumstances. In spite of variousity in perspectives or approaches and although many authors use these two terms interchangeably, it seems that a main distinction between self-regulation and self-control is one of the ‘fulfillment of needs by the self on behalf of the self’ versus ‘fulfillment of requirements/obligations by the self on behalf of external constraints’ . Considering these conceptual distinctions, a recent and mostly adopted definition of self-control can be adhered as “an individual’s capacity to *consciously (intentionally) override and inhibit socially undesirable and unacceptable impulses and to alter and regulate one’s behaviors, thoughts and emotions*” (Vohs & Baumeister, 2004). As Finkenauer, Engels and Baumeister (2005) put forward in their article, two crucial and human-specific aspects are encompassed in this definition of self-control which is itself species-specific: human beings accumulate resources and acquire skills for the sake of having the power to change various responses of self (included in it is inner processes of self), thus self-control is an effortful and wilful process; and human beings can simultaneously inhibit unwanted responses of the self and activate wanted responses, thus self-control enables both the enactment of socially approved behaviors and challenges and the suppression of socially unacceptable or undesirable behaviors.

As can be partly noticed from the shortly reviewed literature, it is not a coincidence that many researchers and theorists from different approaches and from both intra- and interdisciplinary arena have been concerned with self-regulation

and/or self-control issues in an enthusiastic endeavour: Most of the social scientists are genuinely and prosocially curious about the evil side of human behavior which is capable of creating disasters, massacres, chaos and pain for his/her own kind, with a motivation of either searching for causes of or finding solutions to intervene or prevent violent, criminal, impulsive and unethical behavior (Forgas, Baumeister, & Tice, 2009). In one of their writings Baumeister and Vohs (2004) list four root causes of evil as instrumentality, threatened egotism, radical idealism and pure sadism while they consider self-control as the proximal cause of all these factors and they draw attention to the critical role of self control as being the last link in the chain before the violent or aggressive act is committed. Although natural selection may have favored aggressive behavior in face of danger and threat, the very existence of social life requires restraining aggressive, impulsive or unethical behavior in order to prevent societies from dissolution and break downs given that a part of survival lies on group living especially for human kind (DeWall, Baumeister, Stillman, & Gailliot, 2007). Given that people live in societies and that each individual in the society is assumed to have signed the *social contract* even before coming to life in order to avoid *bellum omnium contra omnes* (“war of all against all”: see Hobbes, 1651), self-control is definitely conceived and accepted as one of the most critical inner performance of human beings for a societal life: It takes him/her away from the *state of nature* (i.e., impulses, temptations and natural habits), enables the pursuing of longer-term goals put for oneself and helps to conform to standards and rules set by social environment.

In line with the above stated framework, a main focus of the current research is to investigate the effects of self control on unethical, dishonest behavior (specifically academic sheating) in university students. In order to give a more detailed framework of self-control as conceptualized in the current study, the following subsections presents (1) an overview of the strength model of self-control as accounting for cross-situational and temporal differences resulting from the state self-control, (2) the link between state and trait components of self-control, and (3) the relationship between self-control and socially disapproved, criminal and unethical behaviors.

### 1.2.1. The strength model of self-control: Ego-depletion failures

In accordance with a general conception of *willpower* (prominent in both Western and Eastern traditions and philosophies) and based on the major perspective of the executive function of the self, a recent social psychological account of self-regulation failures such as binge-eating during a dietary period or emotional outbursts in a highly stressed period of life, has rapidly increased in gaining empirical and experimental evidence and thus large groups of academic proponents. As noticed above in the overview, the strength/ego depletion model of self-control has its theoretical roots in the feedback loop model of self-control (see Carver & Scheier, 1981) which posits that self-control takes place within a test-operate-test-exit (TOTE) loop. According to Baumeister (2010), the feedback loop responsible from self-regulatory processes is assumed to encompass three essential ingredients of self-regulation which are positive and negative *standards* (internal or external criteria toward or against which the individual regulates him/her-self for a change), *monitoring* (the process wherein the individual self-observes the change he/she attempts along with self-awareness), *willpower* (individual's capacity to change the self); he also noticed that a fourth component namely *motivation* should be added to the core structure of self-control given that, especially for impulses which are more or less resistable, the level of motivation plays a crucial role. The TOTE loop begins with the establishment of a goal after which comes the evaluation and comparison of one's current and goal (desired) states (i.e., test phase) and in case of a mismatch it continues with the enactment of behaviors aimed at minimizing or closing the gap between these states (i.e., operate phase) after which the comparison process is repeated to check the situation between states (i.e., test phase). Once the gap is closed or minimized enough to be undermined, the individual exits the loop (i.e., exit phase); however, if the comparison process is not accomplished with a positive feedback, the individual returns back to the operate phase and the loop continues until a match between the current and desired states is attained (Carver & Scheier, 1998; Schmeichel & Baumeister, 2004).

The strength model of self-control combines the feedback loop approach to the self with a global but limited resource perspective relying on the most basic

finding that the regulatory feedback loop is not infinite in terms of functioning capacity and may result in self-regulatory failures as a result of actions requiring self-control (Baumeister, 2002a; Baumeister, 2002b; Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister, Heatherton, Tice, 1994; Muraven, et al., 1998). In other words, the model asserts that the ability of active response regulation (i.e., any act of choice or volition) relies on a limited self-regulatory resource akin to a muscle and once these resources are consumed (i.e., ego-depletion), failures of self-control (or the self's executive function errors) in the following tasks become more likely regardless of the task at hand. In accordance with the strength of a muscle, the model predicts that self-control resource depletion is minimized through frequent training of self-control instances and periods of time that does not require the activation of the regulatory functions. Following these basic premises, the end product of long-term and balanced use of self-regulatory processes is expected to be a better and stronger self-control capacity for consecutive tasks and for harder instances of self-control.

The starting point to test these basic premises has been the two-task paradigm wherein participants are randomly assigned to the experimental ego depletion group or the neutral (no-depletion) group for the first task. In this first task participants in the experimental ego depletion group are asked to do a task that require consuming self-regulatory resources through resisting temptations and impulses or consciously inhibiting habitual, well-learned responses while participants in the neutral group are asked to do a similar but neutral task that does not require regulatory depletion. Following this, all participants are given a second task of self-control generally different from the first task in terms of self-control domain. This second task is designed to assess the self-control and constitutes the dependent variable of ego depletion manipulation (Baumeister, Heatherton & Tice, 1994; Muraven, et al., 1998; Schmeichel & Baumeister, 2004). Despite the divergent predictions of different theories of self regulation (e.g. self-regulation as a cognitive schema or as skill) about the resulting self-control level of an individual in consecutive tasks, accumulating empirical evidence validated the two most basic premise of the self-control strength model pointing to the limited capacity and the

unitary (domain-independent) nature of the self-control resource: regardless of the type of the depletory task (i.e., cognitive, emotional or behavioral task) and independent from the type of the consecutive task, people who are in the experimental group wherein their self-regulatory resources were expended, become regulatorily depleted and get more likely to fail in reaching a goal in subsequent challenges (Baumeister, Bratslavsky, Muraven, & Tice, 1998). During last decades, the adoption of biological concepts by psychological theories resulted in efficient conceptualizations of psychological constructs and the strength model of self-control may be conceived within this biologically influenced root provided that recent research on the effects of glucose level on executive functioning revealed multi-evidence in support of the critical link between self's resources and blood glucose level. To explain, various kinds of ego depletion tasks (i.e., the Stroop task, thought suppression, emotion regulation, attention control) and depletory social instances (i.e., helping behavior, coping with thoughts of death, stifling prejudice during an interracial interaction), as compared with neutral tasks and social instances, were found to result in reduced levels of glucose which also predicted poorer performance in a second task while an antidote of depleted self-control was found to be a glucose drink (i.e., sweetened lemonade) for subsequent tasks (Gailliot, Baumeister, DeWall, Maner, Plant, Tice, Brewer, & Schmeichel, 2007).

The strength model of self-control has been in the process of hypotheses testing based on the two-task paradigm for more than a decade under many different situations and for various kinds of regulatory and executive functions of self. The most outstanding researches for the development of the model involved (1) emotion regulation (either amplifying or decreasing the emotions invoked in a sad video clip) and physical stamina (duration of hand squeezing), (2) thought suppression based on ironic processes of Wegner (1994) during a thought listing exercise and unsolvable anagrams, (3) thought suppression and positive affect suppression (i.e. affect regulation) during a comedy clip, and (4) food temptation in case of relative hunger ("may eat raddishes but can not eat chocolate cookies standing in front of you") and figure tracing puzzle (Baumeister, Bratslavsky, Muraven, Tice, 1998; Muraven, et al., 1998). In every research case stated above, at

least one type of neutral condition for the first task was reported to be included in the design; in fact, mostly two neutral conditions were used in a way that one neutral condition was designed in approximately opposite symmetry with the depletion condition (e.g. “do not think a white bear” versus “do think a white bear as much as possible” during thought listing) and the other neutral condition was designed to have the participants be exposed to or do nothing (e.g. free thought listing without any limitation). Results of these experimental studies consistently pointed out to the self-regulation as a limited and depletable resource which is open to common use of various types of regulation supervised by the executive function of self. An important question mark these studies put forward is whether the relatively fast depletion of this resource stems from its small capacity or from its self-conservational nature; in other words, has the individual nothing left to regulate him/herself for a second task or does he/she conserve what is left in the resource for a more important task? In fact, studies conducted by Muraven and Slessareva (2003) have shown that once a future exertion of self-control is expected, the individual seeks to conserve the resource (or to use it economically) in a way that he/she does not try his/her best in a present and seemingly less important task (i.e., the current performance does not reach the possible maximum level). However, if the consecutive task is presented with additional incentive, depleted individuals may compensate for their lack of self-control resources. Thus, the self-regulatory resource is thought to be self-conservational in its nature in a parallel way that an athlete does not exert all of his/her muscle strength before approaching to the end of the race (Baumeister, 2002a).

During the empirical validation of these basic premises of the model, alternative explanations for these results were also refuted (Baumeister et al., 1998; Muraven et al., 1998). For instance, early giving up in the second task might be because the participants recognized this task as impossible; however, manipulation checks used to rate the difficulty and the degree to which the task was perceived impossible eliminated this alternative. Moreover, the first task might be less pleasant than the control tasks and this might result in less motivation for the second task; however, participants in different groups rated similarly the first tasks in terms

of pleasantness. An additional alternative view was that the first task which is supposed to exert self-control might have created a negative affect which would impair performance on the second task but this alternative was also eliminated relying on the participants balanced scores on state mood scales such as Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988).

Further model justification required to test the hypothesis that self-regulatory resource can be empowered or strengthened through steady, regular exercise with situations involving self-control. Muraven, Baumeister and Tice (1999) engaged in a two-week longitudinal study wherein during two weeks participants were given various exercises of self-control such as monitoring and improving posture, mood regulation and monitoring and keeping track of eating. The authors reported that at the end of two week the participants engaged in such self-control exercises resisted more on the hand gripping task following a thought suppression task as compared with the participants who had not engaged in such exercises; in other words, it seems that exercises in self-control may improve people's resistance against the depleting effects. This result also supports the self-conservational nature of the self-control resource rather than its small capacity given that the small capacity would not allow consecutive self-control exercises. However, it should be also noted that not all research evidence pointed to reliable and consistent results of positive effects of exercising on self-control; rather a mixture of results are reported for further refinement of the model (Baumeister & Alquist, 2009).

Along with these confirmations about the nature of self-control resource, another crucial finding within this line of research has been the fact that this resource is not specific to self-control; rather it is commonly used for various processes of the executive functions of self. For instance, in an experiment using cognitive dissonance "high versus low choice" paradigm, making a counterattitudinal speech in high choice situation (i.e., decision making) was found to decrease participants' performance on the following self-control task such as solving anagrams (Baumeister et al., 1998). In other experiments, it was also found that the self-control resource depleted with a prior task such as first forming then

breaking down a habit resulted in choosing more passive options in a decision making task (Twenge, Tice, Schmeichel, & Baumeister, 2000; Vohs, Baumeister, Schmeichel, Twenge, Nelson, & Tice, 2008). Thus, once the common resource is depleted by an executive process of self, the capacity for self-control decreases in the same way that the capacity for active volition of the self decreases once the common resource is depleted by a task requiring self-control (Baumeister, 2002a). In a recent meta-analysis conducted with 98 different experimental studies investigating the effects of regulatory resource depletion with various tasks, authors reached preliminary support for the above stated implications of ego depletion and strength model hypotheses with an additional note of careful consideration of motivation and fatigue as alternative explanations for ego depletion effects (Hagger, Wood, Stiff, & Chatzisarantis, 2010).

Considering these general findings, it should be also noted that a limited capacity of self-regulation may constitute a great risk in terms of survival (both in natural and industrial environments) if the resource is not recovered or replenished given that the self-regulatory resource may be needed in any instance of daily life and in a consecutive manner. In this concern, the model also predicts that the self-regulatory resource is renewable in time and depending on some factors besides being self-conservational for more important tasks (Twenge & Baumeister, 2002). In an earlier study, Baumeister and his friends (1994) found that sleep and rest is one way to renew self-control resource in a way that well-rested participants were found to be more resistant against depleting tasks. Later on, another way to replenish the self-control resource was hypothesized to be positive affect. Tice, Baumeister, Shmueli and Muraven (2007) conducted a series of experiments wherein between the first and second task of self-control, either positive mood through a comedy video or a surprise gift, or negative mood through sad movie was induced beside neutral condition and a rest-period condition. The results of these experiments revealed that participants who were in the positive mood induction condition self-regulated on many tasks as well as neutral condition (non-depleted) participants and significantly better than participants who were in negative mood induction, neutral mood induction or rest-period conditions.



A last issue in terms of the self-regulatory capacity may be that beyond individual differences, this capacity seems to be subject to cultural differences. In other words, individuals differ in their capacity to resist self-control exertion as a result of self-control exercising not only within a given culture but also between cultures. In line with this, a recently emerging theme in the study of resource model of self-control is the cross-cultural investigation of ego depletion patterns. Although the cultural differences in self-control or self-regulation have been discussed by various authors (Cross, Hardin, Swing, 2009; Jackson, Mackenzie, & Hobfoll, 2005; Kurman, 2001), the strength model holds that self-regulatory depletion and its consequences follow the same pattern relatively regardless of the individual differences in the self-control resource capacity. Intrinsically, it may be crucial to note that recent research highlighted that there can be cultural differences at least in terms of self-control resource capacity in a way that participants with other-directed social orientation (as opposed to individual-directed orientation) which is assumed to require higher levels of chronic self-regulatory exercises were found to perform better in consecutive tasks of self-control (Seeley & Gardner, 2003). Still another research focusing on ego-control and ego-resiliency reported that main indicators of undercontrol such as inability to delay gratification, self-pitying, self-indulgence and fluctuating mood were found to be positively correlated with undercontrol in Caucasians as compared with Asian-Americans, pointing to the probably more negative implications of undercontrol for Caucasians and to the possibility that research conducted with largely Caucasian samples may exaggerate the benefits of overcontrol (Letzring, Block, & Funder, 2005).

### **1.2.2. The trait and state components of self-control**

An important and functional factor that distinguishes the strength model of self-control from other theories of self-control or self-regulation is the distinction the model makes between the situational and the dispositional components of self-control while focusing both in terms of research practices. As can be noticed from the self-regulation literature, although some theorists drew attention on the dual “state-trait” nature of self-control as is in fact valid in many psychological trait constructs (e.g., Kuhl, 1992), many theories of self-regulation within psychology

discipline focus on the self-control construct in their research agenda either as an ability founded only in the dispositions of an individual or as a capacity that can be measured through behavioral tasks (e.g., delay of gratification studies) for their empirical evidence. Thus, in fact, the ability to regulate the self and to exert control over the self seems to differ both across individuals (i.e., trait self-control) and within individuals across time and situations (state self-control).

Recent research provided evidence that high self-control is highly correlated with higher grade point average, higher self-esteem, less alcohol abuse and overeating, better interpersonal skills, secure attachment and emotion regulation (Tangney et al., 2004). Moreover, important empirical evidence pointed out that people who score higher on trait self-control can resist better behavioral self-control tasks, cope better with anxiety and negative mood, show more avoidance from addictive behavior and respond others in more constructive ways (Finkel & Campbell, 2001; Mischel, Shoda, & Peake, 1988; Schmeichel & Zell, 2007). In short, high self-control is assumed to be a proximal indicator of a good social and psychological adaptation. A puzzling remark about self-control as a trait (disposition) and the effects of ego depletion as a state (situational) variable in self-regulation research has been made by Baumeister and Alquist (2009): despite the fact that high self-control appears to be highly beneficial in terms of intraindividual, interpersonal and societal welfare, the limited resource or strength of self-control seems to have costs beside its benefits in that a depleted ego is temporarily unavailable in terms of tasks requiring the active role of executive processes of self. Regarding this general remark, Baumeister and Alquist (2009) highlight the importance of distinguishing state and trait components of self-control though the distinction might be an imperfect one given that trait self-control contributes in part the individual capacity of exerting control over self in different situations. Friese and Hofmann (2009) provided recent evidence indicating that automatic affective reactions as representations of impulsive precursors were more strongly related to the behavior in question (e.g., potato chip consumption) for participants who scored low in trait self-control. In other words, every individual may feel compelled by an impulse; however, it is mainly the individual's disposition which prevents him/her

from yielding. In accordance with these arguments, Mead, Alquist and Baumeister (2010) cite the evidence by DeWall and friends (2007) to argue that people motivated to regulate themselves (i.e., trait self-control) are protected from the most negative implications of self-regulatory depletion in a potential aggressing situation.

In a similar way, Schmeichel and Zell (2007) found that participants did not differ in persisting in a painful cold presser task as a function of their success or failure on a previous advanced cognitive ability test while their trait self control score was reported to predict their persistence in the cold presser task. Although the aim of this study was to test the predictive power of trait self-control scale as measured with Trait Self-Control Scale (Tangney et al., 2004) and the two (easy and difficult) versions of the cognitive ability test were administered in order to induce feelings of success versus failure in participants, the results are open to interpretation in a way that participants who completed the difficult version of the test might have exerted more self-control as compared with participants who completed the easier version and regardless of the difference in this previous self-control exertion, participants who scored higher on trait self-control were more successful in holding the cold presser. On the other hand, another research conducted by Gailliot and Baumeister (2007) concluded that high trait self-control does not prevent the ego from being depleted at least in terms of producing inappropriate sexual words when playing a word game and hypothetical sexual infidelity. Interestingly, a recent review of state self-control and personality review, Baumeister, Gailliot, DeWall, and Oaten (2006) has concluded that “...*Individual differences in motivation are amplified by ego depletion. Individual differences in control are suppressed and diminished by ego depletion*” though trait self-control was not included in this comment. These converging preliminary results suggest that the interactional effects of trait and state components of self-control on impulsive, socially disapproved behavior or behavior subject to formal sanctioning are not yet clear at least in terms of available conceptualizations of self-control.

### **1.2.3. Criminal, disruptive or unethical behavior and self-control**

Many individual differences in psychological traits, behavioral tendencies or

a combination of them and their consequences make each person a *harmless* unique in the global conjuncture of vague labels and stereotypes both between and within societies; however, some individual trait factors or behavioral inclinations such as aggressivity, impulsivity, criminality and dishonesty are strictly conceived as dysfunctional for the system maintenance and are labeled or categorized as dangerous in terms of industrial societal living. Adherence to laws and formal regulations has been a major concern of any society governed by any type of regime. Although the content of these rules, regulations and laws which legitimize legal sanctioning in case of inadherence may substantially vary among different cultures and societies, a common concern of the state regimes is to enhance conformity to these regulations and prevent any deviation from them through various control mechanisms. Especially in an industrialized global conjuncture, this fact which is based on Hobbesian social contract brings with itself the necessity of internal regulatory mechanisms rather than external and explicit control processes. In other words, industrialized systems need self-regulating or self-controlling agents to function more effectively and prevent themselves from being destroyed. In this large scheme, a critical issue becomes the functionality of individuals in terms of their self-regulatory capabilities in a way that, each and every citizen is responsible for his/her own behavior in the face of legal system as long as he/she is sane.

In line with this general operating system, many branches of social sciences have been concerned with the adaptation of the individual into the societal, educational and organizational systems. Accordingly, a failure to adapt is perceived as a threat to the functioning of the society, thus to the security and welfare of the society's members. Legal studies and criminology have been largely devoted to the scientific study of the nature, extent, cause and control of criminal behavior while relevant branches of sociology and anthropology have been involved in understanding and questioning the criminal behavior from a societal point of view. In the meanwhile, relevant branches of psychological sciences have been canalized to study the criminal behavior in terms of individual as the unit of analysis (McGuire, 2004). Although the methodology and the adopted perspective vary among these disciplines, the ultimate goal of each one of them is to minimize the

threat through the various prevention and intervention techniques. In attempts to reach this ultimate goal, a critical factor namely self-control has been one of the major common point of interest of social sciences given that it is found to be a well known predictor of various kinds of deviant, criminal or disruptive in almost every research or study regardless of disciplinary differentiations (for review see, Muraven, Pogarsky, & Shmueli, 2006; Pratt & Cullen, 2000). Despite the variations in the conceptualization of self-control, the concept is used to explain the underlying dynamics of deviant and criminal behavior in both psychological and criminological research and theory development or validation. A major instance of cross-disciplinary beneficial and research generating theory is assumed to be The General Theory of Crime (Gottfredson & Hirschi, 1990). Gottfredson and Hirschi's (1990) theory strictly categorized under social control theories of crime in the field of sociology and criminology. The General Theory of Crime is generally accepted as providing a comprehensive framework of the developmental pathway of criminal and deviant behavior with a main emphasis on self-control (considered as a trait acquired basically in the family and school systems).

From a psychological point of view, basically two parallel lines of research practice promoted the research value of self-control construct in the specified domain. First, decades of research has proved that impulsiveness which is considered as the major behavioral companion of low self-control and regulatory skills is a basic developmental pathway to delinquent and disruptive behavior (Farrington, 1996; Logue, Pena-Correal, Rodriquez, & Kabela, 1986; White, Moffit, Caspi et al., 1994). A clear behavioral indicator of impulsivity and thus low self-control is accepted to be the concept of 'delay of gratification' which is used in many experimental research designs involving human participants and especially young children (for review see, Metcalfe & Mischel 1999). The delay of gratification generally measured through two-choice delay tasks –in which the participant is offered two choices, a reward at the end of a relatively long period of time and a smaller reward at the end of a relatively short period of time– is also considered as a function of higher order regulatory skills such as ego-control (Funder & Block, 1989). From a different approach but in a similar vane, a recent

study reviewing and establishing the link between blood glucose level (as an important energy provider of physical and mental activities) and ego depletion concluded that low blood glucose and poor glucose tolerance are associated with increased aggressive and criminal behavior (Gailliot & Baumeister, 2007). The second line of research highlights the importance of self-control in terms of social adjustment and individual functioning. A comprehensive study by Tangney and friends (2004), as well as outnumbered studies in many subdisciplines of psychology, revealed that high self-control is strongly positively correlated with school success, lesser psychopathology, higher self-esteem, healthy eating habits, lesser alcohol and drug abuse, interpersonal skills, secure attachment and balanced emotional responses. At the other extreme, low self-control is found to be a significant risk factor for various personal and interpersonal problems beside self and other directed risky behaviors and delinquency such as shoplifting, binge-drinking or tax evasion (Baumeister, Heatherton, & Tice, 1994; Feldman & Weinberger, 1994; Finkel & Campbell, 2001; Piquero & Tibbetts, 1996; Tangney et al., 2004).

In line with the main focus of the current research it would be appropriate to mention about the link between dishonesty as an example of rule breaking and petty criminal behavior and self-control although an overview of dishonest behavior and academic cheating is provided in the following sections (see section 1.5.). Thus, an additional research focus within the mainstream investigation of criminal tendencies with an emphasis on self-control has been dishonesty or unethical behavior in educational (i.e., cheating), organizational (i.e., nonreactive counterproductive work behavior or lying) or societal (e.g., tax evasion or stealing) level. In fact the studies on dishonesty had been continuing as a separate line of research included generally in the experimental investigation of deviance until the explanatory power of self-regulation or self-control on delinquent, antisocial or deviant behavior became explicitly recognized in the scientific field (see Farrington, 1979). It is important to mention here that the empirical study of dishonesty and its distal and proximal indicators came into prominence in the last decades given that the individual responsibility factor reigns in support of societal system maintenance. The concept

of self-control had been specifically brought to scientific agenda in an attempt to test The General Theory of Crime with a specific focus on fraudulent behavior (Cochran, Wood, Sellers, Wilkerson, & Chamlin, 1998). The results of this extensive self-report study revealed that among other variables (i.e., parental attachment, parental supervision and opportunity), self-control was the stronger predictor of self-reported academic cheating though the models put forward had only accounted for a small percentage of variance (12 %) in academic dishonesty. Additionally, Cochran and friends (1998) reported that an opportunity to behave dishonestly interacted with self-control in predicting cheating behavior. Another study conducted by Smith (2004) was also successful in showing the predictor power of low self control (as a disposition) on cheating though the amount of explained variance was still low given that low self-control is considered as only one of the main reasons for dishonest behavior.

Moreover, in an attempt to examine academic dishonesty in the context of Gottfredson and Hirschi's crime theory, Bolin (2004) reported that the pathway from self-control to academic dishonesty was moderated by attitudes toward academically dishonest behavior. Nagin and Pogarsky (2003) was also successful in finding the preference for delay of penalty (as an indicator of present-orientation as compared with future-orientation) as a strong predictor of cheating on a trivia quiz. More interestingly, Tittle, Ward and Grasmick (2004) made a distinction between the capability of restraining self and the desire to restrain self and in an extensive self-report study they showed that self-control ability (as an inherent trait) and self-control desire (tied roughly to external influences) have cumulative and interactive effects in predicting various kind of criminal or deviant behavior. An especially striking result of their study was that self-control ability was dependent upon self-control desire at least for some types of deviant behavior. They concluded that rather than being a disposition that can be considered as one of the major causes of criminal behavior, self-control desire should be considered as one factor situationally influencing misbehavior. In short, these ample findings point to the fact that self-control as a trait has a moderate predictive power on unethical behavior and especially dishonest behavior operationalized as academic cheating

although other crucial variables such as peer influence, past academic success, motivation and perceived opportunity seem to be equally powerful to explain such unethical behavior.

The fact that opportunity is a catalyzer in the process of committing dishonest behavior (e.g., Leming, 1978) is crucial in explaining the difficulty in following social rules and regulations given that adherence to rules can be sometimes demanding and effortful in the face of natural impulses or tendencies especially if the rule is not or can not be internalized (see, Self-Determination Theory; Deci & Ryan, 1985, 1987). In other words, a clash between desires and social obligations pushes the individual to exert self-control in order to fit his/her behavior in line with societal requirements and as proposed in the strength model of self-control an individual may not exert the same amount of self-control in a given time nor does he have the same amount of regulatory capability as compared with another individual. Thus, some individuals (with low self-control) in many circumstances and many individuals in some situations (e.g., situations requiring extensive and consecutive regulation) may be prone to inclinations toward dishonest or unethical behavior.

Although empirical and experimental evidence can be considered as scarce, major work focusing on this special issue provided clear results supporting a strength (willpower) model of unethical behavior. For instance, Muraven, Pogaarsky and Shmueli (2006) provided evidence that both low self-control and ego depletion (retyping/rewriting task with or without letter suppression) increased participants' likelihood of engaging in cheating behavior (i.e., continuing on a task when the instruction was to stop and misreporting the number of solved anagrams) on a subsequent anagram test. Another influential experiment on the effects of self-control resource depletion on unethical and dishonest behavior was conducted by Mead and friends (2009); the preliminary results of this study revealed that when offered an opportunity, participants who expended their regulatory resources on a first task were more inclined to act in an unethical way at least in terms of obtaining more money in a further task regardless of the cognitive load. Although these findings are crucial in explaining unethical behavior in terms of state self-control, it



is unfortunate that they basically relied on “misreporting” as the operational definition of cheating. In these terms, it should be noted that misreporting may be a distal indicator of unethical or dishonest behavior; however, these results may not be generalizable to the factual academic cheating in university since the act of cheating does not only consist of misinforming the authority but also involves the activity of breaking the rules of formal examination. Thus, a better and more direct strategy to test the effects of ego depletion on academic cheating can be assessing the behavior of cheating itself in a classroom context.

### **1.3. Social Influence and Conformity**

Societal living is one of the most critical prerequisite of human survival and its main rules comprise cooperation and coordination. These mere preconditions of human social survival also reveal the fact that human beings are highly evolved in influencing and being influenced by each other. Social influence is broadly defined as the ways people are affected by the real and imagined pressures of others and social influence processes refer to processes wherein an individual’s attitudes, cognitions and behaviors are changed through the doings of another individual (Cialdini & Griskevicius, 2010; Cialdini & Goldstein, 2004). Many recent book chapters and reviews on social influence have begun to consider the scientific study of social influence in two periods with a consideration of a major paradigm shift in 1970’s with the introduction of social-cognitive view of human behavior, thought and motivation (e.g. Forgas & Williams, 2001). In terms of the first period, the explication of devastating psychological phenomena as a direct response to overt social forces had been a major goal of the scientific study of social influence. Milgram’s (1974) work on obedience to authority, Asch’s (1951) experiments on line-judgment conformity and Sherif’s (1936) studies of autokinetic effect offered the major advances in the scientific study of social influence since the results of their studies pointed to a common understanding on social behavior: People may be susceptible to others explicit influences in different situations. However, the second period researchers began to be more deeply interested with more subtle indirect and nonconscious forms of social influence processes such as persuasive communication and information processing strategies during persuasion (e.g., Cialdini, 1993). An

important gain of consecutively experiencing these two periods is considered to be a comprehension of influence processes as operating in different levels (e.g., direct, cognitive, group, social and cultural levels). Within three levels of analysis and explanation as described by Pettigrew (1996), social influence research generally falls in the meso level (i.e., situation and social relationships) given that the main question is “how people influence each other?”; hopefully, most social influence researchers profit also from micro and macro levels for a full understanding of influence processes and comprehensive development of models explaining these processes (Pratkanis, 2007).

Social influence can take different forms under different contexts and situations. Major work on social influence is generally summarized under three comprehensive subtopics: Obedience, compliance and conformity (Cialdini & Goldstein, 2004). Though a great deal of research focused on the power of persuasion and the conditions under which people become compliant, more subtle forms of changing thoughts and behaviors of others during social interactions have been subject of empirical work and theory development in the scientific study of social influence. According to Sherif (1936), people use the behavior of others to establish the range of possible behavior (i.e., ‘frame of reference’) and this mere tendency is sufficient for the formation of norms and consensus in groups of people. Social influence processes through the induction of norms guarantee social control; in other words, in situations where people follow or adhere norms, surveillance is not required at first hand. Conformity is not explicitly based on power relationships but rather on subjective validity of social norms; thus, people have a tendency to believe that thoughts and actions described by a salient norm are correct, valid and socially appropriate (Festinger, 1950). Deutsch and Gerard’s (1955) seminal review on past conformity research in terms of two fundamental processes revealed that people conform to others for two basic needs: need to be right (i.e., informational influence) and need to be liked (i.e., normative influence). In other words, people change their cognitions, attitudes or behaviors in order to make use of information provided to them for the sake of shortcuts (e.g., heuristic processing) and to gain society’s, group’s or salient others approval. Informational influence is generally

associated with social comparison processes: interchanging thoughts, observing others behaviors, or gathering information involve either conscious or subconscious forms of comparing oneself with others in the frame of reference (Festinger, 1954; Forsyth, 2010; Moscovici, 1976). Moreover, it should be also noted that especially in recent decades, many theories attempting to explain either majority or minority influence take into account the fact that social influences follow the rules of dual processes (Moskowitz & Chaiken, 2001; Petty & Cacioppo, 1984). In other words, as people are not merely automatic processors without an executive function, they can be persuaded or influenced through both direct (i.e., systematic) and indirect (i.e., heuristic) processes. Later work on the motives of being influenced has shown that a third motive which is conceptually based on the cognitive dissonance theory of Festinger (1957), maintaining a positive self-concept was also an important factor in changing cognitions and attitudes (Wood, 2000). These three motives, together with information processing types and norm dynamics are experimentally used and empirically investigated for any attempts to designate the ‘why’s and ‘how’s of social influence processes.

For the sake of the current study’s second main focus (i.e., investigating the effects of situational norms on cheating), the emphasis should be made on the contents, the dynamics and endproducts of conformity rather than on the persuasive tactics or the power relationships. Moreover, since the aim is to measure a behavioral component of dishonesty rather than its attitudinal component (e.g., attitudes toward cheating), evidence from the literature of social influence with a main concern of the effects of influence processes on behavior would be more valuable in this research context. In other words, the current study aims to make use of a social influence technique as a mean to predict behavior rather than to investigate it as an end to influential processes. Thus, in the following parts, the overview of social influence will be restricted to theoretical conceptualization and empirical evidence on conformity, norms, and susceptibility to social influence; moreover, an emphasis will be made on the relationship between social influence and unethical/dishonest behavior.

### **1.3.1. Norms, conformity and susceptibility to social influence**

Deutsch and Gerard (1955) went to a conceptual distinction between informational and normative influence with the former based on the need to form an accurate interpretation of reality and behave accordingly and the latter based on the motive of having social approval from others. However, later theoretical developments and research pointed out that such a clear cut distinction may not be possible outside laboratory situations; that is, informational and normative informational processes are generally interrelated during social interactions and may have both independent and cumulative effects on influence outcomes (David & Turner, 2001). From one side, human cognition is biased toward information in terms of both direct and indirect processings; thus, sampling others' behaviors is itself a major source of information in daily life and this kind of information has a critical value in human survival (Kaplan & Miller, 1987). From the other side, both older and recent empirical work attempted to show the predictive power of norms on conformity behavior (e.g., Cialdini, Kallgren, & Reno, 1991; Schultz, 1999; Sherif, 1936; Turner & Killian, 1987). For instance, the Emergent Norm Theory (Turner & Killian, 1987) suggested that collective behavior takes place under the governance of emergent group norms rather than traditional social norms and attempted to demonstrate the sociality of crowd action.

Specifically later conceptualizations and theories recognized the distinction between informational versus normative bases of social influence as oversimplified (Cialdini & Trost, 1998; Hogg & Turner, 1987). Nonetheless, it should be admitted that the mainstream social influence research has much influenced from the empirical study of norms through the use of informational and normative influence especially in creating prosocial behavior or shedding light on consumer psychology. For instance, Reno, Cialdini and Kallgren (1993) focused on descriptive and injunctive norms in predicting an environmentally prosocial behavior (i.e., littering in a campus). According to the Focus Theory of Normative Conduct, descriptive and injunctive norms influence behaviors through differential motivational sources (Cialdini, 2003; Cialdini, Barrett, Demaine, Sagarin, Rhodes, et al., 2007; Cialdini, Kallgren, & Reno, 1990). Descriptive norms refer to the common and frequent

conduct in a given situation; as such they can influence individuals' behaviors by giving information about the possibly effective and most adaptive behavior in that situation. Injunctive norms, on the other hand, refer to the commonly approved/accepted or disapproved/rejected behavior within a culture or community and as such they can influence behaviors through informal social sanctions. In short description, descriptive norms represent what is done while injunctive norms represent what ought to be done. The social basis for this distinction relies on 'is' and 'ought' but there is also an explanation at the individual cognitive level: Focusing on descriptive norms does not require elaborate cognitive processing and is able to affect conduct through the heuristics ('do what others do' rule in situation-specific behaviors) while the injunctive norms are thought to require elaborate cognitive processes since acting in congruence with the injunctive norms has a prerequisite of understanding a culture's or group's moral rules (see "Heuristic-Systematic Model of Persuasion" by Chaiken, 1980; "Elaboration Likelihood Model in Persuasion" by Petty & Cacioppo, 1986). In their research program consisting of nine experiments on people's decisions to litter in public places, Cialdini, Kallgren and Reno (1990) first studied the effects of varying the saliency of a descriptive norm together with its dependency on a given situation, then they explored the effects of injunctive norms which are independent of the environmental conditions and they contrasted the differential effects of them. The results of their experiments suggested that, compared with descriptive norms, injunctive norms were practically more advantageous in eliciting non-littering behaviors independent from the social situation and more influential in shaping prosocial behavior as long as the norm to the behavior is salient or focal (Cialdini, Kallgren, & Reno, 1990). Still, it should be noted that they also provided evidence that in appropriate conditions such as a clean environment, descriptive norms can show their power of creating a change in behavior.

Following these findings, a comprehensive and well refined series of experiments conducted by Aarts and Dijksterhuis (2003) revealed that situational norms such as a picture of library together with a salient goal (e.g., visiting a library) were powerful determinants of behavior in a given context; moreover, their

results also suggests that environmental priming effects can determine behavior in condition that there is a strong association between the representations of these environments and normative behavior. In short, situational norms can guide behavior as long as the goals are relevant and there is an association between the descriptive norm and the environment in a way that the overt behavior is automatically influenced from a salient norm. These findings are also critical in highlighting the co-occurrence of both descriptive and injunctive norms and in these terms situational norms are defined as *behavioral guides that people apply effortlessly and automatically in producing behavior* (Aarts, Dijksterhuis, & Custers, 2003). This definition is also congruent with the fact that people may simply imitate the behavior of others since imitation can have the value of increasing efficiency during daily hassles through allowing alternative solutions (Chartrand & Bargh, 1999; Gureckis & Goldstone, 2006).

These comprehensive research series and those not cited here given the limited space, conducted by different research groups have been further helpful in understanding the importance of norms in social situations and societal living: Norms have a strong and regular impact on behavior with a consideration that the impact in question is a function of saliency and types of norms among other contextual factors. In social psychological terms, norms may be formed in either cultural, societal or group level; in each case norms are generally defined as *rules and standards that are understood by members of a group, and that guide and/or constrain social behavior without the force of laws* (p.152: Cialdini & Trost, 1998). As such, regardless of their variability in content, they are cultural universals. These norms are the dynamic endproduct of the interaction and communication with others though they may or may not be stated explicitly (Hogg, 2010; Kincaid, 2004). Thus, it can be said that anything that is communicable is likely to be normative in condition that it survives during different patterns and sequences of interactions (Schaller, 2001). If one keeps in mind the distinction between descriptive and injunctive norms, it should be also noted that not all types of norms are intentionally controlled by social networks; that is, social networks are responsible from not only communicating these norms but also from applying

sanctions for deviating from some of them (i.e. injunctive norms). Injunctive and descriptive norms, or collective and perceived norms are loosely tied to each other since the codes of conduct and the immediate variability of action may not be always compatible. Thus, although they may frequently have a cumulative effect on behavior when they are processed in a same direction of valence, they may also provide conflicting information about normative behaviors in a specific situation when they are antagonistic, hence having oppository directions of valence (Lapinski & Rimal, 2005). In such a situation, for instance when a student disapproves those who do not recycle since his/her friends disapprove these people but still do not bother to recycle with an excuse of the absence of the recycling box, the antagonistic nature of messages or norms render hard the prediction of behavior unless there is a known fixed action pattern for the given situation such as 'people have a natural tendency to throw away piece of papers'. In a similar way, it can be expected that without any manipulation of norms, students can have a higher tendency to cheat when compared with a situation wherein a decision of not cheating is made salient since it is known that peer behavior is much influential in the decisions to cheat (McCabe & Trevino, 1993; Michaels & Miethe, 1993).

Considering that social influence is a continuum, conformity constitute the first step of yielding to influence; in other words, compared with compliance and obedience, conformity is a smooth component of this continuum and is relatively free from the effects of direct power relationships, explicit authority and formal pressures. Within this framework, it can be also asserted that it is open to the target's decision making beside the effects of the source's messages. In other words, the individual's free will is not totally deactivated in conformity situations. As already noted people follow and adhere others' thoughts, attitudes and behavior with three main motives: being affiliated (or getting in touch with others and gaining social approval), being correct (or not diving into ambiguity or uncertainty) and providing a positive self-concept together with self-esteem protection (or not being excluded from a group). The first and third motives are also prominent in Festinger's Social Comparison Theory (1954) which is based on social learning principles and suggests that individuals follow the norms of referent groups (i.e.,

those groups which are relevant to the person at a given situation) since the norms provide a reference frame for accurate social comparisons. Congruently, the third motive has also initiated one of the major research and debate topic of social influence in the last decades since the concept of group involves also parties not only in terms of the ingroup-outgroup dynamics but also in terms of the majority-minority influences.

The dynamics of social influence were extensively theorized and researched in the framework of group dynamics as revealed by the influence of ingroup versus outgroup members and the influence of the minority and majority parties within groups (Martin, Gardikiotis, & Hewstone, 2002; Moscovici & Faucheux, 1972; Wood, Lundgren, Ouellette, Busceme, & Blackstone, 1994). Social influence and specifically conformity processes in groups had been first explained as uniform effects of the majority but later work by Moscovici and Faucheux (1972) showed that the influence processes are not uniform and that the majority itself could be influenced from the consistent decisions of a minority group through a private change (i.e., conversion; see, Moscovici, 1985). The processes by which minorities become a source of influence were extensively reviewed in a meta-analysis by Wood and collaborates (1994) and their results showed that as opposed to direct change of attitude by the majority, the minorities generally exert an indirect and implicit change in attitude when they manage to provide consistent arguments. Moreover, later work on minority and majority influences as consensus sources provided the evidence that while a fifty-fifty consensus of the majority creates successful compliance, a numerically small minority may have the advantage of creating compliance through the detailed (elaborate) processing of a given message (Martin, Gardikiotis, & Hewstone, 2002). Further studies on the minority influence also pointed to the fact that the minority source is successful in creating attitude change in condition that the source is seen as a part of the group. Theoretically this fact is based on the minority influence interpretation of the self-categorization and the social identity since the influence is seen as stemming from the identity similarity between the source and the target (David & Turner, 1992; Hogg, 2003). In other words, outgroup minorities may have difficulties in having their voice heard since



the group's identity exclude them while ingroup minorities are perceived as being from the same 'general' identity and may be heard through using detailed and consistent argumentation (Crano & Alvaro, 1997). A crucial note about the self-categorization and social identity interpretations of the social influence is that the effect of influence either by a majority or a minority depends not only on the saliency but also on the relative importance and relevance of a given identity as perceived by the targets (Forehand & Deshpandé, 2001). However, further research pointed out that the effect of a perceived identity on the social influence processes is not only based on personal commonalities; put differently, the mere fact that people are waiting together or a group of individuals prefer the same room to stay may be strong enough to create an influence. In a study conducted by Goldstein, Cialdini and Griskevicius (2008), the participants who were staying in the room in which the towel reuse message underlined the towel reuse of past customers who stayed in that room (provincial descriptive norm) preferred more reusing their towel when compared with the participants who were staying in the room in which the towel reuse message underlined the towel reuse of people having the same citizenship or the same gender (same identity descriptive norm). Thus, creating social influence may not always be dependent on the personal similarity of social identity and the situational similarity together with a descriptive norm may be sufficient to cause even a behavioral change.

A last important notification about the dynamics of conformity might be that as demonstrated in Asch's line paradigm studies, people who hardly know each other can be also influenced from each other as long as they are grouped together in a way that the communication and interaction is possible though not always present (Cruz, Henningsen, & Williams, 2000; Latané & Darley, 1968; Mason, Conrey, & Smith, 2007). In these terms, even a waiting line can constitute a situation of norm formation and thus social influence (see, Schmitt, Dube, & Leclerc, 1992). Additionally, recent research pointed out that the group members' anonymity threw away participants' attention from searching for personal similarities toward the perception of a unity while leaving space for conformity (Sassenberg & Postmes, 2002). In these circumstances, it is suggested that people follow situation-specific

norms since they do not totally rely on a settled social identity (e.g., Reicher, 1987). Thus, although the strategy of using social aggregates similar in terms of age (peers) or status (students) may be insufficient for studying and investigating systematically the dynamics or the sources of social influence processes, it can still shed light on basic effects of conformity on attitude or behavior.

### **1.3.2. Conformity and unethical/dishonest behavior**

Like two sides of a coin, conformity may have both prosocial and antisocial implications on society or on an establishment's ongoing system. Interdependent with rules and formal regulations, a society's or its sub-groups' norms/conventions play a critical role in shaping the coin's sides and in determining which side wins. In other words, apart from the professional use of social influence techniques for 'society's welfare' such as tax honesty or environmentalism campaigns, social influence processes as happening naturally in daily life without much awareness of neither sources or targets may not guarantee a well functioning system as long as codes of social conduct are not internalized by each and every single member of the society since people differ not only in their influenceability level but also in their decision to act in prosocial or antisocial manner.

Many instances of unethical behavior such as cheating on taxes, insurance fraud, employee theft, academic dishonesty, athletes' use of illegal drugs or illegal downloading of software and digital content are found to be related with the contagion effect which is conceptualized as "*the spread of affect, attitude or behavior from Person A (the initiator) to Person B (the recipient), in which the recipient does not perceive any intentional influence attempt on the part of the initiator*" (Levy, 1992; Gino, Ayal, & Ariely, 2009). In other words, the mere exposure of these unethical activities may result in more similar activities in groups of people and in society in general. Specifically, research on counterproductive work behavior showed that there is a positive relationship between the level of antisocial behavior (i.e., damaging organizational property or deliberately bending a rule on work) exhibited by an individual and that exhibited by his or her coworkers (Robinson & O'Leary-Kelly, 1998). In fact, both coworker and managerial

influence were found to be situational predictors of unethical behavior in work as revealed by an experimental study (Jones & Kavanagh, 1996). The frame is not much different in terms of tax evasion; for instance, Frey and Torgler (2007) found that as long as taxpayers believed tax evasion to be common, their tax morale decreased. Moreover, cultural norms of driving can be also a vivid example of this contagion effect; for instance in countries wherein social norms and informal rules of driving diverge from formal regulations, most of the drivers prefer to adhere situational traffic norms and informal rules rather than regulations since they perceive that ‘everyone else do’ (Ozkan, Lajunen, Chiliaoutakis, Parker, & Summala, 2006).

As an instance of unethical behavior, academic cheating has been also well documented of being strongly associated with peer influence (for review see, McCabe & Trevino, 1997). An extensive self-report study on academic dishonesty conducted by Carrell, Malmstrom and West (2008) pointed out to the social multiplier effect in that one additional college cheater was found to drive approximately 0.61 to 0.75 additional college students to cheat. In a recent vignette and self-report study this contagion effect was also experimentally investigated and beside reaching similar results of peer influence on cheating researchers concluded that those students who saw other students having cheated were reluctant in behaving in accordance with honor codes not because the rationalization of cheating became salient and easy but because the behavior in question was judged to be less morally reprehensible (O’Rourke, Barnes, Deaton, Fulks, Ryan, & Rettinger, 2010). In fact it should be also noted that the peer influence in adolescence has been correlationally associated with and experimentally shown to affect many rule breaking and illegal activities such as alcohol abuse, illegal drug use (Bauman & Ennett, 1996), early pregnancy (Potard, Courtois, & Rusch, 2008) and school misconduct (Zimmerman, 2003). In other words, the peer influence, an immature form of social influence in which self-categorization process manifests itself at a salient level since identity formation is at the top list of young individuals, is generally considered to be one major contextual factor explaining high levels of dishonest and sub-criminal behavior.

Gino and collaborates (2009) cite three major source of influence in explaining the effects of others' cheating on unethical behavior. First people may change their estimates of the likelihood of being caught when they see others around them cheating and this may be followed by a cost-benefit analysis of short term rewards of cheating while bypassing its longterm and large scale harm (which is more closely related with social learning hypotheses of social influence). Second, being exposed to someone who is cheating may result in an increased saliency of ethical codes and thus, decreased levels of cheating (e.g., Mazar, Amir, & Ariely, 2008). Third, as can be predicted from the Focus Theory of Normative Conduct (Cialdini et al., 1990; Reno, Cialdini, & Kallgren ,1993), the exposure to the unethical behavior may result in changes of one's understanding of the social norms, specifically a perception of situational or descriptive norm related to dishonesty. In an influential set of experiments attempting to investigate these explanations, Gino and collaborates (2009) showed that the degree to which people are influenced by the social norms of dishonesty depended on the relationship between the initiator and the follower in a way that people perceived questionable behaviors exhibited by in-group members or similar others to be more legitimate compared to those by out-group members. In short, evidence from multiple situations show that social influence can enhance antisocial or society-harming behavior as well as prosocial behavior, which blurs the predictability of the effects of conformity especially in situations where the norm is perceived to be immoral or unethical in general terms but still tempting in individual level or in groups in which norms support unethical behavior rather than ethical conduct.

From a more dispositional perspective, personality psychologists generally consider the tendency to conform to the rules and regulations as an indication of social integration with society (Gottfredson & Hirschi, 1990). Indeed, many scales and inventories intended to assess abnormal tendencies of personality such as antisocial personality which is found to be a strong predictor of criminal behavior and reckless acts conceptualize "conformity" as the lower end of antisocial personality dimension (e.g., Antisocial Personality Questionnaire; Blackburn, 1999). In terms of personality traits, some differentiation between having a

tendency to conform to descriptive or group level norms versus formal rules and regulations of authority has been attempted in early research (Berkowitz & Lundy, 1957) though recent research generally tracks a tendency to conform with such big five dimensions as agreeableness and openness to experience which are mostly viewed as indicators of social adaptation and integration in general (DeYoung, Peterson, Higgins, 2002). However, research conducted mostly with adolescent samples and focusing on delinquent behavior such as alcohol and drug abuse or academic disintegrity point that social conformity with peer groups may diverge from adherence to rules and regulations in especially school contexts (Santor, Messervey, & Kusumakar, 2000). Thus, a conceptual differentiation in terms of the source of conformity also may be crucial in identifying the role of a tendency to conform as a trait level predictor of academic dishonesty.

#### **1.4. Academic Dishonesty**

Providing or receiving unauthorized/out-of-rule assistance in the creation of an assignment to be submitted for academic credit (i.e., cheating) and presenting another person's words as one's own the ideas or words for academic credit without proper citation (i.e., plagiarism) is strictly and objectively defined as academic misconduct (Hard, Conway, & Moran, 2006). Academic dishonesty is considered to be a large scale social and individual phenomenon as can be revealed from the percentages found in McCabe's (2001) survey study involving 4,500 US high schools: 74% of students admitted to serious test cheating, 72% admitted to serious cheating on written work, 97% admitted to copying homework or to test copying, 30% admitted to repetitive serious cheating on tests/exams, 15% had obtained a term paper from the internet, 52% had copied a few sentences from a website without citing the source, and 90% of the students using the internet to plagiarize had also plagiarized from written sources. In this section, main points of academic dishonesty literature will be shortly presented in order to provide a better understanding of the sources of unethical behavior as exemplified by cheating.

A large and growing body of research on academic dishonesty is available from many disciplines. In fact, research concerning dishonesty dates back to the

classic studies conducted by Hartshorne and May (1928-1930), in which children were provided varied opportunities to lie, cheat or steal and findings revealed that there was a continuum of honesty rather than a black-white picture of dishonesty. Later, in 1963, Burton's work on honesty revealed that many of his subjects tended to behave dishonestly under some circumstances. Even these early findings lead researchers to conclude that dishonesty was not dependent on the strength of moral character alone but varies with social context. In the following decades, while some of the studies focusing on academic dishonesty preferred individual level variables such as morality or self-control, some others focused on the importance of situational and social level factors such as peer influence or honor codes in explaining unethical behavior in academic contexts. In his review on the factors associated with cheating, Whitley (1998) listed moderate expectations of success, past experience of cheating, poor conditions of studying, positive attitudes toward cheating, lay perceptions of social norms as supporting cheating, and expectations of large rewards for success as the best correlates of academic cheating. Another recent review of academic dishonesty by McCabe, Trevino and Butterfield (2001) remarked that some forms of cheating (specifically examination cheating and collaborative cheating) have increased over 30 years. In accordance with this remark, local research findings also showed that cheating is highly common in high school, undergraduate and graduate levels of education in Turkey (Gürkay & Odabaşı, 2006; Kökdemir, 2003).

McCabe, Trevino and Butterfield (2001) also underlined the importance of contextual factors such as perceptions of peer cheating as the most prevalent sources for creating cheating motivation over individual factors. In line with this and the strong relation between social influence and academic dishonesty as resumed in the previous section, one of the most frequent experimental or observational research strategies used to analyze academic dishonesty has involved tempting situations that provide students with an opportunity to cheat. However, McCabe, Trevino and Butterfield (2001) and various other researchers also cited such individual factors as neutralization techniques used by students (rationalization, denial, deflecting blame to others, condemning the accusers),

younger age, being male and unsuccessful school history or low grades as strong predictors of academic dishonesty though they also pointed to the fact that these variables are hard to be dissociated from other contextual or societal variables. For instance, many past research reported clear gender differences in academic cheating in a way that male students report to have cheated more or to have more positive attitudes toward cheating (e.g., Aiken, 1991) and a meta-analysis of 44 different studies on either attitudinal or behavioral measures of academic dishonesty, conducted by Whitley, Nelson and Jones (1999) showed that men's attitudes toward cheating become more positive than women's attitude over time with a medium effect size ( $r = .17$ ) while men reported having cheated to a slightly greater degree than women with an only small effect size ( $r = .08$ ). In line with these and similar results, both Whitley, Nelson and Jones (1999) and Crown and Spiller (1998) reasoned that these seemingly gender differences pointed in fact to the differences in sex roles and valued gender norms in young population. As explained by McCabe and Trevino (1997), the gender gap got smaller when compared to past generations since in last thirty years more women have been involved in male dominated academic areas which also mean that there might have been a convergence in sex role socializations. More interestingly, the fact that the gender gap was found to be higher in cheating attitudes while it is much lower in terms of behavioral reporting point also that stated values and attitudes may not be a good predictor of cheating behavior. From the opposite way, Semerci (2006) revealed in his study that the students who viewed cheating as "forgery" and "unlawful" also admitted to have cheated in the past. In short, if one considers especially recent work on academic cheating, it would be hard to conclude that there is a clear gender difference in cheating behavior and that attitudes toward cheating are a reliable way of measuring the relationship between academic dishonesty and other theoretically related constructs.

Beside demographic factors, a critical individual trait factor known to be associated with academic dishonesty is impulsivity, which is also closely related with trait self-control as noted before (Gottfredson & Hirschi, 2001; Nagin & Pogarsky, 2003). In line with this, many researchers attempted to explain academic

dishonesty in terms of criminal theories since unethical behavior is legally conceived as a definite form of crime in that it disturbs the egalitarian rights of society's members. Specifically, theories of deterrence, social bonding, social control, social learning and rational choice were generally used by social scientist to provide better explanation of academic cheating (for review see, Michaels & Miethe, 1989). One of the most influential and highly cited criminal theories attempting to explain academic dishonesty has been Gottfredson and Hirschi's (1990) General Theory of Crime since it provided a large scale but still individual based explanation of deviant and criminal behavior through considering both familial and personality factors as proximal indicators (Grasmick, et al., 1997). As assumed in the conventional theories of crime, General Theory of Crime or Self-Control Theory of Crime assumes that the main motivation of criminal behavior is to avoid pain and to seek pleasure; in other words, crimes are seen as simple acts, requiring little effort and offering immediate reward, despite a risk of future disadvantages (as prominent in the dynamics of the delay of gratification as noted before). An interesting point suggested in the theory is that all people are equally motivated and capable of committing crimes while the main factor which differentiates and prevent people in committing criminal activities is their ability to inhibit these impulses (i.e., the ability to control the self's mere immature desires) which is assumed to be acquired in early years of life within family. Thus, the theory suggests self-control as being a latent trait which is hardly open to change in later life, a post hoc explanation of why criminal behavior is stabilized in frequency for an individual (Romero, Gomez-Frauela, Luengo, & Sobral, 2003). As detailed in the Section 1.2.3. (Criminal, disruptive or unethical behavior and self-control), the construct of self-control is not conceived as totally static trait factor within social psychological study of self-regulation. However, the match between these different disciplines in their prediction of disruptive, antisocial or criminal behavior is worthy to remark in that trait self-control is consistently reported to be one of the stronger correlates of academic dishonesty (Baumeister, Heatherton, & Tice, 1994; Bolin, 2004; Cochran et al., 1998).



### **1.5. Purpose and Hypotheses of the Study**

The reviewed literature suggests that self-control and conformity are separately well associated with unethical behavior, specifically with academic dishonesty. In fact, recent research showed that dishonesty is not the only common ground of self-control and social influence: consumer behavior was found to be affected from the depleted ego patterns as well as from persuasion techniques (Baumeister, Sparks, Stillman, & Vohs, 2008; Janssen, Fennis, Pryun, & Vohs, 2008). Specifically, a persuasive attempt from others was found to result in the depletion of self-control and reported to increase one's vulnerability to a second persuasive message. Thus, the Strength Model of Self-Control has been recently used to explain why people become more susceptible to persuasion. Moreover, a recent experiment conducted by Van Dellen and Hoyle (2010) provided evidence that social environment as manipulated through having participants wrote the successful and unsuccessful instances of self-control of their familiar others, influenced the capacity of exercising self-control on a variety of tasks requiring self-control including physical persistence, inhibitory capacity, and performance and persistence on difficult word problems.

Although researchers have begun to link the effects of ego depletion and those of social influence processes on some behavioral domains, the relevant research field is considered to be still new and open to exploration. In their recent review, Fitzsimons and Finkel (2010) remarked that recent studies provided evidence that interpersonal processes influence bidirectionally the initiation of goal-directed action and the operation of goal pursuit which are considered to be the first two components of self-regulation; in other words, it seems that interpersonal interactions (e.g., an ineffective coordination among members) may deplete ego resources but also other people can act as triggers of goals and as a result people may unconsciously initiate new goal pursuits. After all, it would be reasonable to think that the executive function which is responsible from the control of impulses and desires may also be responsible from the processings of social information since both processes rely on the self's basic function of execution and information processing as neuropsychological evidence reveals (see, Barkley, 2001; Spitzer et

al., 2007). From a more philosophical point of view, if one assumes that self-control as a basic precondition of living in community, is under the command of the executive function of self and mind, then it is probable that mechanisms of self-control may be influenced from the outcomes of conformity in general since in contexts where social influences rule, self-control decisions go under control of society's expectations. In such conditions, the critical point may be the direction of these expectations; for instance, if individual equal rights are not a major concern and opportunism and utilitarianism are valued for reaching success within a group of people, it would be absurd to expect that group members would use their self-control to wait in the line for their turn. In other words, the executive function of self may operate within the restrictions of the surrounding societal or group level norms and habits and thus, the interplay between self resources and situational and contextual characteristics may be crucial to determine a specific behavior or act of an individual.

Based on the fact that both factors (i.e., self control and social influence) are proved to be separately linked with various types of unethical behavior, the aim of this study was to explore the effects of self-control and conformity on academic cheating with both situational and dispositional approaches. In other words, the current study seeks to investigate these two variables which can be conceptualized as both trait factors (i.e., self-control, tendency to conform, and susceptibility to social influence) and state factors (i.e., ego depletion and informational-normative influence). As reviewed from the relevant literature, very few studies considered an integrative framework which aims to deal with both situational and dispositional factors and their interactional effects in explaining academic dishonesty; moreover, at least to the knowledge of the researcher, none of the experimental studies relevant to the interested literature attempted to investigate the effects of ego depletion together with the social influence situations on dishonest behavior. The current study is thought to be innovative in considering the same constructs in both state and trait terms and in introducing the effects of norm induction in ego depletion situations on cheating.

Considering that instances of various types of cheating is highly prevalent among university students and in line with the main findings on academic dishonesty which reveal that peer influence and self-control are consistently the major predictors of cheating, the current thesis had two complementary focuses in achieving the major aim. The first focus aims to investigate the possible relationships between the trait self-control, the tendency to conform and the susceptibility to social influence as dispositional factors in predicting the frequency of past academic cheating as reported by undergraduate students. In order to reach this aim, the self-report measures of trait self-control, conformity and past academic dishonesty were first translated in Turkish and a preliminary study was conducted to investigate the scale reliabilities before the main study. Specifically it was hypothesized that high levels of both trait self-control and tendency to conform would predict lower self-reported academic dishonesty (*H#1b*) while high levels susceptibility to social influence would predict higher self-reported academic dishonesty (*H#1a*). Thus, the correlational hypotheses are as follows:

*H#1a: The trait self-control and the tendency to conform are negatively associated with self-reported academic dishonesty.*

*H#1b: The susceptibility to social influence is positively associated with self-reported academic dishonesty.*

Furthermore, based on the experimental design, the second focus of the study aims to experimentally explore the effects of the situational component of self-control as defined by the Strength Model of Self-Control, and the effects of contextual differences as implicated by social norms and social influence processes on an instance of cheating in an examination. In order to reach this aim, an experiment was designed in which the self-control strength was manipulated through a rewriting task and induction of descriptive norms with the dialogue of two confederates either priming an honesty norm or a dishonesty norm beside a neutral situation in which a routine dialogue of meeting with a friend takes place during an opportunity to cheat in the examination. A preliminary study was also

conducted to evaluate and ameliorate the effectiveness of the manipulations before the main experiment. In this framework, it was hypothesized that both state self-control and norm induction would have effects on the frequency of cheaters and on the level of cheating across experimental groups (*H#2*). Specifically, it is expected to find a main effect of ego depletion in a way that depleted participants would be more likely to cheat than participants who did the neutral rewriting task and there would be more cheaters in the ego depletion conditions as compared with the neutral rewriting condition (*H#2a*). Following that, it is also expected to find a main effect of norm induction in a way that the frequency of cheaters would be highest for the groups who were exposed to the ‘cheat’ norm, followed by medium frequency of cheaters in the neutral condition and by lowest frequency of cheaters in the ‘not cheat’ norm; moreover, participants who were exposed to ‘cheat’ norm would be more likely to cheat when compared with neutral and ‘not cheat’ norm conditions (*H#2b*). Specific hypotheses for the interaction effects of ego depletion and norm induction were not put and will be explored during data analysis. Thus, the experimental hypotheses are as follows:

*H#2a: Ego depletion has a main effect on the frequency of cheaters and the level of cheating.*

*H#2b: Norm induction has a main effect on the frequency of cheaters and the level of cheating.*

## CHAPTER II

### METHOD

In this chapter, procedures and methods for exploring both the experimental effects of ego-depletion and norm manipulations on cheating in an opportunity situation and the relationships between trait self-control, tendency to conform and academic dishonesty levels of university students will be illustrated. Before the main study, two preliminary studies were conducted to (1) test the reliabilities of the Turkish translation of the scales and to (2) explore the effectiveness of ego-depletion and norm induction manipulations. In the following sections, the descriptive characteristics of the samples, the characteristics of the measures used and the detailed procedures followed in the preliminary and main studies are provided. The materials used and the procedure followed in the preliminary studies and the main study were first submitted for the approval of Middle East Technical University, Human Participants Ethic Committee.

#### 2.1. Preliminary Studies

##### **2.1.1. PS-I: Reliability Study for Self-Control Scale, Attention to Social Comparison Subscale, Tendency to Conformity Scale and Academic Dishonesty Scale**

A literature search in order to find appropriate Turkish scales to measure trait components of self-control, conformity or a tendency to conform and the frequency of past academically dishonest behavior revealed unsatisfactory results in that although a few Turkish scales were found to be related to the above constructs, none of them was totally appropriate for the aim of this study. To explain, Rosenbaum's Self-Control Scale (Rosenbaum, 1980; Dağ, 1991) was adapted in Turkish and has been largely used especially in developmental psychology and educational sciences in Turkey; however, as Tangney and friends stated (Tangney et al., 2004) Rosenbaum's Self-Control Scale specifically aims to study with clinical samples and assesses the strategies to solve behavioral problems. In other words, the researchers who developed Self-Control Scale (Tangney et al., 2004) asserts

that despite its high validity, Rosenbaum's scale does not focus on measuring the trait component of dispositional self-control in daily (normal) behavior range. Thus, since the current study aimed to use the two-task paradigm largely and frequently used in the Strength Model of Self-Control with an emphasis on both measuring the trait self-control and manipulating the state self-control and that an appropriate Turkish self-control scale was not available to the knowledge of the researcher, the Trait Self-Control Scale developed by Tangney and friends (2004) was translated in Turkish. In terms of the assessment of conformity, although some Turkish scales aimed at measuring conformity to the authority or social adaptation to the environment were available (e.g. Hacettepe Personality Inventory, Social Norms subscale) none of these measures intended to assess a tendency to conform to situational social norms or openness to social influence. As a result, a recently developed scale intending to assess conformity to authority via semantic differential adjective pairs (Tendency to Conform Scale: Goldsmith, Clark, & Lafferty, 2005) and a scale frequently used in consumer psychology, intending to measure a predisposition to conform social norms prescribed by salient reference groups (Attention to Social Comparison Information subscale of the Concern for Appropriateness Scale: Cutler & Wolfe, 1985; Lennox & Wolfe, 1984), known to predict conformity were translated into Turkish. Lastly, in terms of the measurement of academic dishonesty, some reliable scales (either adapted to Turkish or Turkish in themselves) were found in the literature (e.g. Eminoğlu & Nartgün, 2009; Semerci, 2003); however, an overview of the contents of these scales revealed that they were aimed at assessing pupils' or students attitudes toward academic cheating rather than the frequency of past academically dishonest behavior. Because the present study focused on measuring the frequency of cheating behavior as the dependent variable of the correlational study, a frequently used Academic Dishonesty scale (McCabe & Trevino, 1997) was translated in Turkish. Within these major considerations, the aim of PS-I was to assess the reliabilities of the scales translated in Turkish in order to investigate the trait self-control, the conformity to authority, the susceptibility to social influence and past record of academically dishonest behavior in the main study.

### **2.1.1.1. Participants**

Online survey data were collected from 234 Bachelor's degree university students studying in different departments including arts, medical sciences, social sciences and engineering sciences, from various universities of Turkey. Women participants (n = 138) accounted for the majority of the participants with a percentage of 72. The age of the participants ranged from 19 to 40 years, with a mean and standard deviation of 23.13 and 2.83 years, respectively. The current education level ranged from university preparation to Ph.D. education. The modal education level of the sample was a fourth year Bachelor's degree (33 %). The total years of university education ranged from one to ten years. The modal university years were five years (25.7 %).

### **2.1.1.2. Procedures and analyses**

The scales were translated from English into Turkish and then back-translated. Independent translations were made by the current researcher and a graduate student from psychology department; back-translations were made by an academician from English Writing Center in Middle East Technical University. The original versions of the scales and the back-translated versions were compared and most satisfactorily equivalent items to the original scale were chosen from one of two back-translated versions to prepare the last Turkish versions. After the approval of the Human Subjects Review Committee of the university, an online survey including demographics, the trait Self-Control Scale, the Tendency to Conformity Scale, the Attention to Social Comparison Information Subscale of the Concern for Appropriateness Scale and the Academic Dishonesty Scale was built up in an online survey portal namely Survey Gizmo. The participants were reached through student e-mail addresses in Middle East Technical University and through university social interaction web groups and mail lists for other universities. All participants were involved in the study on a voluntary basis, and they were informed that the data collected would be used for research purposes as part of a M.S. study. An online informed consent (see Appendix A) was obtained from all participants before they filled in the survey package (see Appendix B); a general aim of the research stating

that the study was being conducted to assess whether the newly translated scales were reliable measures in a Turkish sample was also available on the informed consent. Each survey package was completed approximately in 20 minutes and the whole data gathering process took fifteen days.

### *Measures*

The trait Self-Control Scale developed by Tangney et al. (2004) is a self-report measure designed to assess dispositional self control in terms of its major domains (i.e., controlling thoughts, feelings, impulses, performances and breaking bad habits). The scale consists of 36 items with a 5-point likert type level of agreement (1 = *not at all like me* to 5 = *very much like me*). The possible score range is 36 – 180 in a way that higher scores reflect high self-control. The internal consistency of the scale is reported to be .89. A brief version of the scale is also available and generally preferred by various researchers. The Brief Self-Control Scale is reported to have .87 test-retest reliability (in three weeks) and .85 internal consistency. The strong and significant correlations between self-control scale and measures of performance, impulse control, and psychological adjustment have been documented by Tangney and her collaborates. The discriminative validity of the Self-Control Scale is also supported by the finding that it does not correlate with intelligence, as defined by IQ scores (Tangney et al., 2004). Moreover, Schmeichel and Zell (2007) provided that self-reported self-control corresponded moderately well with performance on objective behavioral tests of self-control. The scale is considered to be unidimensional in nature and a total score is computed for any research purpose although the 36 items-version is considered to tap on various components of self-regulation (i.e., Self-discipline, Deliberate/non-impulsive action, Healthy habits, Work ethic and Reliability),.

The Tendency to Conform Scale developed by Goldsmith, Clark and Lafferty (2005) is a self-report measure designed to assess the trait component of conformity independent of situations. The scale consists of seven bipolar adjectives (*agreeing/disagreeing, acquiescent/resistant, adapting/inflexible, accommodating/opposing, cooperative/uncooperative, compliant/defiant* and



*concurring/differing*) all but one of the adjective pairs are adapted from Jackson Personality Inventory (1976). Designed to measure the conformity to authority in a semantic-differential responding format of seven points, the scale's factor structure is reported to reflect a unidimensional scale explaining a variance of 40 % and its internal consistency is reported to be .74. The scale is documented to be negatively correlated with the Therapeutic Reactance Scale (Dowd, Milne, & Wise, 1991) which intends to measure psychological reactance defined as the level of motivation to behave independently from referent others. Although the adjective pairs are clear in meaning for native English speakers, the current research used a short definition of the adjectives below each item in order to prevent any confusion in meaning and to decrease the possibility of social desirability given that some adjectives may refer to labels of some subgroups in the society, especially in the youth culture such that the adjective *defiant* may have a more positive meaning for university students when compared with mid-age working individuals.

The Attention to Social Comparison Information Subscale (Lennox & Wolfe, 1984) is the 13 item-subscale of the Concern for Appropriateness scale and is firstly designed as an attempt to revise the Self-Monitoring Scale (Snyder, 1974); however, Lennox and Wolfe (1984) identified concern for appropriateness as a factor distinct from the self-monitoring construct given that it is strongly correlated with social anxiety and they proposed that concern for appropriateness is a more reliable measure to assess people's tendencies to conform rather than to be part of measuring a component of self-monitoring. Further research pointed out that the Concern for Appropriateness Scale is a valid measure to assess the susceptibility to peer pressure and behavioral conformity (Johnson, 1989). Later on, Bearden and Rose (1996) identified the attention to social comparison information as a dispositional factor having impact on consumer conformity. Moreover, ATSCI subscale was found to be related with extreme concern for others' reactions, and sensitivity to social and cultural influences (Netemeyer, Bearden, & Teel, 1992). The scale is reported to have an internal consistency of .82 to .89 (Cutler & Wolfe, 1985). Although the whole scale may be used to assess the susceptibility to influence, only the Attention to Social Comparison Information subscale is used in

the current research. The subscale items are scored in 6 point likert type scale ranging from 0 (always false) to 5 (always true). The subscale is reported to have an internal consistency of .80 elsewhere (Novak & Crawford, 2001).

The Academic Dishonesty Scale is developed by McCabe and Trevino (1993) as a self-report measure of academic cheating behavior. As different from various academic cheating scales which ask the participants' attitudes toward many kinds of cheating behavior, this scale contains 12 items for different types of cheating behavior in school context and participants are asked to rate the frequency of their past cheating behavior in a five-point likert type scale (1 = *Never* to 5 = *Many times*). The internal consistency of the scale is reported to be .79. Multiple sources reported that the inspection of histograms revealed a positive skewness in the composite score of the scale items and it was observed that a logarithmic transformation is generally applied for further analyses (Bolin, 2004; McCabe & Trevino, 1993).

#### *Data Screening*

Examination of the data entries for missing values revealed that 3 participants did not complete more than half of the scales. As a result, 3 cases were omitted from the data set. Further exploration did not reveal any missing data points. Both univariate and multivariate outliers were screened by the researcher. At total, z scores for 2 cases were observed to exceed the critical value of 3.23 ( $p < .001$ ) for some of the preliminary study variables. However, inspection of Mahalanobis distance values ( $\chi^2 > 20.515$ ;  $p < .001$ ) revealed only one case to be deleted from the data set, leaving 230 cases for the data analysis. In order to meet the assumptions of the multivariate analysis, the normality and linearity of the measures were also screened. The histograms for the preliminary study variables revealed that except the academic dishonesty variables, all variables had acceptable distributions in terms of normality. The academic dishonesty items were most of the time positively skewed; however, these measures were kept in the subsequent analysis without any transformations given that academically dishonest behavior is not very frequent in university population. Inspection of the scatter plots examined

for determining the linearity of the associations between the preliminary study variables revealed that the linearity assumption was successfully met.

### *Results*

Items of the trait Self-Control Scale from the data collected were subjected to a series of principal component analyses first with an exploratory focus, then with a confirmatory focus with the use of Direct Oblimin rotation. The initial exploratory factor solution revealed 11 factors with initial eigen-values higher than one. At the second step, the factor structure was forced to a 5-factor solution which explained 42.94 % of the variance among the items with an explained variance of 19.05 % for the first factor. Additionally, the initial eigenvalue for the first factor (6.86) was nearly three times higher than the initial eigenvalue of the second factor (2.52) pointing out to the unidimensionality of the scale (Hattie, 1985). All items had loadings higher than .30; however, all the items loaded on the second factor had negative loadings leading to a suspicion about response set bias. A comparison between the original factor structure of the scale and the present factor solution revealed minimum overlap. The 5-factor solution with Direct Oblimin, the items loading on each factor and the scree plot are presented in Appendix J. Although the authors proposed a factor solution in terms of conceptualization for the trait Self-Control Scale, they highlighted that the scale is used as a unidimensional scale and an overall score is suggested to be computed for self-control scores (Tangney et al., 2004). An overview of articles using this scale for research purposes also supported the unidimensional use of the SCS, though some researchers reported factor analysis results pointing to two factors generally labeled as general self-control ability and impulsivity (Ferrari, 2009; Slessareva & Muraven, 2004). Moreover, most of the studies measuring self-control via this scale were found to report the brief version of Self-Control Scale (BSCS)<sup>1</sup>. Considering this general trend and given that the present study aims to measure a general level of trait self-control rather than to investigate each component of self-control separately, BSCS was decided to be used in the main study.

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<sup>1</sup> BSCS is composed of items 1, 2, 3, 4, 6, 13, 17, 22, 28, 29, 30, 31, and 32.

As an indirect proof of construct validity, items of ATSCI, TCS and ADS were separately subjected to factor analyses given that all three scales were designed to measure unitary constructs in a way that they are not composed of multiple dimensions and thus they do not have subscales. An exploratory principle component analysis of ATSCI items revealed four components with eigenvalues above 1, with the first eigenvalue (4.20) being approximately three times higher than the second eigenvalue (1.52) and explaining 32.28 % of variance. When forced to one factor, the items of ATSCI had loadings between .76 and .21 with an exception of one item<sup>2</sup> which did not load on the factor. The examination of scree plot also pointed to the unidimensionality of this subscale. An exploratory principle component analysis of TCS revealed two components with eigenvalues above 1, with the first eigenvalue (2.97) being almost three times higher than the second eigenvalue (1.09) and explaining 42.48 % of variance. When forced to one factor, the items of TCS had loadings between .74 and .49 with all items loaded on the sole factor. A last exploratory principle component analysis for ADS items revealed four components with eigenvalues above 1, with the first eigenvalue (4.91) being approximately three times higher than the second eigenvalue (1.90) and explaining 40.87 % of variance. When forced to one factor, the items of ADS had loadings between .78 and .40 with all items loaded on the sole factor.

Reliability analyses run separately for the translated scales revealed sufficient alpha levels. Cronbach alpha reliabilities, means and standard deviations of the scales can be seen in Table 1. The internal consistencies were .79, .80, .77, and .87 respectively for the brief self-control scale (BSCS), attention to social comparison subscale (ATSCI), tendency to conform scale (TCS) and academic dishonesty scale (ADS). The means were 3.15, 2.31, 4.20 and 2.00, while the standard deviations were .43, .69, .90 and .93 respectively for BSCS, ATSCI, TCS and ADS for the overall sample. Item-total correlations were in the acceptable range for each item of each scale except ATSCI which revealed item-total correlations below .20 for items numbered 6 and 13. However, deletion of these two items did

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<sup>2</sup> Item 6: “Baskalarinin kullandigi argo kelimeleri alip kendi kelime dagarcigimin parcasiymis gibi kullanmaya megilli oldugumu fark ediyorum”.

not result in large increase in the internal consistency of the ATSCI (.83). Thus, they were decided to be reserved for further analysis in the main study. These results suggest that Turkish translations of BSCS, ATSCI, TCS and ADS are reliable measures with unique constructs. Although further research regarding validity studied would be needed in future for the Turkish adaptation of these scales, these results are considered to be sufficient evidence for reliability and preliminary validity for the current study.

*Table 1.* Alpha Reliabilities, Means and Standard Deviations for BSCS, ATSCI, TCS and ADS

<i>Scale</i>	<i><math>\alpha</math></i>	<i>M</i>	<i>SD</i>
BSCS	.79	3.15	.43
ATSCI	.80	2.31	.69
TCS	.77	4.20	.90
ACSI	.87	2.00	.93

### **2.1.2. PS-II: Practice for the Experimental Study and Preliminary Exercises of Manipulations for Ego-Depletion and Induced Norms**

A main concern of the current research was to experimentally investigate the separate and interactional effects of two different situational variables (i.e., ego depletion and norm influence) on cheating with a main consideration that they are generally shown to be separately related with many kind of deviant, antisocial or unethical behaviors including drug abuse, tax evasion, environmental polluting and organizational or academic dishonesty. A preliminary study was constructed for both exercising the roles designed for the experimenter and confederates provisioned in order to investigate and, in case of need, to ameliorate the experimental manipulations. Thus, the PS-II aimed to observe the separate and combinatory effects of two manipulations namely the rewriting task (i.e., *depletory writing task* or *neutral writing task*) and the norm manipulation (i.e., in-class dialogues of two confederates during the experimenter absence about deciding *to cheat, not to cheat* or *to meet with a friend after the study*). These manipulations were applied to seven different groups of undergraduate students during 2009 spring semester of Middle East Technical University within April and May. In each group, number of cheaters, their level of cheating, the group's characteristics,

confederates' observations and feedback were recorded. Moreover, in order to rate the audibility and credibility of norm manipulation dialogues and confederates' general ingroup adaptation (i.e., fit with the group versus not fit with the group), an outsider observer blind to the experimental conditions, unknown to the confederates and to the participants participated in two trials in which two different conditions of norms (i.e., *cheat* norm and *not cheat* norm) were manipulated. Given that both between group qualities and manipulations applied to each group slightly differed and that sample size was not adequate, statistical analyses are not reported for the PS-II.

### **2.1.2.1. Method**

#### **2.1.2.1.1. Design**

A 2 X 3 between subjects design with state self-control (neutral versus ego depletion) and normative-informational influence ("cheat", "not cheat" or neutral) manipulations was implemented. State self-control manipulation consisted of rewriting as quickly and as accurately as possible a mood neutral paragraph of 150 words (i.e., the Wikipedia definition of 'statistics') either exactly as it was written (neutral condition; see Appendix C – Form A) or by omitting two letters in each instance (depletory condition; see Appendix C – Form B). Rewriting a paragraph by trying to omit two frequent letters is found to deplete self-control in previous studies of ego depletion (e.g., Schmeichel, 2007) and the underlying mechanism is explained in terms of suppressing a routine or automatic response (in this case 'not writing the specified letters') given that in normal conditions of rewriting each letter in the original excerpt is rewritten (Muraven et al., 2007). The two letters to be omitted in the depletory task condition varied between the PS-II (*a/A* and *e/E*) and the main study (*a/A* and *l/L*) following that omitting *a/A* and *e/E* was found to be perceived as less consuming and easier than omitting *a/A* and *l/L* as revealed in the manipulation check ratings of PS-II.

The normative-informational influence (or the norm induction) manipulation was induced via one of the three versions of the short decision dialogue of two confederates (see Appendix G for the updated dialogues as used in the main study).

Groups were randomly assigned to one of these normative-informational influence manipulations in which two confederates talked to each other and decided either to cheat or not to cheat; a control condition was also used in which the two confederates talked to each other about a neutral subject (meeting a friend after the experiment). All three social influence manipulations were structurally designed parallel to each other in that each decision by two confederates involved both a normative component beside the usage of the same beginning and ending phrases in each dialogue. It should be noted that an informational component was added to the “cheat” dialogue during PS-II and was kept in the main study given that manipulation checks in PS-II revealed that the focus of this conversation was not clear enough for participants; however as social influence literature reveals these two components of influence are not totally distinct from each other and in many social situations they co-occur (Cialdini & Goldstein, 2004). Five separate raters blind to the manipulations rated the influential valence of each dialogue and the ratings revealed that “cheat” and “not cheat” dialogues were equivalent to each other while the “meeting” dialogue was rated as not having an influential valence. The dependent variable was the degree of cheating in the general reasoning test booklet. Each additional answer marked on the test booklet after the experimenter gathered the answer sheet was counted as one score of cheating.

#### **2.1.2.1.2. Participants**

Except the first group participants, all participants were gathered through the ads<sup>3</sup> posted on the entrance doors of university departments, library and dormitories. The first group participants were voluntarily available to the researcher from a class of students in the Department of Education. All other participants were randomly allocated into experimental or control groups in condition that students in a group were unfamiliar to each other. In other words, students who were (departmental or close) friends were not assigned to the same group. Participant number in each group ranged between 6 to 7, and at total 46 undergraduate students

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<sup>3</sup> In the ad it was written “To the attention of undergraduate students: Do you want to earn 10 TL in an half an hour? Participate to our application in the psychology department, test yourself and earn 10 TL!”

from various departments were included in the PS- II.

### **2.1.2.1.3. Materials and Procedure**

The applied procedure has been standardized in general terms except the slight changes of content in manipulations during the PS-II for the sake of amelioration. The standard procedure described here was also used in the main study after the content of the manipulations were stabilized with the last experimental group of PS-II.

Students who saw the experiment ads posted on various places in the METU campus came to the experimenter office either individually or as peer groups. Each participant was informed about the study in a way that a cover story concerning the contents of two studies was used in order to minimize participants' suspicion and lay guessings about the experimental hypotheses. Participants were told that the study covered two different studies, a survey aiming to investigate the relationship between different social attitudes and personal tendencies and an experiment aiming to investigate the relationships between a specific attention task, general mental reasoning and social attitudes; both oral and written information together with participants' signatures were provided for all participants (see Appendix A). The information about the average duration of each study (20 minutes for the survey and 50 minutes for the experiment) was also provided to students before they accept to participate. Moreover, students were also informed that they were required to participate in both studies in order to gain 10 Turkish Liras (TL). Those students who accepted to participate both studies were asked to individually complete the survey in the experimenter office and an experiment day to each participant was assigned as randomly as possible but with a consideration of time convenience for the participant (e.g. those participants who would have a formal examination just before the experiment were assigned to other free days) and more importantly a special attention was paid in order not to assign the same experiment day for participants who came as peer groups (i.e., Friends in a group were assigned to different days with an excuse of 'full group' for the days in which their friends were assigned). Moreover, participants' e-mail addresses were gathered together with an



assigned participant number in order both to remind the second study one day before the experiment and to match the scores from survey and experimental studies. No additional personal information was gathered except demographics. A minimum of 5 days inter-studies interval was obtained for all participants.

The survey package (see Appendix B) involved the self-report inventories described in PS-I (the Trait Self-Control Scale, the Tendency to Conform Scale, and the Attention to Social Comparison Information Subscale). However, the Academic Dishonesty Scale, used to measure the self-report dependent variable, was not included in the survey study and given to the participants at the end of the experimental study in order to conceal the experimental hypotheses. Although the survey part was not a main focus of PS-II, participants were required to fill in the survey in order not to cause any differentiation in motivation (i.e., to obtain 10 TL for participating one study versus two studies may result in differential levels of motivation). However, the self-report scores of these 46 participants were not considered for further analyses.

The experimental study involved two consecutive phases and it was conducted every week day at 17.30 for six to seven participants plus two confederates. The two phases consisted of the classical two-task paradigm used in running an experimental investigation of ego depletion effects with an exception of the measurement timing of the dependent variable (cheating) because of the sequential nature of manipulations. Before the first phase participants were reminded about the sequence of the experiment (i.e., an attention task, an evaluation sheet for that task, time limited general reasoning test, an inventory and an evaluation sheet for the experiment, respectively). In the first phase participants were required to rewrite as quickly and as accurately as possible a mood neutral paragraph of 150 words (i.e., the Wikipedia definition of ‘statistics’) either exactly as it was written (neutral condition; see Appendix C – Form A) or by omitting two letters in each instance (depletory condition; see Appendix C – Form B). Following the writing task participants completed PANAS which intends to measure the current mood valence, and rated 4 manipulation check questions intended to

measure the difficulty, required volition, expended energy to suppress an impulse regarding the writing task (see Appendix D). In the second phase wherein participants were asked to solve as much items as possible from a total of 56 items of the Standard Progressive Matrices – Plus version<sup>4</sup> in eight minutes, participants were first announced that those who have at least 35 right answers would receive a plus 10 TL for their outstanding performance. This prerequisite for an additional 10 TL was a within-subjects factor and was used in the current study in order to simulate in part the grading system used in education although a pass-fail situation was not considered in the current study. In other words, the education system is not totally based on a pass-fail system; thus, as GPA scores increase a sense of increased reward is perceived by students (e.g. getting BB or AA in a course are not perceived as same). Participants were also explained that the limited time was calculated by taking into account that each item should be answered both in the test booklet and the answer sheet and thus, they would be required to mark their answers simultaneously on both the the test booklet wherein each question was presented in a page and the answer sheet (see Appendix E) given that they would not be given further time at the end of eight minutes. This dual marking was one of the crucial components of the experimental design given that measuring cheating in the absence of observation is hard to achieve. Generally two different strategies are experimentally used to detect levels of cheating. The first one is to make the participants score themselves after the test is finished and let them take as much money as they earned via their scores from a money box and putting the money left in a second box; however, this strategy depends generally on unsolvable anagrams or trivia quizzes wherein the experimenter has a priori knowledge of the baseline obtainable score (which is zero in unsolvable anagrams task) (e.g., Gino, Ayal, & Ariely, 2009; Mead et al., 2009). The second strategy is to use two forms for

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<sup>4</sup> The original SPM-Plus test consist of 60 items with a gradual increase in difficulty in order to have the test taker gain a sense of logic in each items. Moreover, the original test is not meant to be used in a time limited way, rather the test taker works in his/her own pace. However, for the mere purpose of the current study and given limited time for the experiment, the most difficult four items of the SPM-Plus were omitted, the left 56 items were packed in a mixed order in a way that the more difficult items were distributed among the easier items and the participants were given eight minutes to do their best scores.

recording responses; in general experimental designs pursuing this strategy give participants a test booklet in which items and their multiple choices are included and an answer sheet in which participants are required to write down or mark each of their responses (e.g., Mazar, Amir, & Ariely, 2008). This second strategy is much more flexible in that any type of test can be used without a priori knowledge of baseline scores. After the participants tried to do their best in the general reasoning test for eight minutes, the answer sheets were taken from the participants but the test booklets were left with them as all other forms used during the experiment except the answer sheet. Just after all answer sheets were taken, a research assistant came to the class warned the experimenter at loud voice that the scoring of the test would be done on the test booklets and the answer sheets would not be used for any purpose because in prior groups many students had marked the right response in the test booklet but copied it wrong to the answer sheet. With this warning the experimenter turned toward participants and confirmed that all participants had their responses on their test booklet and then thanked to the assistant. Afterwards, the experimenter distributed a bogus inventory of Leisure Time Activities (see Appendix F; Beard & Ragheb, 1980; Karlı, Polat, Yılmaz, et al., 2008) meanwhile she had her cell phone ringing. After talking shortly on the phone, the experimenter said to the participants that she would come in five minutes and left the class in a rush. The participants were left alone for five minutes wherein one of three normative-informational influence manipulations (“cheat”, “not cheat” or “meet” conditions) was induced via the short decision dialogue of two confederates (see Appendix G). At the end of five minutes, the experimenter returned back to the class, excused for the delay and distributed the Academic Dishonesty Scale together with the manipulation check and control questions (Appendix H). This last manipulation and control check was consisted of nine-point likert type questions about the normative-informational influence manipulation (six items), the motivation for general reasoning test (4 items), the occasional familiarity and identification within the group (4 items). After all participants filled in the last manipulation and control check, the experimenter collected all forms, asked for those who had less than 35 answered items in the general reasoning test and gave 10

TL to each participant<sup>5</sup>. Lastly, all participants were orally debriefed about the aim of the study and thanked for their participation.

### **2.1.2.2. Results**

The first experimental group was available to the researcher with the aid of a professor from educational sciences. The participants ( $n = 7$ ) who were classmates voluntarily accepted to join the study and no incentives were offered. The group was randomly assigned to neutral writing-‘cheat’ norm conditions; however, given its nature, the group was decided to be considered as an opportunity of role exercising for the experimenter and the confederates. During the experiment it was noticed that the group had its own dynamic, was socially deaf to the confederates’ dialogue and was in a total honesty given that participants had come to the class for the sake of a scientific purpose rather than being rewarded. An overview of manipulation checks revealed that confederates were labeled as outsiders, the neutral writing task was perceived as a simple task and the norm inductive dialogue was either unheard or perceived as irrelevant. A comparison of test booklets and answer sheets revealed that none of seven participants cheated.

A standard procedure of sampling was maintained for the rest of the groups as described in the procedure section. In the following groups, as manipulation checks revealed, the depletory writing task (omitting e’s and a’s while rewriting) was not perceived as difficult, participants did not report any exertion of willpower and the rewritings revealed that except one or two letters, all e’s and a’s were successfully omitted. Since the task had been proved to be effective in depleting regulatory power elsewhere (Muraven, Pogarsky, & Shmueli, 2006), it was speculated that the current result might stem from Turkish youth’s daily habit of taxing short messages on cellphones by omitting vowels. In order to adapt the rewriting task for Turkish university participants, it was decided to change one

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<sup>5</sup> Those participants who had more than 35 answers and those who wanted to learn their performance on the test were told that the experimenter would check for the number of right answers after the experiment while they would wait for a few minutes. Actually, none of the participants who had more than 35 answered items scored over 35 right answers; thus, they were given their 10 TL and thanked for their contribution.

vowel (e) to be omitted with a frequently used consonant (l) in Turkish. Later experimental groups revealed that participants who did the writing task by omitting a's and l's perceived the task as difficult and they reported that they needed to suppress their impulses to the task correctly. In terms of norm dialogues, for first three groups, it was observed that the confederates were not talking loud enough to be heard; moreover, outsider observer, independent raters and participants reported that the norms used in the dialogues were not salient for the participants during the experiment given that the focus of the dialogues were not sufficiently emphasized. On the other hand, 'fit/not fit to the group' ratings by the outsider observer revealed that the confederates were in general successful in fitting to the groups in terms of being undergraduate students, chatting each other and asking questions to the experimenter. As a result, more practice with confederates was done to create a situation wherein two participants were talking to each other during the absence of the experimenter. Additionally the norm dialogues were revised in a way that 'cheat' and 'not cheat' norms were strengthened through the decision rationales made by confederates: in both dialogues the decisions to cheat or not to cheat were made more salient with the use of descriptive and injunctive norms (see Appendix I for old version of norm dialogues).

## **2.2. Main Study**

The aim of the main study was to experimentally investigate the possible effects of ego depletion and normative-informational influence (norm induction) on the frequency and the degree of cheating and to examine the relationships between trait self-control, conformity to authority, susceptibility to social influence and the self-reported frequency of past academic dishonesty. Specifically, the study experimentally examined the change in the behavioral scores of cheating in terms of state self-control manipulation (i.e., neutral versus ego-depletion conditions) and norm manipulation (i.e., ‘cheat’ norm, ‘not cheat’ norm or neutral conditions) across groups. Moreover, scores on the self-report measures of self-control and susceptibility to social influence were used in order to predict past frequency of self-reported academic dishonesty.

### **2.2.1. Design**

In terms of the self-report part of the study, one week before the experiment took place all registered participants had individually filled in Self-Control Scale (Tangney et al., 2004), Tendency to Conformity Scale (Goldsmith, Clark, & Lafferty, 2005), and Attention to Social Comparison Information Scale (Lennox & Wolfe, 1984) beside answering demographic items in the researcher office. As noted in the Appendix B, the survey package was the same as the one used in the PS-II except that the Academic Dishonesty Scale (McCabe & Trevino, 1993) was not provided in this phase in order to conserve participants’ blindness to the research hypotheses until the end of the experiment.

In terms of experimental part of the study, a 2 X 3 between subjects design was used with state self-control (neutral versus ego depletion) and normative-informational influence (via “cheat”, “not cheat” or “meet” norm) manipulations. As in the PS-II, state self-control manipulation consisted of rewriting as quickly and as accurately as possible a mood neutral paragraph of 150 words (i.e., the Wikipedia definition of ‘statistics’) either exactly as it was written (neutral condition; see Appendix C – Form A) or by omitting two letters in each instance (depletory

condition; See Appendix C – Form B). The two letters to be omitted in the depletory task condition were each instance of *a/A* and *l/L* in the text. Group of participants were randomly assigned to one of state self-control conditions. The normative-informational influence manipulation was induced via the short decision dialogue of two confederates. Groups were randomly assigned to one of these norm induction conditions in which two confederates talked to each other and decided either to cheat or not to cheat; a control condition was also used in which the two confederates talked to each other about a neutral subject (meeting a friend after the experiment). Manipulations for all three social influence conditions were structurally designed parallel to each other in that each decision by two confederates involved both a normative component beside the usage of the same beginning and ending phrases in each dialogue. It should be noted that the last versions of each dialogue was reported to be equally salient by independent raters at the end of PS-II. Moreover, no difference between ‘cheat’ and ‘not cheat’ norms were reported in terms of their influential effects, while the neutral dialogue was reported to be free of influential valence. Both informational and normative contents were kept in each dialogue; however, as social influence literature reveals, these two components of influence are not totally distinct from each other and in many social situations they co-occur (e.g., Cialdini & Goldstein, 2004). The dependent variable was the degree of cheating in the general reasoning test booklet. Each additional answer marked on the test booklet after the experimenter gathered the answer sheet was counted as one score of cheating for a given participant.

### **2.2.2. Participants**

Overall, 87 undergraduate students from various departments participated to the study. Women and men respectively constituted 43.7% and 56.3% of participants. Of all participants 25.3% were first year, 31% were second year, 28.7% were third year, and 13.8% were fourth year undergraduate students. In terms of study fields, departments were coded either as social and educational sciences or as engineering and applied sciences for all participants. Of all participants 48.3% were enrolled in social and educational sciences and 51.7% were

enrolled in engineering and applied sciences. None of the participants were from the psychology department. The age of participants ranged between 19 to 28 with the highest percentage (29.9%) in 21 years-old and the mean age of participants was 21.98 (SD = 1.58). The number of participants in each cell ranged between 14 to 16. When compared across groups, the lowest female percentage in cells was observed to be 35.7% (n = 14) and the lowest male percentage in cells was observed to be 42.9% (n = 14). Moreover, the highest mean for participants age was found to be 22.93 (SD = 1.64) and the lowest mean for participants age was found to be 21.42 (SD = 1.28).

### **2.2.3. Materials**

The demographic form included the core information such as age, sex, department, economic status of the participants. Moreover, the total years in the university, the grade level and the cumulative GPA of the participants were also asked in the demographic form.

As detailed in the PS-I, the Brief Self-Control Scale (Tangney et al., 2004), the Tendency to Conform Scale (Goldsmith), and the Attention to Social Comparison Information subscale (Lennow & Wolfe, 1984) were found to have good reliabilities and thus, were used in the the self-report part of the main study without any alteration (Appendix B). The Academic Dishonesty Scale was left as the last scale to be filled in at the end of the experimental part of the main study in order to prevent participants from understanding the rationale of the study.

As detailed in the PS-II, many forms in the experimental study were separately prepared for participants. The first form consisted of a neutral paragraph about the definition of statistics for the rewriting task with one of two different instructions and the needed space to do the task (Appendix C – Form A and B). The second form consisted of PANAS items and manipulation checks for the rewriting task (Appendix D). The third and the fourth forms consisted of the test booklet and the answer sheet (Appendix E) for the general reasoning test. The fifth form consisted of the Leisure Time Activities Scale used as a bogus inventory (Appendix



F). The sixth and last form consisted of manipulation check questions for the informational-normative influence manipulations, control questions for group identification and motivation (Appendix H) and the Academic Dishonesty Scale.

#### **2.2.4. Procedure**

All participants were randomly put into experimental or control groups in condition that students in a group were unfamiliar to each other in order to prevent the effects of close friendship and to focus them on norms as expressed by confederates. In other words, students who are (departmental or close) friends were not assigned to the same group. Participant number in each group ranged between 6 to 7. The procedure followed in the main study was the same as the procedure used in the PS-II except the ameliorations described above. To shortly repeat, one of the two vowels to be omitted in the ego-depletion condition of the rewriting task was changed with the most frequently used consonant (I/L) in Turkish. Moreover, the decision dialogues designed to manipulate the direction of the informational-normative influence (i.e., ‘cheat’ and ‘not cheat’ norms) were strengthened through the repetition of the decision, and thus the norm, by the second confederate (see Appendix G). The two confederates were actual undergraduate students from the campus and their wearings (jeans, shirts and bodies with METU logo) and accessories (student backpacks, books) were similar to other participants’ wearings and accessories. Additionally, a first interaction was induced for all participants (and thus confederates) before entering into the classroom: Participants of a given group waited together in front of the experimenter’s office for approximately ten minutes and had to check their participant numbers from the list, therefore interacting with each other at a minimal level.

#### **2.2.5. Overview of Analyses**

Following data entry into PASW18, the means for variables of interest were computed, the experimental groups were defined and three different versions of the experimental dependent variable (i.e., cheating) were calculated. One version of the experimental dependent variable was calculated by subtracting the number of items

marked in the test booklet from the number of items marked in the answer sheet and this version was named as ‘raw cheating scores’. The second version was calculated by subtracting the number of items marked in the test booklet from the number of items marked in the answer sheet and dividing the result into the number of items marked in the answer sheet. This second version was considered to take into account the performance level of each individual in terms of the rate of answering and was named as ‘performance balanced cheating scores’; however, it was dropped out of analyses because of the consideration of assumption violations. The third version was created in order to investigate the frequency of cheaters across groups and thus, those participants who did not yield any difference between two forms of the general reasoning test were coded as ‘not cheaters’ and those participants who yielded a difference between test booklet and the answer sheet were coded as ‘cheaters’ (i.e., dichotomous); this third version of the dependent variable was named as ‘coded cheating’. In terms of analyses, a number of descriptive and inferential statistics including correlations, two-way ANOVAs, nonparametric statistics and regressions were conducted.

In order to answer the first research question, a series of hierarchical regressions were conducted with a number of demographic information (i.e., sex, age and cumulative GPA) in the first block and the variables of interest in the second block in order to answer the second research question of the study. Specifically, trait self-control and attention to social comparison information scores were regressed on the academic dishonesty scores in order to examine the predictive power of these independent variables (research questions 1a and 1b).

In order to answer the second set of research questions (2a and 2b), two 2X3 ANOVAs through General Linear Models was conducted to investigate the effects of ego depletion and norm inductions for different versions of the experimental dependent variable after the manipulation checks were examined in terms of experimental manipulations. Afterwards, logistic regression for the dichotomous version of the dependent variable and nonparametric statistics were computed in order to evaluate the experimental results with precaution.

## CHAPTER III

### RESULTS

The results of the statistical analyses of the main study are presented in this chapter. First, information on the data screening and cleaning procedures is provided. Secondly, the descriptive statistics for both experimental and correlational variables are presented. Next, the findings of the hypothesis testing of self-report variables via hierarchical regression analyses followed by the findings of the hypothesis testing for experimental manipulations via two-way ANOVA, logistic regression and nonparametric analyses are provided.

#### 3.1. Data Screening

Examination of data entries revealed that one participant did not complete Academic Dishonesty Scale. Since the sample size is limited and the equality of cell sizes is critical for ANOVA (Tabachnick & Fidell, 2007), a mean score of ADS of that experimental group ( $n = 7$ ) was replaced for that participant's ADS mean score. Both univariate and multivariate outliers were screened by the researcher. There was no appearance of univariate outliers for the study variables, since the standardized z scores did not exceed the critical value of 3.23 ( $p < .001$ ). However, as Mahalanobis distance values ( $\chi^2 > 20.52$ ;  $p < .001$ ) revealed, three cases were detected as multivariate outliers and thus eliminated from further analyses, leaving 84 cases for the data analysis.

The normality and linearity of the measures were also screened through the examination of the histograms, scatter plots and P-P plots in order to meet the assumptions of the multivariate analysis. The scatter plots examined for determining the linearity of the associations between most of the study variables indicated that the linearity assumption was met except for the test cheating variables (i.e., behavioral measure of cheating). In terms of normality, most of the study variables were normally distributed again except the test cheating variable. It was decided to keep the three versions (recoded, raw and degree cheating) behavioral

measure of cheating without any transformation since the nature of cheating explains the nonnormality and nonlinearity. Specifically, the experiment was conducted in groups of six to seven participants wherein the probability of having a cheater in a given group was very low; moreover, the groups were left alone only for five minutes, other than this five minutes participants perceived a highly controlled context of the experiment and had very low or no opportunity to cheat.

### **3.2. Descriptive Statistics**

Descriptive statistics of means and standard deviations for the correlational and experimental study variables are presented in Table 2 and Table 3 respectively. The correlation matrix of the variables and the alpha coefficients of the scales are presented in Table 4. As can be seen from the descriptive statistics, the sample means for tendency to conform (4.14) and attention to social comparison information (2.42) were close to scale midpoints. However, the mean for trait self-control (3.13) was above the scale midpoint (2.5) while the mean for past academic dishonest behavior (1.86) was below the scale midpoint (2.5). In general, the standard deviations of the scale measures ranged between .51 and .92. In terms of experimental dependent variable, the means for raw and degree cheating scores (.38 and .01 respectively) were observed to be extremely low and their standard deviations were high resulting in high variance levels. However, the high number of participants ( $n = 70$ ) who did not cheat as compared to those who cheated ( $n = 14$ ) on the general reasoning test explains the extreme minimal means of the experimental dependent variable.

Table 2. The Means and Standart Deviations for the Experimental Study Variables

	<i>M</i>	<i>SD</i>	<i>Min</i>	<i>Max</i>
<b>BSCS</b>	2.95	.51	1.77	4.38
<b>TCS</b>	4.14	.92	2.29	6.00
<b>ATSCI</b>	2.42	.81	.00	4.08
<b>ADS</b>	1.86	.62	1.00	3.42

Table 3. The Means and Standart Deviations for the Correlational Study Variables

	<b>Cheat Norm</b>		<b>Not Cheat Norm</b>		<b>Neutral Dialogue</b>		<b>Cheat Norm</b>		<b>Not Cheat Norm</b>		<b>Neutral Dialogue</b>	
	<b>Ego Depletion Rewriting</b>						<b>Neutral Rewriting</b>					
	<i>M</i> ( <i>n</i> = 14)	<i>SD</i>	<i>M</i> ( <i>n</i> = 14)	<i>SD</i>	<i>M</i> ( <i>n</i> = 13)	<i>SD</i>	<i>M</i> ( <i>n</i> = 15)	<i>SD</i>	<i>M</i> ( <i>n</i> = 14)	<i>SD</i>	<i>M</i> ( <i>n</i> = 14)	<i>SD</i>
<b>Recoded Cheating Raw</b>	.29	.47	.14	.36	.15	.38	.20	.41	.07	.27	.14	.36
<b>Cheating Scores Performance</b>	1.07	1.94	.29	.83	.15	.38	.47	1.06	.07	.27	.21	.58
<b>Balanced Cheating Scores</b>	.04	.07	.01	.02	.00	.01	.02	.04	.01	.01	.00	.01

The Cronbach's Alpha reliabilities of four scales were in the acceptable range changing between .86 and .73 as seen in Table 4. Most of the associations between the study variables were in the expected directions with low to moderate magnitudes. The correlation between the trait self-control and the past academic dishonesty is in the expected direction ( $r(84) = -.29, p < .01$ ), thus congruent with the relevant literature, pointing to a lower tendency of academic dishonesty for participants with higher self-control. In terms of the tendency to conform and the attention to social comparison information which were intended to measure the conformity to authority and the susceptibility to social influence (conformity to immediate environment) respectively, their correlation were found to be moderate ( $r(84) = .32, p < .01$ ) since they are aimed to measure different facets of conformity. Unexpectedly, the conformity to authority measure was not associated with the past academic dishonesty ( $r(84) = -.03, ns$ ) but, as expected, the susceptibility to social

influence was marginally negatively correlated with the academic dishonesty ( $r(84) = .19, p < .10$ ); though nonsignificant, it may be important to note that the directions of their associations were opposite, which can be considered as a discrete sign of differentiation in the conceptualization of conformity variable. Additionally participants' sex was found to be correlated with the past academic dishonest behavior ( $r(84) = .40, p < .01$ ), suggesting that being male was associated with higher levels of academic dishonesty. Interestingly, participants' sex was also related with the decision to report the temporary absence of the experimenter during the experiment ( $r(84) = .28, p < .05$ ), suggesting that being male was associated with misreporting decision. An important significant correlation was found between the number of answered questions in the legal test period and the type of norm manipulation ( $r(84) = .40, p < .01$ ), a point to be considered at the end of the experimental results.

Table 4. Correlations between Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sex	-												
2. Education	.18	-											
3. Total Uni. Year	.37**	.68**	-										
4. Cum. GPA	-.19	.29**	.00	-									
5. Rewriting	.03	-.07	.11	.18	-								
6. Norm	-.06	-.23*	-.07	-.17	.00	-							
7. A's	-.01	.07	-.11	-.18	-.99**	.00	-						
8. L's	-.01	.06	-.12	-.17	-1.00**	.01	1.00	-					
9. mp1-a	.12	-.08	-.08	-.01	.51**	.09	-.50**	-.49**	-				
10. mp1-c	.12	-.04	.03	-.04	.38**	.10	-.37**	-.37**	.62**	-			
11. mp1-d	-.12	-.10	.01	-.09	.48**	.10	-.46**	-.47**	.55**	.55**	-		
12. Booklet Answers	.01	.05	.07	-.09	.15	.35**	-.14	-.14	.20	.10	.10	-	
13. Sheet Answers	.03	.04	.06	-.11	.13	.40**	-.13	-.13	.20	.10	.11	.99**	-
14. mp2-e	.28*	.11	.22*	.08	.15	.08	-.14	-.14	.10	.08	-.08	.03	.02
15. mp2-h	.08	.05	-.04	-.12	-.10	.20	.10	.10	.01	-.21*	-.02	.10	.11
16. mp2-j	-.15	.20	.11	.10	-.11	.04	.11	.10	.04	-.02	-.11	-.06	-.07
17. mp2-k	-.12	.00	-.09	-.18	-.12	.01	.12	.12	-.04	.00	.15	.10	.12
18. mp2-m	.13	-.08	.01	-.03	.06	-.01	-.08	-.07	.01	-.02	-.13	-.05	-.06
19. BSCS	-.13	.07	-.13	.29**	-.01	-.10	-.06	-.06	-.05	.06	-.22*	-.08	-.08
20. TCS	.11	.10	.20	-.14	-.01	.14	.03	.02	.03	.13	.06	-.11	-.07
21. ATSCI	.00	.04	.00	-.13	-.10	.04	.09	.09	.04	.15	.11	-.17	-.16
22. ADS	.40**	-.01	.18	-.25*	.08	.03	-.08	-.08	.16	.08	.18	.19	.20
23. Raw Cheat	-.13	.02	.07	.08	.12	-.23*	-.12	-.14	.06	-.02	-.07	.35**	.20
24. NA	.14	-.17	-.04	.03	.04	-.03	-.03	-.04	.27*	.20	.32**	-.09	-.13
25. PA	.13	-.19	-.06	-.09	.00	.07	.00	-.01	-.01	.01	-.10	.13	.11
26. Recoded Cheat	-.11	-.03	-.01	.03	.07	-.10	-.06	-.08	.08	.10	-.06	.47**	.36**
27. Perf. Bal. Cheat	-.12	.01	.09	.07	.12	-.25*	-.12	-.14	.04	-.04	-.08	.25	.10
28. Age	.36**	.45**	.75**	-.11	.12	-.10	-.13	-.13	-.05	.01	.01	-.02	-.01

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
15. mp2h	-.04	-												
16. mp2j	-.08	.10	-											
17. mp2k	-.26*	.03	-.08	-										
18. mp2m	-.12	.28*	.02	-.26*	-									
19. BSCS	.09	-.29*	.11	-.18	.04	<b>.73</b>								
20. TCS	-.02	.02	.23	.00	.11	.11	<b>.74</b>							
21. ATSCI	-.14	.08	.01	.12	-.05	-.13	.32**	<b>.86</b>						
22. ADS	.01	.19	-.34**	-.07	.20	-.29**	-.03	.19	<b>.85</b>					
23. Raw Cheat	.10	-.06	.06	-.11	.04	-.01	-.25*	-.11	.00	-				
24. NA	.10	.17	.00	.11	.09	-.13	-.07	.08	.21	.20	-			
25. PA	-.04	.05	.12	-.08	.24	-.15	.17	.16	.05	.15	.06	-		
26. Recoded Cheat	-.02	-.13	.04	-.11	.01	.10	-.17	-.12	-.04	.82**	.12	.18	-	
27. Perf. Bal. Cheat	.11	-.08	.08	-.13	.01	-.01	-.23*	-.09	.02	.98**	.23*	.16	.76**	-
28. Age	.17	-.10	.00	-.01	.07	-.04	.16	-.07	.23*	-.02	.02	-.06	-.06	-.01

**Note:** \*  $p < .05$ ; \*\*  $p < .01$ ;

A's = Number of A's written; L's = Number of L's Written; mp1-a = How much difficult was the rewriting task for you? (1 = Not at all – 9 = Totally); mp1-c = How much willpower did you need to finish the rewriting task? (1 = Not at all – 9 = Totally); mp1-d = How much did you attempt to fight against an impulse during the rewriting task? (1 = Not at all – 9 = Totally); mp2-e = Did the experimenter leave the classroom during the application? (1 = Not at all – 9 = Totally); mp2-h = According to you, to what extent the content of the dialogue would be perceived as appropriate by other students in the class? (1 = Not at all – 9 = Totally); mp2-j = If you had continued the general reasoning test after the time was over, to what extent do you think that it would be detectable? (1 = Not at all – 9 = Totally); mp2-k = Was there any person familiar/konwn to you in the application group? (1 = Not at all – 9 = Totally); mp2-m = To what extent do you think that the application group represented you in some way? (1 = Not at all – 9 = Totally).



### 3.3. Hypothesis Testing

#### 3.3.1. Self-Report Results

In this section, self-report data from 84 participants is examined in order to investigate the predictive power of trait self-control and susceptibility to social influence on the frequency of past academic dishonesty.

Alpha reliabilities for the Brief Self-Control Scale, the Attention to Social Comparison Information subscale, the Tendency to Conform Scale and the Academic Dishonesty Scale were computed for the current sample; the reliability scores were found to be .73, .86, .74, and .85 respectively. Since the correlation between the conformity to authority (TCS) and academic dishonesty (ADS) was found to be nonsignificant ( $r(84) = -.03, ns$ ), this variable was omitted from further analyses. Hierarchical linear regressions were performed to investigate separate associations of major demographic variables (sex, age and cumulative GPA) which were found to be correlated with the academic dishonesty, and the variables of concern (trait self-control and susceptibility to social influence).

The results of the first hierarchical regression analysis in which all demographic variables of interest are entered in the first step and independent variables in the second step are presented in Table 5. In step 1, participants' sex, age and cumulative GPA were regressed on the academic dishonesty. In step 2, trait self-control and ATSCI scores were regressed on the academic dishonesty. Results revealed that in step 1, sex ( $\beta = .34, p < .001$ ) was a significant predictor of the scores on the academic dishonesty; thus, being male was positively related with academic dishonesty. Additionally, the cumulative GPA ( $\beta = -.17, p < .10$ ) appeared as a marginally significant predictor of the scores on the academic dishonesty in a way that low cumulative GPA was also found to be a factor associated with academic dishonesty. Overall, these predictors explained 20 % of the variance in past academic dishonesty. The addition of trait self-control and ATSCI scores in the second step resulted in a 7 % increase in the explained variance, which was marginally significant ( $p < .10$ ). Both the susceptibility to social influence ( $\beta = .16,$

$p < .10$ ) and the trait self-control ( $\beta = -.19, p < .10$ ) were found to be marginally significant predictors of the academic dishonesty. Thus, higher levels of being susceptible to social influence (i.e., attending to what others do and say to mimic them) was a marginal factor in terms of past behavior of academic dishonesty. These findings indicated that being male, having a low cumulative GPA and being susceptible to social influence were positively associated with the frequency of past academic dishonesty.

Table 5. Hierarchical Regression Analysis of Academic dishonesty with demographic variables, Trait Self-Control and Susceptibility to Social Influence

Variable and statistic	Step 1				Step 2			
	B	SE B	$\beta$	$t$	B	SE B	$\beta$	$t$
Step 1.								
Sex	.42	.14	.34**	3.12	.40	.14	.34**	3.12
Age	.04	.04	.09	.81	.04	.05	.09	.81
Cumulative GPA	-.09	.05	-.17*	-1.69	-.05	.05	-.17	-1.69
Step 2.								
BSCS					-.23	.12	-.19*	-1.89
ATSCI					.12	.08	.16*	1.64
$N$				84				84
$F$				6.64***				3.47**
$df$				80				78
$R^2$				.20				.27
Adjusted $R^2$				.17				.22
Change in $R^2$								.07**

Note. \*  $p < .10$ . \*\*  $p < .05$ , \*\*\*  $p < .001$

Results of the second hierarchical regression analysis in which sex is entered in the first step and the independent variables in the second step are presented in Table 6. In step 1, since being male was found to be a strong predictor of past academic dishonesty, participants' sex was regressed on the academic dishonesty. In step 2, trait self-control and ATSCI scores were regressed on the academic dishonesty. Results revealed that in step 1 sex ( $\beta = .40, p < .001$ ) was a significant predictor of the scores on the academic dishonesty with an explained variance of 16 %. The addition of BSCS and ATSCI scores in the second step resulted in 8 % increase in the explained variance. The trait self-control was found to be a

significant predictor of academic dishonesty ( $\beta = -.22, p < .05$ ) whereas the susceptibility to social influence was found to marginally predict the academic dishonesty ( $\beta = .16, p < .10$ ). These findings were consistent with the initial hierarchical regression results indicating sex, trait self-control and the susceptibility to social influence as predictors of the past behavior of academic dishonesty.

*Table 6.* Hierarchical Regression Analysis of Academic dishonesty with Sex, Trait Self-Control and Susceptibility to Social Influence

Variable and statistic	Step 1				Step 2			
	B	SE B	$\beta$	<i>t</i>	B	SE B	$\beta$	<i>t</i>
Step 1.								
Sex	.50	.13	.40***	3.99	.47	.12	.38***	3.84
Step 2.								
BSCS					-.26	.12	-.22***	-2.12
ATSCI					.13	.08	.16*	1.68
<i>N</i>				84				84
<i>F</i>				15.96***				8.71**
<i>df</i>				82				80
<i>R</i> <sup>2</sup>				.16				.25
Adjusted <i>R</i> <sup>2</sup>				.15				.22
Change in <i>R</i> <sup>2</sup>								.08**

Note. \*  $p < .10$ . \*\*  $p < .05$ , \*\*\*  $p < .001$

### 3.3.2. Experimental Results

In this section, findings for manipulation checks, the possible mood effects, trait equivalence for experimental groups and effects of state self-control (i.e., rewriting task) and norm induction on cheating are presented. Experimental data was analyzed in order to investigate the main and interaction effects of state self-control and informational-normative influence norm manipulations. As already noted the dependent variable was coded in three different forms: Raw scores of cheating computed by subtracting the number of answered questions in answer sheets from those in the test booklet, performance balanced scores of cheating computed by dividing raw scores of cheating by the number of answered questions in the answer sheet and the frequency of cheaters recoded as 0 (not cheater) versus 1 (cheater); results for three versions of the dependent variable are presented.

#### 3.3.2.1. Manipulation checks

As an indirect way of investigating group differences in terms of experimental manipulations, participants were given a few questions on a nine-point likert scale regarding the rewriting task and the talkings during the experimenter absence.

Regarding the rewriting task difficulty (i.e., mp1 – a), the one-way ANOVA revealed that participants in the ego depletion condition ( $M = 4.54$ ,  $SD = 1.73$ ) found the task more difficult as compared with the participants in the neutral task condition ( $M = 2.52$ ,  $SD = 1.70$ ), [ $F(1, 82) = 29.29$ ,  $p < .001$ ,  $\eta^2 = .26$ ]. Regarding the willpower participants needed to finish the task correctly (i.e., mp1 – c), participants in the ego depletion condition ( $M = 5.12$ ,  $SD = 2.17$ ) reported to have required more willpower than the participants in the neutral task condition ( $M = 3.33$ ,  $SD = 2.31$ ), [ $F(1, 82) = 13.42$ ,  $p < .001$ ,  $\eta^2 = .14$ ]. Regarding the inhibition of any impulse (i.e., mp1 – d), much more impulse inhibition was reported to be exerted in the ego depletion condition ( $M = 4.76$ ,  $SD = 2.53$ ) as compared with the neutral task condition ( $M = 2.40$ ,  $SD = 1.85$ ), [ $F(1, 82) = 23.98$ ,  $p < .001$ ,  $\eta^2 = .23$ ].

In terms of norm manipulations via the decision dialogues of two

confederate (i.e., ‘cheat’, ‘not cheat’ norms or neutral condition), as expected, participants in the ‘not cheat’ norm condition ( $M = 5.24, SD = 2.72$ ) reported that the dialogue would be more reasonable/appropriate for other participants<sup>6</sup> as compared with participants in the ‘cheat’ norm ( $M = 3.00, SD = 2.50$ ) or neutral condition ( $M = 4.60, SD = 2.86$ ), [ $F(2, 59) = 3.17, p < .05, \eta^2 = .10$ ]. Moreover, there were significantly fewer participants (% 56,  $n = 14$ ) in the ‘cheat’ norm condition, who preferred to report that there had been a dialogue between participants during the five minute absence of the experimenter<sup>7</sup> when compared with participants in the ‘not cheat’ norm (% 83.3,  $n = 20$ ) and neutral conditions (% 81.5,  $n = 22$ ), [ $\chi^2(2) = 6.03, p < .05$ ]. This significance may point that the ‘cheat’ dialogue was less salient for the participants; alternatively it may be that the participants exposed to the ‘cheat’ norm dialogue were likely to hide the ‘cheater’ or not to denounce him/her. When asked for the possibility of detection<sup>8</sup> as an indirect proof of participants’ blindness to norm induction manipulations, the difference between norm groups was not significant [ $F(2, 78) = 1.41, ns$ ]. Thus, it can be deduced that the participants were not suspicious about the norm induction dialogues. On the other hand, it should be noted that there were three additional questions<sup>9</sup> to assess whether the groups changed in terms of norm inductions and it was unexpectedly found that differences across the groups for these three questions were not significant. Specifically, the groups did not differ in reporting the absence of the experimenter during five minutes [ $F(2, 80) = .684, ns$ ], in reporting whether they heard the content of the dialogue during her absence [ $F(2, 67) = 2.13, ns$ ] and in reporting the reasonability/appropriateness of the dialogue for themselves [ $F(2,$

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<sup>6</sup> mp2-h = According to you, to what extent the content of the dialogue would be perceived as appropriate by other students in the class? (1 = Not at all – 9 = Totally)

<sup>7</sup> mp2-f = Had there been any conversation during the experimenter absence? (1 = Yes; 2 = No)

<sup>8</sup> mp2-j = If you had continued the general reasoning test after the time was over, to what extent do you think that it would be detectable? (1 = Not at all – 9 = Totally)

<sup>9</sup> mp2-e = Did the experimenter leave the classroom during the application? (1 = Yes; 2 = No)

mp2-g = Did you hear the content of the dialogue that took place during the experimenter absence? (1 = Yes; 2 = No)

mp2-i = To what extent do you think that the content of the dialogue was appropriate? (1 = Not at all – 9 = Totally)

58) = 2.01, *ns*]. It may be speculated that these insignificant results show that the participants were reluctant to report what happened in the classroom rather the ineffectiveness of norm inductions since there were significant differentiations between norm groups as assessed by two questions (*mp2-f* and *mp2-h*); in fact it was observed that participants did not want to report these instances and asked the experimenter whether they should report it. The means, standard deviations and associations between the norm induction manipulation checks and the three versions of the experimental dependent variable are provided in Appendix K.

### **3.3.2.2. The possible mood effects on ego depletion**

In the current literature, one alternative explanation for the effects of ego depletion on subsequent tasks is considered to be the mood valence (e.g., Schmeichel, Vohs, & Baumeister, 2003). Specifically, either a negative or a positive mood may mediate the relationship between subsequent task performance and ego depletion. In order to investigate whether either Positive or Negative Affect as measured with PANAS (Watson et al., 1988) change as a function of state self-control manipulation, univariate ANOVAs were conducted. Results revealed that neither PA [ $F(1, 82) = .00, ns, \eta^2 = .00$ ] nor NA [ $F(1, 82) = .11, ns, \eta^2 = .00$ ] changed as a function of experimental manipulation. Specifically, participants on the depletory rewriting task condition ( $M_{positive} = 2.92, SD = .59; M_{negative} = 1.59, SD = .63$ ) reported PA and NA states equivalent to participants on the neutral rewriting task condition ( $M_{positive} = 2.91, SD = .75; M_{negative} = 1.55, SD = .50$ ).

### **3.3.2.3. Trait equivalences across experimental groups**

It should be noted that the dispositional characteristics of the participants in terms of the study variables may account for differences in cheating across groups. Since the current research also aims to investigate the variables of interest both contextually and dispositionally, it is crucial to detect such an effect. Thus, in order to test the alternative hypothesis that levels of cheating change as a function of trait self-control, conformity to authority and/or susceptibility to social influence, series of univariate ANOVAs were conducted. Results for each disposition of interest

revealed that participants' dispositional means in each condition were equivalent to each other. Specifically, participants differed in terms of trait self-control scores neither across the rewriting task conditions [ $F(1, 82) = .01, ns, \eta^2 = .00$ ] nor across the norm conditions [ $F(2, 81) = 2.35, ns, \eta^2 = .06$ ]. Thus, participants in the ego depletion condition ( $M = 2.96, SD = .55$ ) had similar mean scores on trait self-control with the participants in the neutral rewriting condition ( $M = 2.96, SD = .49$ ) and participants in the 'cheat' ( $M = 3.09, SD = .57$ ), 'not cheat' ( $M = 2.80, SD = .48$ ) and neutral ( $M = 2.97, SD = .47$ ) norm conditions did not differ in their trait self-control scores. In terms of conformity, participants differed neither across the rewriting task conditions [ $F(1, 78) = .01, ns, \eta^2 = .05$ ] nor across the norm conditions [ $F(2, 78) = 1.02, ns, \eta^2 = .05$ ]. Thus, participants in the ego depletion condition ( $M = 4.14, SD = .14$ ) had similar mean scores on tendency to conform with the participants in the neutral rewriting condition ( $M = 4.15, SD = .14$ ) and participants in the 'cheat' ( $M = 3.94, SD = .17$ ), 'not cheat' ( $M = 4.23, SD = .17$ ) and neutral ( $M = 4.26, SD = .18$ ) norm conditions did not differ in their tendency to conform. Lastly, in terms of susceptibility to social influence as measured with ATSCI, participants differed neither across the rewriting task conditions [ $F(1, 78) = .81, ns, \eta^2 = .05$ ] nor across the norm conditions [ $F(2, 78) = .60, ns, \eta^2 = .05$ ]. Thus, participants in the ego depletion condition ( $M = 2.34, SD = .13$ ) had similar mean scores on susceptibility to social influence with the participants in the neutral rewriting condition ( $M = 2.50, SD = .13$ ) and participants in the 'cheat' ( $M = 2.32, SD = .15$ ), 'not cheat' ( $M = 2.55, SD = .16$ ) and neutral ( $M = 2.40, SD = .16$ ) norm conditions did not differ in their levels of susceptibility.

In addition to manipulation check questions and trait equivalences, some general control questions were asked at the end of the experiment for assessing participants' motivation for the experiment and for the general reasoning test, familiarity to other participants and social identification with the group (for their means, standard deviations and correlations with three versions of the experimental DV, see Appendix K). Multiple one way ANOVAs with experimental groups coded

from one to six<sup>10</sup> were conducted in order to test whether there were differences across groups in terms of participants' motivation for the experiment and for the general reasoning test, familiarity to other participants and social identification with the group. The results revealed that the groups did not differ in these control questions. Specifically, in terms of their motivation, the participants equally thought that the money paid for the experiment was satisfactory [ $F(5, 83) = 1.15, ns$ ]; they equally reported that they tried their best to find the right answers in the general reasoning test [ $F(5, 83) = .68, ns$ ]; they were motivated to find the right answers in the general reasoning test [ $F(5, 83) = .69, ns$ ] and to have been motivated to do at least 45 questions in the general reasoning test [ $F(5, 83) = .97, ns$ ]. In terms of the familiarity to other participants, the participants did not differ across groups for their answers to the question "Were there people you know in the group?" [ $F(5, 83) = 1.54, ns$ ]. Lastly, in terms of the social identification level with the group, the participants across experimental conditions reported equal levels of common point between themselves and other participants [ $F(5, 82) = .53, ns$ ] with the approximately half of the participants ( $n = 41$ ) thinking to have a common point and the other half ( $n = 42$ ) thinking not to have any common point, of group representing themselves [ $F(5, 83) = .85, ns$ ] and of identification that felt with the group [ $F(5, 83) = 1.42, ns$ ]. However, as can be understood from the overall means, participants' level of identification were generally low which can be interpreted as emerging group differences would not stem from social identification.

#### **3.3.2.4. Effects of ego-depletion and induced norm types on cheating**

The main predictions for the experimental study were that both ego depletion and norm manipulations would have main effects on the levels of cheating in the general reasoning test; thus, levels of cheating and number of cheaters were expected to vary across conditions of the rewriting task and of induced norm separately. Specifically, it was hypothesized that there would be more cheaters

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<sup>10</sup> Experimental groups: 1 = Cheat-Deplete; 2 = Cheat-No Deplete; 3 = Not Cheat-Deplete; 4 = Not Cheat-No Deplete; 5 = Neutral dialogue-Deplete; 6 = Neutral Dialogue-No Deplete



(recoded as 0-1) in the depletory task condition as compared with the neutral task condition and that participants who were on the depletory rewriting task condition would attempt to cheat more (coded as raw and degree cheating) on the general reasoning test during the experimenter five minutes absence. Moreover, more cheaters (recoded as 0-1) were expected in the 'cheat' norm condition as compared to the 'not cheat' and neutral norm conditions and thus, participants who were on the 'cheat' norm condition during the experimenter absence were expected to cheat more (coded as raw and degree cheating) when compared with those who were on the 'not cheat' and neutral norm conditions. In terms of 'not cheating' versus neutral norm induced conditions, it was expected that participants' in the 'not cheating' norm condition would cheat less than the participants in the neutral condition and also fewer cheaters were expected in the 'not cheating' norm condition. Specific hypotheses were not put forward in terms of interactional effects of ego depletion and norm induction since, depending on the individual motivation, the content of norms may have differential effects on cheating behavior regardless of their influential valence; however possible interactional effects were explored during experimental analyses.

In order to test experimental hypotheses, first 2 (Rewriting task type) X 3 (Norm induction) between-subjects two-way ANOVAs were performed for three versions of the dependent variable. In the current study, minimum cell sizes ( $n = 10$ ) were met for conducting analysis of variance; moreover, the ratio of the smallest cell size ( $n = 13$ ) to the larger cell size ( $n = 15$ ) was found to be low than 1:4. However, an important consideration was that Homogeneity of Variance (HoV) assumption which is considered as a precondition for Analysis of Variance (Tabachnick & Fidell, 2007) was not met for raw and performance based cheating scores as opposed to recoded cheating. In this condition, while ANOVA is proposed to be robust to HoV and the effects of heterogeneity of variance on Type I error a minimal if cell sizes are equal (Lindman, 1974; Zar, 1996), conventional strategies generally advise either using statistical transformation for the dependent variable or performing non-parametric tests (Judd, McClelland & Culhane, 1995). Since the use of statistical transformations limits the interpretation of results to the

transformed scores (Tabachnick & Fidell, 2007), the second strategy (performing non-parametric tests) besides parametric tests was chosen for the current study. Moreover, an investigation for the alternative strategies for conducting ANOVA in the case of HoV violation revealed that Fmax can be calculated instead of Levene's test. In the current study, Fmax for each versions of the dependent variable are calculated and reported. Tabachnick and Fidell (2007) suggest that when cell sizes are relatively equal, an Fmax as great as 10 is acceptable for performing ANOVA. In this study, the ratio of the largest cell size to the smallest one was less than two and the Hartley's Fmax ratio was 7.97 for raw scores of cheating while it was 65.50 for performance balanced cheating scores. Therefore, two-way ANOVA findings are reported for the recoded cheating (for the use of ANOVA with dichotomous data, see Lunney, 1970) and raw cheating dependent variables. However, the performance balanced cheating scores as a dependent variable was dropped out from further analyses. Thus, in this section, parametric results based on two-way ANOVAs beside the logistic regression and nonparametric results based on Mann-Whitney U and Kruskal-Wallis Independent Samples Tests are presented for assessing the effects of ego depletion and norm manipulations on cheating in a general reasoning test.

### ***Parametric Results***

Between-subjects two-way ANOVAs were conducted for raw scores of cheating and recoded cheating as dependent variables. With recoded cheating as the dependent variable wherein Levene's test for equality of variances was found to be nonsignificant ( $F = 1.98, p = .09$ ), the two-way analysis of variance did not yield significant results (see Table 7). Specifically the main effect for the norm induction [ $F(2, 78) = .95, p = .39, \eta^2 = .02$ ], the main effect for the rewriting task [ $F(2, 78) = .45, p = .50, \eta^2 = .01$ ] and the interaction effect [ $F(2, 78) = .08, p = .93, \eta^2 = .00$ ] were found to be nonsignificant.

Table 7. 2x3 ANOVA Results for dichotomous cheating

Source	SS	df	MS	F	Sig.	$\eta^2$
Rewriting Task	.07	1	.07	.45	.50	.01
Norm Induction	.28	2	.14	.95	.39	.02
Rewriting Task X Norm Induction	.02	2	.01	.08	.93	.00
Error	11.31	78	.15			

With raw cheating scores as the dependent variable, the two-way analysis of variance wherein Levene's test revealed unequal variances ( $F = 1.98, p < .001$ ) but  $F_{max}$  (7.97) was below the critical value (10) for relatively equal cell sizes as suggested by Tabachnick and Fidell (2007), yielded a significant main effect for the norm induction [ $F(2, 78) = 3.18, p < .05, \eta^2 = .07$ ]; however, the main effect for the rewriting task [ $F(2, 78) = 1.30, p = .26, \eta^2 = .02$ ] and the interaction effect [ $F(2, 78) = .76, p = .47, \eta^2 = .02$ ] were found to be nonsignificant (Table 8). Post hoc comparisons with Bonferroni for the norm induction revealed that participants in the 'cheat norm' condition ( $M = .77, SD = .19$ ) cheated marginally more than the participants both in the 'not cheat norm' condition ( $M = .18, SD = .19$ ) and in the neutral conditions ( $M = .18, SD = .20$ ), (respectively,  $p = .10$  and  $.11$ ) cheated. However, comparisons between the 'not cheat norm' and neutral conditions ( $p = 1.0$ ) were found to be nonsignificant.

Table 8. 2x3 ANOVA Results for Raw Cheating Scores

Source	SS	df	MS	F	Sig	$\eta^2$
Rewriting Task	1.34	1	1.34	1.30	.26	.02
Norm Induction	6.55	2	3.28	3.18	.05	.07
Rewriting Task X Norm Induction	1.57	2	.78	.76	.47	.02
Error	80.50	78	1.03			

As the bivariate associations between the study variables reveal (Table 4), the number of answered questions in the legal test period (Raven Sheet Answers) was highly correlated with both recoded cheat dependent variable ( $r(84) = .40, p < .001$ ) and moderately correlated with the type of norm manipulation ( $r(84) = .40, p < .01$ ). The first association should be considered as an indication of

covariate factor affecting the number of cheaters in experimental groups; however, the second association reveals that those who were in the neutral norm condition had answered more questions during the legal period of test; thus, they might have slightly higher motivation to cheat. Thus, although the first association suggests that analysis of covariance with sheet answers on the covariate may offer additional explanations for the effects of experimental manipulations on the level and frequency of cheating, an association between the experimental treatment and the potential covariate is considered as a violation of the independence of the treatment and covariate assumption of ANCOVA and thus to result in spurious findings of ANCOVA and increased risk of Type I error (Evans & Anastasio, 1968; Tabachnick & Fidell, 2007). In conclusion, for the sake of stringency of statistical analysis and to prevent spurious interpretations, the analysis of covariance was not performed in the current study.

Following two-way ANOVAs, a hierarchical logistic regression<sup>11</sup>, controlling for Raven Sheet Answers was conducted for the dichotomous version of the dependent variable (i.e., cheating recoded as 1 and not cheating recoded as 0) since without controlling for sheet answers, the effect of norm induction was only marginally significant. A test of the model with Raven Sheet Answers on the first block and the two predictors in the second block against a constant-only model was statistically significant,  $\chi^2(4, N = 84) = 8.15, < .05$  (See Table 9). Using cut off probability of .5, 89.3% of cases were correctly classified. Considering the proportions by chance accuracy criteria (72.2%), model classified the cases more than by chance. Thus, out of 84, 14 participants cheated during the experimenter absence while 70 of them did not cheat. Consistent with previous results, the examination of individual predictors revealed that ego depletion manipulation failed to reach significance level (*Wald's*  $\chi^2 = .07, ns$ ) while norm induction was found to

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<sup>11</sup> Considering small sample size and the correlation between Raven Sheet Answers and Norm Manipulation type, multicollinearity diagnostics were investigated prior to the logistic regression analysis and values of Variance Inflation Factor (VIF) were smaller than 2.5 (Neter, Kutner, & Nachtsheim, 1996). Moreover, bootstrapping was conducted in order to eliminate the chance factor; although Standard Errors were slightly larger, significance level for the variables of interest were approximately similar.

be a significant predictor of cheating (*Wald's*  $\chi^2 = 6.54, p < .05$ ). Specifically, the odds of cheating for those participants who were in the 'cheat' norm induction ( $\beta = 2.65, p < .05$ ) were 14 times higher than the odds of cheating for participants in the neutral condition ( $\beta = 2.65, p < .05$ ), controlling for their formal performance in the general reasoning test.

*Table 9. Hierarchical Logistic Regression Analysis of Recoded Cheating as a Function of Ego Depletion and Norm Induction*

Variables	<i>B</i>	<i>SE B</i>	<i>Wald's</i> $\chi^2$	<i>Exp (B)</i>	<i>CI</i>	
					<i>Lower</i>	<i>Upper</i>
Raven Sheet Answers	.23	.07	11.53**	1.26**	1.10	1.43
'Cheat' Norm vs. Neutral condition	2.65	1.08	5.97*	14.08*	1.69	117.44
'Not Cheat' Norm vs. Neutral condition	1.18	1.05	1.26	3.25	.41	25.55
Ego Depletion	.17	.68	.07	1.19	.32	4.48
Constant	-10.26	2.74	14.02			

Note: *Nagelkerke*  $R^2 = .33$ ; *Hosmer-Lemeshow*  $\chi^2 (8) = 12.54, ns$ ; Neutral Norm condition was coded as 0; \* $p < .05$ , \*\* $p < .01$ .

A general view of these results suggests that ego depletion appears to affect neither the level nor the frequency of cheating in experimental groups while the induction of informational-normative influence dialogues appears to have some impact over the level and the frequency of cheating; specifically, the induction of 'cheat' norm tends to increase the likelihood of cheating when controlled for differences in formal test performance. Considering low levels of effect sizes, these results should be interpreted with caution.

### ***Nonparametric Results***

In case of violation of HoV assumption, conventional methods propose the use of nonparametric tests though these statistical tests are considered to result in decreased power and effect size. Thus, nonparametric tests were also performed with each versions of the dependent variable for further examination of the effects of ego depletion and norm induction since the HoV assumption was not met for the current data besides the nonnormal distribution of cheating scores.

The effects of ego depletion on cheating were examined with Mann-Whitney U Independent Samples tests. As seen in the Table of nonparametric test results (see Table 10), participants who took depletion version of rewriting task ( $n = 41$ ) did not significantly differ from the participants who took neutral version of the rewriting task ( $n = 43$ ) in terms of raw cheating scores [ $U(1) = 936.50, Z = .76, ns$ ] and performance balanced cheating scores [ $U(1) = 933.00, Z = .71, ns$ ]. Moreover, the two groups did not significantly differ from each other in terms of the number of cheaters [ $U(1) = 930.50, Z = .68, ns$ ].

The effects of norm induction on cheating were examined with Kruskal-Wallis Independent Samples tests. As seen in the Table of test nonparametric results (see Table 10), participants did not differed across norm groups in terms of raw cheating scores [ $\chi^2(2) = 2.57, ns$ ] and performance balanced cheating scores [ $\chi^2(2) = 2.67, ns$ ]. Moreover, the groups did not significantly differ from each other in terms of the number of cheaters [ $\chi^2(2) = 1.92, ns$ ].

*Table 10.* Nonparametric test results

	<i>U</i>	<i>z</i>	<i>df</i>	<i>Sig.</i> (two-tailed)
Raw Cheating	936.50	.76	1	.45
Performance Based Cheating	933.00	.71	1	.48
Recoded Cheating	930.50	.68	1	.50
	$\chi^2$	<i>df</i>	<i>Sig.</i> (two-tailed)	
Raw Cheating	2.57	2	.28	
Performance Based Cheating	2.67	2	.26	
Recoded Cheating	1.92	2	.38	

## CHAPTER IV

### DISCUSSION

The primary goal of the current study was to explore the relationships between trait self-control, susceptibility to social influence, conformity to authority and academic dishonesty and to investigate the effects of ego depletion and norm induction on cheating. Thus, in the light of recent findings and comments on self-control (Mead et al., 2009) and social influence (Gino, Ayal, & Ariely, 2009) in terms of academically dishonest behavior and with an integrative framework of situational and dispositional factors related with academic dishonesty, the current thesis had two complementary focuses. The first aim was to investigate the possible relationships between self-control, the tendency to conform and the susceptibility to social influence as trait factors in predicting (reported) academically dishonest behavior based on a correlational study. The second aim was to experimentally explore the situational component of self-control (i.e., ego depletion) with an emphasis on contextual differences (i.e., norm induction) manipulated via the decision dialogues of two confederates on cheating.

In this chapter, the findings of this study and the theoretical and practical implications are discussed and the limitations of the study followed by the suggestions for future research are presented.

#### **4.1. Dispositional/Trait Perspective to Academic Dishonesty: Interpretation of Correlational Results**

First aim of this study was to investigate the same concepts of self-control and conformity in terms of their associations with academic dishonesty from a dispositional perspective. In line with this aim, a preliminary study was conducted to assess the reliabilities of the scales translated in Turkish for the purpose of this study. More specifically, the Turkish versions of the trait Self-Control Scale (Tangney et al., 2004), the Tendency to Conformity Scale (Goldsmith, Clark, & Lafferty, 2005), the Attention to Social Comparison Information Subscale of the

Concern for Appropriateness Scale (Lennox & Wolfe, 1984) and the Academic Dishonesty Scale (McCabe & Trevino, 1993) were found to have good reliabilities in a sample of 230 participants.

A conceptual differentiation between conformity to authority and susceptibility to social influence was crucial in terms of comparing the experimental and correlational results; thus, two different self-report measures of “conformity”, one tapping on a tendency to conform and the other tapping on a tendency of being influenced by others, were used in the current study. Unfortunately, exploratory analyses showed that tendency to conform to the authority measured with the Tendency to Conformity Scale (Goldsmith, Clark, & Lafferty, 2005) failed to associate with self-reported academic dishonesty and thus was removed from further analyses.

Results of the hierarchical regressions showed that being male, having a low cumulative GPA, low self-control and being susceptible to social influence were factors predicting the frequency of past academic dishonesty in a sample of 84 undergraduate students. As expected, the low trait self-control was found to be a significant predictor of academic dishonesty and the susceptibility to social influence marginally predicted academic dishonesty. Thus, in terms of the correlational hypotheses of the current study, the *H#1a* was partially supported since being conformist toward the authority was not found to be related with academic dishonesty and the *H#1b* was supported. In fact most of the explained variance was attributed to demographic variables (sex and cumulative GPA) and low self-control together with a high tendency to conform to group or peer norms were successful in explaining only a small variance in academic dishonesty. These results may point to the need of including other dispositional variables such as deficiency in study skills or test anxiety in the explanation of academic dishonesty.

Major work on trait self-control from both social psychology and criminology disciplines has provided powerful evidence that compared with those low in trait self-control, people high in trait self-control are better at avoiding addictive behaviors, criminal acts and responding to other people in prosocial,



constructive ways (e.g., Finkel & Campbell, 2001; Grasmick et al., 1997; Mischel et al., 1988; Tangney et al., 2004). Similarly, past sociological research linked conformity to authority and to rules in general as a function of social integration with lower levels of deviant and criminal tendencies (Akers, 1998; Welch, Tittle, Yonkoski, Meidinger, & Grasmick, 2008). The current research data supported these highly challenging relationships since participants who were lower on trait self-control reported higher levels of past behavior of academic dishonesty. Although the current data was small in sample and is not sufficient to deduce conclusions, in the light of current findings it can be suggested that trait self-control is one of the correlates of cheating if one considers that acts of academic dishonesty are also a function of dynamic situational factors as shown in the experimental results of the current study. In fact, from a sociological point of view, Bolin (2004) argued that the absence of self-control appears to be a valid explanation for cheating that takes place impulsively in a situation of opportunity while the construct does not sufficiently to explain why some students do not cheat when cheating may be in their interest in short term. In line with this argument, Gottfredson and Hirschi (1990) remarked that low self-control does not inevitably lead to crime or deviant behavior, which also implies that other factors affect the predicted association between self-control and misconduct though they also theoretically antagonized that variables such as morality, strain, peer influences, and social bonds have much influence as independent causes of crime. Although deviant behavior or criminal tendencies can be too general and labeling in categorizing cheating, low self-control has been shown to be related with any kind of socially disapproved and legally sanctioned behaviors given its conceptual closeness with impulsivity. On the other hand, Baumeister and colleagues (2006) explicitly denoted that ego depletion can reduce the association between traits and behavior when the motivation to regulate one's behavior is considered as a trait factor since people who exerted their self-control with a preliminary task become less able to regulate their behavior relatively independently from individual trait differences.

Cheating as an instance of unethical behavior should be also considered in terms of broad socially dynamic phenomena rather than being reduced to a mere

example of impulsivity. The marginally significant predictive power of the susceptibility to social influence (i.e., being conformist in group situations) underlines that apart from social influence processes as a major situational factor affecting the frequency and the level of cheating in groups, being conformist in social aggregates can be an important dispositional variable related with academic dishonesty beside low self-control. Conformity in general is conceptualized as the compliance with authority, conformity to rules and regulations, and social integration in broad terms when psychological dispositions, personality traits (Roccas, Sagiv, Schwartz, et al., 2002) or disorders (e.g., Antisocial Personality Questionnaire; Blackburn, 1999) rather than social situations are considered as a main focus of investigation. Specifically, researchers who focus on organizational integrity make use of the concept of social conformity generally defined in terms of adherence to organizational norms and conformity to rules and regulations as an indicator of organizational adaptation and integration (Berry, Sackett, & Wiemann, 2007). However, the current study differentiated being conformist toward group norms or descriptive norms in general from being conformist toward authority and showing compliance with laws and regulations since the outcomes of being conformist can vary greatly as a function of the source group or figure. Unfortunately, current results did not show any association between conformism to authority and past frequency of academic dishonesty. Thus, it can be concluded that being conformist to authority figures or to rules and regulations in general may not guarantee lower levels of academic dishonesty whereas it seems that low self-control is a potential risk factor for academic dishonesty and being likely to conform to social entourage and peers has some predictive value on academic dishonesty.

#### **4.2. Situational/State Perspective to an Instance of Cheating: Interpretation of Experimental Results**

In terms of the experimental aims of the current study, the hypotheses (2a and 2b) were partly supported in that the induction of different norms concerning cheating resulted in a change in the level and the frequency of cheating (*H#2b*) while the manipulation of state self-control as conceptualized in terms of ego

depletion patterns did not result in different levels and frequencies of cheating across groups (*H#2a*). As revealed in 2x3 between subjects ANOVA results for raw scores of cheating and incongruently with the recent evidence on the effects of ego depletion on cheating (Mead et al., 2009; Muraven, Pogarsky, & Shmueli, 2006), the exertion of self-control did not seem to significantly affect the levels of cheating though a slightly increased tendency to cheat for depleted participants can be detected if group means are examined.

A drawback of using raw scores of cheating is that group differences are largely affected from individual cheating levels; in other words, one participant who cheated at the extreme level change the group level of cheating since group sizes are not large. One solution to control for the boosted impact of individual cheating levels was to consider the test performance of the participants since it is highly probable that those who were faster in answering items (regardless of the accuracy of their answers) during legal test period were also able to answer more items during the absence of the experimenter. Considering the fact that the continuous dependent variable (raw cheating scores) was highly skewed and suffered from range restriction since the frequency of cheaters was very low and the participants had an opportunity to cheat only for a short time (5 minutes); results of the hierarchical logistic regression controlling also for the higher motivation to cheat for those who had answered more items in the formal test period can be interpreted with more confidence.

As noted, the correlation between the number of items answered during the formal period and the dependent variable (i.e., cheating) suggests that there was a motivation toward cheating for those participants whose number of answered items was close to 35; in other words, those participants who ‘felt’ that “if they answer a little bit more items, they would be more likely to earn an extra 10 TL” had higher probability of cheating. Indeed logistic regression results confirmed the predictor power of number of solved items on cheating. Moreover, consistent with two-way ANOVA results, compared to the participants who were exposed to the neutral decision dialogue, those participants who were exposed to the ‘cheat’ decision

dialogue were 14 times more likely to cheat; however, those who were exposed to the ‘not cheat’ decision dialogue were as much likely to cheat as those who were on the neutral decision dialogue condition.

#### **4.2.1. Results of manipulation checks and control questions**

As revealed by one-way ANOVAs computed with the experimental conditions for the scores on manipulation checks, ego depletion and norm induction manipulations were found to be effective in general. Specifically, the participants in the ego depletion condition seem to have exerted more self-control during the rewriting task and to perceive the task as more difficult in comparison to the participants in the neutral condition. In terms of norm induction, the interpretation of the manipulation effectiveness has been more difficult in that some questions about the dialogues were ignored by most of the participants. However, the results pointed out that the participants in the ‘not cheat’ dialogue reported the dialogue to be more appropriate/reasonable when compared with the participants who were in the ‘cheat’ dialogue or the neutral conversation conditions. Together with this, it has been also found that those participants who were in the ‘cheat’ dialogue preferred to report less that there had been a dialogue during the experimenter absence. As such, it can be concluded that the dialogues were generally successful in creating norm induction. Additionally, it can be also argued that there may be a cultural tendency to cover or hide the ‘innappropriate’ cheating norm which is generally the case in groups of people since group norms are likely to prohibit tattling (Greenberger, Miceli, & Cohen, 1987). In fact, considering that the participants were university students who were more or less aware of the honesty codes in the university context, they knew that cheating was a behavior that should be hidden from the authority in case it happens in the group. As demonstrated by Gino, Gu and Zhong (2009), this can also highlight some solidarity within the group in terms of compensating group members’ unethical behavior in some situations though the current study did not consider the group formation and identification processes.

#### **4.2.2. The effects of Norm Induction**

In terms of normative-informational influence manipulation, results of the 2x3 between subjects as well as the results of the hierarchical logistic regression showed that parallel to the findings of Gino and collaborates (2009), the ‘cheat’ norm induction resulted in increased levels of cheating which can provide further evidence that unethical inclinations can be contagious in groups (see Figure 1 in the Appendix L). Another finding worthy to discuss has been that the induction of ‘not cheat’ norm did not created any change in the level or the frequency of cheating; in other words, if the neutral dialogue between two confederates are considered to result in a baseline level of cheating (which was very close to zero), it seems that the confederates’ decision on not cheating in the general reasoning test was not different from their decision on a neutral topic (i.e., meeting a friend after the experiment) in influencing participants behavior in terms of cheating. Two critical points can be argued in the interpretation of this finding; first, an examination of the means across norm induction groups reveal that the baseline level of cheating for students in METU is low which may be also related with the general norm about ethical behavior in the university. In other words, though further evidence is needed to make inferences (e.g., an investigation of attitudes toward cheating), this finding may offer some insight in favor of an honesty norm among METU undergraduate students. In fact, McCabe, Trevino and Butterfield (2002) successfully demonstrated that the implementation of either traditional or modified honor codes in university campuses have a decreasing effect on cheating instances. Moreover, the low baseline level of cheating, together with the range restriction in cheating levels may partly account for the observed lack of impact of the ‘not cheat’ norm on decreasing levels of cheating. Secondly, it may well be that the ‘not cheat’ norm in class context is not effective in decreasing the unethical behavior of cheating for a couple of reasons. Despite the recurring finding across many studies that students in general believe that others cheat more often than themselves which is also found to be related with the formation of subjective norms (e.g., Chang, 1998), different groups of students may have adherence on divergent norms which are not always formed within the group but prescribed by the authority such as the honesty codes

of academic institutions. In some groups ‘cheating’ or dishonesty norms may constitute a part of group identity construal in a way that members are implicitly proud of sharing their cheating anecdotes in some situations; in other groups, wherein cheating is not the common norm and/or the codes of conduct are made explicit to everyone, members can at least have some awareness of ethical behavior which, unlike “cheating”, are not communicated explicitly (McCabe, Trevino, & Butterfield, 1996). In either type of groups the verbal communication of an ethical behavior or the decision about it is not highly likely to occur in daily classroom situations; still, the decision dialogue by confederates was perceived to be highly reasonable/appropriate by the participants in the ‘not cheat’ condition which may well represent an experimental artifact of social desirability.

On the other hand, considering the results of the current study might suggest that in contexts where cheating is not the common descriptive norm but still practiced by few members, the implementation of an honesty norm does not offer additional effect in decreasing the behavior. However, the availability of an opportunity to cheat and the descriptive information that there are people who intend to cheat might be considered as sufficient factors to increase cheating in examination context. Thus, parallel to the major findings of recent social influence research on the effects of social and group norms on behavior, it can be concluded that beside factors such as group size, levels of consensus, and the norm qualifications (e.g., Bond, 2005; Martin, Gardiokiotis, & Hewstone, 2002), the match between the content of the influence (in terms of its attitudinal valence) and the nature of the target behavior (in terms of the possible gains and losses of committing the act) are crucial components of the effectiveness of social influence techniques. Although humans are thought to be wired for a cognitive bias toward processing and registering social norms (O’Gorman, Wilson, & Miller, 2008), their capability for agency makes them cognitively selective in terms of behavioral decisions. Thus, METU undergraduate students who participated to the current experiment may have conformed to an opportunity rather than to any norm induced during the experiment since the valence of ‘not cheating’ is not compatible with any short-term opportunity. Moreover, it should be also noted that various social and

contextual factors such as the perception of a fair system in the education may play an important role in shaping students' conformity to opportunity as it is generally the case in employee theft (e.g. Greenberg, 1990).

Another critical point in interpreting the significant effect of the 'cheat' norm induction in increasing and the nonsignificant effect of the 'not cheat' norm induction can possibly be the diverse nature of the decision dialogues in terms of the norm types. As mainstream research findings and recent theories of social influence consistently highlight social influence on behavior via the use of norms are generally considered to take place in two conceptually different but practically overlapping norm contexts: People may adhere to the norms because they observe that salient others adhere them (descriptive or informational influence) or because they perceive that either salient others or the authority disapprove those who do not adhere to these norms (injunctive or normative influence) (Cialdini & Goldstein, 2004). Both types of social influence are considered to constitute either subjective or formal social norms in groups of people though many factors such as the group size, the social status of the source, the deterrence effects, the credibility of the source, the salient group identity and the social and historical conjuncture are known to have different levels of impact on the social influence processes. Recent research focusing on the use of norms as a social influence strategy to increase prosocial behavior such as energy conservation or anti-littering activities provided evidence that although both types of norms have an influence over people's behaviors, descriptive norms are generally more useful in creating prosocial behavior in contexts wherein the norm is made focal while injunctive norms enhances norm-congruent behavior in many environments relatively independently from saliency or focus contingency (Cruz, Henningsen, & Williams, 2000; Goldstein, Cialdini, & Griskevicius, 2008; Reno, Cialdini, & Kallgren, 1993). In terms of the decision dialogues used in the current study (see Appendix G) to induce norms on cheating, it should be noted that the 'cheat' dialogue implied a descriptive norm and was more close to create an informational influence effect while the 'not cheat' dialogue implied more or less an injunctive norm and thus was more close to create a normative influence although independent raters approved

that both ‘cheat’ and ‘not cheat’ dialogues were equal in terms of salience. Within this framework, one may also suspect that these norms are not equally effective in creating conformity since one of them (‘cheat’ norm) is tempting toward an institutionally disapproved act which is also subject to formal sanctions (though in the experimental context there would be only social sanctions) while the other (‘not cheat’ norm) is an ethical decision which is normally expected by institutional rules and regulations. On the other hand, considering that recent literature cites evidence for the effectiveness of both types of norms in either inducing prosocial behavior change or increasing unethical behavior in different contexts and within different groups of people (Hogg & Reid, 2006; Kahan, 1997; Nolan, Schultz, Cialdini, et al., 2008; Rimal & Real, 2003), one can expect that both ‘cheat’ and ‘not cheat’ norm would be equally plausible to conform in classroom examination situations if a mid-level baseline of cheating is observed in neutral (unmanipulated) situations.

#### **4.2.3. The effects of Ego Depletion**

Several points concerning the lack of effect of ego depletion on cheating behavior should be noted although the nonsignificant results of the current study may stem from the limited sample size and the relative ease of the rewriting task. In fact one of the basic premises of the Strength Model of Self-Control has been the improvement of self-control resources through repetitive practice which was experimentally proven in various research (Muraven, Baumeister, & Tice, 1999); in other words, individuals who are exercising their self-control in many instances do not seem to suffer much from its depletory effects. Considering this fact, it should be noted that participants of the current study were undergraduate students in one of the most competitive universities of Turkey: They are regularly exercising their executive resources through midterms, final examinations and final papers while also being aware of the ethical codes of the academy. Thus, it might be implausible to expect that these students would exert much of their self-control resources in an experimental rewriting task though the depletory rewriting task was perceived as more difficult compared to the neutral rewriting task. Putting differently, the rewriting task might have been unsatisfactory to cause enough ego depletion to be



tempted by cheating since perceiving a task as difficult may not guarantee to exert much self-control.

Recent literature provide generally consistent findings in terms of the effects of depleted self-control on various behaviors such as aggressiveness or overeating which are not the direct endproducts of cognitive abilities but still require the control of executive function of self (DeWall et al., 2007; Kahan, Polivy, & Herman, 2003; Stucke & Baumeister, 2006). However, in a recent meta-analysis by Hagger and collaborates (2010), the effect size of ego depletion was found to be moderated by depleting task duration (i.e., lower depletion effects on shorter tasks), task presentation by the same or different experimenters, intertask interim period (i.e., lower depletion effects in studies not using filler task during the dual task), dependent task complexity (i.e., more complex dependent tasks resulting in higher failure of self-control), and the use of dependent tasks in the choice and volition spheres (i.e., lower depletory effects on forced-choice and volition tasks). Although persuasion techniques were not used in the current study, the implementation of informational-normative influence via norm dialogues may have created a situation of decision making about cheating or not in the general reasoning test for the participants who were in the 'cheat' and 'not cheat' norm conditions since knowing that there are people who are decided to cheat or not to cheat can be critical in deciding to continue on the test in order to have at least 35 right answers and gain an extra 10 TL. In such a condition, deciding to cheat may be an act of utilitarian choice far from an impulsive tendency to cheat or a high level of cognitive effort and making choice may not place as many demands on depleted individuals' self-control resources as do tasks in other spheres of resource expansion.

It should be also highlighted that the construct of self-control as different from the construct of goal pursuit is most related with conflict between desires (vanDellen & Hoyle, 2010); as such the same behaviors may not demand the exertion of equal levels of self-control for all individuals. For instance, resisting chocolate cookies may be difficult for someone who is on diet but who loves them much; however, the act of resistance will not be much depleting for someone who

does not like very much chocolate cookies. Indeed, from a similar perspective, research conducted by Hoffmann, Rauch, & Gawronski (2007) revealed that candy consumption was primarily predicted by automatic candy attitudes as measured by Implicit Association Test when participants' self-regulation resources were low in a way that candy consumption increased as a function of automatic positivity toward the candy in the depletion condition but not in the control condition. These findings provide highly valuable information for an alternative explanation of the current results on ego depletion: If some participants in the depletion conditions might have positive attitudes toward cheating, there would be a higher probability of cheating for them in a situation of lowered regulatory resources. However, in the current study, it may have happened that many of the participants did not have positive attitudes toward cheating which would result in fewer cheaters in the depletion conditions as was the case. Although the current study did not focus on measuring the attitudes toward cheating, the overall low frequency of cheating across groups and the low mean scores on the past behavior of academic dishonesty may point that the participants in the study were not chronic cheaters and they may well lack positive attitudes of cheating though further research which will take into account the attitudes toward academic dishonesty is required to draw conclusions.

Recent critiques and contributions to the Strength Model of Self-Regulation consider the role of motivation in various ego depletion processes (Baumeister & Vohs, 2007; King, 1996; Muraven & Slessareva, 2003). These arguments and findings can be summarized in two points which are intrinsically related to each other. First, past experimental evidence showed that in many situations of self-control exertion people who are motivated to do the task at hand are immune to the depletory effects of temporary exertion of self-control (Muraven & Slessareva, 2003). In other words, as Baumeister and Vohs (2007) concluded *motivation (like cognition and perhaps emotion) can compensate for the reduced ability to self-regulate that ordinarily marks the depleted state*. Thus, especially in lab contexts, some of the participants may feel motivated to help the experimenter or to prove themselves through accomplishing the tasks correctly. Second, as already noted ego depletion is theoretically conceptualized in terms of self-control as a more or less

extrinsically controlled process though the theory does not presuppose any distinction between self-regulation and self-control. On the other hand, it should be noted that intrinsic and extrinsic regulation may have differential effects on behavior as Self-Determination Theory (SDT; Deci & Ryan, 1985, 1987) which makes a clear distinction between autonomous regulation (akin to self-regulation and related with intrinsic motivation) and controlled regulation (akin to self-control and more related with extrinsic motivation) put forward. In fact, three experiments conducted by Moller, Deci and Ryan (2006) point to the evidence that whereas conditions representing controlled choice are ego depleting, conditions that represent autonomous choice do not show the deleterious effects of self-control exertion. Other research by Muraven (2008) also showed that people who try not to eat cookies for intrinsic reasons showed less depletory effects than people who try not to eat them for more extrinsic reasons. In line with these arguments and evidence, it should be noted that students who participated in the current study may have been intrinsically motivated not to cheat in the general reasoning test at least for two reasons which can be obviously considered as intrinsic motivation: They might have wanted to challenge themselves to see their own level on the general reasoning ability and/or they might have felt responsible about being a part of the experiment and tried to avoid distorting the results (therefore, trying to be ethical in their contribution to the science). Informal observations and feedback from participants support these suggestions since some of the participants were highly motivated to see their results on the general reasoning test and confederates reported that most of the participants disapprovingly stared them in the 'cheat' norm conditions. Although these indirect indices may highlight the importance of intrinsic motivation as a potential buffer to the disadvantageous effects of ego depletion, the motivation of cheating should be considered in future research as an individual variable since some students may have more internalized norms of ethical behavior while some others make use of extrinsic norms in the face of situational constraints (e.g. the fear of detection).

Conscious intention which is a precedent of active goal pursuit (and thus motivation to accomplish an act) can also be considered as another crucial factor

which might provide alternative explanation to the lack of depletory effects in unethical behavior. In explaining four roots of evil, Baumeister and Vohs (2004) drew attention to the fact that self-control may not be always in the service of ethical behavior:

*... “Sometimes people use self-control to enable them to act more violently. This dynamic is probably most common when idealism is the root of the evil enacted. Idealists may actively seek to live up to high moral standards, and some of them at least recognize that killing or harming others is contrary to such ideals”...*

In his commentary to the Strength Model of Self-Control, Kuhl (1996) also cited instances which highlighted the importance of intentions in determining the direction of individual self-control. He questioned whether people break down their diet or commit criminal acts late at night because their self-control resources are depleted during the whole day or because they have such iron self-control over themselves that they can wait until night to do these ‘attractive’ acts. It seems that the same criticism can be valid for cheating behavior: Has the student enough self-control to overcome his/her impulses to cheat or to overcome his/her fears of being caught while cheating?

#### **4.3. Limitations of the Study**

Although the present study has contributed to the current literature of academic dishonesty in integrating situational and dispositional factors, it had five major limitations. The first limitation concerned small sample size and sample characteristics. The second limitation included the use of recently translated self-report measures. The third one was related with the low generalizability of experimental results given the nature of manipulations. The fourth limitation concerned the experimenter bias and the uncontrollable factors during the experimenter absence. The last limitation involved the nature of the dependent variables.

With regard to the first limitation, the study was conducted during summer school period of METU, each day after 5.30 pm when most of the undergraduate students prefer to meet their friends or go home since the classes are over at that time. Although extra participants were assigned for each experimental group in case the main participants absented, the groups of at least 6 participants were not completed in some of the experiment days and hence were not included in the data set. Given temporal and financial constraints, each experimental group was conducted only twice with different participants; a third round of experimental groups might have yield better results in terms of effect size and power. Moreover, the undergraduate students were volunteers in that they had to come twice to the psychology department first in order to fill out questionnaires and second a week later to participate to the experiment though they were paid 10 TL for their effort. Practically, organizing oneself to come to contribute an experiment with two different visits in a week may be a function of self-regulation; thus, although scores on the trait self-control scale were normally distributed, it might be that participants who contributed to the study were modestly successful in regulating themselves which may explain the nonsignificant findings of both state and trait self-control.

Concerning the second limitation, it should be noted that the scales used in the current study were translated into Turkish for the study purposes as explained in the PS-I. Although scale reliabilities were found to be high, further studies for adaptation and validity of these scales are definitely needed for the large scale use and reliable interpretations regarding future findings.

The third limitation concerned a fact from which most of the experimental studies suffer: the experimental manipulations required a sterile context as much as possible in order to assess the causal effects of the variables of interest. The results should be interpreted cautiously in that most of the ego depletion situations in normal life do not consist of a simple rewriting task and most of the social influence processes do not happen with a short dialogue and generally include more dynamic and natural flow of events. In other words, students who are in a period of final examinations can be exhausted and have exerted much of their self-control, hence

may be more inclined to cheat on a last exam as compared with students who passed their twenty minutes to rewrite a neutral text of 150 words by omitting two letters. Moreover, as already noted, many of the routine ethical decisions are not generally verbally expressed in daily communication as long as the issue is not a debated one (such as cheating on a test); thus, the induction of 'not cheat' norm may not be perfectly relevant for the participants although it was a required one in terms of testing the effects of two opposite norms in an opportunity situation. An additional concern which is critical to the social influence manipulation was that the messages conveyed by the confederates during norm induction were not repetitive in time. Minority influence generally requires consistency of the message for better effectiveness which is provided by repetitive argumentation (Wolf, 1979). However, the salience of the message is also proven to be a critical factor in minority influence (Maass & Clark, 1984) which was the case in the current study.

In terms of the fourth limitation of the study, it should be indicated that the experiment was conducted under the single blind trial since the experimenter was the researcher herself. As known, the single blind procedure requires a more cautious interpretation of results given that the results have risk of being affected from the experimenter bias. Considering this fact, the confederates who were blind to the experimental hypotheses were asked to observe the behavioral sequence of the experimenter during the experiment and report it after each experimental session. Observations of the confederates pointed that the behaviors and attitudes of the experimenter toward participants were approximately similar across sessions. Further experimental studies should definitely use double blind trials in their design for safer results. Moreover, despite attempts of stringent procedure during the experiment, the current study could not avoid from one uncontrollable factor in the experimental sessions in that participants had chance to talk during the experimenter's absence. Thus, the only conversations that took place were not the provisioned dialogues of the confederates. However, as reported by the confederates, the participants' short talks did not happen simultaneously with the norm induction dialogues and they were mostly irrelevant to the experiment.

Lastly, the present study suffered from the nature of the dependent variables in that neither cheating behavior nor self-reported academic dishonesty was normally distributed. For the confidence and the ease in interpretation statistical transformations were not used in the analyses of results except that the performance balanced cheating scores were computed by subtracting the number of items answered in the answer sheet from the number of items answered in the test booklet and dividing it by the number of items answered in the test booklet; which equals to  $\{1 - (\text{answer sheet/booklet})\}$ . Specifically, there were a few participants who cheated during the experiment, there was a range restriction in cheating scores given participants had only five minutes of opportunity to cheat and the self-reported past behavior of academic cheating was found to be negatively skewed as is the general case in many studies focusing on academic dishonesty. These statistical restrictions may also be a crucial factor in the interpretation of the current results. However, it should be also noted that instances of cheating and frequencies of academic dishonesty are not commonly high enough to observe a normal distribution since at least %37.28 of university students are found to never cheat in elsewhere (Dirik, 1999).

#### **4.4. Practical Implications and Future Research**

The present study was innovative in that it attempted to consider simultaneously the dispositional and situational facets of two crucial factors namely self-control and conformity, known to be associated with academic dishonesty. Current results supported the literature on self-control from a dispositional perspective; however they also put a question mark on the patterns of ego depletion as an explanation of cheating at least as manipulated with a rewriting task. Moreover, a contribution to the academic cheating literature was provided through the finding that socially harmful group norms and susceptibility or conformity to social entourage are critical factors in explaining academic dishonesty and/or cheating.

As detailed in the Introduction section, researchers studying within the framework of the Strength Model of Self-Control have recently begun to investigate

the effects of depletory patterns on persuasion and more generally on social influence (Fitzsimons & Finkel, 2010; Janssen et al., 2008; vanDellen & Hoyle, 2010). Many of the research on this recent topic conducted until now has focused either on the effects of self-control resource depletion on being persuaded by media messages or decisive arguments about an issue (e.g. Janssen et al., 2008) and/or complying a request or on the effects of persuasion techniques as a way of depleting self-control resources in various domains (e.g. overeating; Kahan, Polivy, & Herman 2003). However, to the knowledge of the researcher, an integration of these two constructs has not been studied in terms of daily life behaviors although both are related to the executive function of self since human being is a conscious agency.

In the current study, no specific hypotheses were put forward in terms of interactional effects. However, it is strongly suggested that future research should take into account the interactional effects of self-control and conformity with a specific consideration of the simultaneous exploration of dispositions and situations since one component of unethical behavior is known to be the control by the individual him/herself while the other seems to be the control that others may have on the individual. This kind of integrative point of view might be helpful and clarifying in understanding the processes of behavioral change and increasing prosocial behavior. Although the current study was not successful in determining the interactional effects of self-control and conformity, further research using more effective social influence situations and more daily life relevant ego depletion manipulations with larger samples seem promising for the explanation of unethical behavior. Moreover, it can be strongly advised that attitudes, intentions and motivations should not be underestimated in the explanation of academic dishonesty and unethical behavior in general given the possibility that motivation and attitudes can moderate the effects of low self-control when situational variables outside the control of the individual are considered.

Despite its limitations, the present study revealed that conformity to peers and friends and provincial norms can have an impact on cheating far more



important than the struggle for managing self-control resources. These findings are appealing in both societal and global levels since many instances of unethical decision and behavior seem to stem from opportunities and the influence of context in general rather than a lack of self-control. Although codes of honour are promising in decreasing the levels of unethical academic behavior, the current study points that groups of people within academic contexts may rely on their group solidarity in their decisions and members acts are a crucial reference point for others. Social control techniques such as neighborhood pressure can be dangerous in the hand of authorities as a way to control individuals' behavior; however, the current study may suggest that heightening the student awareness in terms of the importance of ethical acts both in academic context and in daily life can be important in providing a chance to internalize ethical behavior for students instead of teaching them rules of ethical conduct. As long as students have access to the societal benefits of integrity, they would have a contagion effect on other students. As a last word on self-control, social influence and unethical behavior, a differentiation between controlling individuals through boosting their self-control ability in order to enhance the system functioning and motivating individuals to act ethically in order to enhance a peaceful coexistence both within and between societies should be kept in mind.

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## APPENDICES

### Appendix A. Informed Consent

#### Gönüllü Katılım Formu

Bu çalışma, ODTÜ Sosyal Psikoloji yüksek lisans öğrencisi Canan Coşkan tarafından, Prof. Bengi Öner Özkan'ın danışmanlığında yürütülen bir tez çalışmasıdır. Çalışmanın amacı, sosyal tutumlar, kişisel eğilimler, dikkat ve muhakeme yeteneği arasındaki olası ilişkiler hakkında bilgi toplamaktır. Çalışmaya katılım tamimiyle gönüllülük temelinde olmalıdır. Ankette, sizden kimlik belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamimiyle gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir; elde edilecek bilgiler bilimsel yayımlarda kullanılacaktır.

Çalışma iki farklı uygulamadan oluşmaktadır. İlk uygulama bir anket uygulamasından, ikinci uygulama ise bir dikkat görevi, muhakeme testi ve sosyal tutumu ölçmeye yönelik bazı sorulardan oluşmaktadır. Anket ve diğer testler genel olarak kişisel rahatsızlık verecek soruları veya durumları içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda anketi uygulayan kişiye, anketi tamamlamadığınızı söylemek yeterli olacaktır. Çalışmanın ikinci uygulamasının ardından, bu çalışmayla ilgili detaylı açıklama yapılacak ve sorularınız cevaplanacaktır.

Bu çalışmaya katıldığınız için şimdiden teşekkür ederiz. Çalışma hakkında daha fazla bilgi almak için Psikoloji Bölümü öğretim üyelerinden Prof. Bengi Öner Özkan (Oda: B235; Tel: 210 5116; E-posta: [bengi@metu.edu.tr](mailto:bengi@metu.edu.tr)) ya da psikoloji bölümü proje araştırma görevlisi Canan Coşkan (Oda: B33; Tel: 210 5945; E-posta: [canancoskan@gmail.com](mailto:canancoskan@gmail.com)) ile iletişim kurabilirsiniz.

***Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip çıkabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı yayımlarda kullanılmasını kabul ediyorum.*** (Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Katılımcı no:

Tarih

İmza

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## Appendix B. Survey Package

### Demografik Bilgi:

1. Doğum tarihiniz (Ay / Yıl): \_\_\_\_ / \_\_\_\_\_
2. Cinsiyetiniz:  Kadın  
 Erkek
3. Okumakta olduğunuz bölüm: \_\_\_\_\_
4. Şu anki eğitim durumunuz (içinde bulunduğunuz akademik dönemi göz önünde bulundurunuz):  
 Üniversite hazırlık  
 Lisans 1. Sınıf  
 Lisans 2. Sınıf  
 Lisans 3. Sınıf  
 Lisans 4. Sınıf  
 Master  
 Doktora  
 Diğer (belirtiniz): \_\_\_\_\_
5. Üniversitede öğrenci olarak geçirdiğiniz süre (yıl olarak): \_\_\_\_\_
6. Üniversiteye başlayana kadar yaşamınızın en uzun süresini geçirdiğiniz yer:  
 Büyükşehir  İl  İlçe  Kasaba   
Köy
7. Ailenizin gelir düzeyi:  
 Çok düşük  Düşük  Orta  Yüksek   
Çok yüksek
8. Sizin şu anki gelir durumunuz:  
 Sadece ailemden destek alıyorum.  
 Kendi kazancım var, ailem de destekliyor.  
 Sadece kendi kazancımla geçiniyorum.
9. Ağırlıklı not ortalamanız (4.00 üzerinden): \_\_\_\_\_
10. Gönüllü faaliyette bulunduğunuz herhangi bir sivil toplum kuruluşu varsa belirtiniz (örn. "var, A kuruluşu" YA DA "yok"):  
 Var: \_\_\_\_\_  
 Yok

### 1.1. Trait Self-Control Scale (Tangney et al., 2004)

Aşağıdaki cümlelerin herbirinin sizin tipik özelliklerinizi ne kadar yansıttığını ölçekte işaretleyerek belirtiniz.

	Beni hiç yansıtmıyor				Beni tamamen yansıtmıyor
1. Baştan çıkarmalara/ayartmalara karşı direnmekte başarılıyım.	1	2	3	4	5
2. Kötü alışkanlıklarımın üstesinden gelmekte zorluk çekerim.	1	2	3	4	5
3. Tembelim.	1	2	3	4	5
4. Uygunsuz şeyler söylerim.	1	2	3	4	5
5. Asla kontrolümü kaybetmeme izin vermem /Asla kontrolümü kaybetmem.	1	2	3	4	5
6. Kendim için kötü olan bazı şeyleri eğlenceli ise yaparım.	1	2	3	4	5
7. Plan programa uymam konusunda insanlar bana güvenir.	1	2	3	4	5
8. Sabahları kalkmak benim için zordur.	1	2	3	4	5
9. Hayır demekte zorlanırım.	1	2	3	4	5
10. Çoğu zaman fikrimi değiştiririm.	1	2	3	4	5
11. Aklımdakini o an söyleyiveririm.	1	2	3	4	5
12. İnsanlar beni fevri/dürtüsel olarak tanımlar.	1	2	3	4	5
13. Kendim için kötü olan şeyleri reddederim.	1	2	3	4	5
14. Çok fazla para harcarım.	1	2	3	4	5
15. Herşeyi/her yeri düzenli bırakırım.	1	2	3	4	5
16. Zaman zaman nefsim düşkünümdür.	1	2	3	4	5
17. Daha öz disiplinli olabilmeyi isterdim.	1	2	3	4	5
18. Güvenilir biriyimdir.	1	2	3	4	5
19. Duygularım beni oradan oraya götürür.	1	2	3	4	5
20. Bir sürü şeyi anlık kararlar vererek yaparım.	1	2	3	4	5
21. Pek iyi sır tutamam.	1	2	3	4	5
22. İnsanlar katı bir öz disipline sahip olduğumu söyler.	1	2	3	4	5
23. Sınavlara yumurta kapıya dayanınca tüm gece boyunca çalışırım.	1	2	3	4	5
24. Kolay kolay cesaretim kırılmaz.	1	2	3	4	5
25. Bir konuda harekete geçmeden evvel düşünmeye zaman ayırsam daha iyi olurdu.	1	2	3	4	5
26. Sağlıklı yaşam tarzı sürdürürüm.	1	2	3	4	5
27. Sağlıklı yiyecekler yerim.	1	2	3	4	5
28. Keyif ve eğlence beni bazen işten alıkoyar.	1	2	3	4	5
29. Odaklanmakta (konsantrasyon sağlamakta) güçlük çekerim.	1	2	3	4	5
30. Uzun süreli hedeflere ulaşmak için etkin bir şekilde çaba gösteririm.	1	2	3	4	5
31. Bir şeyin yanlış olduğunu bilsem de bazen o şeyi yapmaktan kendimi alıkoyamam.	1	2	3	4	5

	Beni hiç yansıtmıyor				Beni tamamen yansıtıyor
<b>32.</b> Sıklıkla tüm alternatifleri gözden geçirmeden harekete geçerim.	1	2	3	4	5
<b>33.</b> Kolaylıkla soğukkanlılığımı yitirim.	1	2	3	4	5
<b>34.</b> Çoğunlukla insanların konuşmasını bölerim.	1	2	3	4	5
<b>35.</b> Bazen aşırı alkol alır ya da uyuşturucu madde kullanırım.	1	2	3	4	5
<b>36.</b> Her zaman dakiğimdir.	1	2	3	4	5

## 1.2. Attention to Social Comparison Subscale (Lennox & Wolfe, 1984)

Aşağıdaki ifadelerden herbirinin sizin için ne derecede doğru veya yanlış olduğunu ölçekte işaretleyerek belirtiniz.

	Kesinlikle her zaman yanlış	Genelde yanlış	Yanlış fakat istisnalar olabilir	Doğru fakat istisnalar olabilir	Genelde doğru	Kesinlikle her zaman doğru
1. Gruptaki diğer herkes belirli bir şekilde davranıyorsa, "bu uygun davranış olmalı" diye düşünürüm.	0	1	2	3	4	5
2. Modaya uygun olmayan kıyafetler giyinmekten özellikle kaçınırım.	0	1	2	3	4	5
3. Sosyal etkinlik veya toplantılarda genellikle ortama uyacak şekilde davranmaya çalışırım.	0	1	2	3	4	5
4. Sosyal bir durumda nasıl hareket etmem gerektiğinden emin değilsem başkalarının davranışlarından ip ucu alırım.	0	1	2	3	4	5
5. Başkalarının benim davranışıma verdikleri tepkilere ortamdan dışlanmamak için dikkat etmeye çalışırım.	0	1	2	3	4	5
6. Başkalarının kullandığı argo kelimeleri alıp kendi kelime dağarcığımyın parçasıymış gibi kullanmaya meğilli olduğumu fark ederim.	0	1	2	3	4	5
7. Başkalarının ne giyindiğine dikkat etmeye çalışırım.	0	1	2	3	4	5
8. İletişime geçtiğim herhangi bir kişinin gözündeki en ufak bir (tasvip etmeyici) yadırgayıcı bakış yaklaşımımyı değiştirmemde yeterlidir.	0	1	2	3	4	5
9. Birlikte olduğum gruba uymak benim için önemlidir.	0	1	2	3	4	5
10. Davranışım sıklıkla başkalarının benden nasıl davranmamı beklediklerini hissettiğime bağlıdır.	0	1	2	3	4	5
11. Sosyal bir durumda nasıl davranmam gerektiğine dair en ufak bir belirsizliğim olursa ip ucu bulmak için başkalarının davranışına bakarım.	0	1	2	3	4	5
12. Başkalarının ne giyindiğine bakarak genellikle kıyafet tarzımı güncel tutarım.	0	1	2	3	4	5
13. Sosyal bir durumun içindeyken çoğunluğu takip etmek yerine o anda hissettiklerime uygun davranmaya çalışırım.	0	1	2	3	4	5

### 1.3. Tendency to Conform Scale (Goldsmith, Clark, & Lafferty, 2005)

Bu kısım kendinizi nasıl gördüğünüzle ilgilidir. Aşağıda her satırda bulunan sıfat çifti arasına yerleştirilmiş yedi basamaklı bir ölçek sunulmaktadır. Bu ölçekte sizden, verilen sıfat çiftleri kapsamında kendinizi nasıl biri olarak gördüğünüzü ve hissettiğinizi belirtmeniz istenmektedir. Lütfen her satırda ilgili sıfat derecelendirmesine göre kendinizin nasıl biri olduğunuzu en iyi yansıtan rakamı işaretleyiniz.

<b>Uysal</b> (Başkalarının isteklerine veya otoriteye uyumlu)	1	2	3	4	5	6	7	<b>Asî</b> (Başkalarının isteklerine veya otoriteye meydan okuyan)
<b>Dediğim dedik</b> (Başkalarının fikirlerine/isteklerine karşı direnç gösteren)	1	2	3	4	5	6	7	<b>Yumuşak başlı</b> (Başkalarının fikirlerine ılımlı veya istediklerini yapmaya gönüllü olan)
<b>Kabullenici</b> (Başkalarıyla aynı fikirde olan veya fikir ve önerileri kabul eden)	1	2	3	4	5	6	7	<b>Kabullenici olmayan</b> (Başkalarıyla aynı fikirde olmayan veya fikir ve önerileri kabul etmeyen)
<b>İnatçı/esnek olmayan</b> (Sabit fikirli ve değişemeyen veya değişime açık olmayan)	1	2	3	4	5	6	7	<b>Uyumlu</b> (Farklı durumlara uyabilen)
<b>İşbirliği yapan</b> (İşbirliğine istekli veya başkalarının taleplerine karşılık veren)	1	2	3	4	5	6	7	<b>İşbirliği yapmayan</b> (Başkalarıyla işbirliğine yanaşmayan veya beraber çalışmaya istekli olmayan)
<b>Muhalif/karşı çıkan</b> (Sözel veya davranışsal olarak bir kişiyle aynı fikirde olmayan)	1	2	3	4	5	6	7	<b>Uyum gösteren</b> (Kendi plan veya fikirlerini değiştirerek başkalarına uymaya yatkın veya istekli olan)
<b>Hemfikir olmayan</b> (Herhangi bir şeye veya kişiye benzemeyen; farklı olan/davranan)	1	2	3	4	5	6	7	<b>Hemfikir</b> (Aynı fikirde olan, o fikre katılan)

#### 1.4. Academic Dishonesty Scale<sup>12</sup> (McCabe & Trevino, 1993)

Aşağıda üniversite öğrencilerinin zaman zaman gerçekleştirebileceği akademik usulsüzlük davranışları verilmiştir. Sizden istenen aşağıdaki davranışlardan herbirini üniversiteye başladığınızdan beri ne kadar sıklıkla gerçekleştirmiş olduğunuzu ölçek üzerinde işaretlemenizdir.

	Hiç	Bir kez	Birkaç kez	Birçok kez	Çok fazla
1. Sınavda kopya (ufak notlar veya sınav içeriği bulunan kağıtlar) kullanmak	1	2	3	4	5
2. Sınavda başka birisinin sınav kağıdından kopya çekmek	1	2	3	4	5
3. Sınava girmeden önce sınav içeriğiyle ilgili bilgi edinmek için adil olmayan yöntemler kullanmak.	1	2	3	4	5
4. Sınavda başka birisinin sınav kağıdından haberi olmadan kopya çekmek.	1	2	3	4	5
5. Sınavda birisinin kopya çekmesine yardım etmek.	1	2	3	4	5
6. Sınavda başka herhangi bir şekilde kopya çekmek.	1	2	3	4	5
7. Bir kaynaktan kopya çekip bunu kendiniz yazmışsınız/yapmışsınız gibi göstermek.	1	2	3	4	5
8. Kaynakçaya aslında kullanmadığınız bir kaynağı eklemek.	1	2	3	4	5
9. Başkasının yaptığı ödevi kendiniz yapmışsınız gibi göstermek.	1	2	3	4	5
10. Hocanın izni olmadığı halde ödevi yardım olarak yapmak.	1	2	3	4	5
11. Hoca bireysel çalışma olduğunu belirttiği halde ödevi arkadaşınızla birlikte yapmak.	1	2	3	4	5
12. Yayınlanmış bir kaynaktan birkaç cümle kopyalayıp bu cümlelerin kaynağını belirtmemek.	1	2	3	4	5

<sup>12</sup> The Academic Dishonesty Scale was a part of the survey package for the PS-II but it was separated from the survey package for the main study and was given to the participants at the last step of the experiment.

Appendix C – Form A. Neutral Rewriting Task

→ **LÜTFEN Katılımcı Numaranızı buraya yazınız:** \_\_\_\_\_

Lütfen aşağıda verilen metni, sunulan boşluğa mümkün olduğunca **hızlı ve doğru** olarak **aynen** yazınız. Metni yazarken hatalarınızı **hiçbir şekilde** silerek veya karalayarak **düzeltemeyiniz**.

[İstatistik veya sayımlama, belirli bir amaç için veri toplama, tablo ve grafiklerle özetleme, sonuçları yorumlama, sonuçların güven derecelerini açıklama, örneklerden elde edilen sonuçları kitle için genelleme, özellikler arasındaki ilişkiyi araştırma, çeşitli konularda geleceğe ilişkin tahmin yapma, deney düzenleme ve gözlem ilkelerini kapsayan bir bilimdir. Fizik ve doğa bilimlerinden sosyal bilimlere kadar geniş bir alanda uygulanabilmektedir. Aynı zamanda iş dünyası ve hükûmetle ilişkili tüm alanlarda karar almak amacıyla kullanılır. *İstatistik* yukarıdaki anlamıyla tekildir. Sözcüğün çoğul anlamı, "sistemli bir şekilde toplanan sayısal bilgiler"dir. Örnek olarak nüfus istatistikleri, çevre istatistikleri, spor istatistikleri, milli eğitim istatistikleri verilebilir.

İstatistiksel yöntemler, toplanmış verilerin özetlenmesi veya açıklanması amacıyla kullanılır. Bu tür bir yaklaşım betimsel istatistik adını alır. Buna ek olarak verilerdeki örtüşmelerin (kalıplar veya örüntüler), gözlemlerdeki rassallığı ve belirsizliği göze alacak şekilde, üzerinde çalışılan anakütle veya süreç hakkında sonuç çıkarma amacıyla modellenmesi, çıkarımsal istatistik adını alır. Hem betimsel istatistik hem de tahminsel istatistik, uygulamalı istatistiğin parçaları olarak sayılabilir.]

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Appendix C – Form B. Depletory Rewriting Task

→ LÜTFEN Katılımcı Numaranızı buraya yazınız: \_\_\_\_\_

Lütfen aşağıda verilen metni, sunulan boşluğa mümkün olduğunca **hızlı ve doğru** olarak **“l” ve “a” harflerini kullanmadan** yazınız. Metni yazarken hatalarınızı **hiçbir şekilde** silerek veya karalayarak **düzeltemeyiniz**.

[İstatistik veya sayımlama, belirli bir amaç için veri toplama, tablo ve grafiklerle özetleme, sonuçları yorumlama, sonuçların güven derecelerini açıklama, örneklerden elde edilen sonuçları kitle için genelleme, özellikler arasındaki ilişkiyi araştırma, çeşitli konularda geleceğe ilişkin tahmin yapma, deney düzenleme ve gözlem ilkelerini kapsayan bir bilimdir. Fizik ve doğa bilimlerinden sosyal bilimlere kadar geniş bir alanda uygulanabilmektedir. Aynı zamanda iş dünyası ve hükûmetle ilişkili tüm alanlarda karar almak amacıyla kullanılır. *İstatistik* yukarıdaki anlamıyla tekildir. Sözcüğün çoğul anlamı, "sistemli bir şekilde toplanan sayısal bilgiler"dir. Örnek olarak nüfus istatistikleri, çevre istatistikleri, spor istatistikleri, milli eğitim istatistikleri verilebilir.

İstatistiksel yöntemler, toplanmış verilerin özetlenmesi veya açıklanması amacıyla kullanılır. Bu tür bir yaklaşım betimsel istatistik adını alır. Buna ek olarak verilerdeki örtüşmelerin (kalıplar veya örüntüler), gözlemlerdeki rassallığı ve belirsizliği göze alacak şekilde, üzerinde çalışılan anakütle veya süreç hakkında sonuç çıkarma amacıyla modellenmesi, çıkarımsal istatistik adını alır. Hem betimsel istatistik hem de tahminsel istatistik, uygulamalı istatistiğin parçaları olarak sayılabilir.]

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## Appendix D. PANAS and Questions for the First Manipulation

→ LÜTFEN Katılımcı Numaranızı buraya yazınız: \_\_\_\_\_

Aşağıdaki ölçek farklı duyguları tanımlayan bir takım sözcükler içermektedir. Su anda nasıl hissettiğinizi düşünüp her maddeyi okuyun. Uygun cevabı her maddenin yanında ayrılan yere (puanları daire içine alarak) işaretleyin. Cevaplarınızı verirken aşağıdaki puanları kullanın.

1. Çok az veya hiç
2. Biraz
3. Ortalama
4. Oldukça
5. Çok fazla

1. İlgili	1	2	3	4	5
2. Sıkıntılı	1	2	3	4	5
3. Heyecanlı	1	2	3	4	5
4. Mutsuz	1	2	3	4	5
5. Güçlü	1	2	3	4	5
6. Suçlu	1	2	3	4	5
7. Ürkmüş	1	2	3	4	5
8. Düşmanca	1	2	3	4	5
9. Hevesli	1	2	3	4	5
10. Gururlu	1	2	3	4	5
11. Asabi	1	2	3	4	5

12. Uyanık	1	2	3	4	5
13. Utanmış	1	2	3	4	5
14. İlhamlı	1	2	3	4	5
(yaratıcı düşüncelerle dolu)					
15. Sinirli	1	2	3	4	5
16. Kararlı	1	2	3	4	5
17. Dikkatli	1	2	3	4	5
18. Tedirgin	1	2	3	4	5
19. Aktif	1	2	3	4	5
20. Korkmuş	1	2	3	4	5

Lütfen aşağıdaki soruları uygulamanın başında yaptığınız yazma görevini düşünerek cevaplayınız:

a. Az önce yaptığınız metin yazma görevi size göre ne kadar zordu?

1	2	3	4	5	6	7	8	9
Hiç								Çok fazla

b. Bu görevi yapmak sabrınızı ne kadar zorladı?

1	2	3	4	5	6	7	8	9
Hiç								Çok fazla

c. Bu görevi tamamlamak için iradenizi ne kadar kullanmanız gerektiği?

1	2	3	4	5	6	7	8	9
Hiç								Çok fazla

d. Bu görevi yaparken herhangi bir dürtüye karşı koymak için ne kadar çaba sarf ettiniz?

1	2	3	4	5	6	7	8	9
Hiç								Çok fazla

## Appendix E. Answer Sheet

→ LÜTFEN Katılımcı Numaranızı buraya yazınız: \_\_\_\_\_

### Genel Muhakeme Testi Cevap Kağıdı

Lütfen her soruya verdiğiniz cevabı hem bu cevap kağıdı üzerinde hem de test üzerinde işaretlediğinizden emin olunuz.

Soru No	Cevap
Soru 1	
Soru 2	
Soru 3	
Soru 4	
Soru 5	
Soru 6	
Soru 7	
Soru 8	
Soru 9	
Soru 10	
Soru 11	
Soru 12	
Soru 13	
Soru 14	
Soru 15	
Soru 16	
Soru 17	
Soru 18	
Soru 19	
Soru 20	
Soru 21	
Soru 22	
Soru 23	
Soru 24	
Soru 25	
Soru 26	
Soru 27	
Soru 28	

Soru No	Cevap
Soru 29	
Soru 30	
Soru 31	
Soru 32	
Soru 33	
Soru 34	
Soru 35	
Soru 36	
Soru 37	
Soru 38	
Soru 39	
Soru 40	
Soru 41	
Soru 42	
Soru 43	
Soru 44	
Soru 45	
Soru 46	
Soru 47	
Soru 48	
Soru 49	
Soru 50	
Soru 51	
Soru 52	
Soru 53	
Soru 54	
Soru 55	
Soru 56	

## Appendix F. Bogus Inventory of Leisure Time Activities

→ LÜTFEN Katılımcı Numaranızı buraya yazınız: \_\_\_\_\_

Aşağıda serbest zamanlarınızla yapılan aktivitelerle ilgili ifadeler yer almaktadır. Lütfen her ifadenin sizin için ne kadar geçerli olduğunu verilen beşli ölçek üzerinde belirtiniz.

	hemen hemen hiç geçerli değil	nadiren geçerli	bazen geçerli	sıklıkla geçerli	hemen hemen her zaman geçerli
1. Serbest zamanlarımda yaptığım aktiviteleri özgürce seçerim.	1	2	3	4	5
2. Serbest zaman aktivitelerim benim için çok ilginç.	1	2	3	4	5
3. Serbest zaman aktivitelerimi uygulamaktan zevk alıyorum.	1	2	3	4	5
4. Serbest zaman aktivitelerim bende öz güven sağlar.	1	2	3	4	5
5. Serbest zaman aktivitelerim bana başarı hissi veriyor.	1	2	3	4	5
6. Serbest zaman aktivitelerimde birçok değişik yetenek ve kabiliyetlerimi kullanırım.	1	2	3	4	5
7. Serbest zaman aktivitelerimi uygularken kendimi tamamen aktiviteye veririm.	1	2	3	4	5
8. Serbest zaman aktivitelerim entelektüel açıdan çekici.	1	2	3	4	5
9. Serbest zaman aktivitelerim yeni beceriler öğrenmemde beni cesaretlendiriyor.	1	2	3	4	5
10. Serbest zaman aktivitelerim etrafımda olanlar hakkındaki bilgimi artırır.	1	2	3	4	5
11. Serbest zaman aktivitelerim merakımın tatmin edilmesinde bana yardımcı oluyor.	1	2	3	4	5
12. Serbest zaman aktivitelerim yeni şeyler denemem için bana olanaklar sağlar.	1	2	3	4	5
13. Serbest zaman aktivitelerim bana kendimi tanımamda yardımcı olur.	1	2	3	4	5
14. Serbest zaman aktivitelerim bana etrafımı, diğer insanları tanımamda yardımcı olur.	1	2	3	4	5
15. Serbest zaman aktivitelerim genel olarak toplumu tanımamda bana yardımcı olur.	1	2	3	4	5
16. Serbest zaman aktivitelerim bana doğa ile ilgili daha çok şey öğrenmemde yardımcı olur.	1	2	3	4	5
17. Serbest zaman aktivitelerim kişiler arasındaki farklılıkları kabul etmemde bana yardımcı olur.	1	2	3	4	5
18. Serbest zaman aktivitelerim düşünce, duygu veya fiziki yeteneklerimi diğer insanlara göstermemeye imkan veriyor.	1	2	3	4	5
19. Serbest zaman aktiviteleri esnasında diğer insanlarla sosyal ilişkiler kurabiliyorum.	1	2	3	4	5
20. Serbest zaman aktivitelerim diğer insanlarla sıkı ilişkiler kurmamda bana yardımcı oluyor.	1	2	3	4	5

	hemen hemen hiç geçerli değil	nadiren geçerli	bazen geçerli	sıklıkla geçerli	hemen hemen her zaman geçerli
21. Başka insanlarla gruplar içinde olabildiğim serbest zaman aktivitelerini tercih ediyorum.	1	2	3	4	5
22. Serbest zaman aktivitelerim esnasında tanıştığım insanlar arkadaş canlısı.	1	2	3	4	5
23. Serbest zaman aktivitelerimde eğlenceli insanlarla bir araya gelirim.	1	2	3	4	5
24. Serbest zamanlarımda, çokça serbest zaman aktiviteleri yapmaktan hoşlanan insanlarla bir araya gelirim.	1	2	3	4	5
25. Serbest zaman aktivitelerimi birlikte yaptığım insanlara karşı güçlü bağlılık hissi duyarım.	1	2	3	4	5
26. Serbest zaman aktivitelerim rahatlamama yardımcı oluyor.	1	2	3	4	5
27. Serbest zaman aktivitelerim stresten kurtulmama yardımcı oluyor.	1	2	3	4	5
28. Serbest zaman aktivitelerim kendimi duygusal olarak iyi hissetmeme yardımcı olur.	1	2	3	4	5
29. Serbest zaman aktivitelerine katılıyorum çünkü hoşlanıyorum.	1	2	3	4	5
30. Serbest zaman aktivitelerim beni fiziksel olarak zorluyor.	1	2	3	4	5
31. Fiziksel sağlığımı (uygunluğumu) arttıran serbest zaman aktiviteleri yaparım.	1	2	3	4	5
32. Beni fiziksel olarak yenileyen (tazeleyen) serbest zaman aktivitelerini yaparım.	1	2	3	4	5
33. Serbest zaman aktivitelerim sağlıklı kalmama yardımcı olur.	1	2	3	4	5
34. Serbest zaman aktiviteleri kilomu kontrol etmemde bana yardımcı olur.	1	2	3	4	5
35. Serbest zaman aktivitelerim enerji düzeyimi korumamda bana yardımcı olur.	1	2	3	4	5
36. Serbest zaman aktivitelerimi yaptığım alanlar/yerler ilgi çekicidir.	1	2	3	4	5
37. Serbest zaman aktivitelerimi yaptığım alanlar/yerler güzel yerlerdir.	1	2	3	4	5
38. Serbest zaman aktivitelerimi yaptığım alanlar/yerler iyi dizayn edilmiştir.	1	2	3	4	5
39. Serbest zaman aktivitelerimi yaptığım alanlar/yerler benim hoşuma giden (beni hoşnut eden) yerlerdir.	1	2	3	4	5

## Appendix G. The Decision Dialogues for Norm Induction

**Norm Manipülasyonu:** Uygulayıcının 5 dakikalık yokluğunun en başında (uygulayıcı sınıftan çıktıktan yaklaşık 15-20 saniye sonra) anlaşmalı rol oyuncularının o günkü deney grubuna göre gerçekleştirecekleri konuşmalar aşağıda verilmiştir.

- a. **Kopya normu** (Grup 1, 2, 7, & 8): Uygulamacının sınıftan çıkmasının ardından anlaşmalı 2 öğrencinin (x ve y) arasında geçen konuşma:
- x: “Pişşt! Ya ben test sorularını yetiştiremedim. Senin bitti mi?”  
y: “Yok ya, benim de bitmedi. Madem puanlamayı kitapçıktan yapacak, ben devam ederim valla! Anket nasılsa yetişir”.  
x: “Tabi canım, dün bizim arkadaşlar da süre bittikten sonra teste devam edip 20 lira kazanmışlar. Valla ben de test sorularına devam edeceğim”.
- b. **Dürüstlük normu** (Grup 3, 4, 9, & 10): Uygulamacının sınıftan çıkmasının ardından anlaşmalı 2 öğrencinin arasında geçen konuşma:
- x: “Pişşt! Ya ben test sorularını yetiştiremedim. Senin bitti mi?”  
y: “Yok ya, benim de bitmedi. Ama test süresi bittikten sonra devam etmemek lazım, o yüzden ben ankete geçtim”.  
x: “Evet evet, teste devam etmek doğru olmaz; ben de ankete başladım zaten”.
- c. **Kontrol (nötr norm)** (Grup 5, 6, 11, & 12): Uygulamacı sınıftan çıktıktan sonra hiçbir norm manipülasyonu yapılmaz; nötr bir konuşma gerçekleştirilir:
- x: “Pişşt! Arzuyla konuştun mu? Akşam buluşuyor muyuz?”  
y: “Yok ya, daha konuşamadım. Çıkışta ararız. Umarım başka plan yapmamıştır”.  
x: “Evet evet, çıkışta arayalım hemen. Başka görüşecek gün bulamayacağız yoksa”.

## Appendix H. The Last Manipulation Checks

→ LÜTFEN Katılımcı Numaranızı buraya yazınız: \_\_\_\_\_

Lütfen aşağıdaki soruları şu anda bulunduğunuz uygulamayı düşünerek, gerçekçi ve dürüst bir şekilde cevaplayınız:

a. Bu deney için size vaat edilen ücret ne kadar tatminkardı?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
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b. Genel Muhakeme Testi'nde soruları doğru yanıtlamak için ne kadar çaba gösterdiğinizi düşünüyorsunuz?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

c. Genel Muhakeme Testi'nde soruları doğru yanıtlamak için kendinizi ne kadar motive hissettiniz?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

d. Genel Muhakeme Testi'nde en az 45 soruyu doğru yanıtlamak için kendinizi ne kadar motive hissettiniz?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

e. Uygulama sırasında uygulayıcı sınıftan dışarı çıktı mı?

\_\_\_Evet

\_\_\_Hayır (Cevabınız 'hayır' ise f, g, h ve i sorularını geçiniz)

f. Uygulayıcının yokluğu sırasında sınıf içerisinde herhangi bir konuşma oldu mu?

\_\_\_Evet

\_\_\_Hayır (Cevabınız 'hayır' ise g, h ve i sorularını geçiniz)

g. Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın ne ile ilgili olduğunu duydunuz mu? Cevabınız 'evet' ise lütfen konuşmanın içeriğini kısaca belirtiniz.

\_\_\_Evet (belirtiniz: \_\_\_\_\_)

\_\_\_Hayır (Cevabınız 'hayır' ise h ve i sorularını geçiniz)

h. Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın içeriği sizce sınıftaki diğer öğrencilere ne kadar makul gelmiştir?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

- i. Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın içeriği size ne kadar makul geldi?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

- j. Genel Muhakeme Testi'nde süre bittiği halde teste devam etseydiniz/ettiyseniz bunun fark edilme ihtimali sizce ne kadar olabilir/olabilirdi?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

- k. Bulduğunuz uygulama grubunda tanıdığınız kişiler var mıydı?

Evet  
 Hayır

- l. Bulduğunuz uygulama grubundaki kişilerle uygulama sırasında aynı sınıfta bulunmak dışında ortak bir noktanız olduğunu düşünüyor musunuz? Cevabınız 'Evet' ise ne tür bir ortak noktanız olduğunu belirtiniz.

Evet (belirtiniz: \_\_\_\_\_)  
 Hayır

- m. Bulduğunuz uygulama grubunun sizi herhangi bir açıdan ne kadar temsil ettiğini düşünüyorsunuz?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

- n. Bulduğunuz uygulama grubuyla kendinizi ne kadar özdeşleştiriyorsunuz?

1 Hiç	2	3	4	5	6	7	8	9 Çok fazla
----------	---	---	---	---	---	---	---	----------------

## Appendix I. Old Version of the Decision Dialogues for Norm Induction

### Norm Manipülasyonu:

- a. Kopya normu (Grup 1, 2, 3, 4): Uygulamacının sınıftan çıkmasının ardından anlaşmalı 2 öğrencinin (x ve y) arasında geçen konuşma:

x: “Ya ben test sorularını yetiştiremedim. Senin bitti mi?”

y: “Yok ya, benim de bitmedi. Madem puanlamayı kitapçıktan yapacak, ben devam ederim valla! Anket nasılsa yetiştir”.

x: “Di mi? Ben de test sorularına devam edeceğim”.

- b. Dürüstlük normu (Grup 5,6, 7, 8): Uygulamacının sınıftan çıkmasının ardından anlaşmalı 2 öğrencinin arasında geçen konuşma:

x: “Ya ben test sorularını yetiştiremedim. Senin bitti mi?”

y: “Yok ya, benim de bitmedi. Ama test süresi bittiği için geri dönmeyeceğim. Anketi yapıp çıkarım”.

x: “İyi, ben de ankete başladım zaten”.

- c. Kontrol (nötr norm) (Grup 9, 10, 11, 12): Uygulamacı sınıftan çıktıktan sonra hiçbir norm manipülasyonu yapılmaz.

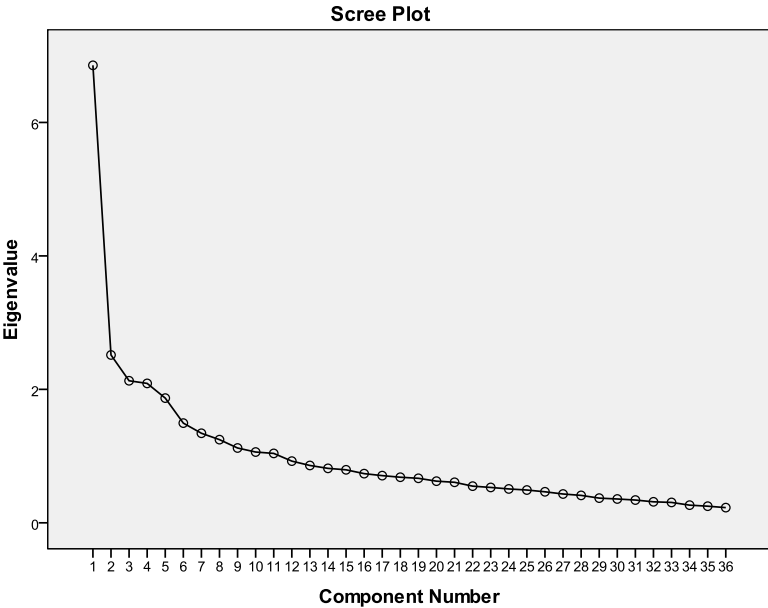


## Appendix J. The Factor Analysis and the Scree Plot of the Trait Self-Control Scale

	Component				
	1	2	3	4	5
16. Zaman zaman nefsimde duskunumdur	.61				
31. Bir seyin yanlis oldugunu bilsem de bazen o seyi yapmaktan kendimi alikoyamam.	.57				
19. Duygularim beni oradan oraya goturur	.57				
17. Daha oz disiplinli olabilmeyi isterdim	.53				
9. Hayir demekte zorlanirim	.49				
10. cogu zaman fikrimi degistiririm	.47				
25. Bir konuda harekete gecmeden evvel dusunmeye zaman ayirsam daha iyi olurdu.	.43				
2. Kotu aliskanliklarimin ustesinden gelmekte zorluk cekirim	.34			.31	
30. Uzun sureli hedeflere ulasmak icin etkin bir sekilde caba gosterebilirim.		-.66			
7. Plan programa uymam konusunda insanlar bana guvenir.		-.63			
8. Sabahlari kalkmak benim icin zordur		-.63			
3. Tembelim		-.58			
36. Her zaman dakigimdir.		-.56			
15. Herseyi/her yeri duzenli birakirim.		-.53			
22. İnsanlar kati bir oz disipline sahip oldugumu soyler.		-.49			
23. Sinavlara yumurta kapiya dayaninca tum gece boyunca calisirim.		-.46			
29. Odaklanmakta (konsantrasyon saglamakta) gucluk cekirim.	.32	-.46			
18. Guvenilir biriymdir.			.63		
24. Kolay kolay cesaretim kirlmaz.			.55		
5. Asla kontrolumu kaybetmem.			.54		
33. Kolaylikla sogukkaniligimi yitiririm.			.53		
1. Bastan cikarmalara/ayartmalara karsi iyi direnirim	.31		.48		
21. Pek iyi sir tutamam.			.39		
35. Bazen asiri alkol alir ya da uyusturucu madde kullanirim.				.62	
27. Saglikli yiyecekler yerim.				.61	
26. Saglikli yasam tarzi surdururum.				.61	
6. Kendim icin kotu olan bazi seyleri eglenceli ise yaparim				.60	
4. Uygunsuz seyler soylerim		.38		.55	-.34
13. Kendim icin kotu olan seyleri reddederim.				.47	
28. Keyif ve eglence beni bazen isten alikoyar.	.40	-.31		.41	
14. Cok fazla para harcarim				.33	
34. Cogunlukla insanların konusmasini bolerim.					
11. Aklimdakini o an soyleyiveririm					.70
12. İnsanlar beni fevri/durtusel olarak tanimlar					.67
20. Bir suru sey anlik kararlar vererek yaparim	.31				.60
32. Siklikla tum alternatifleri gozden gecirmeden harekete gecirim.	.31		.32		.42
<b>Eigenvalues:</b>	<b>6.86</b>	<b>2.52</b>	<b>2.13</b>	<b>2.09</b>	<b>1.87</b>
<b>Explained Variance %:</b>	<b>19.05</b>	<b>6.99</b>	<b>5.91</b>	<b>5.80</b>	<b>5.19</b>
<b>Total Variance Explained:</b>				<b>42.94 %</b>	
<b>Scale Alpha Level:</b>					<b>.87</b>

Note: Principal Component Analysis with Direct Oblimin Rotation was used for forcing items into five factors.

The Scree Plot for Self-Control Scale Items



Appendix K.

Table for the means, standard deviations and associations between the norm induction manipulation checks and the three versions of the experimental dependent variable

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
mp2-a	-	.14	.11	.05	-.18	.08	.03	-.05	.03	.25	-.05	-.01	.04	-.01	.10	.07	.13
mp2-b		-	.64**	.35**	-.02	.01	-.18	-.07	-.09	.20	-.01	-.11	.11	.02	.09	.14	.08
mp2-c			-	.69**	-.29*	-.23	-.38**	-.04	.07	.23	.12	-.09	.17	.08	-.13	.02	-.19
mp2-d				-	-.16	-.06	-.21	-.12	-.07	.11	.24	.01	-.03	-.05	-.05	.09	-.11
mp2-e					-	.46**	.45**	-.04	-.11	-.08	-.26*	.01	-.12	-.10	.10	-.02	.11
mp2-f						-	.65**	-.23	-.19	-.16	.04	.10	-.13	-.07	.12	-.01	.14
mp2-g							-	-.17	-.25	-.08	-.15	.05	-.18	-.12	.13	.03	.15
mp2-h								-	.78**	.10	.03	-.13	.28*	.21	-.06	-.13	-.08
mp2-i									-	.06	-.04	-.05	.41**	.33**	.01	-.10	-.03
mp2-j										-	-.08	-.03	.02	.04	.06	.04	.08
mp2-k											-	.53**	-.26*	-.22	-.11	-.11	-.13
mp2-l												-	-.14	-.14	.01	-.07	-.02
mp2-m													-	.81**	.04	.01	.01
mp2-n														-	.10	.05	.07
Raw_Cheat															-	.82**	.98**
Coded_Cheat																-	.76**
Degre_Cheat																	-
Mean	5.36	6.79	6.19	5.54	1.33	1.26	1.36	4.40	4.15	6.70	1.62	1.51	3.32	2.93	.38	.17	.01
SD	1.94	1.80	1.90	2.26	.47	.44	.48	2.82	2.92	2.45	.49	.50	1.88	1.81	1.04	.37	.04
N	84	84	84	84	83	76	70	62	61	83	84	83	84	84	84	84	84

Note: \*  $p < .05$ ; \*\*  $p < .01$ ;

**mp2-a** = Bu deney için size vaat edilen ücret ne kadar tatminkardı?; **mp2-b** = Genel Muhakeme Testi'nde soruları doğru yanıtlamak için ne kadar çaba gösterdiğinizi düşünüyorsunuz?; **mp2-c** = Genel Muhakeme Testi'nde soruları doğru yanıtlamak için kendinizi ne kadar motive hissettiniz?; **mp2-d** = Genel Muhakeme Testi'nde en az 45 soruyu doğru yanıtlamak için kendinizi ne kadar motive hissettiniz?; **mp2-e** = Uygulama sırasında uygulayıcı sınıftan dışarı çıktı

mı?; **mp2-f** = Uygulayıcının yokluğu sırasında sınıf içerisinde herhangi bir konuşma oldu mu?; **mp2-g** = Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın ne ile ilgili olduğunu duydunuz mu?; **mp2-h** = Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın içeriği sizce sınıftaki diğer öğrencilere ne kadar makul gelmiştir?; **mp2-i** = Uygulayıcının yokluğu sırasında sınıf içerisinde gerçekleşen konuşmanın içeriği size ne kadar makul geldi?; **mp2-j** = Genel Muhakeme Testi'nde süre bittiği halde teste devam etseydiniz/ettiyseniz bunun fark edilme ihtimali sizce ne kadar olabilir/olabilirdi?; **mp2-k** = Bulduğunuz uygulama grubunda tanıdığınız kişiler var mıydı?; **mp2-l** = Bulduğunuz uygulama grubundaki kişilerle uygulama sırasında aynı sınıfta bulunmak dışında ortak bir noktanız olduğunu düşünüyor musunuz?; **mp2-m** = Bulduğunuz uygulama grubunun sizi herhangi bir açıdan ne kadar temsil ettiğini düşünüyorsunuz?; **mp2-n** = Bulduğunuz uygulama grubuyla kendinizi ne kadar özdeşleştiriyorsunuz?

## Appendix L

Figure 1. *Plots of raw cheating scores as a function of ego depletion and norm induction*

