

MASTERING THE CHAOS BY ASSERTING AGENCY: RANDOMNESS  
SALIENCE AND ITS EFFECTS FOR DIFFERENT MODELS OF AGENCY

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## **ABSTRACT**

### **MASTERING THE CHAOS BY ASSERTING AGENCY: RANDOMNESS SALIENCE AND ITS EFFECTS FOR DIFFERENT MODELS OF AGENCY**

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In the current research, it was hypothesized that (1) the sense randomness would make people feel insignificant objects rather than active agents; and (2) independent agents would assert their independence and interdependent agents assert their interdependence after randomness salience in order to reestablish their sense of agency. In Chapter 1, after illustrating that people are evolved as pattern detectors and they also need nonrandomness in order to mitigate existential anxiety, I demonstrated some of the negative effects aroused by randomness salience. I argued that these negative effects were caused by the randomness' effect of undermining sense of agency. In Chapter 2, I hypothesized that independent and interdependent agents would reestablish their agency in different ways after randomness salience. In Chapter 3, the correlational analyses showed that independent agency was related to seeking personal control and socially disengaging emotions whereas interdependent agency was related seeking harmony and socially engaging emotions. In Chapter 4, the findings in Study 2 and 3 were not conclusive, but the findings in Study 4 and 5 supported the feeling of insignificance hypothesis. In Chapter 5, trait self-construals were measured and only randomness was manipulated. Study 7 and 8, but not 6,

provided some evidence that randomness interacted with self-construal in predicting control orientations. In Study 9, control deprivation was manipulated and the results showed that, after randomness salience, independent agents enhanced their independence by distancing themselves from external sources of control. Overview of the findings and the potential limitations were discussed in Chapter 6.

***Keywords:*** randomness, agency, independent, interdependent, control

## ÖZ

### ÖZNELİĞİ KURARAK KAOSUN ÜSTESİNDEN GELMEK: RASTGELELİK BELİRGİNLİĞİNİN FARKLI ÖZNELİK BİÇİMLERİ ÜZERİNDEKİ ETKİLERİ

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Bu çalışmada, rastgelelik belirginliğinin önemsizlik hissini arttıracak ve bunun sonucunda özerk öznelere özerkliklerini, ilişkisel öznelere ise ilişkiselliklerini ön plana çıkararak öznelliklerini yeniden kurmak isteyecekleri varsayılmıştır. Bölüm 1’de, insanların örüntü tespit etmeye uygun şekilde evrildiği ve bu örüntülerin varoluşsal kaygıyı kontrol etme işlevine sahip olduğu savlandıktan sonra, rastgelelik belirginliğinin bazı olumsuz sonuçlarından bahsedilmiştir. Sonrasında, bu olumsuz deneyimin sebebinin, rastgeleliğin öznellik hissini azaltması olduğu iddia edilmiştir. Bölüm 2’de özerk ve ilişkisel özneliğin özelliklerinden bahsedilmiş, özerk ve ilişkisel öznelere rastgelelik belirginliği sonrasında öznelliklerini farklı yollardan yeniden kuracakları varsayılmıştır. Bölüm 3’te gerçekleştirilen korelasyonel çalışma, özerk özneliğin bireysel kontrol isteği ve sosyal olarak ayrıştırıcı duygularla; ilişkisel özneliğin ise ahenk sağlama isteği ve sosyal olarak bütünleştirici duygularla ilişkili olduğunu göstermiştir. Bölüm 4’te, Çalışma 2, 3 ve 4’teki deneylerde, hem benlik kurgusu hem de rastgelelik manipüle edilmiştir. Çalışma 2 ve 3’ün ortaya koyduğu sonuçlar hipotezlerle uyumlu olmamakla birlikte, Çalışma 4’ün sonuçları önemsizlik hissi hipotezini desteklemiştir. Çalışma 5 de bu sonucu tekrarlamış ve ilgili hipotezin

desteklendiđi tespit edilmiřtir. Blm 5'te, benlik kurgusu genel kiřilik zelliđi olarak llmř, sonrasında da rastgelelik maniple edilmiřtir. alıřma 6'daki sonular zneliđin yeniden kurulması hipotezini desteklememiř, ancak alıřma 7 ve 8 bu hipotezi destekler nitelikte bazı bulguları sađlamıřtır. alıřma 9'da, rtl olarak rastgelelik hissini arttıran kontrol yoksunluđu maniple edilmiř; rastgelelik belirginliđi sonrasında zerk znelerin, kontrol sahibi bir tanrıya inan řeklinde vcut bulan dıřsal kontrol odaklarıyla aralarına daha fazla mesafe koyarak zerkliklerini n plana ıkardıkları bulunmuřtur. Blm 6'da, alıřmaların bulguları, bu bulguların sađladıđı pratik ıkarımlar ve alıřmaların olası kısıtları tartıřılmıřtır.

***Anahtar kelimeler:*** rastgelelik, znelik, zerk, iliřkisel, kontrol

**To my lovely fiancée Gözde**

**&**

**To my parents and sister**

**&**

**To my hairy companion Havuç**



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## TABLE OF CONTENTS

PLAGIARISM .....	iii
ABSTRACT .....	iv
ÖZ .....	vi
DEDICATION .....	vii
ACKNOWLEDGMENTS .....	ix
CHAPTERS	
1. PERCEPTION OF RANDOMNESS AND ITS NEGATIVE EFFECTS .....	1
1.1. Humans See Patterns Everywhere –Even When They Do Not Exist....	1
1.2. Humans are Born as Pattern Detectors .....	2
1.3. The Existential Need to Perceive the World as a Nonrandom Place....	4
1.4. Negative Effects of Perception of Randomness .....	5
1.5. Randomness is Uncomfortable Because It Undermines the Sense of Agency.....	7
2. THE DIFFERENTIAL EFFECTS OF RANDOMNESS FOR INDEPENDENT AND INTERDEPENDENT AGENCY .....	10
2.1. Different Cultural Self-Construals .....	11
2.2. Models of Agency .....	11
2.3. Independent and Interdependent Ways of Reacting to Randomness....	13
2.4. Overview of the Current Research .....	14
3. DIFFERENCES BETWEEN AGENCY STYLES: EXPLORATORY ANALYSES .....	16
3.1. Study 1 .....	16

3.1.1. Participants and Procedure.....	16
3.1.2. Materials.....	17
3.1.3. Results.....	24
3.1.4. Discussion.....	26
4. EXPERIMENTAL INVESTIGATION OF THE INTERACTION BETWEEN SELF-CONSTRUALS AND RANDOMNESS PRIMINGS.....	29
4.1. Study 2.....	29
4.1.1. Participants.....	29
4.1.2. Materials and Procedure.....	30
4.1.3. Results.....	31
4.1.4. Discussion.....	32
4.2. Study 3.....	32
4.2.1. Results.....	33
4.2.2. Discussion.....	34
4.3. Study 4.....	34
4.3.1. Results.....	34
4.3.2. Discussion.....	35
4.4. Study 5.....	36
4.4.1. Participants.....	36
4.4.2. Materials and Procedure.....	37

4.4.3. Results.....	38
4.4.4. Discussion.....	38
4.5. General Discussion of Studies 2 to 5.....	38
5. STUDIES INVESTIGATING THE INTERACTION BETWEEN TRAIT	
SELF-CONSTRUAL AND RANDOMNESS MANIPULATION.....	41
5.1. Study 6.....	41
5.1.1. Participants.....	41
5.1.2. Materials and Procedure.....	42
5.1.3. Results.....	43
5.1.4. Discussion.....	45
5.2. Study 7.....	46
5.2.1. Participants.....	46
5.2.2. Materials and Procedure.....	46
5.2.3. Results.....	47
5.2.4. Discussion.....	49
5.3. Study 8.....	50
5.3.1. Participants.....	50
5.3.2. Materials and Procedure.....	51
5.3.3. Results.....	51
5.3.4. Discussion.....	55
5.4. Study 9.....	56

5.4.1. Participants.....	56
5.4.2. Materials and Procedure.....	56
5.4.3. Results.....	57
5.4.4. Discussion.....	60
5.5. General Discussion of Studies 6 to 9.....	60
6. OVERALL DISCUSSION AND CONCLUSION.....	62
6.1. Overview of the Findings.....	62
6.2. Practical Implications of the Findings.....	68
6.3. Potential Limitations and Directions for Future Research.....	70
ENDNOTES.....	73
REFERENCES.....	74
APPENDICES	
Appendix A. Turkish Self-Construal Scale.....	103
Appendix B. Turkish INDCOL.....	105
Appendix C. Turkish Locus of Control Scale.....	107
Appendix D. Turkish Desirability of Control Scale.....	109
Appendix E. Turkish Causal Uncertainty Scale.....	111
Appendix F. Rule-based versus Family Resemblance-Based Categorization Stimuli.....	112
Appendix G. Graphic Novel Manipulation Materials.....	116

Appendix H. Tree Photographs Manipulation Materials – Sample Photographs .....	121
Appendix I. Physics Quotes Priming Material .....	123
Appendix J. Items of Feeling of Insignificance Scale .....	124
Appendix K. Unscrambling Task .....	125
Appendix: L: Curriculum Vitae .....	127
Appendix M: Turkish Summary (Türkçe Özet) .....	129
Appendix N: Tez Fotokopisi İzin Formu .....	153

## LIST OF TABLES

### TABLES

Table 1. Items of the Turkish Version of Harmony Control Scale and Factor Loadings.....	83
Table 2. Items of the Turkish Version of FAD-Plus Scale and Factor Loadings....	85
Table 3. Items of the Turkish Version of Analysis-Holism Scale and Factor Loadings.....	87
Table 4. Items of the Turkish Version of Need for Closure Scale and Factor Loadings.....	89
Table 5. Items of the Turkish Version of Socially Engaging and Disengaging Emotions Inventory and Factor Loadings.....	90
Table 6. The Correlations between Cultural Orientations and Main Demographic Differences.....	92
Table 7. The Correlations between Cultural Self-Construal and Control Orientations.....	93
Table 8. The Correlations between Cultural Self-Construals and Thinking Styles.....	94

Table 9. The Correlations between Cultural Self-Construals and Frequency of Emotions.....	95
Table 10. The Correlations between Cultural Self-Construals and Other Variables.....	96
Table 11. Graphic Novel Manipulation and Mean Differences for Participants Primed with Interdependence.....	97
Table 12. Graphic Novel Manipulation and Mean Differences for Participants Primed with Independence.....	97
Table 13. Tree Photographs Manipulation and Mean Differences for Participants Primed with Interdependence.....	98
Table 14. Tree Photographs Manipulation and Mean Differences for Participants Primed with Independence.....	98
Table 15. Physics Quotes Manipulation and Mean Differences for Participants Primed with Interdependence.....	99
Table 16. Physics Quotes Manipulation and Mean Differences for Participants Primed with Independence.....	99



## LIST OF FIGURES

### FIGURES

Figure 1. The Interaction between Independent Self-construal and Randomness in Predicting Belief in Free Will .....	100
Figure 2. The Interaction between Interdependent Self-construal and Randomness in Predicting Belief in Scientific Determinism .....	100
Figure 3. The Interaction between Interdependent Self-construal and Randomness in Predicting Belief in Fatalistic Determinism .....	101
Figure 4. The Interaction between Locus of Control and Randomness in Predicting Belief in Fatalistic Determinism .....	101
Figure 5. The Interaction between Locus of Control and Randomness in Predicting Belief in Scientific Determinism .....	102
Figure 6. The Interaction between Locus of Control and Randomness in Predicting Belief in Free Will .....	102



## **CHAPTER 1**

### **PERCEPTION OF RANDOMNESS AND ITS NEGATIVE EFFECTS**

Imagine yourself living a life where nothing happens for a reason. You have no control over the events, and in fact, no one does, including other people, government, the god, etc. Anything can happen at any moment and there is absolutely no way of predicting it. In the current research, based on previous findings in the literature, I argue that such sense of chaos and randomness is highly aversive and people attempt to overcome this by attempting to reestablish the feeling of being an agent in life.

Briefly, I propose that the sense of randomness is uncomfortable because it undermines the sense of agency and people react to it by reasserting either independent or interdependent agency. In order to establish the theoretical foundation of these hypotheses, in this chapter, first I will mention a few examples about how people always want to see patterns as opposed to randomness (section 1.1). Then, I will discuss the reasons for the need of nonrandomness from evolutionary (section 1.2) and existential (section 1.3) perspectives. Afterwards, I will cite some evidences for that perception of randomness produces an aversive experience (section 1.4) and the uncomfortable nature of randomness might be related to its effect of undermining the sense of agency which is my first hypothesis in the current research (section 1.5). In Chapter 2, I will discuss independent and interdependent models of agency and hypothesize that independent agents would assert independence whereas interdependent agents would assert interdependence after randomness salience which is my second hypothesis. In Chapter 3, 4, and 5, I will report the findings of nine different studies testing these two hypotheses. Lastly, I will overview the findings, discuss its practical implications, and mention some limitations of the current study in Chapter 6.

#### **1.1 Humans See Patterns Everywhere –Even When They Do Not Exist**

People perceive patterns even in completely random events (Kahneman & Tversky, 1972; Nickerson, 2004). One of the most known examples of this

phenomenon is “hot hand fallacy” (Alter & Oppenheimer, 2006). As every basketball fan would know, if a player scores on a streak, that player is believed to have a “hot hand”. A hot handed player is expected to succeed in the subsequent shots as well and score at a higher rate than normal. However, past research demonstrated that this is simply not the case whether it is basketball, baseball, tennis, golf, and the list goes on (Alter & Oppenheimer, 2006). In case of hot hand fallacy, people look for and detect a pattern (i.e., the player scores repeatedly) and base their predictions on such pattern. However, the initially perceived pattern usually is not there and this perception is a result of inability to accurately distinguish randomness and nonrandomness (Alter & Oppenheimer, 2006). Similarly, gamblers were also found to be very prone to assuming patterns in randomness (Gaissmaier, Wilke, Scheibehenne, McCanney, & Barrett, 2015). For example, in the case of coin tossing, people generally believe that the number of heads and tails would balance out each other, although the probability for each toss is actually completely independent from the previous ones (Tversky & Kahneman, 1974).

Hot hand and gambling fallacies are just two examples of how people are relentless in their quest to detect patterns in their universe and that they see patterns even in randomness. They not only understand the world as an orderly place, but also fail to generate randomness when asked to (Alter & Oppenheimer, 2006). I argue that this is because people prefer order, structure, and pattern, as compared to randomness and chaos. I posit that there are two underlying reasons for this tendency: (1) Humans are evolved in this way and they are wired to detect patterns in their environment; and (2) Humans need nonrandomness in order to mitigate their existential anxiety

## **1.2 Humans are Born as Pattern Detectors**

Human beings are born as pattern detectors. In one study, Canfield and Haith (1991) demonstrated that the infants who were as young as 2 to 3-month-old were able to detect patterns and form certain expectations based on them. When the infants were exposed to a sequence of pictures, they fixated on the locations where they expected the next pictures would emerge. This suggests that even 2 to 3-month-old infants can seek and detect consistent patterns which would enable them to render their

environment more predictable for them. Similarly, another study showed that 3 to 3.5-month-old infants had the capacity to predict when objects would be occluded behind other objects and understand that there were two identical objects moving in the opposite direction when their expectations about the movement of objects were violated (Aguiar & Baillargeon, 2002). Past research also showed that, by the time infants turn 1-year-old, they possess the capacity to remember both familiar and novel events in the correct temporal order (Bauer & Mandler, 1992). In addition, neuropsychological studies demonstrated our innate capacity to perceive and expect patterns: Among adults, certain responses in prefrontal cortex have been observed when their expectations regarding sequence patterns were violated (Huettel, Mack, & McCarthy, 2002). In sum, current evidence supports that human beings have an inborn capacity to seek and detect patterns and make the world they live in as more predictable rather than chaotic.

How people learn is also heavily dependent on their ability to detect patterns. Classical conditioning, for example, relies on making associations between an unconditioned and a conditioned stimuli which necessitates identifying which pairings are nonrandom (Recorla & Wagner, 1972; Zhao, Hahn, & Osherson, 2014). Perceiving the pattern also makes it easier to learn via operant conditioning. One of the four factors influencing the effectiveness of reinforcement and punishment is contingency (Miltenberger, 2011). Accordingly, when a reinforcement consistently follows a behavior and does not occur after different behaviors, the learning becomes easier and faster (Miltenberger, 2011). Language acquisition similarly relies on detection of patterns since one needs to distinguish random co-occurrences from stable and consistent relationships to acquire language (Kelly & Martin, 1994; Zhao et al., 2014).

Thus people seek and detect consistent relationships and start doing so when they are as young as 2-month-old. They have an inborn capacity to detect nonrandom patterns and their learning and acquisition processes are heavily dependent on perception of such patterns. In addition, it has been argued that humans learn and adapt by detecting patterns and coherent structures which enable them to build strategies for finding food, avoiding predators, and mating (Zhao et al., 2014). Past research seems to be consistent with the evolutionary perspective suggesting that human beings are wired to detect patterns. Making the distinction between what is random and

nonrandom seems to be contributing to humans' learning processes, their chances of survival, and capacity to reach to their goals. However, the apparent evolutionary benefits are not the only reasons humans almost always prefer order, structure, and pattern as opposed to chaos and randomness. Unlike other animals, humans have the capacity to reflect on their existence and question the meaning of their life and the universe (see Greenberg, Koole, & Pyszczynski, 2004). Such an existential angst seems to be playing a major role in humans' tendency to prefer order over chaos.

### **1.3 The Existential Need to Perceive the World as a Nonrandom Place**

From an existential perspective, detecting patterns allows us to produce “meanings” by inferring connections, so that we can fit everything into a single reality where everything has a consistent and predictable relationship with every other thing in our universe (Heine, Proulx, & Vohs, 2006). Western existentialist philosophers have underlined this pervasive tendency to assign meaning, which Albert Camus (as cited in Heine et al., 2006) labeled as “the nostalgia for unity.” According to this perspective, there is a “universal human need to relate all elements of perceived reality into a single, unified, cohesive framework of expected relationships” (Heine et al., 2006, p. 89). Humans are motivated to maintain and protect this coherent and structured framework (Heine et al., 2006; Hennes, Nam, Stern, & Jost, 2012).

Proulx, Inzlicht, and Harmon-Jones (2012) argued that the same motivation to maintain consistency and coherence underlies the seemingly disparate psychological theories, including cognitive dissonance theory (Festinger, 1957), reactive approach motivation (McGregor, Nash, Mann, & Phillips, 2010), terror management theory (Solomon, Greenberg, & Pyszczynski, 1991), compensatory control model (Kay, Whitson, Gaucher, & Galinsky, 2009), uncertainty management model (van den Bos, 2001), system justification theory (Jost, Banaji, & Nosek, 2004), meaning making model (Park, 2010), Piaget's theory of cognitive development (Müller, Carpendale, & Smith, 2009), model of ambivalence-induced discomfort (Van Harreveld, van der Pligt, & de Liver, 2009), and meaning maintenance model (Heine et al., 2006). According to Proulx et al. (2012), all of these theoretical perspectives suggest the need for consistency, coherence, and structure. One could also add learned helplessness

(Maier & Seligman, 1976) and belief in a just world (Lerner, 1980) to the list as theories underscoring such necessities.

The common factor underlying these theories is the humans' need for structure and pattern. We humans are unique in our capacity to understand our own mortality and this produces an enormous amount of anxiety (Solomon et al., 1991). What is the point of doing anything if we are bound to die some day? Why do we care so much about our decisions if all of them lead to the same end? Studies in existential experimental psychology suggested that, in order to avoid the paralysis that would be caused by such questions, we hold onto certain worldviews, ascribe meaning to the universe, and thus avoid the sense of meaninglessness (Greenberg et al., 2004). A vast literature in social psychology has demonstrated that people are "meaning-makers" and they explore the universe to find consistent and predictable relations to infer meaning (Heine et al., 2006). If the universe was a random place where nothing can be predicted, what kind of meaning one could infer from it, other than concluding that there is no meaning? So we are beings with existential worries and that is one of the reasons why we need coherence and consistency (Hennes et al., 2012).

So far I have covered some potential reasons why people have a tendency to seek and detect patterns. But what about the instances when they fail to perceive any pattern? How does perceiving the universe as a random place affect people? In the next section, I will present the argument that perception of randomness is an uncomfortable experience by referring to several empirical studies.

#### **1.4 Negative Effects of Perception of Randomness**

So, people prefer order and structure over randomness, and they have both an innate capacity and a strong need for doing so. However, it might not always be possible to maintain a sense of order as events in our lives sometimes seem to be happening randomly and unpredictably. Past research demonstrated that, when this happens, it leads to certain negative effects.

Compensatory control model (CCM; Kay et al., 2009), for example, posits that a sense of randomness leads to anxiety. According to CCM, when people are deprived of having a personal control over their lives, they compensate for such lack by

endorsing some external sources of control (e.g., believing that God has control over the events in life) in order to maintain a sense of order and structure (Kay et al., 2009). The underlying reason behind this compensation process was argued to be that people are uncomfortable with the idea that universe might be operating randomly as such perception leads to anxiety (Kay & Eibach, 2013; Kay et al., 2009; Shepherd, Kay, Landau, & Keefer, 2011). CCM posits that, when people lack personal control, they still want to believe that the events in their lives are somehow nonrandom in order to avoid such anxiety, and that is why they enhance external sources of control (Kay et al., 2009). Past research has obtained empirical support for the anxiety-producing effect of the perception of randomness. It was demonstrated that randomness manipulation leads to increase in both self-reported anxiety and neurophysiological activities related to elevation in anxiety (Tullett, Kay, & Inzlicht, 2014). Furthermore, a study by Laurin, Kay, and Moscovitch (2008) showed that the effect of personal control deprivation on enhancing external control was observed only among those who reported increased levels of subjective anxiety after the control deprivation manipulation.

Several other social psychological theories also had implications with regard to how a sense of randomness results in an aversive arousal. Terror management theory (TMT; Solomon et al., 1991), for example, posits that human beings are terrified by the fact that they will have to die some day. In order to buffer the anxiety produced by such awareness of mortality, people ascribe meaning to their lives by adopting worldviews and try to maintain a positive overall self-evaluation by living up to the standards of their worldviews (Burke, Martens, & Faucher, 2010; Solomon et al., 1991). But past studies showed that this effect was partly due to the uncontrollable nature of death (Agroskin & Jonas, 2013; Fritsche, Jonas, & Fankhänel, 2008). Consistently, it was showed that when people are made to think about suicide, the effects suggested by TMT were not observed (Fritsche et al., 2008). Because, although suicide is obviously related to death, it is controllable and predictable unlike almost any other way of dying. So it could be argued that mortality awareness produces a great deal of anxiety, and this is partly because it is a random process and there is no way to predict the exact time of death.



According to meaning maintenance model (Heine et al., 2006), humans are meaning-makers. They are not comfortable with the idea that life could be meaningless, or “absurd”, thus they search for patterns and draw connections in order to create internally consistent meaning structures (Heine et al., 2006). These systems of meaning provide a sense of nonrandomness as “meaning is what links people, places, objects, and ideas to one another in expected and predictable ways” (Heine et al., 2006, p. 89). If the meaning structures do not sufficiently provide the sense of consistency, it is a distressing experience as it implies that one does not have the proper means to render the universe predictable (Heine et al., 2006). Uncertainty management theory (Van den Bos, 2001, 2009), very similarly, posits that people tend to search for meaning in order to make sense of their lives. However, occasionally they fail to find a meaning and this could result in a state of personal uncertainty in which the person is uncertain about his/her self-views and worldviews (Van den Bos, 2009). Personal uncertainty renders people unable to form confident expectations about their environment (Van den Bos, 2009). Such experience was found to result in highly aversive and uncomfortable feelings (Hogg, 2007; Van den Bos & Lind, 2002).

So, people are wired to detect patterns. They need consistency and structure to mitigate their existential angst. In addition, lacking a sense of order and structure and perceiving the world as a random place has been repeatedly demonstrated to be a negative experience. People feel uncomfortable when they are not able to render the universe predictable for themselves. They do not only feel uncomfortable, but also try to overcome the feeling of randomness in order to reestablish their sense of order and structure (Proulx et al., 2012). In the next section, I will offer a novel hypothesis and argue that the negative impact of randomness is due to its undermining effect on sense of agency. Because a need for agency would underlie both evolutionary and existential need for nonrandomness.

### **1.5 Randomness is Uncomfortable Because It Undermines the Sense of Agency**

So far I have demonstrated that randomness undermines one’s chances of survival and one’s desire to infer meaning from life. Consistently, a perception of randomness produces an aversive state. I argue that a need for sense of agency is

keystone in this process as it is the main underlying factor that renders randomness aversive. If one cannot actively adapt to his/her environment and find meaning in his/her life, then it means that the person is not an active agent, but a passive object in life. The aversive experience produced by randomness would be related to the undermined sense of agency. Agency can be defined as “the self in action” (Markus & Kitayama, 2003, p. 4) and refers to the subjective experience of actively guiding one’s actions in life. As lack of pattern and structure implies uncontrollability of events and helplessness in the face of completely random occurrences, it could be argued that agentic feeling of being in control of one’s life would be diminished when exposed to a sense of randomness. Existing evidence is consistent with this proposition: The sense of randomness is positively associated with the sense of loss of control (Chae & Zhu, 2014; Kotabe, 2014) and powerlessness (Kotabe, 2014). In addition, it would be understandably hard to infer coherent meanings from and make sense of life when life seems chaotic. This would obstruct the process of attributing meaning to one’s existence in this universe. If there is no meaning in one’s existence, then people would feel like insignificant objects who take no part in shaping the course of events in life rather than having a sense of agency. In short, I argue that both evolutionary and existential need for nonrandomness overlap at least to some extent as they both are highly relevant to how much people feel like agents who actively participate in the course of life.

In this research, I propose a novel hypothesis that when a sense of randomness is made salient, people would especially be motivated to assert their agency. As the past research suggests, lack of pattern and structure triggers an aversive feeling, and it is hypothesized that this is, at least partially, due to the randomness’ effect of rendering the person a passive object that is unable to participate in shaping the course of events. When one fails to identify any pattern at all, one would be clueless regarding what is going on around them. In this case it would be quite hard to experience agency as the person would be at the mercy of the random occurrences. This reasoning leads to my first hypothesis:

*Hypothesis 1: Randomness salience would lead to a feeling of insignificance.*

In this research, feeling of insignificance is defined as the feeling of not being able to participate in the course of events. When people feel insignificant, their sense

of agency would be lacking since they would feel like going with the flow instead of determining a path to follow. In that case, one would feel like a piece of tree branch dragged by the river instead of someone who is swimming to a particular destination. Such passivity and feeling of insignificance would both undermine one's efforts to assign meaning to one's existence and compromises one's chances of success and survival. As this feeling of insignificance would be aversive and uncomfortable, it is expected to produce a need to reinstate the sense of agency. Thus it is hypothesized that people would perceive randomness as a threat to their capacity to participate in the course of events, and in response they would reassert and reestablish their agency.

However, people's motivation to reassert agency would not be observed in the same way, as there is more than one kind of agency: *Independent* and *interdependent* agents experience their sense of agency in very different ways (see Markus & Kitayama, 2003). Human beings are cultural animals and how they construe their selves is heavily influenced by the culture they live in (Markus & Kitayama, 1991; Triandis, 1989). Although independence and interdependence are highly related to the cultural contrast between *individualism* and *collectivism* (Markus & Kitayama, 1991; Triandis, 1989), it has previously been shown that every individual in any culture possesses both an independent and an interdependent self at varying levels (Singelis, 1994). Whether a person is more strongly an independent or interdependent agent shapes the motivation, cognition, and emotion of that person (Markus & Kitayama, 2003; Kitayama & Uchida, 2005). In the next chapter, I will elaborate on how independent and interdependent agents differ from each other and how they are expected to react to randomness salience.

## **CHAPTER 2**

### **THE DIFFERENTIAL EFFECTS OF RANDOMNESS FOR INDEPENDENT AND INTERDEPENDENT AGENCY**

#### **2.1 Different Cultural Self-Construals**

In traditional psychological literature, agency has been conceptualized as having the capacity to personally control the world (Rothbaum Weisz, & Snyder, 1982; Snibbe & Markus, 2005; Weisz, Rothbaum, & Blackburn, 1984). However, this is due to the heavy influence of Western individualistic cultures (e.g., Azuma, 1984), which emphasize autonomy, separateness, and freedom of individuals (Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 1989). However, there are also collectivistic cultures which emphasize connectedness, harmony, and being part of a relationship (Hofstede, 2001; Markus & Kitayama, 1991; Triandis, 1989). Although such cultural orientations have usually been analyzed at nation-level, there is also significant interpersonal variation (e.g., Singelis, 1994; Singelis, Triandis, Bhawuk, & Gelfand, 1995; Trafimow, Triandis, & Goto, 1991). For example, even within the same culture, individuals vary in how much they adhere to individualistic or collectivistic understanding of the world based on their socioeconomic status (Snibbe & Markus, 2005; Stephens, Fryberg, & Markus, 2011) or occupation (Uskul, Kitayama, & Nisbett, 2008).

Past research has shown that every individual has both independent (i.e., individualistic) and interdependent (i.e., collectivistic) self-construals at different levels (Cross, Hardin, & Gercek-Swing, 2011; Singelis, 1994). Independent self-construal was defined as being a person “whose behavior is organized and made meaningful primarily by reference to one’s own internal repertoire of thoughts, feelings, and actions, rather than by reference to the thoughts, feelings and actions of others” (Markus & Kitayama, 1991, p.226). People with independent self-construal value their autonomy, freedom to choose, and understand themselves as unique individuals who are separate from their surroundings (Markus & Kitayama, 1991). Interdependent self-construal, on the other hand, was defined as “seeing oneself as part

of an encompassing social relationship and recognizing that one's behavior is determined, contingent on, and to a large extent organized by what the actor perceives to be the thoughts, feelings, and actions of others in the relationship" (Markus & Kitayama, 1991, p. 227). People with interdependent self-construal value being part of a relationship, committing themselves to their duties and obligations, and maintaining harmony within their ingroup (Markus & Kitayama, 1991). Although independent and interdependent self-construals are highly different from each other, everyone has some level of independent and interdependent self-construal at the same time and individuals differ based on whether their independent or interdependent side is relatively stronger (Cross et al., 2011; Singelis, 1994).

Thus, self-construals deeply affect how people construe and understand themselves. Such belief structures would expectedly be closely related to how people understand agency and under what conditions they have the sense of being an agent. Past research has demonstrated that self-construals indeed are closely related with different ways of agency (e.g., Markus & Kitayama, 2003; Kitayama & Uchida, 2005; Snibbe & Markus, 2005). In the remaining parts of the chapter, I first argue that there are two different models of agency, namely independent and interdependent agencies (section 2.2); second, I will argue that independent and interdependent agents would react differently to randomness salience (section 2.3).

## **2.2 Models of Agency**

Markus and Kitayama (2003) proposed two different models of agency: Independent and interdependent (or disjoint and conjoint). Accordingly, independent agents feel the sense of agency when they autonomously determine their own actions. These agents see themselves as disconnected from others and they are motivated to change the world in accordance with their own personal goals, desires, and free will. For interdependent agents, on the other hand, duties and obligations determine actions. Being part of a meaningful relationship feeds the sense of agency for interdependent agents and they adjust themselves in accordance with the world instead of trying to change the world in accordance with themselves (Rothbaum et al., 1982).

Independent and interdependent agents differ with respect to their motivation, cognition, and emotion (Kitayama & Uchida, 2005). First, independent agents are motivated to pursue their own choices whereas interdependent agents are motivated to satisfy the needs and expectations of others in the relationship. For example, in American culture, having free choices is central to having a sense of agency; however, duties and obligations override freedom to choose in Indian culture (Savani, Markus, Naidu, Kumar, & Berlia, 2010). Similarly, among the more interdependent working-class context, concern for others become more focal than freedom to choose, when compared with middle-class Americans (Stephens et al., 2011). Thus, independent agents like to be behind the wheels and have personal control over their lives whereas interdependent agents are motivated to do whatever necessary to maintain the harmony in their groups (Kitayama & Uchida, 2005). Furthermore, as belief in free will is related to belief of having personal control over life, independent agents are usually argued to be more likely to endorse a belief in free will as compared to interdependent agents who are more comfortable with external sources of control and thus are more determinists (e.g., Sarkissian, Chatterjee, De Brigard, Knobe, Nichols, & Sirker, 2010).

Second, these two models of agency also differ with respect to cognitive styles they utilize (Kitayama & Uchida, 2005). Such difference is due to the difference between *analytical* and *holistic* thinking (Masuda & Nisbett, 2001; Miyamoto, 2013; Nisbett, Peng, Choi, & Norenzayan, 2001). Independent agents prefer analytical thinking which “emphasizes logic, constant or stable states and properties, and categories defined by strict rules” (Zhou, He, Yang, Lao, & Baumeister, 2012, p. 460). Analytical thinkers perceive each object as separate from its environment and attend to focal object instead of the context (Masuda & Nisbett, 2001; Miyamoto, 2013; Nisbett et al., 2001). Thus, the style of thinking based on an independent model of agency emphasizes separate entities rather interconnected ones. Interdependent agents prefer holistic thinking which “emphasizes wholes and dialectics, changing and flowing states, and relationships” (Zhou et al., 2012, p. 460). Holistic thinkers perceive each object as in a relationship with other objects and the context (Masuda & Nisbett, 2001; Miyamoto, 2013; Nisbett et al., 2001). So, such style of thinking is in accordance with an interdependent model of agency which emphasizes relationships, obligations,

duties, and the necessities of the context. In short, the two different ways of being an agent also differ with respect to cognitive styles as independent agents are analytical thinkers whereas interdependent agents are holistic thinkers.

Third, there is also difference between independent and interdependent agents regarding their emotional experience (Kitayama & Uchida, 2005). Independent agents' most intense emotions are evoked after they reached to their goals (e.g., pride) or failed to do so (e.g., frustration) whereas interdependent agents' emotional experience is more influenced by whether they accomplished interdependence (e.g., closeness) or not (e.g., guilt), as the past research illustrated (Kitayama, Karasawa, & Mesquita, 2006; Kitayama, Markus, Kurokawa, 2000). So independent agents experience socially disengaging (i.e., related to individual goals) emotions more frequently and intensely, however interdependent agents experience socially engaging (i.e., related to maintaining group harmony) emotions more intensely and frequently (Kitayama et al., 2000; Kitayama et al., 2006). In addition, past research illustrated that the well-being of independent agents relied more on disengaging emotions whereas it relied more on engaging emotions for interdependent agents (Kitayama et al., 2006). Thus, independent and interdependent agents also differ with respect to their overall emotional experience. Disengaging emotions are more important for the former one and engaging ones are more important for the latter.

### **2.3 Independent and Interdependent Ways of Reacting to Randomness**

In the first chapter, I argued that perception of randomness would lead to a feeling of insignificance. Because people would feel like a passive object at the mercy of random occurrences and this would seriously undermine their sense of agency. I hypothesized that, in order to overcome this uncomfortable arousal, people would be motivated to reestablish their agency to feel once again in control of the events in their lives. However, as described above, there is no single way of being an agent. Independent and interdependent agents indeed differ in their motivation and control orientation, cognition, and emotion. Hence, I argue that the reestablishment of agency process would be different for independent and interdependent agents. Independent agents would become more independent as they would be more motivated to be

personally in control, analytically think, and experience disengaging emotions more intensely after randomness salience. Hence, they are expected to assert their independence even more by reestablishing their independent model agency. Interdependent agents, however, would become more interdependent as they would be more motivated to maintain harmony, holistically think, and experience engaging emotions more intensely after randomness salience. Because they would have to assert their interdependence and embrace the characteristics of interdependent self-construal in order to reestablish their interdependent model of agency. Thus, my second hypothesis is:

*Hypothesis 2:* After randomness salience, independent agents would become more independent and interdependent agents would become more interdependent in order to reestablish the sense of agency.

## **2.4 Overview of the Current Research**

I have so far shown that humans prefer order and structure as opposed to randomness and chaos. By referring to a wide range of studies, I argued that there are two main reasons for this: First, humans are evolved to detect patterns; second, they need nonrandomness in order to make sense of their lives. But it is not always possible to perceive the world as an orderly place. Sometimes people perceive that the events in their lives are happening randomly and such perception of randomness results in negative effects.

I argued that perception of randomness leads to an uncomfortable experience because randomness results in a feeling of insignificance. If the events in one's lives are completely unpredictable and just randomly occurring, it would imply that the person is just a passive, insignificant object rather than an active subject who is in control of his/her life. So my first hypothesis was as following:

*Hypothesis 1:* Randomness salience would lead to a feeling of insignificance.

As people would feel insignificant when they are exposed to randomness, they would become motivated to feel like an agent once again. Thus, they would feel the need to reestablish their sense of agency. Based on this assumption, I hypothesized that independent agents would become even more independent and interdependent



agents would become even more interdependent after randomness salience in order to avoid being a passive object and assert their agency. Accordingly, my second hypothesis was:

*Hypothesis 2:* After randomness salience, independent agents would become more independent and interdependent agents would become more interdependent in order to reestablish the sense of agency.

In order to test these hypotheses, I have conducted a total of 9 studies. In Study 1, correlational analyses were conducted to examine whether independent and interdependent agents indeed differ with respect to their motivation, cognition, and emotion in Turkish context. In Study 2, 3, 4, and 5, a series of experiments were conducted where both independence/interdependence and randomness was manipulated. Based on the results of these studies, in Study 6, 7, 8, and 9, trait levels of independence and interdependence were measured and how they interacted with a randomness manipulation were investigated.

## **CHAPTER 3**

### **DIFFERENCES BETWEEN AGENCY STYLES: EXPLORATORY ANALYSES**

As preliminary analyses, an exploratory study was conducted by investigating the correlations between independent/interdependent self-construal and constructs related to agency. On the one hand, independence was expected to be related to individualism, internal locus of control, desirability of personal control, analytical thinking, disengaging emotions, and belief in free will. Interdependence, on the other hand, was expected to be associated with collectivism, external locus of control, harmony control, holistic thinking, and belief in determinism. Potential associations with need for closure, causal uncertainty, and socio-demographic differences were also investigated. In addition, a series of moderation analyses were conducted to see if there exists preliminary support for the hypothesis indicating that the sense of randomness have differential effects on control orientations for independent and interdependent agents.

#### **3.1 Study 1**

##### **3.1.1 Participants and Procedure**

The participants were provided with a hyperlink directing them to an online questionnaire hosted by Qualtrics data collection service. All participants were informed that their participation would be in exchange for a partial course credit and they signed an informed consent before filling out the questionnaire. The sample consisted of 403 Middle East Technical University (METU) students of which 219 (54.3%) were female and 184 (45.7%) were male. Mean age was 21.70 ( $SD = 1.56$ ). For the scales that were adapted to Turkish during the current research, there was a retest conducted 3 weeks following the initial study. Eighty five participants participated in the retest session.

### 3.1.2 Materials

**Self-construal.** The self-construal scale (Singelis, 1994) differentially measures independent and interdependent self-construals. The scale was adapted to Turkish by Wasti and Erdil (2007). The 30-item Turkish self-construal scale utilizes a 7-point response format (1 = *completely disagree*, 7 = *completely agree*) and consists of 15 items for independent self-construal (e.g., “I enjoy being unique and different from others in many respects”) and 15 for interdependent self-construal (e.g., “Even when I strongly disagree with group members, I avoid an argument”). Wasti and Erdil (2007) reported Cronbach’s alpha scores for independent and interdependent self-construals as .63 and .72, respectively. In this study, alpha coefficients were .70 and .71, respectively (see Appendix A for the complete list of items).

**INDCOL.** INDCOL (Singelis, Triandis, Bhawuk, & Gelfand, 1995) measures vertical and horizontal forms of individualism and collectivism. It was adapted to Turkish by Wasti and Erdil (2007). Wasti and Erdil (2007) found a 3-factor model (including vertical collectivism, horizontal collectivism, and horizontal individualism while excluding vertical individualism) for the Turkish form of the scale, which had a better fit than the 4-factor model. The 3-factor model consists of 29 items and utilizes a 5-point response format (1 = *strongly disagree*, 5 = *strongly agree*). Example items were “I hate to disagree with others in my group” (vertical collectivism), “I feel good when I cooperate with others” (horizontal collectivism), and “One should live one’s life independently of others” (horizontal individualism). Wasti and Erdil (2007) reported Cronbach’s alpha scores for vertical collectivism, horizontal collectivism, and horizontal individualism as .69, .65, and .68, respectively. In this study, they were .72, .72, and .76, respectively (see Appendix B for the complete list of items).

**Locus of control.** Rotter’s (1966) internal-external locus of control scale measures individuals’ beliefs regarding what controls the events in their lives. An internal locus of control corresponds to the general belief that one is usually personally in control of the events whereas an external locus of control refers to the belief that external factors are the major forces influencing such events. The scale was adapted to Turkish by Dağ (2002). The 47-item Turkish locus of control scale utilizes a 5-point response format (1 = *strongly disagree*, 5 = *strongly agree*). An example item was

“Many of the unhappy things in people's lives are partly due to bad luck” (see Appendix C for the complete list of items). Higher score means more external locus of control and lower score means more internal locus of control. Dağ (2002) reported a Cronbach's alpha score of .92 and a test-retest reliability with one-month interval of .88. The scale had a good level of internal consistency ( $\alpha = .89$ ) in this study.

**Desirability of control.** Burger and Cooper's (1979) desirability of control scale measures the extent to which people desire having a personal control in their lives. It was adapted to Turkish by Eğrigözlü (2002). The 20-item Turkish desirability of control scale utilizes a 5-point response format (1 = *strongly disagree*, 5 = *strongly agree*). An example item was “I prefer a job where I have a lot of control over what I do and when I do it” (see Appendix D for the complete list of items). Higher score means a higher desirability of personal control. Eğrigözlü (2002) reported a Cronbach's alpha score of .75 and test-retest reliability with one-month interval of .40. The scale had satisfactory internal consistency ( $\alpha = .83$ ) in this study.

**Causal uncertainty.** Weary and Edwards's (1994) causal uncertainty scale measures to what extent people feel uncertain regarding what causes the events in their lives. The scale was adapted to Turkish by Uz (2015). The 14-item Turkish causal uncertainty scale utilizes a 5-point scale (1 = *completely disagree*, 5 = *completely agree*). An example item was “I do not understand what causes most of the problems that I have with others” (see Appendix E for the complete list of items). Uz (2015) reported a Cronbach's alpha score of .82. In this study, it was .91.

**Rule-based versus family resemblance-based object categorization.** Object categorization materials were developed by Norenzayan, Smith, Nisbett, and Kim (2002). They are used to measure analytical versus holistic thinking. They were previously used in a study conducted in Turkey (Uskul, Kitayama, & Nisbett, 2008). It consists of 10 different sets and each set includes 2 different pairs of objects. Participants were asked to identify which pair the target object belongs to. Each set was presented with 2 different target objects, thus a total of 20 sets were used. If the target object was categorized based on one feature that it shares with all members of one of the pairs, it was coded as a rule-based categorization. If the target object was categorized based on a few features that it shares with the majority of members in one of the pairs, it was coded as a family resemblance-based categorization. The number

of rule-based and family resemblance-based categorizations was divided by the total number of sets in order to compute a percentage-wise preference score for each type of categorization. See Appendix F for the stimuli that were used.

**Socio-Demographic Characteristics.** Participants were asked to state their age, gender, religiosity (1 = *not religious at all*, 7 = *very religious*). To measure the perceived socioeconomic status, they were also asked to imagine the society they live in as a 10-rung ladder where the top rung represents the people having the highest standing with respect to wealth and education and the bottom rung represents the people having the lowest standing (Adler, Boyce, Chesney, Cohen, Folkman, Kahn, & Syme, 1994) and choose where they would stand on this ladder (1 = *bottom rung*, 10 = *top rung*).

### **The Scales Adapted to Turkish during the Current Study**

The following scales were translated into Turkish and then back-translated into English by two different PhD candidates in Social Psychology. Any discrepancy in translations was resolved by consensus under the supervision of a third researcher. A retest was conducted 3 weeks after the initial test.

**Harmony control.** Morling and Fiske's (1999) 21-item harmony control scale was adapted to Turkish. The scale measures the level of harmony the person seeks within his/her ingroup. It includes 5 subscales (*higher power*, *friends care*, *anticipate others*, *wait on luck*, and *merge with others*) and utilizes a 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*). Morling and Fiske (1999) reported that Cronbach's alpha scores for the factors ranged from .70 to .78 across 7 different samples.

Consistent with the original scale, principal components analysis using promax rotation revealed 5 factors including *higher power* (6 items), *friends care* (6 items), *anticipate others* (3 items), *wait on luck* (4 items), and *merge with others* (2 items). The 5 factors explained 56.21% of the total variance. In order to test the fitness of this 5-factor structure, a confirmatory factor analysis was also conducted using EQS software and the results revealed a good fit ( $X^2(179) = 647.85$ ,  $p < .001$ , CFI = .82, AGFI = .82, RMSEA = .08).

Cronbach's alpha scores for higher power, friends care, anticipate others, wait on luck, and merge with others were .88, .67, .49, .61, and .69, respectively. Although some of the scales had relatively low reliability since they have a few items, overall harmony control scale had an acceptable reliability with a Cronbach's alpha of .79. Test-retest reliabilities for higher power, friends care, anticipate others, wait on luck, merge with others, and mean harmony control were .77, .66, .57, .37, .39, and .62, respectively ( $p < .001$ ). See Table 1 for the list of items and their factor loadings.

**FAD-Plus.** Paulhus and Carey's (2011) 27-item free will and determinism scale (FAD-Plus) was adapted to Turkish. The scale includes 4 factors: *fatalistic determinism*, *scientific determinism*, *free will*, and *randomness*. The scale utilizes a 5-point response format (1 = *totally disagree*, 5 = *totally agree*). Paulhus and Carey (2011) reported Cronbach's alpha scores, .82, .69, .70, and .72, respectively.

Principal components analysis using promax rotation initially revealed 7 factors. But, the emerged factors did not possess conceptual consistency and the scree plot suggested a 4-factor solution. When the number of factors to extract was set to be 4, consistent with the original scale, results revealed factors of fatalistic determinism, scientific determinism, free will, and randomness. The 4 factors explained 44.42% of the total variance. However, 1 item did not have a loading over .30 on any of the factors, and 3 items had loadings on the other factors and did not have loadings over .30 on the factors they belong to in the original version of the scale.

A confirmatory factor analysis using EQS software was also conducted to test how well the original 4-factor structure of the scale fits into the Turkish sample. The analysis initially revealed an acceptable fitness ( $X^2(318) = 958.18, p < .001$ , CFI = .79, AGFI = .80, RMSEA = .07). However, LMTEST suggested addition of two error covariances; one of which was between the two conceptually similar items; "People are unpredictable" and "People's futures cannot be predicted" ( $X^2(1) = 40.80, p < .001$ ), and the other one was between the items of "People have complete control over the decisions they make" and "People have complete free will" ( $X^2(1) = 39.70, p < .001$ ). As the items were closely related to each other and the addition of both error covariances significantly improved the model, such changes were applied to the model. Another item ("Chance events seem to be the major cause of human history") had a loading on an unexpected factor, similarly to the results of the exploratory factor

analysis. This item was removed from the analysis. The other two items which had unexpected loadings in the exploratory factor analysis were kept on based on the suggestions of LMTEST. The resulting model had a good fit ( $X^2(290) = 766.83, p < .001$ , CFI = .83, AGFI = .84, RMSEA = .06). Cronbach's alpha scores for fatalistic determinism, scientific determinism, free will, and randomness were .87, .63, .68, and .80, respectively. Test-retest reliabilities of the factors were .74, .38, .56, and .62 ( $ps < .001$ ). See Table 2 for the list of items and their factor loadings.

**Analysis-Holism.** Choi, Koo, and Choi's (2007) 24-item Analysis-Holism Scale was adapted to Turkish. The original scale includes 4 factors: *Causality, attitude toward contradictions, perception of change, and locus of attention*. Choi et al. (2007) reported Cronbach's alpha scores for these factors as .71, .69, .58, and .56, respectively; and the overall scale had an acceptable level of internal consistency ( $\alpha = .71$ ). The scale utilizes a 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*).

Principal components analysis using promax rotation initially supported a 5-factor solution but scree plot suggested a 4-factor solution, as consistent with the original scale, and the 4 factors explained 52.06% of the total variance. When the number of factors to extract was set to be 4, three items (i.e., "Future events are predictable based on present situations", "Current situations can change at any time", and "We should consider the situation a person is faced with, as well as his/her personality, in order to understand one's behavior") unexpectedly had loadings on causality factor although they were expected to belong to perception of change and locus of attention factors. In order to test how well the original structure of the scale fits to the Turkish sample, confirmatory factor analysis was conducted using EQS software. Initial model yielded a fair fitness ( $X^2(183) = 739.64, p < .001$ , CFI = .81, AGFI = .81, RMSEA = .09). LMTEST suggested adding 4 error covariances: The first one was between "Any phenomenon has numerous numbers of causes, although some of the causes are not known" and "Any phenomenon entails a numerous number of consequences, although some of them may not be known" ( $X^2(1) = 94.77, p < .001$ ); the second one was between "If an event is moving toward a certain direction, it will continue to move toward that direction" and "Every phenomenon in the world moves in predictable directions" ( $X^2(1) = 62.17, p < .001$ ); the third one was between

“Everything in the universe is somehow related to each other” and “Nothing is unrelated” ( $X^2(1) = 50.32, p < .001$ ); and the fourth one was between “An individual who is currently honest will stay honest in the future” and “A person who is currently living a successful life will continue to stay successful” ( $X^2(1) = 39.38, p < .001$ ). As the items were highly related with each other, it was decided to implement the addition of error covariances. The final model was improved and had a better fit ( $X^2(179) = 528.84, p < .001, CFI = .88, AGFI = .86, RMSEA = .07$ ).

Cronbach’s alpha scores for locus of attention, causality, attitude toward contradiction, and perception of change are .83, .78, .73, and .79, respectively. Test-retest reliability scores were .42, .51, .56, and .55 ( $ps < .001$ ). Although the subscales had acceptable internal consistency and test-retest reliability; perception of change, in contrary to the expectation, had positive correlations with the other subscales. Perception of change subscale was designed to measure analytical thinking while all other subscales were designed to measure holistic thinking. Thus, one unit increase in perception of change corresponds to an increase in analytical thinking whereas one unit increase in other factors’ scores corresponds to an increase in holistic thinking. So perception of change was expected to have a negative correlation with other factors but it had positive ones, as can be seen in Table 8. See Table 3 for the list of items and their factor loadings.

**Need for closure.** A 9-item short form of need for cognitive closure scale (Kashima & Loh, 2006) was adapted to Turkish. The scale includes 3 items for each of the factor of the original need for cognitive closure scale (Webster & Kruglanski, 1994): Preference for order, preference for predictability, and discomfort with ambiguity. Kashima and Loh (2006) reported a Cronbach’s alpha score of .80 for the overall scale.

Principal components analysis using promax rotation supported a single factor solution and the factor explained 43.34% of the total variance. A confirmatory factor analysis using EQS software yielded a poor fit ( $X^2(27) = 246.39, p < .001, CFI = .81, AGFI = .81, RMSEA = .14$ ). LMTEST suggested adding 4 error covariances: The first one was between “I enjoy having a clear and structured mode of life” and “I find that establishing a consistent routine enables me to enjoy life more” ( $X^2(1) = 87.69, p < .001$ ); the second one was between “When I am confused about an important issue, I



feel very upset” and “I don’t like situations that are uncertain” ( $X^2(1) = 50.66, p < .001$ ); the third one was between “I hate to change my plans at the last minute” and “I dislike unpredictable situations” ( $X^2(1) = 16.56, p < .001$ ); and the fourth one was between “I feel uncomfortable when I don’t understand the reason why an event occurred in my life” and “I prefer to socialize with familiar friends because I know what to expect from them” ( $X^2(1) = 12.59, p < .001$ ). The model was improved and had a better fit ( $X^2(23) = 79.23, p < .001$ , CFI = .95, AGFI = .92, RMSEA = .08). Cronbach’s alpha score was .83. Test-retest reliability was .56 ( $p < .001$ ). See Table 4 for the list of items and their factor loadings.

**Socially engaging and disengaging emotions.** The list of socially engaging and disengaging emotions (Kitayama & Uchida, 2005; Kitayama, Markus, & Kurokawa, 2000; Kitayama, Mesquita, & Karasawa, 2006) was adapted to Turkish. The list included 6 different categories: Socially disengaged positive (3 items; e.g., superior), socially disengaged negative (4 items; e.g., frustration), socially engaged positive (3 items; e.g., friendly feelings), socially engaged negative (3 items; e.g., guilt), general positive (4 items; e.g., happy), and general negative (6 items; e.g., pessimistic) emotions. Participants were asked to state how frequently they experience the given emotions on a 7-point scale (1 = *never*, 7 = *always*). Mean engaging and disengaging emotions scores were also calculated. In addition, subjective well-being was measured by a single item (“All things considered, how satisfied do you think you will be with your life as a whole in the near future?”) using a 7-point response format (1 = *very dissatisfied*, 7 = *very satisfied*).

Principal components analysis using promax rotation yielded 6 factors (socially engaging positive, socially engaging negative, socially disengaging positive, socially disengaging negative, general positive, and general negative emotions) as expected and they explained 64.49% of the total variance. The emotion of being “sorry for another” unexpectedly loaded on socially engaging positive emotions factor although it was expected to load on socially engaging negative emotions factor. Similarly, “fear” loaded on socially disengaging negative emotions factor although it was supposed to load on general negative emotions factor.

However, a confirmatory factor analysis using EQS software revealed a poor level of fitness ( $X^2(215) = 922.65, p < .001$ , CFI = .82, AGFI = .79, RMSEA = .09).

LMTEST suggested addition of 3 error covariances: The first one was between “disgust” and “fear” ( $X^2(1) = 123.87, p < .001$ ); the second one was between “sad” and “upset” ( $X^2(1) = 36.16, p < .001$ ); and the third one was between “peaceful” and “calm” ( $X^2(1) = 16.04, p < .001$ ). The model was improved and had a better fit ( $X^2(212) = 693, p < .001$ , CFI = .88, AGFI = .84, RMSEA = .08). Socially engaging positive, socially engaging negative, socially disengaging positive, socially disengaging negative, general positive, and general negative emotions had Cronbach’s alpha scores of .66, .58, .79, .69, .82, and .86, respectively. Test-retest reliability scores were .78, .48, .47, .77, .61, and .52, respectively ( $ps < .001$ ). See Table 5 for the list of items and their factor loadings.

### 3.1.3 Results

**Correlations among the variables.** As presented in Table 6, independent and interdependent self-construals were correlated with individual differences in the orientation towards an independent or interdependent agency. Independence was negatively related to external locus of control ( $r = -.11, p = .023$ ) and more strongly associated with horizontal individualism ( $r = .59, p < .001$ ) than horizontal collectivism ( $r = .11, p = .035$ ). Interdependence was positively related external locus of control ( $r = .11, p = .023$ ), horizontal ( $r = .55, p < .001$ ), and vertical collectivism ( $r = .57, p < .001$ ), as expected. Religiousness was found to be positively related to interdependence ( $r = .19, p < .001$ ) and negatively to independence ( $r = -.13, p = .011$ ). In addition, older participants had decreased levels of interdependent self-construal ( $r = -.14, p = .007$ ) and socioeconomic status was found to be negatively related to independent self-construal ( $r = -.18, p < .001$ ). There was no gender difference with regard to independent or interdependent self-construal.

Table 7 depicts that differences in self-construals predict differences in control orientations in the expected directions. Harmony control was strongly related to interdependence ( $r = .42, p < .001$ ) whereas desirability of control ( $r = .42, p < .001$ ) was strongly related to independence. Thus, the results supported that disjoint agency was related to having a personal control whereas conjoint agency was associated with fitting in and being a part of a greater whole. Table 8 shows that, as expected, holism

was related to interdependence ( $r = .35, p < .001$ ) and not associated with independence. Perception of change subscale, however, was positively correlated with the subscales other than causality, although it was expected to have a negative relationship with all other subscales. This could be argued to be a serious flaw undermining the subscales' validity. Future research is needed to examine its potential reasons. Furthermore, object categorization, was found not to be related to independent or interdependent self-construal. Table 9 summarizes the results with regard to the relationship between self-construal and emotional experience. Results showed that the differences in emotional experience were generally in the expected directions and mean disengaging emotions were related to independence ( $r = .21, p < .001$ ) whereas mean engaging emotions were related to interdependence ( $r = .32, p < .001$ ).

Lastly, Table 10 summarizes the results regarding the relationships between other variables. Results demonstrated that interdependence was associated with fatalistic determinism ( $r = .28, p < .001$ ), scientific determinism ( $r = .12, p = .020$ ), and randomness ( $r = .12, p = .020$ ), as would be expected since interdependent self-construal is related to fitting in with the overall course of events. Free will, on the other hand, was related to independence ( $r = .24, p < .001$ ), as again would be expected. In addition, causal uncertainty was negatively related to independence ( $r = -.15, p = .002$ ), and need for closure positively to interdependence ( $r = .22, p < .001$ ), which suggested that interdependent agents, compared to independent ones, are more likely to perceive the world as a random place and feel uncomfortable about it.

**Further analyses exploring the effects of randomness.** Further analyses were conducted in order to explore the effects of trait randomness. Randomness subscale of FAD-Plus was used as the independent variable and independent/interdependent self-construals and locus of control were taken as moderators.

As seen in Figure 1, the interaction between randomness and independent self-construal predicting free will was significant ( $\beta = .16, p = .001$ ). When independent self-construal was low, randomness did not predict free will ( $\beta = -.11, p = .141$ ). When independent self-construal was high, on the other hand, randomness positively predicted free will ( $\beta = .20, p = .001$ ). The interaction between randomness and independent self-construal was not significant for fatalistic or scientific determinism ( $ps > .05$ ).

The interaction between randomness and interdependent self-construal also significantly predicted scientific determinism ( $\beta = .15, p = .002$ ). When interdependent self-construal was low, randomness did not predict scientific determinism ( $\beta = .07, p = .274$ ). When interdependent self-construal was high, however, randomness positively predicted scientific determinism ( $\beta = .35, p < .001$ ). See Figure 2 for the graphic depicting simple slopes. The interaction between randomness and interdependence was not significant for fatalistic determinism and free will ( $ps > .05$ ).

When locus of control is taken as the moderator, however, the interaction between randomness and the moderator was significant for fatalistic determinism ( $\beta = .09, p = .037$ ). When locus of control score was high (i.e., external), randomness positively predicted fatalistic determinism ( $\beta = .25, p < .001$ ). When locus of control was internal, randomness still predicted fatalistic determinism ( $\beta = .11, p = .039$ ), but the effect was relatively less significant. See Figure 3 for the graphic depicting simple slopes.

The interaction between randomness and locus of control was also significant for both scientific determinism ( $\beta = .13, p = .011$ ) and free will ( $\beta = .19, p < .001$ ). Randomness predicted scientific determinism for both internal ( $\beta = .15, p = .015$ ) and external locus of control ( $\beta = .31, p < .001$ ), but the effect was relatively stronger for external locus of control. For free will, the randomness was a significant predictor for both internal ( $\beta = .15, p = .015$ ) and external locus of control ( $\beta = .47, p < .001$ ), but its effect was relatively stronger for external locus of control, as the beta values suggested. See Figures 4 and 5 for the graphics depicting simple slopes.

The moderating effects of self-construals and locus of control were not significant for the other major variables measured in this study ( $ps > .05$ ).

### **3.1.4 Discussion**

The results of the correlational study (Study 1) largely supported the hypotheses. Independent and interdependent self-construals were significantly correlated with locus of control, collectivism, and individualism in the expected directions (see Table 6). Independence and interdependence were also related to control orientations where the former was associated with desirability of personal

control and latter was related to seeking harmony control (see Table 7). Such differences in agency were also related to emotional experience and disjoint agency was largely related to disengaging emotions whereas conjoint agency was associated with engaging emotions (see Table 9). However, no differences regarding cognitive styles were identified given that both holism scale and object categorization task were not significantly related to self-construals (see Table 8). In addition, trait sense of randomness was found to be interacting with self-construals and locus of control in predicting beliefs in free will, fatalistic, and scientific determinism.

The results of Study 1, however, failed to provide support for the relationship between agency and cognitive styles. Similarly, although the mean engaging and disengaging emotions were associated with interdependence and independence, respectively, their positive and negative emotions subscales did not have consistent associations with different agency styles. For example, whereas positive engaging emotions were positively related to both independent and interdependent self-construals, negative engaging emotions were only related to interdependence. Furthermore, positive disengaging emotions were associated with independence although negative disengaging emotions were correlated with only interdependence. Thus, emotional experience, in addition to cognitive styles, did not significantly and consistently vary based on different agency styles although they were both previously shown to be important factors distinguishing independent and interdependent agency (Kitayama et al., 2006; Masuda & Nisbett, 2001).

Control orientations, however, were reliably associated with the agency styles, consistently with the past research (Markus & Kitayama, 2003; Kitayama & Uchida, 2005). As Table 7 shows, independent agency was strongly associated with desirability of personal control whereas interdependent agency was strongly related to seeking harmony control.

In addition, moderation analyses conducted in Study 1 illustrated that sense of randomness interacts with self-construals and locus of control in predicting beliefs in free will and determinism which are closely related to control orientations as they are beliefs concerning the general causes shaping the events in daily life. Hence, the results suggested that there is reliable association between different agency styles and control orientations, and such agency styles interacts with the sense of randomness in

predicting outcomes related to control orientations. Such result was in consistence with the hypothesis that after randomness salience, independent agents become more likely to seek personal control whereas interdependent agents seek maintaining harmony in order to reestablish their sense of agency. Previous research, for example, demonstrated that a sense of randomness increases belief in a controlling god (e.g., Kay et al., 2009, 2010) but no factor moderating such effect of randomness was previously identified. In the current research, consistently with the reestablishment of agency hypothesis, it was found out that randomness increases fatalistic and/or scientific determinism for interdependent agents whereas it increases belief in free will for independent agents.

In Chapter 4, a series of experimental studies were conducted to test reestablishment of agency hypothesis by manipulating both randomness and self-construal and investigate how their interaction affects assertion of independence/interdependence and different control orientations.

## **CHAPTER 4**

### **EXPERIMENTAL INVESTIGATION OF THE INTERACTION BETWEEN SELF-CONSTRUAL AND RANDOMNESS PRIMINGS**

In this chapter, a series of experimental studies were conducted to examine how experimental manipulation of self-construal and randomness interacts in predicting several outcome measures related to different styles of agency. In Studies 2, 3, and 4, sense of randomness and self-construal were experimentally manipulated and the effects on manipulation checks (i.e., feeling of insignificance and sense of randomness), assertion of independence or interdependence (i.e., importance given to independent and interdependent values) and control orientations (i.e., desirability of control and harmony control) were investigated. These three studies were indeed the replications of each other with the exception of different randomness salience materials used for each study. It was hypothesized that, for the participants primed with independent self-construal, randomness salience would result in assertion of independent values and increase desirability of personal control, as compared to control condition. For the participants primed with interdependence, it was expected that randomness salience would result in assertion of interdependent values and increase harmony control.

#### **4.1 Study 2**

##### **4.1.1 Participants**

The sample consisted of 195 Middle East Technical University students who participated in exchange for partial course credit. Of the participants, 69 were male and 112 were female. Fourteen participants did not mention their gender. The mean age was 21.30 ( $SD = 1.47$ ).

#### 4.1.2 Materials and Procedure

The participants were provided with a hyperlink directing them to an online questionnaire hosted by Qualtrics data collection service. The materials were presented in the following order.

**Randomness manipulation.** A graphic novel consisting of 6 boxes was developed by the author and used to prime randomness (see Appendix G). In control condition, the boxes were presented in the normal chronological order. In experimental condition, the boxes were presented in one of three different mixed orders generated using a random number generator. For both conditions, the orderings were presented twice so that the chronological order or the randomness is fully understood. As a cover story, participants were led to believe that the aim of the task is to rate the quality of the drawing and they were asked to rate on a 7-point scale (1 = *very bad*, 7 = *very good*).

**Manipulation check.** Randomness subscale of FAD-Plus scale (Paulhus & Carey, 2011) was used to test whether manipulation material actually manipulated the sense of randomness. Cronbach's alpha was found to be .88. A 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*) was used.

**Feeling of insignificance.** A feeling of insignificance scale consisting of 2 items (i.e., "I think that whether I do something or not does not have any influence on what is going on in my environment", "Whether I engage in a particular action or not does not have any effect on the overall course of events") was used. Cronbach's alpha for feeling of insignificance scale was .82. A 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*) was used.

**Independence versus interdependence priming.** In order to guide participants to assert their agency in independent or interdependent way, a priming technique developed by Trafimow, Triandis, and Goto (1991) was used. Half of the participants were primed with independence as they were asked to think about how they are different from their friends and family and write down 3 of the things that makes them different. The other half of the participants primed with interdependence as they were asked to think about what they share with their friends and family and write down 3 of the things that they share with them.



**Dependent measures related to agency styles.** Three different dependent variables were tested. Two of them were intended to measure control orientations and included desirability of control and harmony control scales (see Study 1 for the details of these scales). Cronbach's alpha for these scales were found as .85 and .80, respectively. The other variable was related to self-construal. It included a list of 18 values (Kam, Zhou, Zhang, & Ho, 2012) derived from Schwartz's Value Inventory including values relevant to independence (freedom, independent, capable, creativity, varied life, influential, an exciting life, self-respect, choosing own goals) and interdependence (sense of belonging, self-discipline, family security, loyal, humble, obedient, helpful, forgiving, responsible). Cronbach's alpha for independence and interdependence were found as .85 and .79, respectively. Participants were asked to indicate how important these values are for them (1 = *not important*, 7 = *of supreme importance*). The three dependent measures were presented in a randomized order.

#### 4.1.3 Results

**Manipulation check.** Randomness manipulation did not increase reported sense of randomness ( $M = 4.17$ ,  $SD = 1.16$  vs.  $M = 4.09$ ,  $SD = 1.10$ ;  $F(1, 193) = .27$ ,  $p = .603$ ,  $\eta_p^2 = .001$ ).

**Feeling of insignificance.** Similarly, random ordering did not result in an increase in feeling of insignificance ( $M = 2.51$ ,  $SD = 1.23$  vs.  $M = 2.45$ ,  $SD = 1.02$ ;  $F(1, 193) = .12$ ,  $p = .727$ ,  $\eta_p^2 = .001$ ).

**Interactions.** The main effect of self-construal group (independence versus interdependence) was not significant for desirability of control ( $F(1, 191) = .40$ ,  $p = .527$ ,  $\eta_p^2 = .002$ ), harmony control ( $F(1, 191) = .83$ ,  $p = .363$ ,  $\eta_p^2 = .004$ ), independence values ( $F(1, 191) = .02$ ,  $p = .890$ ,  $\eta_p^2 = .000$ ), and interdependence values ( $F(1, 191) = .134$ ,  $p = .714$ ,  $\eta_p^2 = .001$ ). The main effect of randomness manipulation was not significant for desirability of control ( $F(1, 191) = .81$ ,  $p = .370$ ,  $\eta_p^2 = .004$ ), harmony control ( $F(1, 191) = .19$ ,  $p = .664$ ,  $\eta_p^2 = .001$ ), independence values ( $F(1, 191) = .01$ ,  $p = .944$ ,  $\eta_p^2 = .000$ ), and interdependence values ( $F(1, 191) = .84$ ,  $p = .361$ ,  $\eta_p^2 = .004$ ). The 2 (randomness versus nonrandomness) x 2 (independence versus interdependence) interaction was not significant for desirability of control ( $F(1, 191)$

= .81,  $p = .370$ ,  $\eta_p^2 = .004$ ), harmony control ( $F(1, 191) = 1.74$ ,  $p = .189$ ,  $\eta_p^2 = .009$ ), independence values ( $F(1, 191) = 3.16$ ,  $p = .077$ ,  $\eta_p^2 = .016$ ), and interdependence values ( $F(1, 191) = .12$ ,  $p = .729$ ,  $\eta_p^2 = .001$ ).

The effect of randomness manipulation on both independence and interdependence-primed groups was analyzed using one-way ANOVAs and the results were depicted in Tables 11 and 12. In summary, none of the results provided significant results that supported the hypothesis.

#### **4.1.4 Discussion**

The results of Study 2 did not support the hypotheses. Randomness manipulation did not significantly increase the sense of randomness and feeling of insignificance. Similarly, the interaction between self-construal and randomness manipulations failed to result in a significant effect on the measures related to assertion of agency and control orientations. Such results could be due to ineffective priming of randomness, thus in Study 3, randomness will be primed using a different manipulation material.

#### **4.2 Study 3**

The sample consisted of 164 Middle East Technical University students who participated in exchange for partial course credit. Of the sample, 61 (37.2%) were male and 103 (62.8%) were female. The mean age was 21.35 ( $SD = 2.02$ ). Study 3 was a replication of Study 2 with a single difference: Randomness was manipulated by a series of tree photographs, instead of graphic novel boxes (see Appendix H for the photographs). The materials used were the same ones used by Heintzelman, Trent, and King (2013). Sixteen different photographs of trees were employed. In each photograph, the tree(s) were representing characteristics of a season (fall, winter, spring, and summer) and there were 4 photographs for each season. For control condition, four different sets representing a full seasonal cycle (i.e., fall, winter, spring, and summer) were presented. For experimental condition, each set was in a different random order. Three different random orders were used to avoid the possibility that

participants might detect a pattern in these orders. As a cover story, participants were led to believe that the task was about rating the contrast of each photograph and they were asked to rate on a 7-point scale (1 = *low contrast*, 7 = *high contrast*). The rest of the study was the same as Study 2. Cronbach's alpha scores for randomness, feeling of insignificance, desirability of control, harmony control, independence values, and interdependence values were .83, .77, .85, .77, .89, and .81, respectively.

#### 4.2.1 Results

**Manipulation check.** Participants who were presented with unseasonal (random) orderings of trees did not report higher sense of randomness ( $M = 4.14$ ,  $SD = .99$  vs.  $M = 4.00$ ,  $SD = 1.06$ ;  $F(1, 162) = .78$ ,  $p = .379$ ,  $\eta_p^2 = .005$ ).

**Feeling of insignificance.** Similarly, random ordering did not result in an increase in feeling of insignificance ( $M = 2.58$ ,  $SD = 1.30$  vs.  $M = 2.49$ ,  $SD = 1.39$ ;  $F(1, 162) = .19$ ,  $p = .666$ ,  $\eta_p^2 = .001$ ).

**Interactions.** The main effect of self-construal group (independence versus interdependence) was not significant for desirability of control ( $F(1, 160) = 3.78$ ,  $p = .054$ ,  $\eta_p^2 = .023$ ), harmony control ( $F(1, 160) = .82$ ,  $p = .367$ ,  $\eta_p^2 = .005$ ), independence values ( $F(1, 160) = .32$ ,  $p = .570$ ,  $\eta_p^2 = .002$ ), and interdependence values ( $F(1, 160) = .26$ ,  $p = .612$ ,  $\eta_p^2 = .002$ ). The main effect of randomness manipulation was significant for harmony control ( $F(1, 160) = 4.94$ ,  $p = .028$ ,  $\eta_p^2 = .030$ ) but nonsignificant for desirability of control ( $F(1, 160) = 2.85$ ,  $p = .093$ ,  $\eta_p^2 = .018$ ), independence values ( $F(1, 160) = .81$ ,  $p = .368$ ,  $\eta_p^2 = .005$ ), and interdependence values ( $F(1, 160) = .26$ ,  $p = .608$ ,  $\eta_p^2 = .002$ ). The 2 (randomness versus nonrandomness)  $\times$  2 (independence versus interdependence) interaction was not significant for desirability of control ( $F(1, 160) = .55$ ,  $p = .460$ ,  $\eta_p^2 = .003$ ), harmony control ( $F(1, 160) = 1.32$ ,  $p = .252$ ,  $\eta_p^2 = .008$ ), independence values ( $F(1, 160) = .34$ ,  $p = .563$ ,  $\eta_p^2 = .002$ ), and interdependence values ( $F(1, 160) = 1.53$ ,  $p = .218$ ,  $\eta_p^2 = .009$ ). See Tables 13 and 14 for the results of one-way ANOVAs exploring the effects of randomness manipulation for independence and interdependence-primed groups. In summary, none of the results provided significant results that supported the hypothesis.

#### 4.2.2 Discussion

Similarly to the Study 2, the results of Study 3 failed to support the hypothesis. In Study 5, randomness was manipulated using a different material in order to see whether a more effective manipulation of randomness would result in significant effects on the manipulation check and the other outcome measures.

#### 4.3 Study 4

The sample consisted of 209 participants recruited via social media and they participated voluntarily. Of the sample, 63 participants were male and 145 were female. One participant did not mention his/her gender. The mean age was 29.37 ( $SD = 10.12$ ). In Study 4, randomness was manipulated by priming participants with quotes from a hypothetical physics professor (see Appendix I for the quotes). In control condition, the professor referred to classical physics and argued that everything in the universe, even the things that seem completely coincidental, actually follows the laws of the universe and thus predictable if one had enough knowledge about the surrounding factors. In randomness condition, the same professor referred to quantum physics and argued that there is no law or a certain algorithm in this universe, instead there are probabilities, and thus the universe is dominated by unpredictability. As a cover story, participants were led to believe that the task is about a project regarding dissemination of scientific knowledge to general public and asked to rate how clear the professor's arguments were in the passage (1 = *not clear at all*, 7 = *very clear*). The rest of the study was the same as Study 2 and 3. Cronbach's alpha scores for randomness, feeling of insignificance, desirability of control, harmony control, independent values, and interdependent values were .84, .74, .77, .79, .82, and .80, respectively.

##### 4.3.1 Results

**Manipulation check.** Participants who were presented with the passage referring to quantum physics (randomness condition) reported significantly an

increased sense of randomness ( $M = 3.94, SD = 1.21$  vs.  $M = 3.37, SD = .99$ ) than those in control condition ( $F(1, 207) = 13.53, p < .001, \eta_p^2 = .061$ ).

**Feeling of insignificance.** Randomness manipulation also resulted in an increased feeling of insignificance ( $M = 2.69, SD = 1.53$  vs.  $M = 2.32, SD = 1.38$ ) although the effect was marginally significant ( $F(1, 207) = 3.40, p = .067, \eta_p^2 = .016$ ).

**Interactions.** The main effect of self-construal group (independence versus interdependence) was not significant for desirability of control ( $F(1, 205) = .87, p = .352, \eta_p^2 = .004$ ), harmony control ( $F(1, 205) = .41, p = .521, \eta_p^2 = .002$ ), independence values ( $F(1, 205) = .01, p = .906, \eta_p^2 = .000$ ), and interdependence values ( $F(1, 205) = .05, p = .818, \eta_p^2 = .000$ ). The main effect of randomness manipulation was not significant for desirability of control ( $F(1, 205) = .68, p = .409, \eta_p^2 = .003$ ), harmony control ( $F(1, 205) = 3.23, p = .074, \eta_p^2 = .015$ ), independence values ( $F(1, 205) = .42, p = .516, \eta_p^2 = .002$ ), and interdependence values ( $F(1, 205) = .27, p = .603, \eta_p^2 = .001$ ). The 2 (randomness versus nonrandomness)  $\times$  2 (independence versus interdependence) interaction was not significant for desirability of control ( $F(1, 205) = .01, p = .916, \eta_p^2 = .000$ ), independence values ( $F(1, 205) = .07, p = .797, \eta_p^2 = .000$ ), and interdependence values ( $F(1, 205) = .10, p = .756, \eta_p^2 = .000$ ). The effect was marginally significant for harmony control ( $F(1, 205) = 3.64, p = .058, \eta_p^2 = .017$ ). See Tables 15 and 16 for the results of one-way ANOVAs exploring the effects of randomness manipulation for independence and interdependence-primed groups.

In summary, the results supported the feeling of insignificance hypothesis as randomness manipulation increased both perception of randomness and feeling of insignificance. However, there was no support for the reestablishment of agency hypothesis.

#### 4.3.2 Discussion

In Study 4, unlike Study 2 and 3, randomness was significantly manipulated and successfully increased feeling of insignificance although the effect was marginally significant. The difference could be due to the fact that, in Study 2 and 3, randomness was indirectly manipulated as participants were expected to infer a sense of randomness out of stimuli lacking pattern. In Study 4, however, randomness was more

directly manipulated as there was a direct reference to the randomness in the universe in the manipulation material. Furthermore, the interaction between self-construal and randomness primings had a marginally significant effect for harmony control. However, the effect was not in the expected direction as randomness increased harmony control for independence-primed participants, although it was expected to increase it for interdependence-primed participants (see Table 16). Thus, there was not support for the hypothesis regarding the outcome measures related to assertion of agency and control orientations, but randomness manipulation successfully manipulated the sense of randomness and increased feeling of insignificance, as expected. In Study 5, a different manipulation material similarly directly referring to a sense of randomness was used to replicate such effects on the sense of randomness and feeling of insignificance observed in Study 4.

### **4.3 Study 5**

So far only partial support was provided for the hypothesis that randomness salience increases the sense of randomness and feeling of insignificance, as such effects were observed only in Study 4. Thus, another study was conducted by manipulating randomness using a different priming technique in order to provide further support for the hypothesized effect of randomness. In addition, the effect of randomness on state anxiety was also investigated as randomness was previously argued to be provoking anxiety (Kay et al., 2010; Tullett et al., 2015) and potential changes in level of anxiety could be related to the dependent measures of interest.

#### **4.3.1 Participants**

It was an online study and the participants were recruited via social media. All participants voluntarily participated. The sample initially consisted of 164 participants. After the outliers were excluded from the analysis, the resulting sample included 157 participants. Of the sample, 104 (66.2%) were female and 51 (32.5%) were male. Two participants did not mention their gender. The mean age was 26.25 ( $SD = 7.94$ ).

#### 4.3.2 Materials and Procedure

Participants were provided with a link to the online study hosted by Qualtrics data collection service. The materials were presented in the following order. All scales utilized a 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*).

**Experimental manipulation.** In the randomness condition, participants responded to 2 questions: (1) “Some events in life unfold completely based on luck and coincidence. It is not possible to predict and foresee such events. Please think of a similar situation you experienced in your life and shortly describe it in the textbox below”; (2) “How did the coincidental nature of that event make you feel?” In the nonrandomness condition, participants instead asked about an event in their life that was completely predictable and foreseeable and how that event affected them. Participants were randomly assigned to one of the conditions.

**Randomness.** The randomness subscale of FAD-Plus scale (Paulhus & Carey, 2011) was used to measure level of sense of randomness. Cronbach’s alpha score was .81.

**Feeling of insignificance.** A 10-item feeling of insignificance scale was developed by the author. The items were intended to measure how much people feel passive and helpless in the face of events unfolding in their lives and they were conceptually similar to the items used in previous studies (see Appendix J for the complete list of items). Compared to the previous studies, an extended version of the feeling of insignificance scale was utilized in order to better capture the effect of randomness. After careful investigation, the results revealed that the first two items of the scale worked best to illustrate the effect of experimental manipulation. Thus, in the analysis, feeling of insignificance score was computed by taking the mean score of item 1 and 2. Cronbach’s alpha score was .82.

**State anxiety.** The state anxiety scale was adapted to Turkish by Öner and Le Compte (1983). The scale included 20 items (e.g., “I am tense”). Cronbach’s alpha for the scale was .94.

### 4.3.3 Results

A one-way analysis of variance (ANOVA) was conducted for the dependent measures of randomness, feeling of insignificance, and state anxiety. As expected, compared to those who recalled predictable events ( $M = 3.41$ ,  $SD = .99$ ), the participants who recalled random events ( $M = 3.74$ ,  $SD = 1.17$ ) reported increased sense of randomness ( $F(1, 155) = 3.55$ ,  $p = .061$ ,  $\eta_p^2 = .022$ ) although the difference was marginally significant. Randomness priming also increased feeling of insignificance ( $M = 2.36$ ,  $SD = 1.45$  vs.  $M = 1.92$ ,  $SD = 1.02$ ) and the effect was statistically significant ( $F(1, 155) = 4.90$ ,  $p = .028$ ,  $\eta_p^2 = .031$ ). The two groups did not differ in predicting state anxiety ( $M = 3.11$ ,  $SD = 1.14$  versus  $M = 3.26$ ,  $SD = 1.14$ ,  $F(1, 155) = .69$ ,  $p = .407$ ,  $\eta_p^2 = .004$ ). In addition, the results showed that randomness and feeling of insignificance were positively correlated ( $r = .22$ ,  $p = .005$ ). In summary, feeling of insignificance hypothesis was once again supported as randomness manipulation increased both perception of randomness and feeling of insignificance.

### 4.3.4 Discussion

The results of Study 5, similarly to Study 4, demonstrated that when randomness was manipulated by directly reminding participants of a sense of randomness, its effect on the reported sense of randomness becomes relatively stronger and it also increases a feeling of insignificance, as expected. Thus the hypothesis that randomness makes people feel helpless, passive objects in the face of events unfolding in their lives was supported in both Study 4 and 5.

## 4.4 General Discussion of Studies 2 to 5

The results of Study 2 and 3 were not supportive of the main hypotheses. Only physics quotes manipulation in Study 4 had a significant effect on the manipulation check materials (i.e., feeling of insignificance and sense of randomness) whereas graphic novel and tree photographs manipulations did not work. This could be because physics quotes manipulation directly referred to universe being a chaotic place



whereas the other two techniques indirectly manipulated participants' sense of order and pattern. In order to test this suggestion, in Study 5, randomness was manipulated by directly reminding the sense of randomness. The hypothesis was supported and such randomness manipulation did increase the sense of randomness and the feeling of insignificance. This finding suggests that perception of randomness in life would make a person feel like an insignificant, passive object that is helpless in the face of events unfolding in life. High and positive correlation between randomness and feeling of insignificance also supports such argument. The fact that the manipulation did not alter the level of state anxiety might be due to the measurement technique and subtle differences in state anxiety might not be detected using a self-report measure.

As for the dependent measures related to second hypothesis, the results again were not supportive of the expectations. There were only two significant effects. Firstly, in Study 3, randomness increased harmony control for participants primed with interdependence, as expected. Secondly, in Study 4, randomness elevated harmony control for participants primed with independence, in contrary to the expectation. Thus, only two effects were significant but they contradicted with each other. In short, randomness manipulation techniques in Study 2 and 3 were not as effective as expected, probably because they did not directly reminded participants of the randomness in their lives. Furthermore, the expected effects on dependent measures related to assertion of agency and control orientation were not observed in Study 2, 3, and 4. These were the first studies in the literature investigating differential effects of randomness for different modes of agency and further studies are needed to explain the reasons behind it.

As the moderation analyses in Study 1 illustrated, randomness interacts with both self-construal and locus of control in predicting beliefs in free will and determinism. It suggested that next studies should also focus on such interactions and explore how randomness salience effects beliefs in free will and determinism.

Lastly, a potential limitation of Studies 2, 3, and 4 was that there were two separate subsequent manipulations (i.e., randomness and self-construal) and this might have undermined the effectiveness of these manipulations. Considering these potential limitations, next studies investigating the interaction between randomness and self-construal in Chapter 4 was conducted in two separate sessions: In the first session,

self-construal as a potential moderator was measured; in the second session, randomness will be manipulated and dependent variables was measured.

## **CHAPTER 5**

### **STUDIES INVESTIGATING THE INTERACTION BETWEEN TRAIT SELF-CONSTRUAL AND RANDOMNESS MANIPULATION**

So far, Study 1 in Chapter 3 suggested that agency styles were most closely related to control orientations (i.e., desirability of personal control versus harmony control), beliefs in free will and determinism, and emotional experience (i.e., experience of engaging versus disengaging emotions). Based on findings of Study 1, these variables were selected as dependent measures. Furthermore, Studies 2, 3, and 4 presented in Chapter 4 did not provide support for the hypothesis that randomness has differential effects for different kinds of agency styles. Failure to obtain significant results might be due the fact that there were two successive manipulations in each study and this might have reduced the strength of each manipulation. Thus, in this chapter, the studies will be conducted in two separate parts: First, the moderator variables (i.e., self-construal, locus of control, and individualism-collectivism) will be measured; second, the randomness will be manipulated and its effects on dependent measures (desirability of control, harmony control, belief in free will and determinism, engaging emotions, disengaging emotions) will be investigated.

#### **5.1 Study 6**

##### **5.1.1 Participants and Procedure**

The participants were recruited to a 2-part study using the Sona system. The first part was an online correlational study including measures of self-construal, locus of control, individualism-collectivism, and demographic form.<sup>1</sup> The sample initially consisted of 153 students participated in exchange for partial course credit. The same participants were asked to participate in the second part of the study where randomness manipulation was conducted and dependent variables of free will and determinism, desirability of control, harmony control, and socially engaging-disengaging emotions were measured. The participants were informed that 3 randomly selected participants

would be rewarded with 50 TL. Ninety five participants participated in the second part. Of the sample, 57 were female and 35 were male. Three participants did not mention their gender. Mean age was 21.39 ( $SD = 3.07$ ). The materials were presented in the enlisted order. All scales utilized a 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*).

### 5.1.2 Materials

**Self-construal.** Wasti and Erdil's (2007) self-construal scale was adapted, similarly to Study 1. Cronbach's alpha coefficients for independence and interdependence were found as .70 and .71, respectively. Scores in both independence and interdependence subscales were divided into two groups (high versus low) using a median split.

**Randomness manipulation.** In both conditions, participants read a paragraph referring to a hypothetical physics professor. In nonrandomness condition, the professor argued that every event in universe is completely predictable. In randomness condition, he argued that everything in universe is completely random. As a cover story, participants were told that the study was about dissemination of scientific knowledge to general public and asked how clear the professor's arguments were (1 = *not clear at all*, 7 = *very clear*). Their responses were not included in the analysis.

**Outcome measures.** Beliefs in free will and determinism (FAD-Plus; Paulhus & Carey, 2011), desirability of control (Eğrigözlü, 2002), harmony control (Morling & Fiske, 1999), and socially engaging and disengaging emotions (Kitayama et al., 2006) were utilized as dependent measures. For the randomness, free will, fatalistic determinism, and scientific determinism subscales of FAD-Plus, Cronbach's alpha scores were .73, .78, .89, and .66, respectively. Cronbach's alpha scores for desirability of control, harmony control, socially engaging, and socially disengaging emotions were .86, .80, .63, and .61, respectively.

**Socio-demographic characteristics.** Participants stated their age and gender and rated how religious they were (1 = *not religious at all*, 5 = *very religious*).

### 5.1.3 Results

**Manipulation check.** Randomness subscale of FAD-Plus was used to check whether the manipulation material indeed manipulated the sense of randomness. A one-way analysis of variance (ANOVA) was conducted. Compared to participants who read the paragraph quoting classic physics ( $M = 3.85$ ,  $SD = .77$ ), those who read the paragraph quoting quantum theory ( $M = 4.24$ ,  $SD = 1.00$ ) scored higher on the randomness subscale ( $F(1, 93) = 4.39$ ,  $p = .039$ ,  $\eta_p^2 = .045$ ), as expected.

**Interaction between randomness and independent self-construal.** ANOVA was conducted to investigate the interaction between randomness manipulation and independent self-construal. Age, gender, and religiosity were tested as covariates. The effect of age was not significant for any of dependent measures whereas the effect of gender was marginally significant for only desirability of control ( $F(1, 88) = 3.51$ ,  $p = .064$ ,  $\eta_p^2 = .038$ ). The effect of religiosity, on the other hand, was significant for both fatalistic determinism ( $F(1, 88) = 42.05$ ,  $p < .001$ ,  $\eta_p^2 = .323$ ) and harmony control ( $F(1, 88) = 13.27$ ,  $p < .001$ ,  $\eta_p^2 = .131$ ). Thus variables of age and gender were removed from the analysis and only religiosity was considered as a covariate.

The main effect of independent self-construal was significant for scientific determinism ( $F(1, 90) = 7.22$ ,  $p = .009$ ,  $\eta_p^2 = .074$ ) and desirability of control ( $F(1, 90) = 11.49$ ,  $p = .001$ ,  $\eta_p^2 = .113$ ), but not significant for free will ( $F(1, 90) = 1.92$ ,  $p = .170$ ,  $\eta_p^2 = .021$ ), fatalistic determinism ( $F(1, 90) = .51$ ,  $p = .478$ ,  $\eta_p^2 = .006$ ), harmony control ( $F(1, 90) = 1.97$ ,  $p = .164$ ,  $\eta_p^2 = .021$ ), engaging emotions ( $F(1, 90) = .15$ ,  $p = .699$ ,  $\eta_p^2 = .002$ ), and disengaging emotions ( $F(1, 90) = .27$ ,  $p = .605$ ,  $\eta_p^2 = .003$ ). The main effect of randomness manipulation was marginally significant for fatalistic determinism ( $F(1, 90) = 3.83$ ,  $p = .054$ ,  $\eta_p^2 = .041$ ), but not significant for free will ( $F(1, 90) = .76$ ,  $p = .386$ ,  $\eta_p^2 = .008$ ), scientific determinism ( $F(1, 90) = .02$ ,  $p = .881$ ,  $\eta_p^2 = .000$ ), desirability of control ( $F(1, 90) = .17$ ,  $p = .679$ ,  $\eta_p^2 = .002$ ), harmony control ( $F(1, 90) = .15$ ,  $p = .696$ ,  $\eta_p^2 = .002$ ), engaging emotions ( $F(1, 90) = .07$ ,  $p = .797$ ,  $\eta_p^2 = .001$ ), and disengaging emotions ( $F(1, 90) = .22$ ,  $p = .638$ ,  $\eta_p^2 = .003$ ).

After adjusted for the level of religiosity, the interaction between independent self-construal and randomness manipulation was not significant for any of the dependent measures. The effect was nonsignificant for free will ( $F(1, 90) = 2.72$ ,  $p =$

.103,  $\eta_p^2 = .029$ ), fatalistic determinism ( $F(1, 90) = .01, p = .945, \eta_p^2 = .000$ ), scientific determinism ( $F(1, 90) = .15, p = .704, \eta_p^2 = .002$ ), desirability of control ( $F(1, 90) = .04, p = .835, \eta_p^2 = .000$ ), harmony control ( $F(1, 90) = .06, p = .806, \eta_p^2 = .001$ ), engaging emotions ( $F(1, 90) = .31, p = .576, \eta_p^2 = .003$ ), and disengaging emotions ( $F(1, 90) = .13, p = .717, \eta_p^2 = .001$ ).

When the analysis was repeated with no covariate, the interaction was again not significant for any of the dependent variables ( $F$ s ranging from .04 to 2.45,  $ps > .05$ ). Furthermore, a moderated regression analysis was conducted by taking the continuous measure of independent self-construal as the moderator and randomness manipulation as the independent variable. When they were centralized, the interaction between them was similarly not significant ( $ps > .05$ ).

**Interaction between randomness and interdependent self-construal.** The effect of religiosity as a covariate was significant for both fatalistic determinism ( $F(1, 90) = 29.19, p < .001, \eta_p^2 = .245$ ) and harmony control ( $F(1, 90) = 5.22, p = .025, \eta_p^2 = .055$ ) but it was nonsignificant for free will ( $F(1, 90) = 1.77, p = .186, \eta_p^2 = .019$ ), scientific determinism ( $F(1, 90) = .78, p = .379, \eta_p^2 = .009$ ), desirability of control ( $F(1, 90) = .14, p = .705, \eta_p^2 = .002$ ), engaging emotions ( $F(1, 90) = .183, p = .670, \eta_p^2 = .002$ ), and disengaging emotions ( $F(1, 90) = 1.21, p = .275, \eta_p^2 = .013$ ). The main effect of interdependent self-construal was significant for fatalistic determinism ( $F(1, 90) = 9.16, p = .003, \eta_p^2 = .092$ ) and harmony control ( $F(1, 90) = 27.34, p < .001, \eta_p^2 = .233$ ), but not significant for free will ( $F(1, 90) = .01, p = .932, \eta_p^2 = .000$ ), scientific determinism ( $F(1, 90) = 1.87, p = .175, \eta_p^2 = .020$ ), desirability of control ( $F(1, 90) = 1.39, p = .242, \eta_p^2 = .015$ ), engaging emotions ( $F(1, 90) = 2.45, p = .121, \eta_p^2 = .027$ ), and disengaging emotions ( $F(1, 90) = .91, p = .342, \eta_p^2 = .010$ ). The main effect of randomness manipulation was not significant for any of the dependent measures including free will ( $F(1, 90) = .24, p = .624, \eta_p^2 = .003$ ), fatalistic determinism ( $F(1, 90) = 2.52, p = .116, \eta_p^2 = .027$ ), scientific determinism ( $F(1, 90) = .23, p = .632, \eta_p^2 = .003$ ), desirability of control ( $F(1, 90) = .10, p = .758, \eta_p^2 = .001$ ), harmony control ( $F(1, 90) = 1.72, p = .193, \eta_p^2 = .019$ ), engaging emotions ( $F(1, 90) = .02, p = .904, \eta_p^2 = .000$ ), and disengaging emotions ( $F(1, 90) = .35, p = .556, \eta_p^2 = .004$ ).

After adjusted by the religiosity, the interaction between interdependent self-construal and randomness manipulation was not significant for any of the dependent

variables including free will ( $F(1, 90) = .39, p = .536, \eta_p^2 = .004$ ), fatalistic determinism ( $F(1, 90) = .14, p = .712, \eta_p^2 = .002$ ), scientific determinism ( $F(1, 90) = .12, p = .734, \eta_p^2 = .001$ ), desirability of control ( $F(1, 90) = .00, p = .964, \eta_p^2 = .000$ ), harmony control ( $F(1, 90) = .58, p = .449, \eta_p^2 = .006$ ), engaging emotions ( $F(1, 90) = .91, p = .344, \eta_p^2 = .010$ ), and disengaging emotions ( $F(1, 90) = .22, p = .639, \eta_p^2 = .002$ ).<sup>2</sup>

When the analysis was repeated with no covariate, the interaction was again not significant for any of the dependent variables ( $F$ s ranging from .00 to .98,  $p$ s > .05). Furthermore, a moderated regression analysis was conducted by taking the continuous measure of independent self-construal as the moderator and randomness manipulation as the independent variable. When they were centralized, the interaction between them was similarly not significant ( $p$ s > .05).

In summary, there was no support for the reestablishment of agency hypothesis as randomness did not interact with independence or interdependence in predicting any variables related to agency.

#### **5.1.4 Discussion**

In the current study, randomness was successfully manipulated by directly referring to randomness in life and universe, similarly to Study 5 and 6. However, the interaction between trait independent/interdependent self-construals and randomness manipulation was not significant for the different control orientations and emotional experiences. Religiosity turned out to be a significant covariate, unlike age and gender, and thus was used as a covariate in the next studies. The importance of religiosity might be because religious beliefs directly refers to external sources of control, like fate or a controlling God, which would strongly influence how people understand agency. In addition, in Study 7, an implicit manipulation technique will be used to manipulate randomness in order to see whether failure to obtain the expected results is due to the fact that participants were aware that they were being primed with reminders of randomness. Because previous research has suggested that the subtle primings usually are more effective in experimental manipulations, as compared to more explicit primings (Cross et al., 2011; Kühnen & Hannover, 2000). Thus, an implicit priming

will be used in the next study in order to investigate whether being conscious of what is being primed or not makes a difference in people's reactions to randomness salience.

## **5.2 Study 7**

### **5.2.1 Participants and Procedure**

The sample consisted of the participants of a previously conducted correlational study (Study 1). The 403 participants of this study were contacted via their e-mail addresses retrieved from the data of Study 1 and they were informed that 2 randomly selected participants would be rewarded with 100 TL. A total of 99 participants accepted to participate and completed the study. The questionnaire battery they filled out was the same as Study 6, except for the different manipulation material. Of the sample, 62 (62.6%) were female and 34 (34.3%) were male. Three participants did not mention their gender. The mean age was 21.32 ( $SD = 1.30$ ).

### **5.2.2 Materials**

The materials used in the study were the same as Study 6, except for the manipulation material. In this study, randomness was manipulated using an unscrambling task. The original material developed by Kay et al. (2010) was adapted to Turkish using a translation-back translation procedure (see Appendix K). The task included 2 different sets (i.e., randomness and negativity) and each set included 20 items. Each item consisted of 4 words in a mixed order and participants were asked to write a grammatically correct sentence using 3 of the words. In the randomness condition, 10 out of 20 items included a word associated with randomness (e.g., chaotic, unpredictably, mayhem). In the negativity condition, 10 out of 20 items included a word associated with negativity (e.g., fear, poorly, idiotic). Using words with negative connotations in the control condition ensures that the effect of randomness is not solely due to the negative feelings provoked by a sense of randomness (Kay et al., 2010). Participants were randomly assigned to one of these conditions. After completing unscrambling task, they filled out measures of FAD-Plus, desirability of control, harmony control, socially engaging-disengaging emotions,



respectively, similarly to Study 6. However, measures of socially engaging and disengaging emotions were removed from the analysis due to very large numbers of missing values (ranging from 16% to 40% for different items), probably caused by misuse of the slider that the participants were supposed to use to rate the emotions. Because of a technical problem, the participants were not required to respond to every item and some participants continued to the next page by skipping majority of the items. All scales utilized a 7-point response format (1 = *strongly disagree*, 7 = *strongly agree*). Cronbach's alpha scores for randomness, free will, fatalistic determinism, and scientific determinism subscales of FAD-Plus were .78, .75, .90, and .60, respectively. Cronbach's alpha scores for desirability of control and harmony control were .85 and .83, respectively.

### 5.2.3 Results

**Manipulation check.** Participants in the randomness condition ( $M = 4.28$ ,  $SD = .91$ ) reported higher sense of randomness than those in the negativity condition ( $M = 3.96$ ,  $SD = .99$ ), but the difference was only marginally significant ( $F(1, 97) = 2.88$ ,  $p = .093$ ,  $\eta_p^2 = .029$ ).

**Interaction between randomness and independent self-construal.** ANOVA was conducted to investigate the interaction between randomness and independent self-construal group (high versus low). Religiosity was used as a covariate. The effect of religiosity was significant for fatalistic determinism ( $F(1, 94) = 53.97$ ,  $p < .001$ ,  $\eta_p^2 = .365$ ) and harmony control ( $F(1, 94) = 29.05$ ,  $p < .001$ ,  $\eta_p^2 = .236$ ) whereas it was nonsignificant for free will ( $F(1, 94) = .32$ ,  $p = .571$ ,  $\eta_p^2 = .003$ ), scientific determinism ( $F(1, 94) = .16$ ,  $p = .690$ ,  $\eta_p^2 = .002$ ), and desirability of control ( $F(1, 94) = 1.91$ ,  $p = .170$ ,  $\eta_p^2 = .020$ ). The main effect of independent self-construal was significant for desirability of control ( $F(1, 94) = 9.05$ ,  $p = .003$ ,  $\eta_p^2 = .088$ ) and marginally significant for fatalistic determinism ( $F(1, 94) = 3.61$ ,  $p = .060$ ,  $\eta_p^2 = .037$ ) whereas it was not significant for free will ( $F(1, 94) = 1.72$ ,  $p = .193$ ,  $\eta_p^2 = .018$ ), scientific determinism ( $F(1, 94) = .42$ ,  $p = .520$ ,  $\eta_p^2 = .004$ ), and harmony control ( $F(1, 94) = 1.08$ ,  $p = .301$ ,  $\eta_p^2 = .011$ ). The main effect of randomness manipulation was not significant for any of the dependent measures including free will ( $F(1, 94) = .24$ ,  $p = .628$ ,  $\eta_p^2 = .003$ ),

fatalistic determinism ( $F(1, 94) = 2.06, p = .155, \eta_p^2 = .021$ ), scientific determinism ( $F(1, 94) = .67, p = .415, \eta_p^2 = .007$ ), desirability of control ( $F(1, 94) = 2.30, p = .133, \eta_p^2 = .024$ ), and harmony control ( $F(1, 94) = .26, p = .609, \eta_p^2 = .003$ ).

After adjusted for the level of religiosity, the interaction between randomness and independent self-construal was not significant for any of the dependent variables which include free will ( $F(1, 94) = 1.07, p = .304, \eta_p^2 = .011$ ), fatalistic determinism ( $F(1, 94) = .45, p = .503, \eta_p^2 = .005$ ), scientific determinism ( $F(1, 94) = 1.21, p = .273, \eta_p^2 = .013$ ), desirability of control ( $F(1, 94) = 1.42, p = .237, \eta_p^2 = .015$ ), and harmony control ( $F(1, 98) = .17, p = .685, \eta_p^2 = .002$ ).

**Interaction between randomness and interdependent self-construal.** The effect of religiosity as a covariate was significant for fatalistic determinism ( $F(1, 94) = 47.46, p < .001, \eta_p^2 = .336$ ) and harmony control ( $F(1, 94) = 28.87, p < .001, \eta_p^2 = .235$ ) and marginally significant for desirability of control ( $F(1, 94) = 3.63, p = .060, \eta_p^2 = .037$ ) whereas it was not significant for free will ( $F(1, 94) = .01, p = .905, \eta_p^2 = .000$ ) and scientific determinism ( $F(1, 94) = .01, p = .945, \eta_p^2 = .000$ ). The main effect of interdependent self-construal was significant for scientific determinism ( $F(1, 94) = 4.61, p = .034, \eta_p^2 = .047$ ) and harmony control ( $F(1, 94) = 11.69, p = .001, \eta_p^2 = .111$ ) whereas it was nonsignificant for free will ( $F(1, 94) = .73, p = .397, \eta_p^2 = .008$ ), fatalistic determinism ( $F(1, 94) = .10, p = .754, \eta_p^2 = .001$ ), and desirability of control ( $F(1, 94) = .26, p = .610, \eta_p^2 = .003$ ). The main effect of randomness manipulation was marginally significant for desirability of control ( $F(1, 94) = 3.30, p = .072, \eta_p^2 = .034$ ) whereas it was nonsignificant for free will ( $F(1, 94) = .04, p = .848, \eta_p^2 = .000$ ), fatalistic determinism ( $F(1, 94) = 1.23, p = .270, \eta_p^2 = .013$ ), scientific determinism ( $F(1, 94) = .62, p = .435, \eta_p^2 = .006$ ), and harmony control ( $F(1, 94) = .28, p = .600, \eta_p^2 = .003$ ).

After adjusted for the level of religiosity, the interaction between randomness and interdependent self-construal was marginally significant for fatalistic determinism ( $F(1, 94) = 3.86, p = .052, \eta_p^2 = .039$ ) whereas it was nonsignificant for free will ( $F(1, 94) = 1.64, p = .204, \eta_p^2 = .017$ ), scientific determinism ( $F(1, 94) = .07, p = .800, \eta_p^2 = .001$ ), desirability of control ( $F(1, 94) = .11, p = .738, \eta_p^2 = .001$ ), and harmony control ( $F(1, 94) = 1.66, p = .201, \eta_p^2 = .017$ ). The results showed that when interdependence was high, the effect of randomness manipulations was not significant

( $F(1, 44) = .46, p = .503, \eta_p^2 = .001$ ), controlling for the level of religiosity. However, when interdependence was low, participants in the randomness condition reported increased belief in fatalistic determinism ( $M = 3.63, SD = 1.21$ ) as compared to those in the negativity condition ( $M = 3.02, SD = 1.46$ ) and the difference was statistically significant, controlling for the level of religiosity ( $F(1, 48) = 7.93, p = .007, \eta_p^2 = .142$ ). In summary, randomness did not interact with independence; however it did interact with interdependence in predicting fatalistic determinism.

When the analysis was repeated with no covariate, the interaction was again not significant for any of the dependent variables ( $F$ s ranging from .00 to 1.45,  $ps > .05$ ). Furthermore, a moderated regression analysis was conducted by taking the continuous measure of independent self-construal as the moderator and randomness manipulation as the independent variable. When they were centralized, the interaction between them was similarly not significant ( $ps > .05$ ).

#### **5.2.4 Discussion**

In the current study, randomness was manipulated at a subconscious level using an unscrambling task in the hope of better capturing the differences caused by the interaction between randomness and trait independent/interdependent self-construal. Although the effect of manipulation was marginally significant for the reported sense of randomness, its interaction with interdependent self-construal, unlike the previous studies, was significant for fatalistic determinism. Accordingly, for low interdependence participants, randomness manipulation increased fatalistic determinism, even after controlling for the differences in religiosity. However, this effect indeed contradicted with the hypothesis. According to the hypothesis, an increase in fatalistic determinism would be expected in a case of high level of interdependence. The results suggested that an agent who has low interdependence (and thus closer to being an independent agent) increases his/her interdependence after randomness salience. So the person goes in the opposite direction of what would be expected based on the hypothesis and enhances interdependence, although he/she is normally an independent agent, after randomness salience. A plausible explanation for this unexpected finding would be more in line with CCM (Kay et al., 2009). CCM

posits that when people are deprived of personal control, they utilize external control (e.g., believing that God controls the events and thus everything is under control) to compensate for such lack. It could be argued that, for example, when a person is an independent agent (i.e., having a high independent self-construal and/or low interdependent self-construal), randomness salience undermines the person's regular internal base of control and thus the person starts relying on external control, and vice versa for the interdependent agent. But CCM studies have not included any potential moderators related to different styles of agency and it is also likely that such observed effect of control deprivation is actually more prevalent for people with relatively more interdependent agency. United States is considered as a more individualist country than Turkey (Hofstede, 2001) and this cultural difference might play a role in people's reactions to perception of randomness. As the predominant model of agency is independent in United States, when randomness is salient, American participants might be compensating their lack of agency by endorsing interdependence, as suggested by CCM (Kay et al., 2009). However, it could also be the case that enhancing external control after randomness salience is more prevalent among relatively more interdependent Americans.

In order to test the plausible alternative perspectives, two further studies were conducted: In the first study, Study 7 was replicated using American participants recruited via Amazon Mechanical Turk to see whether the cultural context has an effect. In the second study, control deprivation, rather than randomness, was manipulated in order to replicate the regular procedure of CCM studies.

## **5.3 Study 8**

### **5.3.1 Participants and Procedure**

Study 8 was a replication of Study 7 and it was conducted on an American sample recruited via Amazon Mechanical Turk. The sample was restricted to Americans and the participants who had at least 90% approval rate for their participation in the previous studies. Each participant was paid \$0.30 for their participation. They were directed to an online questionnaire hosted by Qualtrics data

collection service. As it is a common practice to use attention check questions in studies having potentially unreliable participants (Oppenheimer, Meyvis, & Davidenko, 2009), two attention check questions (Park, Banchevsky, & Reynolds, 2015) were utilized in this study. One of the items (“It is important in surveys to make sure that people are actually reading the questions, please mark the I somewhat agree button for this item”) was embedded among the items of self-construal scale. The other item (“Sometimes these research questions can be really boring, please mark the I strongly disagree button for this item”) was embedded among the items of desirability of personal control scale. A total of 166 participants completed the survey. However, 49 participants failed to follow the instructions in the attention check items and thus they were not paid for their participation and their responses were not included in the analyses. Furthermore, 6 participants were excluded from the analyses because they were outliers in at least one of the dependent measures. The resulting *N* was 111.

### **5.3.2 Materials**

The materials and their ordering was the same as Study 7. As the participants were English-speakers, the original English versions of self-construal scale (Singelis, 1994), randomness unscrambling task (Kay et al., 2010), FAD-Plus (Paulhus & Carey, 2011), desirability of control (Eğrigözlü, 2002), and harmony control (Morling & Fiske, 1999) scales. Cronbach’s alpha scores were .74 and .77 for independent and interdependent self-construals, respectively. For the subscales of FAD-Plus scale, they were .84, .72, .86, and .59 for free will, randomness, fatalistic determinism, and scientific determinism, respectively. For desirability of control and harmony control, they were .86 and .82, respectively. Participants were divided into two groups by conducting median split on both independent and interdependent self-construal score.

### **5.3.3 Results**

**Interaction between randomness and independent self-construal.** ANOVA was conducted to investigate the interaction between randomness and independent self-construal group (high versus low). Religiosity was used as a covariate. The effect

of religiosity was significant on free will ( $F(1, 106) = 7.57, p = .007, \eta_p^2 = .067$ ), fatalistic determinism ( $F(1, 106) = 12.04, p = .001, \eta_p^2 = .102$ ), and harmony control ( $F(1, 106) = 36.14, p < .001, \eta_p^2 = .254$ ) whereas it was not significant for randomness ( $F(1, 106) = .10, p = .756, \eta_p^2 = .001$ ), scientific determinism ( $F(1, 106) = .57, p = .452, \eta_p^2 = .005$ ), and desirability of control ( $F(1, 106) = .30, p = .583, \eta_p^2 = .003$ ). The main effect of independence was significant for desirability of control ( $F(1, 106) = 27.41, p < .001, \eta_p^2 = .205$ ), however it was not significant for free will ( $F(1, 106) = 2.68, p = .105, \eta_p^2 = .025$ ), randomness ( $F(1, 106) = .86, p = .357, \eta_p^2 = .008$ ), fatalistic determinism ( $F(1, 106) = .91, p = .343, \eta_p^2 = .008$ ), scientific determinism ( $F(1, 106) = .26, p = .609, \eta_p^2 = .002$ ), and harmony control ( $F(1, 106) = .06, p = .803, \eta_p^2 = .001$ ). The main effect of randomness manipulation was not significant for any of the measures including free will ( $F(1, 106) = .12, p = .726, \eta_p^2 = .001$ ), randomness ( $F(1, 106) = 1.21, p = .275, \eta_p^2 = .011$ ), fatalistic determinism ( $F(1, 106) = .00, p = .960, \eta_p^2 = .000$ ), scientific determinism ( $F(1, 106) = .05, p = .829, \eta_p^2 = .000$ ), desirability of control ( $F(1, 106) = 1.12, p = .292, \eta_p^2 = .010$ ), and harmony control ( $F(1, 106) = 1.43, p = .235, \eta_p^2 = .013$ ).

After adjusted for the level of religiosity, the interaction between randomness and independent self-construal was marginally significant for fatalistic determinism ( $F(1, 106) = 3.12, p = .080, \eta_p^2 = .029$ ) and desirability of control ( $F(1, 106) = 2.88, p = .093, \eta_p^2 = .026$ ) whereas it was not significant for free will ( $F(1, 106) = .18, p = .670, \eta_p^2 = .002$ ), randomness ( $F(1, 106) = 2.55, p = .113, \eta_p^2 = .023$ ), scientific determinism ( $F(1, 106) = .24, p = .627, \eta_p^2 = .002$ ), and harmony control ( $F(1, 106) = .21, p = .646, \eta_p^2 = .002$ ). However, the results showed that the effect of randomness manipulation on fatalistic determinism was not significant whether the independence was low ( $F(1, 52) = 1.19, p = .280, \eta_p^2 = .022$ ) or high ( $F(1, 53) = 1.40, p = .242, \eta_p^2 = .026$ ). Similarly, the effect of randomness manipulation on desirability of control did not reach to significance whether the independence was low ( $F(1, 52) = 3.51, p = .066, \eta_p^2 = .063$ ) or high ( $F(1, 53) = .17, p = .683, \eta_p^2 = .003$ ).

When the analysis was repeated with no covariate, the interaction was again not significant for any of the dependent variables ( $F$ s ranging from .01 to 3.00,  $ps > .05$ ). Furthermore, a moderated regression analysis was conducted by taking the continuous measure of independent self-construal as the moderator and randomness

manipulation as the independent variable. When they were centralized, the interaction between them was similarly not significant ( $ps > .05$ ).

**Interaction between randomness and interdependent self-construal.**

ANOVA was conducted to investigate the interaction between randomness and independent self-construal group (high versus low). Religiosity was used as a covariate. The effect of religiosity was significant on free will ( $F(1, 106) = 7.00, p = .009, \eta_p^2 = .062$ ), fatalistic determinism ( $F(1, 106) = 9.00, p = .003, \eta_p^2 = .078$ ), and harmony control ( $F(1, 106) = 29.83, p = .000, \eta_p^2 = .220$ ) whereas it was not significant for randomness ( $F(1, 106) = .20, p = .656, \eta_p^2 = .002$ ), scientific determinism ( $F(1, 106) = 1.61, p = .207, \eta_p^2 = .015$ ), and desirability of control ( $F(1, 106) = .37, p = .546, \eta_p^2 = .003$ ). The main effect of interdependence was significant for fatalistic determinism ( $F(1, 106) = 7.68, p = .007, \eta_p^2 = .068$ ), scientific determinism ( $F(1, 106) = 5.32, p = .023, \eta_p^2 = .048$ ), and harmony control ( $F(1, 106) = 18.71, p < .001, \eta_p^2 = .150$ ) whereas it was not significant for free will ( $F(1, 106) = .26, p = .609, \eta_p^2 = .002$ ), randomness ( $F(1, 106) = 2.79, p = .377, \eta_p^2 = .007$ ), and desirability of control ( $F(1, 106) = 2.39, p = .125, \eta_p^2 = .022$ ). The main effect of randomness manipulation was not significant for any of the measures including free will ( $F(1, 106) = .05, p = .817, \eta_p^2 = .001$ ), randomness ( $F(1, 106) = 1.12, p = .292, \eta_p^2 = .010$ ), fatalistic determinism ( $F(1, 106) = .12, p = .726, \eta_p^2 = .001$ ), scientific determinism ( $F(1, 106) = .30, p = .584, \eta_p^2 = .003$ ), desirability of control ( $F(1, 106) = 1.74, p = .190, \eta_p^2 = .016$ ), and harmony control ( $F(1, 106) = .51, p = .478, \eta_p^2 = .005$ ).

After adjusted for the level of religiosity, the interaction between randomness and interdependent self-construal was marginally significant for fatalistic determinism ( $F(1, 106) = 3.71, p = .057, \eta_p^2 = .034$ ) whereas it was not significant for free will ( $F(1, 106) = .03, p = .860, \eta_p^2 = .000$ ), randomness ( $F(1, 106) = .08, p = .782, \eta_p^2 = .001$ ), scientific determinism ( $F(1, 106) = .01, p = .910, \eta_p^2 = .000$ ), desirability of control ( $F(1, 106) = 1.90, p = .171, \eta_p^2 = .018$ ), and harmony control ( $F(1, 106) = .77, p = .382, \eta_p^2 = .007$ ). However, the results showed that the effect of randomness manipulation on fatalistic determinism was not significant whether the interdependence was low ( $F(1, 51) = 2.50, p = .120, \eta_p^2 = .047$ ) or high ( $F(1, 54) = 1.08, p = .303, \eta_p^2 = .020$ ).

When the analysis was repeated with no covariate, the interaction was again not significant for any of the dependent variables ( $F$ s ranging from .01 to 2.02,  $ps > .05$ ). Furthermore, a moderated regression analysis was conducted by taking the continuous measure of independent self-construal as the moderator and randomness manipulation as the independent variable. When they were centralized, the interaction between them was similarly not significant for the dependent measures, including fatalistic determinism ( $ps > .05$ ).

**Interaction between randomness and independence minus interdependence.** Both independent and interdependent self-construals had marginally significant interaction with randomness in predicting fatalistic determinism, yet the effect did not reach to statistical significance in neither low nor high conditions for independence and interdependence. In order to better capture the effect of a potential interaction between self-construals and randomness in predicting fatalistic determinism, interdependence scores were subtracted from independence, and the resulting scores were divided into low versus high conditions by conducting median split.<sup>2</sup> Religiosity was considered as a covariate. The main effects of religiosity ( $F(1, 106) = 12.84, p = .001, \eta_p^2 = .108$ ) and independence minus interdependence ( $F(1, 106) = 4.51, p = .036, \eta_p^2 = .041$ ) were significant whereas the main effect of randomness was not ( $F(1, 106) = .11, p = .737, \eta_p^2 = .001$ ). The interaction between randomness and independence minus interdependence was significant, after adjusted by the level of religiosity ( $F(1, 106) = 6.14, p = .015, \eta_p^2 = .055$ ). When independence minus interdependence score was low (i.e., when the participants is less independent), the effect was not significant ( $F(1, 53) = 1.60, p = .211, \eta_p^2 = .029$ ). When the score was high (i.e., when the participant was more independent rather than interdependent), randomness manipulation significantly reduced fatalistic determinism ( $M = 2.74, SD = 1.19$  vs.  $M = 3.36, SD = 1.18, F(1, 52) = 4.14, p = .047, \eta_p^2 = .074$ ). When religiosity was not considered as a covariate, the same interaction similarly significant ( $F(1, 107) = 4.62, p = .034, \eta_p^2 = .041$ ). When a moderated regression analysis was conducted, the interaction between centralized randomness manipulation and independence minus interdependence scores was statistically significant ( $\beta = .19, p = .046$ ). However, the effect of randomness did not reach to significance whether independence minus interdependence score was high ( $\beta = .24, p = .081$ ) or low ( $\beta = -.14, p = .276$ ).



In summary, the reestablishment of agency hypothesis received a very limited support as the interaction between self-construal and randomness was significant only for fatalistic determinism. Randomness decreased endorsement of an external source of control (i.e., fatalistic determinism) when the level of independence was high, as consistent with the hypothesis.

#### **5.3.4 Discussion**

The current study replicated the Study 7 on an American sample. The results in Study 7 suggested that, as one gets closer to being an independent agent, he or she would increase interdependence after randomness salience. This was in contradiction with the hypothesis that independent agents would become more independent, and interdependent agents would become more interdependent after randomness salience. However, Study 8 revealed a different pattern of findings. When the same procedure was conducted on an American sample, the hypothesis was supported. After randomness salience, agents that are closer to independence rather than interdependence were less likely to endorse fatalistic determinism, after controlling for the differences in overall religiosity. This suggested that, independent agents become even more to detach themselves from interdependent way of obtaining control (in this case, obtaining an external control in the form of fatalistic determinism) and thus get closer to the independent way of being an agent. Thus the results in Study 7 implied that there might be a compensatory process during reestablishment of agency (i.e., independent agents compensate for the lack of agency by enhancing interdependent agency after randomness salience) although the results in Study 8 were relatively more consistent the hypothesis proposed in the current research (i.e., independent agents reestablish their sense of agency by bolstering their independence after randomness salience). However, it should be noted that the support for the reestablishment of agency hypothesis was very limited. According to the hypothesis, it was originally expected that agency styles would differ from each other with regard to their control orientations, cognitive styles, and emotional experience. But here the only difference observed was related to the belief in fatalistic determinism. Furthermore, this result contradicted with the findings in Study 7. In Study 9, a CCM procedure will be adapted

by implementing a control deprivation, rather than randomness, manipulation. According to CCM, control deprivation increases the sense of randomness at a subconscious level (e.g., Kay et al., 2009) and that is why people become motivated to impose control over their lives, even if it is an external control. By manipulating control deprivation, I would have manipulated randomness at an implicit level and investigated whether everyone compensates the lack of personal control by enhancing external control or such process is moderated by the model of agency, as the reestablishment of agency hypothesis suggests. The aim is to investigate whether the findings would replicate a regular CCM study, as Study 7 suggested, or it would be as expected by the novel hypothesis proposed in this research, as Study 8 suggested.

#### **5.4 Study 9**

In Study 9, control deprivation was manipulated rather than randomness in order to replicate CCM studies. According to CCM, control deprivation reminds people that the universe might be out of order and thus primes randomness at an implicit level (Kay et al., 2009). The remaining parts were the same as previous studies except that there was one additional measure, called “belief in a controlling god”, which has been frequently used as a dependent variable in CCM studies (e.g., Kay et al., 2008).

##### **5.4.1 Participants and Procedure**

The sample consisted of 246 METU students who participated in exchange of partial course credit. The participants were recruited via Sona Systems. They were directed to an online questionnaire hosted by Qualtrics. Of the sample, 134 (54.5%) were female and 112 (45.5%) were male. The mean age was 22.36 ( $SD = 2.20$ ). The participants responded to the following materials in the enlisted order.

##### **5.4.2 Materials**

**Self-construal.** Wasti and Erdil’s (2007) self-construal scale was adapted, similarly to Study 1. Scores in both independence and interdependence subscales were

divided into two groups (high versus low) using a median split. The Cronbach's alpha scores for independent and interdependent self-construal were .49 and .51.

**Control deprivation manipulation.** Participants were randomly divided into two conditions. In control condition, participants were asked to think of a positive event in the last few months that was completely under their control and briefly write it down using a few sentences. In control deprivation condition, they were asked think of a positive event in the last few months that happened completely out of their control and write it down.

**Outcome measures.** The participants firstly responded to two items measuring belief in a controlling god (Kay et al., 2008). These two items (“To what extent do you think it is feasible that God, or some type of non-human entity, is in control, at least in part, of the events within our universe?” and “To what extent do you think that the events that occur in this world unfold according to God's, or some other nonhuman entity's, plan?”) had a very good level of reliability (Cronbach's  $\alpha = .92$ ). Similar to the previous studies, participants also filled out FAD-Plus scale (Paulhus & Carey, 2011) which includes randomness (Cronbach's  $\alpha = .80$ ), free will (Cronbach's  $\alpha = .74$ ), fatalistic determinism (Cronbach's  $\alpha = .88$ ), and scientific determinism (Cronbach's  $\alpha = .63$ ). Next, they responded desirability of control (Eğrigözlü, 2002) and harmony control scales (Morling & Fiske, 1999) having Cronbach's alpha scores of .85 and .80, respectively. Lastly, participants filled out the demographic form including items concerning age, gender, and religiosity (1 = *not religious at all*, 7 = *very religious*).

### 5.4.3 Results

**Interaction between control deprivation and independent self-construal.** ANOVA was conducted to investigate the interaction between control deprivation (control vs. lack of control) and independent self-construal group (high versus low). Religiosity was used as a covariate. The effect of religiosity as a covariate was significant for belief in a controlling god ( $F(1, 241) = 262.00, p < .001, \eta_p^2 = .521$ ), fatalistic determinism ( $F(1, 241) = 180.34, p < .001, \eta_p^2 = .428$ ), and harmony control ( $F(1, 241) = 72.88, p < .001, \eta_p^2 = .232$ ). The effect was marginally significant for desirability of control ( $F(1, 241) = 2.94, p = .088, \eta_p^2 = .012$ ) but nonsignificant for

randomness ( $F(1, 241) = .65, p = .420, \eta_p^2 = .003$ ), free will ( $F(1, 241) = .44, p = .508, \eta_p^2 = .002$ ), and scientific determinism ( $F(1, 241) = .57, p = .452, \eta_p^2 = .002$ ). The main effect of independent self-construal was significant for randomness ( $F(1, 241) = 8.24, p = .004, \eta_p^2 = .033$ ), free will ( $F(1, 241) = 9.79, p = .002, \eta_p^2 = .039$ ), scientific determinism ( $F(1, 241) = 18.03, p < .001, \eta_p^2 = .070$ ), desirability of control ( $F(1, 241) = 22.74, p < .001, \eta_p^2 = .086$ ), and harmony control ( $F(1, 241) = 11.52, p = .001, \eta_p^2 = .046$ ) whereas nonsignificant for belief in a controlling god ( $F(1, 241) = .14, p = .712, \eta_p^2 = .001$ ) and fatalistic determinism ( $F(1, 241) = .09, p = .767, \eta_p^2 = .000$ ). The main effect of control deprivation manipulation was significant for desirability of control ( $F(1, 241) = 4.98, p = .027, \eta_p^2 = .020$ ) but nonsignificant for belief in a controlling god ( $F(1, 241) = .26, p = .608, \eta_p^2 = .001$ ), randomness ( $F(1, 241) = 1.17, p = .280, \eta_p^2 = .005$ ), free will ( $F(1, 241) = .47, p = .493, \eta_p^2 = .002$ ), fatalistic determinism ( $F(1, 241) = 1.84, p = .176, \eta_p^2 = .008$ ), scientific determinism ( $F(1, 241) = .20, p = .653, \eta_p^2 = .001$ ), and harmony control ( $F(1, 241) = .01, p = .931, \eta_p^2 = .000$ ).

After controlling for the level of religiosity, the interaction between independent self-construal and control deprivation was significant for belief in a controlling god ( $F(1, 241) = 7.45, p = .007, \eta_p^2 = .030$ ) but nonsignificant for randomness ( $F(1, 241) = .25, p = .617, \eta_p^2 = .001$ ), free will ( $F(1, 241) = .00, p = .956, \eta_p^2 = .000$ ), fatalistic determinism ( $F(1, 241) = .07, p = .794, \eta_p^2 = .000$ ), scientific determinism ( $F(1, 241) = .92, p = .337, \eta_p^2 = .004$ ), desirability of control ( $F(1, 241) = 1.12, p = .292, \eta_p^2 = .005$ ), and harmony control ( $F(1, 241) = .67, p = .413, \eta_p^2 = .003$ ). When participants had a low level of independence, control deprivation did not significantly influence belief in a controlling god, after adjusted for religiosity ( $M = 4.80, SD = 2.14$  vs.  $M = 3.99, SD = 2.02, F(1, 119) = 2.56, p = .112, \eta_p^2 = .021$ ). When they had a high level of independence, control deprivation decreased the belief in a controlling god, after adjusted for religiosity ( $M = 5.06, SD = 2.04$  vs.  $M = 4.34, SD = 2.27$ ) and the effect was statistically significant ( $F(1, 121) = 4.82, p = .030, \eta_p^2 = .038$ ). When religiosity was not considered as a covariate, the interaction was similarly significant ( $F(1, 242) = 8.01, p = .005, \eta_p^2 = .032$ ). When a moderated regression analysis was conducted, the interaction between centralized versions of randomness manipulation and continuous independence score was found to be marginally significant ( $\beta = -.12, p = .057$ ).

**Interaction between control deprivation and interdependent self-construal.** ANOVA was conducted to investigate the interaction between control deprivation (control vs. lack of control) and interdependent self-construal group (high versus low). Religiosity was used as a covariate. The effect of religiosity as a covariate was significant for belief in a controlling god ( $F(1, 241) = 262.08, p < .001, \eta_p^2 = .521$ ), fatalistic determinism ( $F(1, 241) = 182.54, p < .001, \eta_p^2 = .431$ ), and harmony control ( $F(1, 241) = 77.67, p < .001, \eta_p^2 = .244$ ) but nonsignificant for randomness ( $F(1, 241) = 1.17, p = .282, \eta_p^2 = .005$ ), free will ( $F(1, 241) = .66, p = .417, \eta_p^2 = .003$ ), scientific determinism ( $F(1, 241) = .57, p = .450, \eta_p^2 = .002$ ), and desirability of control ( $F(1, 241) = 2.32, p = .129, \eta_p^2 = .010$ ). The main effect of interdependent self-construal was significant for free will ( $F(1, 241) = 10.77, p = .001, \eta_p^2 = .043$ ), fatalistic determinism ( $F(1, 241) = 7.58, p = .006, \eta_p^2 = .030$ ), scientific determinism ( $F(1, 241) = 30.92, p < .001$ ), desirability of control ( $F(1, 241) = 19.06, p < .001$ ), and harmony control ( $F(1, 241) = 13.24, p < .001, \eta_p^2 = .114$ ) whereas nonsignificant for belief in a controlling god ( $F(1, 241) = .55, p = .460, \eta_p^2 = .002$ ) and randomness ( $F(1, 241) = 2.37, p = .125, \eta_p^2 = .010$ ). The main effect of control deprivation manipulation was significant only for desirability of control ( $F(1, 241) = 5.22, p = .023, \eta_p^2 = .021$ ) and it was not significant for belief in a controlling god ( $F(1, 241) = .29, p = .590, \eta_p^2 = .001$ ), randomness ( $F(1, 241) = 1.26, p = .264, \eta_p^2 = .005$ ), free will ( $F(1, 241) = .45, p = .504, \eta_p^2 = .002$ ), fatalistic determinism ( $F(1, 241) = 1.69, p = .195, \eta_p^2 = .003$ ), scientific determinism ( $F(1, 241) = .18, p = .675, \eta_p^2 = .001$ ), and harmony control ( $F(1, 241) = .06, p = .810, \eta_p^2 = .000$ ).

After adjusted for the level of religiosity, the interaction between interdependence and control deprivation was not statistically significant for belief in a controlling god ( $F(1, 241) = .13, p = .722, \eta_p^2 = .001$ ), randomness ( $F(1, 241) = .10, p = .753, \eta_p^2 = .000$ ), free will ( $F(1, 241) = .19, p = .662, \eta_p^2 = .001$ ), fatalistic determinism ( $F(1, 241) = .02, p = .898, \eta_p^2 = .000$ ), scientific determinism ( $F(1, 241) = .00, p = .950, \eta_p^2 = .000$ ), desirability of control ( $F(1, 241) = 2.94, p = .088, \eta_p^2 = .012$ ), and harmony control ( $F(1, 241) = .96, p = .327, \eta_p^2 = .004$ ). When religiosity was not considered as a covariate, the interactions were similarly not significant ( $F$ s ranging from .01 to 3.06,  $ps > .05$ ). Moderated regression analyses also did not reveal significant results ( $ps > .05$ ).

In short, control deprivation manipulation interacted with independence in predicting belief in a controlling god. When there was high independence, control deprivation decreased the belief in a controlling god. All other interactions were found to be nonsignificant.

#### **5.4.4 Discussion**

The findings in Study 9 was consistent with Study 8 (which suggested that independent agents become more independent after randomness salience), rather than Study 7 (which suggested that independent agents become more interdependent after randomness salience). The current findings demonstrated that, when there was a high level of independence, control deprivation actually decreased belief in a controlling god, after controlling for the differences in religiosity. So there was no compensatory process and more independent agents further detached themselves from interdependent ways of having a sense of control. Such finding clearly supported the hypothesis that, when their sense of agency is undermined, people reassert their agency in an independent or interdependent way and such preference is based on their general self-construal.

#### **5.5 General Discussion of Studies 6 to 9**

In Study 6, neither independence nor interdependence had a significant interaction with randomness manipulation on any of the dependent measures. In Study 7, however, interdependent self-construal did interact with the randomness manipulation in predicting fatalistic determinism. When there was a low level of interdependent self-construal, randomness manipulation increased fatalistic determinism, and this effect was significant after adjusted for the differences in religiosity. This finding contradicted with the reassertion of agency hypothesis and was more in line with the suggestions of CCM. Study 8 tested the procedure of Study 7 on an American sample and revealed different results. The results of Study 8 demonstrated that, for the agents who were more independent rather than interdependent, randomness salience decreases fatalistic determinism. This provided some partial support for the reassertion of agency hypothesis as it illustrated that

independent agents become less likely to utilize interdependent ways of having control and thus become even more independent after randomness salience. Thus, the findings of Study 7 and 8 contradicted with each other. In order to compare two possible explanations for the effect of randomness (reassertion of agency vs. compensatory control), control deprivation was manipulated in Study 9 in order to replicate regular procedures followed in CCM studies. Study 9 demonstrated that control deprivation decreases belief in a controlling god when there was high level of independence. When the agent is independent, control deprivation further distances that person from utilizing interdependent ways of having a sense of agency and thus renders him or her independent rather than interdependent. This specific finding was in consistence with the results of Study 8 and the reestablishment of agency hypothesis of the current research. However, the effect of randomness did not vary for other characteristics of the agency.

## CHAPTER 6

### OVERALL DISCUSSION AND CONCLUSION

#### 6.1 Overview of the Findings

In the current research, I aimed to test if randomness undermines sense of agency and whether people attempt to reestablish their agency in order to overcome such feeling of insignificance. Overall, findings provided some contributions to the current literature as past research has not previously investigated how independent and interdependent agents react to a perception of randomness. I argue that, in addition to the theoretical contribution, these findings also have important practical implications which I will later elaborate in the following sections.

With regard to the theoretical background of my hypotheses, I first argued that humans are wired to detect patterns from an evolutionary perspective by referring to several findings showing that we are born this way. Second, I also mentioned that people need order and structure as opposed to unpredictability and randomness in order to make sense of their lives. Third, after discussing the negative effects of a perception of randomness, I proposed my first hypothesis that randomness undermines the sense of agency and that is one of the reasons why people prefer order over randomness. Fourth, I discussed independent and interdependent models of agency in detail and proposed that independent agents would assert their independence whereas interdependent agents would assert their interdependence after randomness salience in order to restore their sense of agency.

In Study 1, correlational analyses illustrated that independent and interdependent agents differ with regard to their control orientations and emotional experience, similarly to the suggestions of past research (Markus & Kitayama, 2003; Kitayama & Uchida, 2005). Accordingly, independent agents prefer having personal control and experience disengaging emotions more strongly whereas interdependent agents value maintaining harmony and experience engaging emotions more strongly. In addition, randomness interacted with self-construal and locus of control in predicting free will, fatalistic, and scientific determinism. Obtained findings showed



that independent agents enhance their belief in free will while interdependent agents enhance their belief in fatalistic and scientific determinism when they perceive a high level of randomness in the universe, as it was hypothesized.

However, no difference was found regarding cognitive styles. The analysis-holism scale (Choi et al., 2007) was particularly problematic as perception of change subscale had positive correlations with the other subscales although it was supposed to have a negative one. Unequal number of positively and negatively worded items might have caused the problem as perception of change was the only subscale that was reverse-coded. Such imbalance renders the scales more vulnerable to acquiescence bias which would seriously undermine the validity of a cross-cultural comparison as collectivistic cultures suffer more from acquiescence bias (see Schimmack, Oishi, & Diener, 2005). Although there was no cross-cultural comparison in the current study, independent and interdependent self-construals are very closely related to the characteristics of these cultures (e.g., Markus & Kitayama, 1991) and thus a similar problem might have occurred in this study as well. In addition, object categorization task (Norenzayan et al., 2002) also failed to distinguish the two models of agency although it was previously used in a study conducted in Turkey (Uskul et al., 2008). But Uskul et al.'s (2008) study was conducted on fishermen and herders and thus the student sample of the current study might have caused the difference. Future studies would be needed to investigate why cognitive style differences sometimes cannot be detected in Turkish samples.

In Study 2 and 3, randomness and self-construal were both manipulated but the hypothesized effects were not found. As the participants were expected to infer a sense of randomness from materials which were out of their ordinary sequence (graphic novel boxes in Study 2 and tree photographs in Study 3), such indirect manipulation might not have been strong enough to produce significant results. In order to test this reasoning, in Study 4, randomness was manipulated by directly referring to the randomness in the universe. Such manipulation, as expected, resulted in increases in self-reported sense of randomness and feeling of insignificance. These results provided the first support for the expectations of the study. In Study 5, randomness was similarly directly manipulated by reminding people of random events in their lives increased

feeling of insignificance. Thus, my first hypothesis that randomness leads to a feeling of insignificance was supported.

Although Study 4 and 5 provided support for the insignificance hypothesis, randomness did not significantly interact with self-construal priming in Study 2, 3, and 4. These results have indicated that self-construal priming might not always work as expected in Turkish samples. Although there is a vast literature on priming self-construals, those studies were usually conducted in Western individualistic cultures and only few studies replicated the effects in more collectivistic ones (Cross et al., 2011; Oyserman & Lee, 2008). Kitayama, Duffy, and Uchida (2007), for example, argued that priming “I” would automatically also remind “we” in collectivistic cultures, as self is understood as encompassing others in the relation in the cultures in question. In addition, it has also been shown that trait differences in self-construal can interact with priming and it is relatively easier to prime the nondominant self-construal (Gardner et al., 1999). In other words, it is easier to prime independence in an interdependent context, or vice versa. Because the level of interdependence is already high in an interdependence context and thus a manipulation intended to increase interdependent might not be very effective. Furthermore, it could also be argued that making two manipulations (randomness and self-construal) in a row might undermine the strength of the manipulations. Considering all of these factors, trait self-construal levels were measured in the remaining studies rather than experimentally manipulating them.

However, the interaction between trait self-construals and randomness manipulation did not reach to significance in Study 6, similar to the previous studies. Although directly referring to universe being a random place did influence the level of reported randomness in Study 4 and 6, randomness manipulation did not significantly interact with self-construal in both studies. Past literature suggested that very explicit techniques for priming techniques sometimes might not produce the expected outcomes and it is more effective to use more subtle manipulations, like unscrambling tasks (Cross et al., 2011; Kühnen & Hannover, 2000). Following this reasoning, randomness was manipulated using an unscrambling task in Study 7. This time there was an interaction between trait interdependence and randomness manipulation in predicting fatalistic determinism: A sense of randomness increased fatalistic

determinism only for those with low interdependent agency. This finding contradicted with the expectation that highly interdependent agents would assert their interdependence after randomness salience. It could be argued that independent agents (who are low on interdependence) compensates for their lack of agency implied by the randomness with bolstering their interdependence, as could be suggested from a CCM perspective (Kay et al., 2009; Kay & Eibach, 2013). Considering that the studies in CCM literature have not specifically demonstrated any differences in self-construal, it is also possible that the participants in these studies were low on independence or high on interdependence and thus they enhanced an external source of control (e.g., belief in a controlling god) to deal with the sense of randomness provoked by control deprivation manipulation. In order to test the validity of different potential explanations for the findings in Study 7, Study 8 replicated the Study 7 on an American sample and Study 9 directly manipulated control deprivation to replicate the regular CCM procedure. Both studies provided some very limited support for the initial hypothesis regarding reestablishment of agency: A high level of independence decreased belief in fatalistic determinism when randomness and control deprivation (which increases sense of randomness at a subconscious level, according to CCM) was manipulated. However, the interaction was not significant for the other dependent measures. It was initially hypothesized that randomness would have different effects on independent and interdependent agents with regard to the domains of control orientation, cognitive style, and emotional experience. It should be note here that such effect was observed only for a partial aspect of control orientation (i.e., belief in a controlling god which shapes the events).

In summary, I proposed two main hypotheses in the current research. First, I argued that randomness salience would increase a feeling of insignificance. Although past literature demonstrated that randomness produces anxiety (Kay & Eibach, 2013; Kay et al., 2009; Shepherd et al., 2011; Proulx et al., 2012; Tullett et al., 2014; Van den Bos, 2009), the underlying reason behind this was not previously identified. The current research provided an explanation with empirical support and illustrated that a sense of randomness implies that the person is a helpless, insignificant object that is not participating in the course of events. The findings in Study 4 and 5 supported this hypothesis and showed that randomness in fact increases a feeling of insignificance.

Accordingly, this feeling explains why perception of randomness is a negative experience. Because being an insignificant object and lacking agency would undermine survival goals including learning, finding food, avoiding predators, and mating (e.g., Zhao et al., 2014). In addition, it would also deteriorate the attempts to assign meaning to one's life (e.g., Heine et al., 2006).

My second hypothesis was that independent agents would assert their independence and interdependent agents would assert their interdependence after randomness salience as they would desire to overcome the feeling of insignificance and reestablish their sense of agency. This hypothesis did not receive much support. Although past literature suggests that independent and interdependent agents would differ on the basis of motivational, cognitive, and emotional aspects (Kitayama & Uchida, 2005), the studies in the current research could not identify clear differences with regard to cognition and emotion. However, there was a small difference regarding motivation and interdependent agents increased their belief in a controlling god whereas independents decreased it in order to reestablish their agency after a sense of randomness was induced in Study 8 and 9. These findings have provided partial support for the reestablishment of agency hypothesis as interdependent agents became even more interdependent by relying on vicarious sources of control whereas independent agents became even more independent by further distancing themselves from such external sources of control. It could be argued that differences in control motivation are relatively stronger between independent and interdependent agents as the literature has usually focused on these differences (see Markus & Kitayama, 2003) and that is why the results concerning cognitive and emotional differences were not very supportive. It should also be considered that the effect of randomness was not significant for all aspects of control orientation as it did not affect desirability of personal control and harmony control. The expected effect was observed only for a belief in a controlling god and fatalistic determinism. Considering that religiosity was also a significant covariate for most of the dependent measures, it could be argued that how much comfortable people are with yielding control to god's hands is an important factor distinguishing independent and interdependent agencies. However, the effect of randomness on assertion of agency was not significant for a more general control

orientation (which was measured by desirability of control and harmony control scales in this research).

Based on these findings, the current research had contributions to the literature. First, it was demonstrated that randomness renders people insignificant and passive objects which would undermine the sense of being an agent. To my knowledge, no similar explanation of why randomness is uncomfortable has been proposed and tested before. Second, reestablishment of agency hypothesis was tested although it did not receive much support. Previously, CCM illustrated how control deprivation and a sense of randomness would lead to attempts to restore control (Kay et al., 2009). However CCM defines only one way of reacting to randomness (i.e., enhancing external control in the lack of internal control) assuming only one universal model of agency. However, by incorporating cultural models of agency (Markus & Kitayama, 2003), I have argued that independent and interdependent agents would react differently to a sense of randomness. Especially Study 8 and 9 showed that independent agents are less likely to utilize external control (e.g., believing in a controlling god) than interdependent agents which provided a partial support for my reestablishment of agency hypothesis. But it should be noted that this support was limited to people's control orientations and did not extend to cognitive and emotional experience of the agents.

So, although the feeling of insignificance hypothesis received support, the reestablishment of agency hypothesis was not supported as the findings were both weak and inconsistent. Actually, the moderated regression analyses conducted in Study 1 provided some initial support for the reestablishment hypothesis. Those analyses showed that when a trait sense of randomness increases, fatalistic and/or scientific determinism increases for interdependent agents whereas free will increases for independent agents. However, in the subsequent studies, the experimental manipulation of randomness did not provide supportive findings. In Study 2 and 3, sense of randomness could not be manipulated. In Study 4, 5, and 6, a direct reference to universe being a chaotic place successfully manipulated randomness but it did not significantly interact with self-construal. Implicit priming techniques used in Study 7, 8, and 9 provided some significant findings, especially for differential control motivations, but the observed effects were not entirely consistent as the findings in

Study 7 and 8 contradicted with each other. This raised some important concerns for the methodology used in the current research. It was clear that the randomness manipulations did not work as expected. It is possible that people might not have found a general sense of randomness to be threatening. If people were somehow primed with a shockingly strong sense of randomness in their own life, instead of an unpredictable but only mildly important event, their reactions to randomness could be easier to observe and more consistent with the expectations. Because it was hypothesized that randomness would be quite an aversive experience for people as it would undermine the sense of agency. In order to make sure that randomness does disturb people and diminish the sense of agency, more personally relevant randomness primings could be more effective.

Despite various limitations, the current research provided some evidences that randomness has different effects on control motivation of independent and interdependent agents. If such finding would receive further support from methodologically robust future studies, it would have important practical implications. In the following sections, I will first give some examples about these practical implications. Then, in the last section, I will discuss the expectations that were not supported by the findings and other limitations of the current research.

## **6.2 Practical Implications of the Findings**

If, after randomness salience, people become motivated to reestablish their agency in different ways based on their model of agency, the findings of current dissertation have potentially important practical implications for understanding how people react to certain real-life situations. Because people do face seemingly random events throughout their lives. Earthquakes would be a good example. It is not possible to predict the exact time and location of an earthquake with today's technology and such unpredictability is one of the major reasons why earthquakes evoke such distress (e.g., Başoğlu, Şalcıoğlu, & Livanou, 2002). It could be argued that people would not be comfortable with the idea that they are helpless in the face of potential earthquakes that can happen at any time, because it would imply that they are passive, insignificant objects rather than agents. Thus they would be motivated to assert their agency in order

to make sure that they actively participate in the course of events in their lives. However, they would do it in different ways as independent agents assert independent agency whereas interdependent ones assert interdependent agency, as the current research suggests. Consistently, past research showed an important difference in people's responses to issues related to earthquakes based on their locus of control. People with internal locus of control (which is more closely related to independence) prefer to take the matter into their hands and individually prepare for the earthquakes whereas people with external locus of control (which is more closely related to interdependence) believe that the government should find solutions for such problems (Ecevit & Kasapoğlu, 2002). So in the face of an unpredictable event like an earthquake, independent agents assert their independence by taking initiative and individual precautions while interdependent agents assert their interdependence by expecting things to be under control of the group they identify with –the government, in this case. Thus, it could be argued that governments and other agencies should take into account the dominant model of agency in their target audience and shape their public campaigns regarding disaster preparedness based on how those people deal with random and unpredictable events like earthquakes.

We perceive earthquakes or other natural disasters to occur randomly to a large extent, but these events usually do not happen very frequently. What if someone's entire life is dominated by randomness? According to life history theory (see Stearns, 1977, 1992), all organisms, including humans, have varying strategies for reproduction in different environmental conditions and such strategies have strong impacts on various factors in life. Most relevant to the current research is that, according to such perspective, in unpredictable environments (e.g., slums) humans sexually mature earlier in life, reproduce at larger numbers, invest in their children at a minimal level, develop insecure attachments, and have a short lifespan (Ellis et al., 2012). The underlying reason for such effects is that one cannot plan for (and actually stay alive in) the long run in unpredictable environments (Ellis et al., 2012; Stearns, 1992). As it is "now or never" in these environments, adolescents who were grown up under such unpredictable and uncontrollable conditions are more prone to risky behaviors, aggression, violence, and even suicide (Ellis et al., 2012; Evans, Owens, & Marsh, 2005). It was argued that these adolescents who are at risk have an external locus of

control (Miller, Fitch, & Marshall, 2003) and this is one of the important factors leading to unwanted behaviors, like suicide (Evans et al., 2005). These arguments imply that having an internal locus of control and thus being an independent agent would be a universal remedy for dealing with unpredictability and randomness. However, the current research suggests that people assert either independent or interdependent agency to deal with the sense of randomness and thus one does not have to have an independent self-construal and desire for personal control in order to feel like an agent.

Consistently with this argument, Ward (1995) argued that African American adolescents at risk should reestablish their decaying interdependence as connectedness and harmony are deeply embedded in Black cultural identity. According to Ward (1995), if they succeed in doing so, the level of violence among them would decrease as violence would be understood as a violation of ingroup harmony. Thus, in consistence with my proposition in the current research, it would also be possible to deal with an unpredictable environment by asserting interdependent agency. Because building strong relationships and having people you can rely on would provide a safety net that protects people from the dangers of unpredictable conditions.

### **6.3 Potential Limitations and Directions for Future Research**

There were some potential limitations in the current research. First, the interactions between randomness manipulation and self-construal were not significant for measures of cognitive and emotional differences although both were previously shown to differ based on model of agency (e.g., Kitayama et al., 2006; Masuda & Nisbett, 2001). Rule-based versus resemblance-based categorization task which measures cognitive differences was previously used in Turkey (Uskul et al., 2008), however it did not effectively measure these differences in the current research. As discussed before, it might be due the differences in samples, as Uskul et al.'s (2008) study was conducted on a sample of herders and fishermen. In addition, analysis-holism scale (Choi et al., 2007) also failed to distinguish the cognitive styles of independent and interdependent agents. Future research should investigate its potential reasons and identify different measurement techniques that can differentiate



independent and interdependent agency. There was also mixed results with regard to emotional characteristics of independent and interdependent agency. Although previous research has shown that independent agents experience disengaging emotions whereas interdependent agents experience engaging emotions more frequently and strongly, they were mostly correlational studies (e.g., Kitayama et al., 2006). The results suggest that a self-report measure of emotional experience might not be appropriate to identify the effects of experimental manipulations. Thus future research should investigate other potential measurement techniques that can differentiate the emotional experiences of independent and interdependent agents.

Second, the findings in Study 7 and 8 contradicted with each other as the latter supported the reestablishment of agency hypothesis whereas the former one had opposite results. One potential reason is the difference in sampling. Study 7 was conducted on a Turkish sample, but Study 8 was conducted on an American one. It was previously argued that priming a feature that is not dominant in a certain culture is relatively easier (Cross et al., 2011; Gardner et al., 1999). Thus there might be differences between Turkish and American people with regard to chronic perception of randomness which leads to such contradictory findings. Relevant to this, there is an important dimension that differentiates cultures which is called as “uncertainty avoidance” (Hofstede, 2001). Uncertainty avoidance refers to the level of tolerance for uncertainty and ambiguity (Hofstede, 2001). According to uncertainty avoidance index created by Hofstede (2001), Turkey ranks higher in uncertainty avoidance than United States which implies that Turkish people might have lower tolerance for randomness as compared to Americans. These chronic differences might have produced different reactions to a randomness manipulation. Further empirical research is needed to investigate how such cultural differences affect the reestablishment of agency process after randomness salience.

Third, as discussed before, reestablishment of agency hypothesis received partial support only in Study 8 and 9 in which randomness was manipulated at a subconscious level. Why explicit manipulations did not yield similar results requires further research. One potential explanation would be that lacking a sense of agency might be producing an aversive feeling that is too strong for people to deal with at a

conscious level, similarly to the case of death anxiety in TMT studies (e.g., Solomon et al., 1991).

Lastly, self-report measures were utilized as dependent variables in the current research. Behavioral measures could be used in future research. In a study by Ashton-James, Maddux, Galinsky, and Chartrand (2009), for example, participants were asked to choose a pen as a payment for their participation. It was found out that participants seeking uniqueness preferred the pen that was uncommon (i.e., there was only one or two such pens in a set of five) whereas those who were seeking conformity preferred the type of pen that was common. Similar behavioral measures could be used to measure motivational differences after randomness salience. In addition, randomness could also be manipulated in laboratory setting. In one study, for example, orderliness or disorderliness was manipulated by making the room in which the participants completed the questionnaires look tidy or untidy (Vohs, Redden, & Rahinel, 2013). Similar techniques could also be used to manipulate the sense of randomness at an implicit level.

## ENDNOTES

<sup>1</sup>In order to investigate culture orientations which might have effects on control orientations, locus of control (Dağ, 2002) and individualism-collectivism (Wasti & Erdil, 2007) were also measured as they might be considered as alternatives to self-construal scale. But the scores on these scales did not have any kind of interactive effect on any of the measures and thus they were excluded from the analysis.

<sup>2</sup>Same variable (independence minus interdependence) was also tested in the other studies in order to investigate whether it results in different findings. It did not have any contribution to the overall findings in the other studies, so it was not mentioned, except for in Study 8.

## REFERENCES

- Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist*, 49(1), 15-24. doi:10.1037/0003-066X.49.1.15
- Agroskin, D., & Jonas, E. (2013). Controlling death by defending ingroups – Mediatonal insights into terror management and control restoration. *Journal of Experimental Social Psychology*, 49(6), 1144-1158. doi: 10.1016/j.jesp.2013.05.014
- Aguiar, A., & Baillargeon, R. (2002). Developments in young infants' reasoning about occluded objects. *Cognitive Psychology*, 45(2), 267-336. doi:10.1016/S0010-0285(02)00005-1
- Alter, A., & Oppenheimer, D. M. (2006). From a fixation on sports to an exploration of mechanism: The past, present, and future of hot hand research. *Thinking & Reasoning*, 12(4), 431-444. doi:10.1080/13546780600717244
- Ashton-James, C., Maddux, M. W., Galinsky, A. D., & Chartrand, T. L. (2009). Who I am depends on how I feel: The role of affect in the expression of culture. *Psychological Science*, 20(3), 340-346. doi:10.1111/j.1467-9280.2009.02299.x
- Başıoğlu, M., Şalcıoğlu, B., & Livanou, M. (2002). Traumatic stress responses in earthquake survivors in Turkey. *Journal of Traumatic Stress*, 15(4), 259-276. doi:10.1023/A:1016241826589
- Bauer, P. J., & Mandler, J. M. (1992). Putting the horse before the cart: The use of temporal order in recall of events by one-year-old children. *Developmental Psychology*, 28(3), 441-452. doi:10.1037//0012-1649.28.3.441
- Burger, J. M., & Cooper, H. M. (1979). The desirability of control. *Motivation and Emotion*, 3(4), 381-393. doi:10.1007/BF00994052
- Burke, B. L., Martens, A., & Faucher, E. H. (2010). Two decades of terror management theory: A meta-analysis of mortality salience research. *Personality and Social Psychology Review*, 14, 155-195. doi:10.1177/1088868309352321
- Canfield, R. L., & Haith, M. M. (1991). Young infants' visual expectations for symmetric and asymmetric stimulus sequences. *Developmental Psychology*, 27(2), 198-208. doi:10.1037/0012-1649.27.2.198
- Chae, B. G., & Zhu, R. J. (2014). Environmental disorder leads to self-regulatory failure. *Journal of Consumer Research*, 40, 1203-1218. doi:10.1086/674547

- Choi, I., Koo, M., & Choi, J. A. (2007). Individual differences in analytical versus holistic thinking. *Personality and Social Psychology Bulletin*, 33, 691-705. doi:10.1177/0146167206298568
- Cross, S. E., Hardin, E. E., & Gercek-Swing, B. (2011). The what, how, why, and where of self-construal. *Personality and Social Psychology Review*, 15, 142-179. doi:10.1177/1088868310373752
- Dağ, İ. (2002). Kontrol Odağı Ölçeği (KOÖ): Ölçek geliştirme, güvenirlik ve geçerlik çalışması [Locus of Control Scale: Scale Development, Reliability and Validity Study]. *Türk Psikoloji Dergisi*, 17(49), 77-90.
- Ecevit, M., & Kasapoğlu, A. (2002). Demographic and psychosocial features and their effects on the survivors of the 1999 earthquake in Turkey. *Social Behavior and Personality: An International Journal*, 30(2), 195-202. doi:10.2224/sbp.2002.30.2.195
- Eğrigözlü, E. (2002). Hemşirelerde iş kontrolü, kontrol isteği ile tükenmişlik ve fiziksel sağlık arasındaki ilişkiler [The effects of job control, desirability of control on burnout and physical health] (Unpublished master's thesis). Hacettepe University, Ankara, Turkey.
- Ellis, B. J., Giudice, M. D., Dishion, T. J., Figueredo, A. J., Gray, P., Griskevicius, V., ... Wilson, D. S. (2012). The evolutionary basis of risky adolescent behavior: Implications for science, policy, and practice. *Developmental Psychology*, 48(3), 598-623. doi:10.1037/a0026220
- Evans, W. P., Owens, P., & Marsh, S. C. (2005). Environmental factors, locus of control, and adolescent suicide risk. *Child and Adolescent Social Work Journal*, 22(3), 301-319. doi:10.1007/BF02679474
- Festinger, L. (1957). *A Theory of Cognitive Dissonance*. Stanford, CA: Stanford University Press.
- Fritzsche, I., Jonas, E., & Fankhänel, T. (2008). The role of control motivation in mortality salience effects on ingroup support and defense. *Journal of Personality and Social Psychology*, 95(3), 524-541. doi:10.1037/a0012666
- Gassmeier, W., Wilke, A., Scheibehenne, B., McCanney, P., & Barrett, H. C. (2015). Betting on illusory patterns: Probability matching in habitual gamblers. *Journal of Gambling Studies*, 32(1), 143-156. doi:10.1007/s10899-015-9539-9
- Greenberg, J., Koole, S. L., & Pyszczynski, T. (2004). *Handbook of experimental existential psychology*. New York, NY: Guilford Press.

- Heine, S. J., Proulx, T., & Vohs, K. D. (2006). The meaning maintenance model: On the coherence of social motivations. *Personality and Social Psychology Review*, 10(2), 88-110. doi:10.1207/s15327957pspr1002\_1
- Heintzelman, S. J., Trent, J., & King, L. A. (2013). Encounters with objective coherence and the experience of meaning in life. *Psychological Science*, 24(6), 991-998. doi: 10.1177/0956797612465878
- Hennes, E. P., Nam, H., Stern, C., & Jost, J. T. (2012). Not all ideologies are created equal: Epistemic, existential, and relational needs predict system-justifying attitudes. *Social Cognition*, 30(6), 669-688. doi:10.1521/soco.2012.30.6.669
- Hofstede, G. H. (2001). *Culture's consequences: Comparing values, behaviors, institutions and organizations across nations*. Thousand Oaks, CA: Sage Publications.
- Hogg, M. A. (2007). Uncertainty-identity theory. *Advances in Experimental Social Psychology*, 39, 69-126. doi:10.1016/S0065-2601(06)39002-8
- Huettel, S. A., Mack, P. B., & McCarthy, G. (2002). Perceiving patterns in random series: Dynamic processing of sequence in prefrontal cortex. *Nature Neuroscience*, 5, 485-490. Doi: 10.1038/nn841
- Jost, J. T., Banaji, M. R., & Nosek, B. R. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political Psychology*, 25(6), 881-919. doi:10.1111/j.1467-9221.2004.00402.x
- Kam, C., Zhou, X., Zhang, X., & Ho, M. Y. (2012). Examining the dimensionality of self-construals and individualistic-collectivistic values with random intercept item factor analysis. *Personality and Individual Differences*, 53, 727-733. doi:10.1016/j.paid.2012.05.023
- Kashima, E. S., & Loh, E. (2006). International students' acculturation: Effects of international, conational, and local ties and need for closure. *International Journal of Intercultural Relations*, 30, 471-485. doi:10.1016/j.ijintrel.2005.12.003
- Kay, A. C., & Eibach, R. P. (2013). Compensatory control and its implications for ideological extremism. *Journal of Social Issues*, 69(3), 564-585. doi: 10.1111/josi.12029
- Kay, A.C., Moscovitch, D.A., & Laurin, K. (2010). Randomness, attributions of arousal, and belief in God. *Psychological Science*, 21(2), 216-218. doi:10.1177/0956797609357750
- Kay, A.C., Whitson, J.A., Gaucher, D., & Galinsky, A.D. (2009). Compensatory control: Achieving order through the mind, our institutions and the heavens.

*Current Directions in Psychological Science*, 18(5), 264-268. doi: 10.1111/j.1467-8721.2009.01649.x

Kitayama, S., Duffy, S., & Uchida, Y. (2007). Self as cultural mode of being. In S. Kitayama & D. Cohen (Eds.), *Handbook of cultural psychology* (pp. 136–173). New York: Guilford Press.

Kitayama, S., Markus, H. R., & Kurokawa, M. (2000). Culture, emotion, and well-being: Good feelings in Japan and the United States. *Cognition and Emotion*, 14(1), 93-124. doi: 10.1080/026999300379003

Kitayama, S., Mesquita, B., & Karasawa, M. (2006). Cultural affordances and emotional experience: Socially engaging and disengaging emotions in Japan and the United States. *Journal of Personality and Social Psychology*, 91(5), 890-903. doi: 10.1037/0022-3514.91.5.890

Kitayama, S., & Uchida, Y. (2005). Interdependent agency: An alternative system for action. In R. M. Sorrentino, D. Cohen, J. M. Olson, & M. P. Zanna (Eds.), *Cultural and social behavior: The Ontario Symposium* (Vol. 10, pp. 137–164). Mahwah, NJ: Erlbaum.

Kotabe, H. P. (2014). The world is random: A cognitive perspective on perceived disorder. *Frontiers in Psychology*, 5, 1-5. doi:10.3389/fpsyg.2014.00606

Kuhn, M. H., & McPartland, T. S. (1954). An empirical investigation of self-attitudes. *American Sociological Review*, 19(1), 68-76.

Kühnen, U., & Hannover, B. (2000). Assimilation and contrast in social comparisons as a consequence of self-construal activation. *European Journal of Social Psychology*, 30(6), 799-811. doi: 10.1002/1099-0992(200011/12)30:6<799::AID-EJSP16>3.0.CO;2-2

Laurin, K., Kay, A. C., & Moscovitch, D. M. (2008). On the belief in God: Towards an understanding of the emotional substrates of compensatory control. *Journal of Experimental Social Psychology*, 44, 1559–1562. doi:10.1016/j.jesp.2008.07.007

Lerner, M. J. (1980). *The belief in a just world: A fundamental delusion*. New York, NY: Plenum Press.

Maier, S. F., & Seligman, M. E. (1976). Learned helplessness: Theory and evidence. *Journal of Experimental Psychology: General*, 105(1), 3-46. doi:10.1037/0096-3445.105.1.3

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, 98(2), 224-253. doi:10.1037/0033-295X.98.2.224

- Markus, H. R., & Kitayama, S. (2003). Models of agency: Sociocultural diversity in the construction of action. In V. M. Berman & J.J. Berman (Eds.), *Nebraska symposium on motivation: Cross-cultural differences in perspectives on the self* (Vol. 49, pp. 1-57). Lincoln: University of Nebraska Press.
- Masuda, T., & Nisbett, R. E. (2001). Attending holistically versus analytically: Comparing the context sensitivity of Japanese and Americans. *Journal of Personality and Social Psychology*, 81(5), 922-934. doi:10.1037/0022-3514.81.5.922
- McGregor, I., Nash, K., Mann, N., & Phills, C. E. (2010). Anxious uncertainty and reactive approach motivation (RAM). *Journal of Personality and Social Psychology*, 99(1), 133-147. doi:10.1037/a0019701
- Miller, C. A., Fitch, T., & Marshall, J. L. (2003). Locus of control and at-risk youth: A comparison of regular education high school students and students in alternative schools. *Education*, 123(3), 548-552.
- Miltenberger, R. G. (2011). *Behavior modification: Principles and Procedures*. Belmont, CA: Wadsworth.
- Miyamoto, Y. (2013). Culture and analytic versus holistic cognition: Toward a multilevel analyses of cultural influences. *Advances in Experimental Social Psychology*, 47, 131-188. doi:10.1016/B978-0-12-407236-7.00003-6
- Morling, B., & Fiske, S. T. (1999). Defining and measuring harmony control. *Journal of Research in Personality*, 33(4), 379-414. doi: 10.1006/jrpe.1999.2254
- Müller, U., Carpendale, J. I. M., & Smith, L. (2009). *The Cambridge Companion to Piaget*. New York, NJ: Cambridge University Press.
- Nickerson, R. S. (2004). *Cognition and chance: The psychology of probabilistic reasoning*. Mahwah, NJ: Erlbaum.
- Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2), 291-310. doi:10.1037/0033-295X.108.2.291
- Norenzayan, A., Smith, E. E., Nisbett, R. E., & Kim, B. J. (2002). Cultural preferences for formal versus intuitive reasoning. *Cognitive Science*, 26(5), 653-684. doi: 10.1016/S0364-0213(02)00082-4
- Öner, N. & Le Compte, A. (1983). *Durumluk-sürekli kaygı envanteri el kitabı* [Manual of state-trait anxiety inventory]. İstanbul: Boğaziçi Üniversitesi.



- Oyserman, D., & Lee, S. W. S. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological Bulletin*, 134(2), 311-342. doi:10.1037/0033-2909.134.2.311
- Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin*, 136(2), 257-301. doi:10.1037/a0018301
- Paulhus, D. L., & Carey, J. M. (2011). The FAD-Plus: Measuring lay beliefs regarding free will and related constructs. *Journal of Personality Assessment*, 93, 96-104. doi:10.1080/00223891.2010.528483
- Proulx, T., Inzlicht, M., & Harmon-Jones, E. (2012). Understanding all inconsistency compensation as a palliative response to violated expectations. *Trends in Cognitive Sciences*, 16(5), 285-291. doi:10.1016/j.tics.2012.04.002
- Rescorla, R. A., & Wagner, A. R. (1972). A theory of Pavlovian conditioning: Variations in the effectiveness of reinforcement and nonreinforcement. In A. H. Black & W. F. Prokasy (Eds.), *Classical conditioning II: Current theory and research* (pp. 64 –99). New York, NY: Appleton-Century-Crofts.
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, 42(1), 5-37. doi:10.1037/0022-3514.42.1.5
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General & Applied*, 80(1), 1-28.
- Sarkissian, H., Chatterjee, A., De Brigard, F., Knobe, J., Nichols, S., & Sirker, S. (2010). Is belief in free will a cultural universal? *Mind and Language*, 25, 346-358. doi:10.1111/j.1468-0017.2010.01393.x
- Savani, K., Markus, H. R., Naidu, N. V. R., & Berlia, N. (2010). What counts as a choice? US Americans are more likely than Indians to Construe Actions as Choices. *Psychological Science*, 21(3), 391-398. doi:10.1177/0956797609359908
- Schimmack, U., Oishi, S., & Diener, E. (2005). Individualism: A valid and important dimension of cultural differences between nations. *Personality and Social Psychology Review*, 9(1), 17-31. doi:10.1207/s15327957pspr0901\_2
- Shepherd, S., Kay, A. C., Landau, M. J., & Keefer, L. A. (2011). Evidence for the specificity of control motivations in worldview defense: Distinguishing compensatory control from uncertainty management and terror management processes. *Journal of Experimental Social Psychology*, 47, 949-958. doi:10.1016/j.jesp.2011.03.026

- Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, 20(5), 580-591. doi:10.1177/0146167294205014
- Singelis, T. M., Triandis, H. C., Bhawuk, D. P. S., & Gelfand, M. J. (1995). Horizontal and vertical dimensions of individualism and collectivism: A theoretical and measurement refinement. *Cross-Cultural Research*, 29(3), 240-275. doi:10.1177/106939719502900302
- Snibbe, A. C., & Markus, H. R. (2005). You can't always get what you want: Educational attainment, agency, and choice. *Journal of Personality and Social Psychology*, 88(4), 703-720. doi:10.1037/0022-3514.88.4.703
- Solomon, S., Greenberg, J., & Pyszczynski, T. (1991). A terror management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. In M. P. Zanna (Eds.), *Advances in experimental social psychology* (Vol. 24., pp. 93–159). New York, NY: Academic Press.
- Stearns, S. C. (1977). The evolution of life history traits: A critique of the theory and a review of the data. *Annual Review of the Ecology and Systematics*, 8, 145-171. doi:10.1146/annurev.es.08.110177.001045
- Stearns, S. C. (1992). *The evolution of life histories*. Oxford: Oxford University Press.
- Stephens, N. M., Fryberg, S. A., & Markus, H. R. (2011). When choice does not equal freedom: A sociocultural analysis of agency in working-class American contexts. *Social Psychological and Personality Science*, 2(1), 33-41. doi: 10.1177/1948550610378757
- Trafimow, D., Triandis, H. C., & Goto, S. G. (1991). Some tests of the distinction between the private self and the collective self. *Journal of Personality and Social Psychology*, 60(5), 649-655. doi:10.1037/0022-3514.60.5.649
- Triandis, H. C. (1989). The self and social behavior in differing cultural contexts. *Psychological Review*, 96(3), 506-520. doi: 10.1037/0033-295X.96.3.506
- Tullett, A. M., Kay, A.C., & Inzlicht, M. (2015). Randomness increases self-reported anxiety and neurophysiological correlates of performance monitoring. *Social Cognitive and Affective Neuroscience*, 10(5), 628-635. doi:10.1093/scan/nsu097
- Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131. doi: 10.1126/science.185.4157.1124
- Uskul, A. K., Nisbett, R. E., & Kitayama, S. (2008). Ecoculture, social interdependence and holistic cognition: Evidence from farming, fishing and

- herding communities in Turkey. *Communicative & Integrative Biology*, 1(1), 40-41. doi:10.4161/cib.1.1.6649
- Uz, İ. (2015). Nedensel Belirsizlik Ölçeğinin Türkçeye uyarlanması [The adaptation of Causal Uncertainty Scale into Turkish]. *Anadolu Psikiyatri Dergisi*, 16, 19-22. doi:10.5455/apd.173182
- Ward, J. V. (1995). Cultivating a morality of care in African American adolescents: A culture-based model of violence prevention. *Harvard Educational Review*, 65(2), 175-188.
- Wasti, A., & Erdil, S. E. (2007). Bireycilik ve toplulukçuluk değerlerinin ölçülmesi: Benlik kurgusu (Self-Construct Scale; SCS) ve INDCOL ölçeklerinin Türkçe geçerlemesi [Measurement of individualism and collectivism: Validation of Self Construct Scale and INDCOL in Turkish]. *Yönetim Araştırmaları Dergisi*, 7, 39-66.
- Weary, G., & Edwards, J. A. (1994). Individual differences in causal uncertainty. *Journal of Personality and Social Psychology*, 81, 206-219. doi:10.1037/0022-3514.67.2.308
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67(6), 1049-1062. doi: 10.1037/0022-3514.67.6.1049
- Weisz, J. R., Rothbaum, F. M., & Blackburn, T. C. (1984). The psychology of control in America and Japan. *American Psychologist*, 39(9), 955-969. doi:10.1037/0003-066X.39.9.955
- Van den Bos, K. (2001). Uncertainty management: The influence of uncertainty salience on reactions to perceived procedural fairness. *Journal of Personality and Social Psychology*, 80(6), 931-941. doi:10.1037/0022-3514.80.6.931
- Van den Bos, K. (2009). Making sense of life: The existential self trying to deal with personal uncertainty. *Psychological Inquiry: An International Journal for the Advancement of Psychological Theory*, 20(4), 197-217. doi: 10.1080/10478400903333411
- Van den Bos, K., & Lind, E. A. (2002). Uncertainty management by means of fairness judgments. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 1-60). San Diego, CA: Academic Press.
- Van Harreveld, F., van der Pligt, J., & de Liver, Y. N. (2009). The agony of ambivalence and ways to resolve it: Introducing the MAID model. *Personality and Social Psychology Review*, 13(1), 45-61. doi:10.1177/1088868308324518
- Vohs, K. D., Redden, J. P., & Rahinel, R. (2013). Physical order produces healthy choices, generosity, and conventionality, whereas disorder produces

creativity. *Psychological Science*, 24(9), 1860-1867.  
doi:10.1177/0956797613480186

Zhao, J., Hahn, U., & Osherson, D. (2014). Perception and identification of random events. *Journal of Experimental Psychology: Human Perception and Performance*, 40(4), 1358-1371. doi:10.1037/a0036816

Zhou, X., He, L., Yang, Q., Lao, J., & Baumeister, R. F. (2012). Control deprivation and styles of thinking. *Journal of Personality and Social Psychology*, 102(3), 460-478. doi:10.1037/a0026316

Table 1

*Items of the Turkish Version of Harmony Control Scale and Factor Loadings*

<i>Item</i>	<i>Loading</i>	<i>R<sup>2</sup></i>	<i>Reliability Coefficient (Cronbach's Alpha)</i>	<i>Test-Retest Reliability</i>
<b>Daha Yüksek Bir Güce İnanmak</b>			.88	.77
*6 - Hayatlarımızın daha yüksek bir güç tarafından yönetildiğine inanmıyorum.	.79			
5 – Hayatımızdaki iyi ve kötü anları nihai olarak daha yüksek bir güç belirler.	.76			
2 – Daha yüksek bir gücün sonunda benim iyiliğimi sağlayacağını biliyorum.	.75			
*3 – Benim için belirlenmiş bir yol olduğunu düşünmüyorum.	.67			
4 – Kadere karşı gelmenin faydası yok.	.65			
<b>Arkadaşların Desteğine Güvenmek</b>			.67	.66
11 – Başka insanların ihtiyaçlarını karşılayacaklarına güvenebilirim.	.74			
12 – Arkamda başka insanlar oldukça hiçbir zaman dibe vurmayacağımı biliyorum.	.54			
*8 – Benim adıma önemli kararlar vermeleri için başka insanlara güvenmem.	.46			
10 – Başka insanların ihtiyaçlarını karşıladığımda benim de çoğu ihtiyacım karşılanmış olur.	.30			
7- İhtiyacım olduğunda arkadaşlarımla benimle ilgileneceğini bilmek kendimi güvende hissettiriyor.	.32			
*9 – Başkalarının beni destekleyeceğini bilmek benim için o kadar da önemli değil.	.35			
<b>Talihin Döneceğine İnanmak</b>			.61	.57

Table 1 (continued)

20 – Kötü zamanlarımı umursamıyorum çünkü eninde sonunda iyi zamanlar da gelecektir.	.64			
21 – Art arda şansımın iyi gitmediği anlarda şansımın dönmesini beklerim.	.54			
19 – İyi bir şekilde kaybetmek kazanmaktır.	.42			
<b>Başkalarının Tepkilerini Öngörmek</b>				.37
14 – Ne istediklerini veya neye ihtiyaç duyduklarını bildiğinde, insanlarla geçinmek daha kolaydır.	.75			
13 – Çoğu zaman ne yapacaklarını bildiğimden, insanlarla iyi geçiniyorum.	.42			
*15 – Diğer insanların hedeflerini ve davranışlarını öngörmemin, onlarla iyi geçinmeme pek yardım etmediğini düşünüyorum.	.41			
<b>Kendini Başkalarıyla Bir Bütün Halinde Hissetmek</b>			.49	.39
16 – Diğer insanlarla beraberken, bazen kendimi tamamen yaptıkları şeye kaptırıyorum.	.87			
17 – Diğer insanlarla beraber olduğumda, kişisel olarak ne istediğim aklımdan çıkıyor.	.66			

\* Reverse coded item.

Table 2

*Items of the Turkish Version of FAD-Plus Scale and Factor Loadings*

	Loading	$R^2$	Reliability Coefficient (Cronbach's Alpha)	Test-Retest Reliability
<b><i>Kaderci Belirlenimcilik</i></b>			.87	.74
9 – Kaderin halihazırda herkes için bir planı vardır.	.88	.77		
1 - Geleceğin kader tarafından çoktan belirlendiğine inanıyorum.	.85	.73		
5 – Ne kadar denerseniz deneyin, kaderinizi değiştiremezsiniz.	.76	.58		
17 – İnsanların hoşuna gitsin veya gitmesin, gizemli güçler onların hayatına karışıyor gibi gözükmektedir.	.66	.44		
13 – Olacağı varsa olur – sizin bu konuda yapabileceğiniz pek bir şey yoktur.	.66	.44		
<b><i>Bilimsel Belirlenimcilik</i></b>			.62	.45
10 – Genleriniz geleceğinizi belirler.	.60	.36		
2 – İnsanların biyolojik yapıları onların yeteneklerini ve kişiliklerini belirler.	.57	.32		
14 – Bilim sizin geçmiş çevrenizin şu anki zeka ve kişiliğinizi nasıl oluşturduğunu göstermektedir.	.56	.31		
18 – Diğer hayvanlarda olduğu gibi, insan davranışı da her zaman doğanın kanunlarına uyar.	.47	.22		
22 - Ebeveynlerinin karakteri çocuklarının karakterlerini belirleyecektir.	.36	.13		
6 – Psikolog ve psikiyatristler er ya da geç tüm insan davranışlarını çözecekler.	.28	.08		

Table 2 (continued)

<b><i>Özgür İrade</i></b>			.66	.60
16 – Suçlular, yaptıkları kötü şeylerden tamamen sorumludurlar.	.65	.42		
23 – İnsanlar her zaman kötü davranışlarından dolayı hatalıdırlar.	.58	.34		
8 – İnsanlar yaptıkları kötü tercihlerinin tüm sorumluluğunu üstlenmelidirler.	.50	.25		
12 – Eğer gerçekten istiyorlarsa, insanlar her engelin üstesinden gelebilirler.	.43	.18		
21 – İnsanlar tamamen özgür bir iradeye sahiptirler.	.43	.18		
4 – İnsanlar kendi kararları üzerinde tam kontrole sahiptir.	.37	.14		
26 - Zihnin gücü her zaman vücudun arzularının üstesinden gelebilir.	.19	.04		
<b><i>Rastgelelik</i></b>			.80	.63
19 – Hayatı öngörmek zordur çünkü neredeyse tamamen rastgeledir.	.68	.47		
11- Hayat, zar atmak ya da yazı-tura atmak gibi, tahmin edilemez gibi görünüyor.	.68	.46		
27 – İnsanların gelecekleri öngörülemez.	.63	.40		
20 – Şans insanların hayatında büyük rol oynar.	.61	.37		
15 – İnsanlar öngörülemezdirler.	.54	.29		
25 – İnsanların başına gelen şeylerin nedeni şanstır.	.53	.28		
7 – Bu dünyada ne olacağını kimse öngöremez.	.49	.24		



Table 3

*Items of the Turkish Version of Analysis-Holism Scale and Factor Loadings*

<i>Item</i>	Loading	$R^2$	Reliability Coefficient (Cronbach's Alpha)	Test-Retest Reliability
<b>Dikkat Odağı</b>			.83	.42
17 – Büyük resmi dikkate almadan parçaları anlamak mümkün değildir.	.88	.77		
10 – Bütün, parçaların toplamından daha büyüktür.	.82	.67		
2 – Ayrıntılar yerine bütün bağlama dikkat etmek daha önemlidir.	.61	.37		
13 – Parçalar yerine bütüne dikkat etmek daha önemlidir.	.60	.36		
5 – Bir olguyu anlamak için parçaları yerine bütünü dikkate alınmalıdır.	.52	.27		
<b>Nedensellik</b>			.78	.51
9 – Evrendeki bir unsurdaki küçük bir değişim bile diğer unsurlarda önemli derecede değişime sebep olabilir.	.69	.48		
7 – Dünyadaki her şey bir nedensellik ilişkisi içinde iç içe geçmiştir.	.69	.48		
1 – Evrendeki her şey birbiriyle bir şekilde bağlantılıdır.	.66	.44		
3 – Hiçbir şey birbiriyle bağlantısız değildir.	.66	.44		
11 – Her olgunun birden fazla sebebi vardır ve bu sebeplerin bazıları bilinmez.	.42	.18		

Table 3 (continued)

15 – Her olgu birden fazla sonuca sebep olur ve bu sonuçlardan bazıları bilinmez.	.35	.12		
<b>Çelişkiye Yönelik Tutum</b>			.73	.56
6 – Orta yolu bulmak, aşırı uç noktalara gitmekten daha istenilen bir şeydir.	.70	.49		
21 – Kendinden farklı düşünen insanlarla uyumsuzluk içinde olmaktansa, uyum içinde olmak daha istenilen bir şeydir.	.60	.36		
20 – Bir insan diğerleriyle fikir ayrılığına düştüğünde, kimin haklı veya haksız olduğunu tartışmak yerine bir uzlaşma noktası bulmak daha önemlidir.	.60	.36		
22 – Uç noktalara gitmekten kaçınılmalıdır.	.54	.29		
16 – Aralarında anlaşmazlık olduğunda, insanlar uzlaşma yolu arayıp herkesin görüşünü kucaklamalıdır.	.54	.29		
*8 – Bir tartışmada orta yolu bulmaktan kaçınılmalıdır.	.38	.14		
<b>Değişim Algısı</b>			.79	.55
14 – Şu an başarılı bir hayat yaşayan insan gelecekte de başarılı olmaya devam eder.	.80	.64		
12 – Şu an dürüst olan bir insan, gelecekte de dürüst olmaya devam eder.	.70	.49		
24- Bir olay belli bir yöne doğru gitmeye başlıyorsa, o yönde gitmeye devam edecektir.	.70	.49		
23 – Dünyadaki her olay öngörülebilir bir yönde hareket eder.	.41	.17		

\* Reversed coded item

Table 4

*Items of the Turkish Version of Need for Closure Scale and Factor Loadings*

<i>Item</i>	<i>Loading</i>	<i>R<sup>2</sup></i>
5 – Öngörülemeyen durumlar hoşuma gitmez.	.76	.58
3 – Sonucunda ne olacağını kestiremediğim bir durumun içine girmekten hoşlanmam.	.70	.49
6 – Belirli ve düzenli bir hayat tarzı hoşuma gider.	.61	.37
7 – Tutarlı bir rutin oluşturmanın hayattan daha fazla zevk almamı sağladığını düşünüyorum.	.59	.35
4 – Son dakikada plan değiştirmekten nefret ederim.	.59	.35
2 – Belirsiz durumlardan hoşlanmam.	.59	.35
9 – Kendilerinden ne bekleyeceğimi bildiğim için, samimi olduğum arkadaşlarla sosyalleşmeyi tercih ederim.	.48	.23
8 – Hayatımdaki bir olayın neden gerçekleştiğini anlamadığımda kendimi rahatsız hissederim.	.48	.23
1 – Önemli bir konu hakkında kafam karıştığında çok canım sıkılır.	.37	.14
<b>Reliability Coefficient (Cronbach's Alfa)</b>	.83 .56	
<b>Test-Retest Reliability</b>		

Table 5

*Items of the Turkish Version of Socially Engaging and Disengaging Emotions Inventory and Factor Loadings*

<i>Item</i>	Loading	$R^2$	Reliability Coefficient (Cronbach's Alpha)	Test-Retest Reliability
<b>Socially Disengaging – Negative</b>			.69	.77
Aksi ve somurtkan	.72			
Öfkeli	.68			
Kıskanç	.51			
Engellenmiş ve hakkı yenmiş	.49			
<b>Socially Disengaging – Positive</b>			.79	.47
Gururlu	.70			
Özel	.69			
Üstün	.60			
<b>Socially Engaging – Positive</b>			.66	.78
Arkadaş canlısı	.77			
Başkası adına mutlu	.70			
Saygılı	.43			
<b>Socially Engaging –Negative</b>			.58	.48
Suçlu	.87			
Mahcup	.76			
Başkası adına üzgün	.14			

Table 5 (continued)

<b>General Positive</b>			.82	.61
Sevinçli	.93			
Mutlu	.89			
Huzurlu	.71			
Sakin	.38			
<b>General Negative</b>			.86	.52
Canı sıkkın	.86			
Karamsar	.80			
Üzgün	.78			
Mutsuz	.75			
Tiksinti	.53			
Korku	.48			

Table 6

*The Correlations between Cultural Orientations and Main Demographic Differences*

		1	2	3	4	5	6	7	8	9	10	
1.	Ind. SC	-										
2.	Inter.S C	.10*	-									
3.	ExterL ocus of Cont.	-.11*	.11*	-								
4.	Vertica l Collecti vism	.09	.57**	.17**	-							
5.	Horizo ntal Collecti vism	.11*	.55**	.03	.41**	-						
6.	Horizo ntal Individ ualism	.59**	-.10	-.16**	-.02	-.03	-					
7.	Age	-.09	-.14*	.11*	-.10	-.10*	-.07	-				
8.	Sex (1 = F, 2 = M)	-.05	-.02	-.12*	-.04	-.09	-.13*	.23**	-			
9.	Religio usness	-.13*	.19**	.29**	.32**	.13*	-.21**	.00	-.07	-		
10.	Socioec onomic Status (1 = low, 10 = high)	-.18**	-.08	.10*	-.16**	-.11*	-.13**	-.00	-.06	-.13*	-	
	<i>M</i>		4.97	4.66	2.61	3.54	3.85	4.03	21.70	1.46	2.70	4.21
	<i>SD</i>		.64	.66	.42	.53	.49	.49	1.56	.50	1.37	1.47

\* &lt; .05, \*\* &lt; .001

Table 7

*The Correlations between Cultural Self-Constraint and Control Orientations*

	1	2	3	4	5	6	7	8	9
1. Independent SC	-								
2. Interdependent SC	.10*	-							
3. Desirability of Control	.42**	-.08	-						
4. Higher Power (Harmony Control)	-.12*	.25**	-.21**	-					
5. Friends Care (Harmony Control)	-.03	.35**	-.15*	.19**	-				
6. Wait on Luck (Harmony Control)	.17*	.25**	-.09	.32**	.23**	-			
7. Anticipate Others (Harmony Control)	.16*	.21**	.21**	-.04	.32**	.16*	-		
8. Merge with Others (Harmony Control)	-.02	.19**	-.15*	.13*	.16*	.19**	.08	-	
9. Mean Harmony Control	.04	.42**	-.16*	.63**	.59**	.65**	.45**	.57**	-
<i>M</i>	4.97	4.66	3.87	3.71	4.29	4.27	4.90	3.78	4.19
<i>SD</i>	.64	.66	.44	1.50	.96	1.10	1.02	1.32	.69

\* &lt; .05, \*\* &lt; .001

Table 8

*The Correlations between Cultural Self-Concepts and Thinking Styles*

	1	2	3	4	5	6	7	8
1. Independent SC	-							
2. Interdependent SC	.10*	-						
3. Percentage of Analytical Categorization	-.00	.05	-					
4. Holistic Locus of Attention	.03	.21**	-.02	-				
5. Holistic Causality	.05	.21**	.00	.40**	-			
6. Holistic Attitude toward Contradiction	-.00	.36**	-.07	.33**	.35**	-		
7. Analytical Perception of Change	.02	.15*	.11*	.20**	-.12*	.10*	-	
8. Mean Holism	.03	.35**	.02	.79**	.56**	.64**	.53**	-
<i>M</i>	4.97	4.66	.42	4.82	5.27	4.89	3.56	4.57
<i>SD</i>	.64	.66	.18	1.04	.92	.95	.91	.68

\* &lt; .05, \*\* &lt; .001.



Table 9

*The Correlations between Cultural Self-Construals and Frequency of Emotions*

	1	2	3	4	5	6	7	8	9	10
1. Independent SC	-									
2. Interdependent SC	.10*	-								
3. Positive Engaging Emotions	.29**	.35**	-							
4. Negative Engaging Emotions	-.06	.24**	.17**	-						
5. Mean Engaging Emotions	.06	.32**	.50**	.89**	-					
6. Positive Disengaging Emotions	.34**	-.01	.19**	-.06	.02	-				
7. Negative Disengaging Emotions	-.04	.11*	-.17**	.38**	.27**	-.06	-			
8. Mean Disengaging Emotions	.21**	.07	-.00	.24**	.22**	.65**	.72**	-		
9. Subjective Well-Being	.18**	.14*	.31**	-.06	.06	.31**	-.32**	-.02	-	
10. Well-Being	.24**	.07	.38**	-.22**	-.06	.33**	-.50**	-.15*	.64**	-
<i>M</i>	4.97	4.66	5.70	4.17	4.67	5.06	4.16	4.61	5.06	4.65
<i>SD</i>	.64	.66	.86	1.04	.79	1.00	1.09	.72	1.28	.86

\* &lt; .05, \*\* &lt; .001

Table 10

The Correlations between Cultural Self-Constructs and Other Variables

	1	2	3	4	5	6	7	8
1. Independent SC	-							
2. Interdependent SC	.10*	-						
3. Fatalistic Determinism (FAD-Plus)	-.08	.28**	-					
4. Randomness (FAD-Plus)	.07	.12*	.43**	-				
5. Free Will (FAD-Plus)	.21**	.14*	.04	.09	-			
6. Scientific Determinism (FAD-Plus)	.08	.12*	.18**	.21**	.28**	-		
7. Causal Uncertainty	-.15*	.06	.24**	.29**	-.11*	.13*	-	
8. Need for Closure	.11*	.22**	.22**	.07	.15*	.21**	.09	-
<i>M</i>	4.97	4.66	2.65	3.03	3.42	3.32	2.40	3.96
<i>SD</i>	.64	.66	1.06	.74	.61	.58	.76	.65

\* &lt; .05, \*\* &lt; .001.

Table 11

*Graphic Novel Manipulation and Mean Differences for Participants Primed with Interdependence*

	Random		Pattern				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1, 92)	<i>p</i>	$\eta_p^2$
Desirability of control	5.20	.62	5.20	.71	.001	.976	.000
Harmony control	4.13	.69	4.29	.64	1.32	.254	.014
Independent values	6.03	.80	6.20	.64	1.34	.251	.014
Interdependent values	5.81	.66	5.75	.74	.16	.694	.002

Table 12

*Graphic Novel Manipulation and Mean Differences for Participants Primed with Independence*

	Random		Pattern				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1, 92)	<i>p</i>	$\eta_p^2$
Desirability of control	5.35	.61	5.17	.72	1.78	.185	.018
Harmony control	4.33	.57	4.25	.60	.46	.501	.005
Independent values	6.21	.49	6.05	.66	1.93	.168	.019
Interdependent values	5.88	.64	5.76	.77	.83	.364	.008

Table 13

*Tree Photographs Manipulation and Mean Differences for Participants Primed with Interdependence*

	Random		Seasonal		$F(1, 80)$	$p$	$\eta_p^2$
	$M$	$SD$	$M$	$SD$			
Desirability of control	5.21	.71	5.49	.69	3.20	.077	.038
Harmony control	4.32	.80	3.98	.59	4.61	.035	.054
Independent values	5.99	1.12	6.18	.70	.82	.369	.010
Interdependent values	5.63	1.07	5.73	.68	.23	.630	.003

Table 14

*Tree Photographs Manipulation and Mean Differences for Participants Primed with Independence*

	Random		Seasonal		$F(1, 80)$	$p$	$\eta_p^2$
	$M$	$SD$	$M$	$SD$			
Desirability of control	5.08	.77	5.18	.74	.42	.521	.005
Harmony control	4.30	.58	4.19	.55	.750	.389	.009
Independent values	6.14	.68	6.18	.65	.08	.778	.001
Interdependent values	5.87	.92	5.63	.70	1.75	.190	.021

Table 15

*Physics Quotes Manipulation and Mean Differences for Participants Primed with Interdependence*

	Random		Nonrandomnes				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1, 105)	<i>p</i>	$\eta_p^2$
Desirability of control	5.42	.69	5.50	.64	.43	.512	.004
Harmony control	3.75	.70	3.77	.66	.01	.934	.000
Independent values	6.07	.84	6.16	.52	.44	.509	.004
Interdependent values	5.60	1.01	5.70	.93	.28	.600	.003

Table 16

*Physics Quotes Manipulation and Mean Differences for Participants Primed with Independence*

	Random		Nonrandomnes				
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>F</i> (1, 105)	<i>p</i>	$\eta_p^2$
Desirability of control	5.34	.67	5.41	.60	.26	.610	.003
Harmony control	4.01	.79	3.64	.69	6.06	.015	.057
Independent values	6.08	.82	6.12	.56	.07	.789	.001
Interdependent values	5.61	.76	5.64	.64	.03	.861	.000

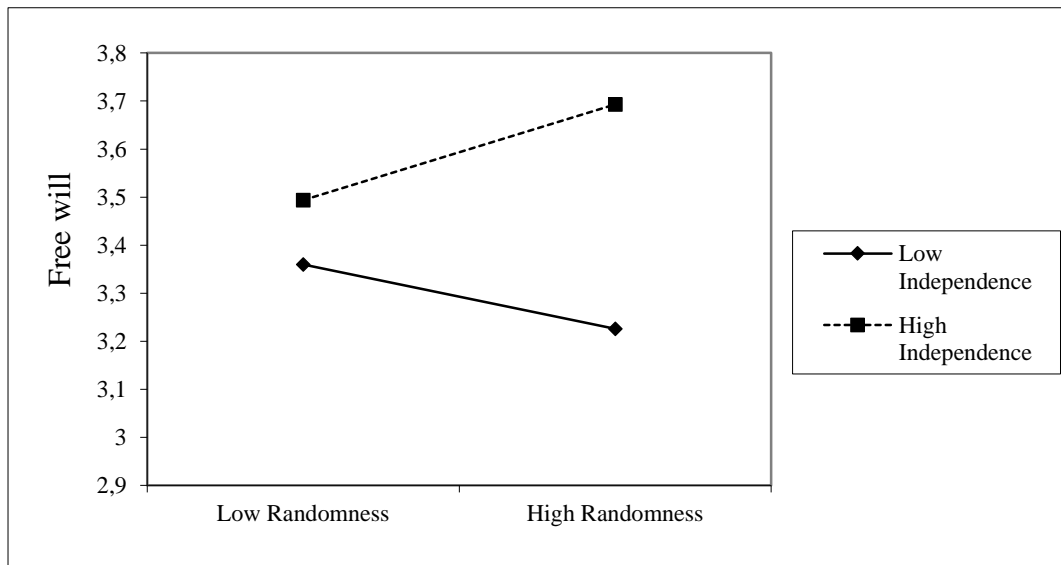


Figure 1. The interaction between independent self-construal and randomness in predicting belief in free will.

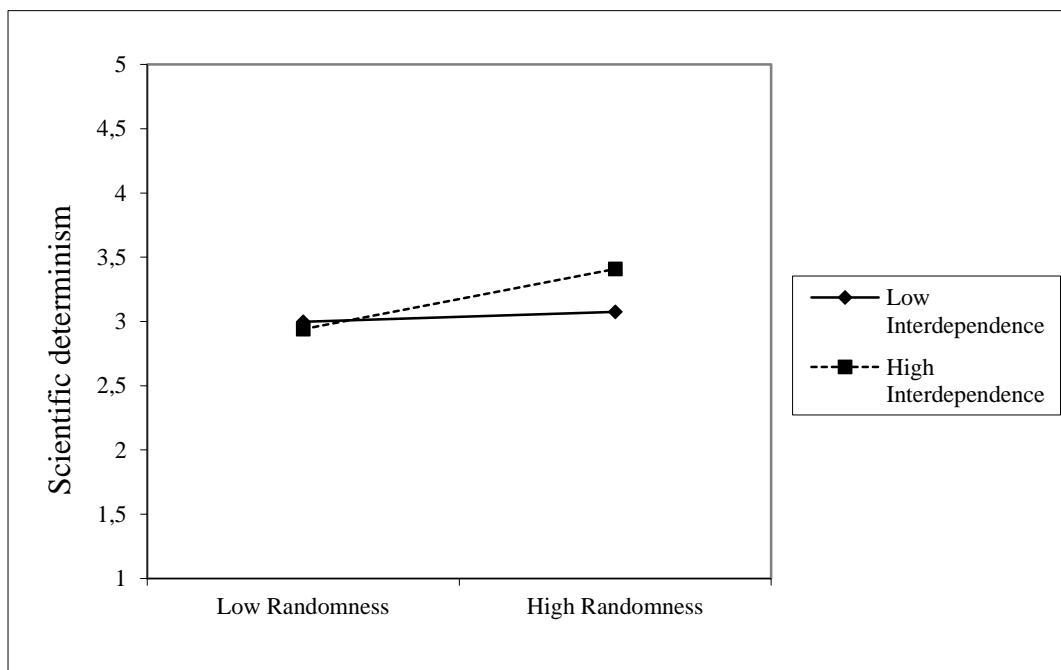


Figure 2. The interaction between interdependent self-construal and randomness in predicting belief in scientific determinism.

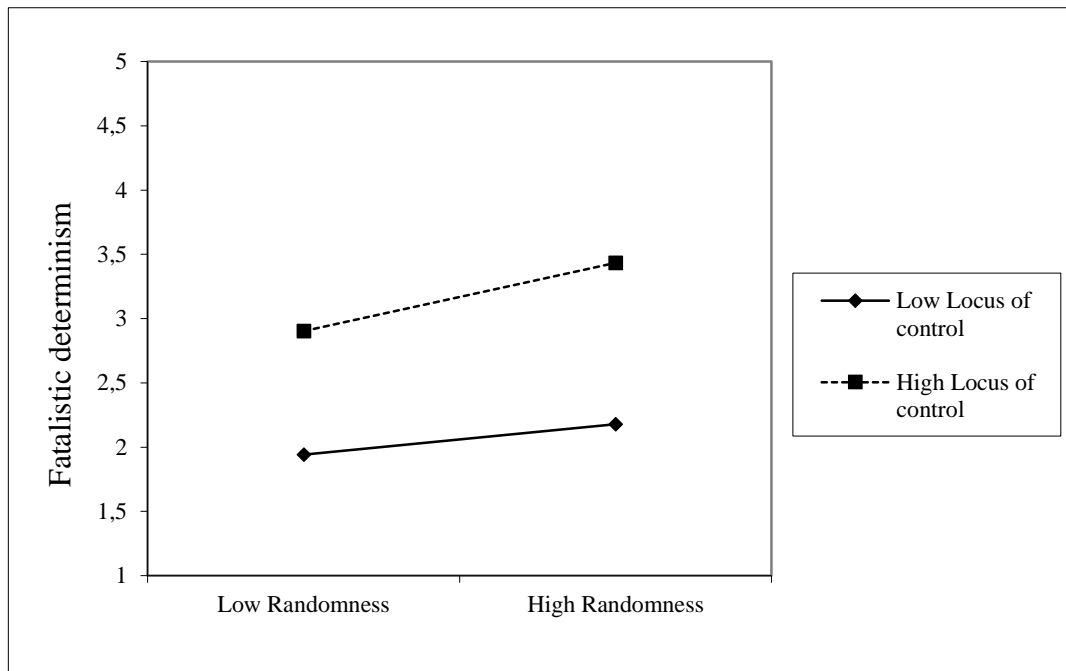


Figure 4. The interaction between locus of control and randomness in predicting belief in fatalistic determinism. High score in locus of control corresponds to a more external locus of control.

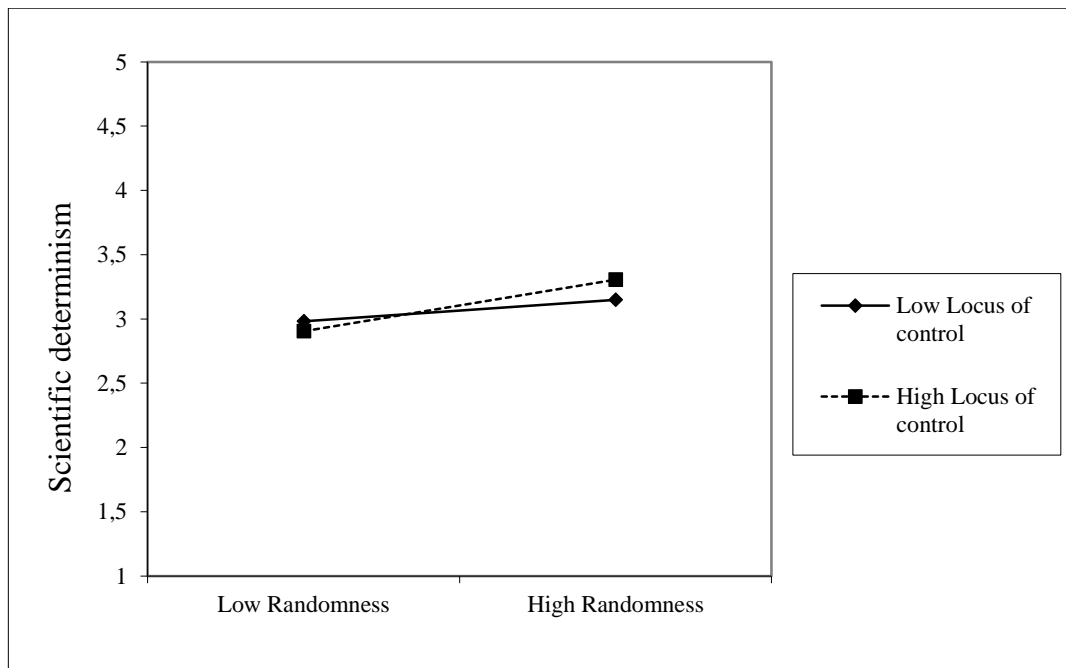


Figure 5. The interaction between locus of control and randomness in predicting belief in scientific determinism. High score in locus of control corresponds to a more external locus of control.

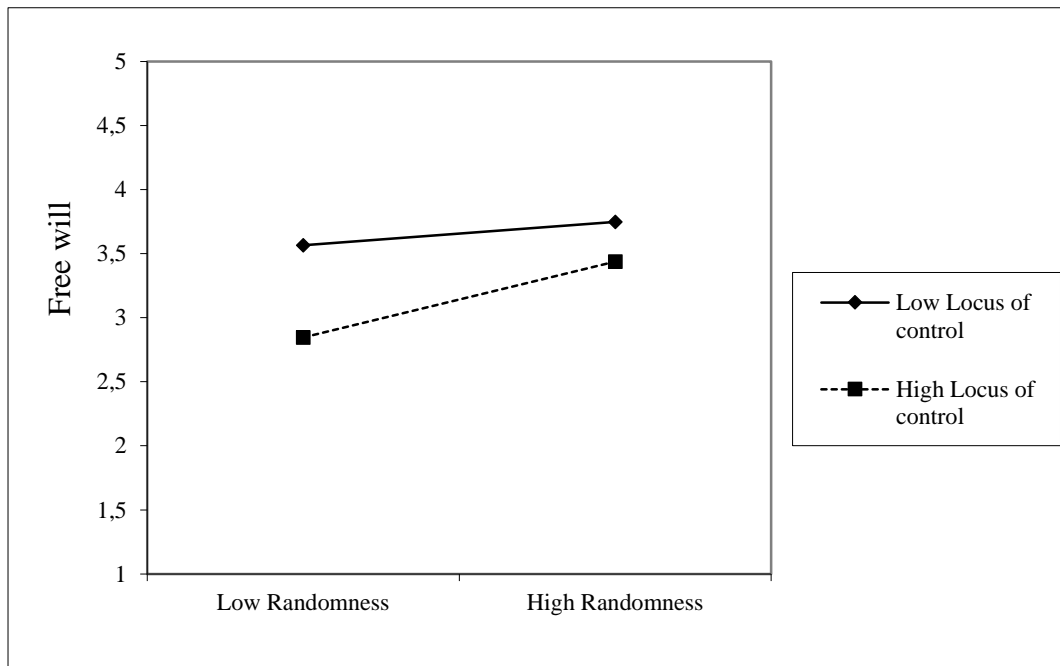


Figure 6. The interaction between locus of control and randomness in predicting belief in free will. High score in locus of control corresponds to a more external locus of control.



## APPENDICES

### Appendix A: Turkish Self-Construal Scale (Wasti & Erdil, 2007)

1 = *Strongly disagree*, 7 = *Strongly agree*.

IND = The items used to measure independent self-construal.

INTER = The items used to measure interdependent self-construal.

1. Birçok yönden kendine özgü ve başkalarından farklı olmaktan hoşlanırım. (IND)
2. Benden yaşça epey büyük olsa bile biriyle tanıştıktan kısa süre sonra ona ilk ismiyle hitap etmekten çekinmem. (IND)
3. Grubun üyelerine hiç katılmasam bile tartışmadan kaçınırım. (INTER)
4. İlişkide bulunduğum otoritelere saygı duyarım. (INTER)
5. Başkaları ne düşünürse düşünsün kendi bildiğimi okurum. (IND)
6. Kendileri hakkında alçakgönüllü olan insanlara saygı duyarım. (INTER)
7. Bağımsız bir kişi olarak davranmanın benim için çok önemli olduğunu hissederim. (IND)
8. İçinde bulunduğum grubun menfaati için kişisel çıkarlarımı feda ederim. (INTER)
9. Yanlış anlaşılırmaktansa, doğrudan “hayır” demeyi tercih ederim. (IND)
10. Canlı bir hayal gücüm olması benim için önemlidir. (IND)
11. Eğitimim ve kariyerimle ilgili plan yaparken anne-babamın tavsiyelerini göz önünde bulundurmam gerekir. (INTER)
12. Kaderimin çevremdekilerin kaderiyle örülü olduğunu düşünüyorum. (INTER)
13. Yeni tanıştığım kişilerle muhatap olduğumda açık ve dobra olmayı tercih ederim. (IND)
14. Başkalarıyla işbirliği yaptığım zaman kendimi iyi hissederim. (INTER)
15. Herkesin arasından seçilerek ödüllendirilmek veya övülmek konusunda kendimi rahat hissederim. (IND)
16. Kardeşim başarısız olsa kendimi sorumlu hissederim. (INTER)
17. Çoğu zaman başkalarıyla ilişkilerimin kendi başarılarımdan daha önemli olduğunu hissederim. (INTER)
18. Bir toplantı sırasında fikirlerimi beyan etmek benim için sorun değildir. (IND)
19. Otobüste yerimi amirime teklif ederdim. (INTER)
20. Kiminle olursam olayım, aynı şekilde davranırım. (IND)

21. Benim mutluluğum çevremdekilerin mutluluğuna bağlıdır. (INTER)
22. Sağlığımın iyi olmasına her şeyden çok değer veririm. (IND)
23. Mutlu olmasam bile eğer bir grubun bana ihtiyacı varsa grupta kalırım. (INTER)
24. Başkalarını nasıl etkilerse etkilesin, kendim için en iyi olanı yapmaya çalışırım. (IND)
25. Kendi başımın çaresine bakabiliyor olmak benim için birincil kaygıdır. (IND)
26. Grup içinde verilen kararlara saygı göstermek benim için önemlidir. (INTER)
27. Başkalarından bağımsız olarak bireysel kimliğim benim için çok önemlidir. (IND)
28. Grubum içindeki uyumu muhafaza etmek benim için önemlidir. (INTER)
29. Evde ve işte aynı şekilde davranırım. (IND)
30. Kendim farklı şeyler yapmak istesem bile, genelde diğerlerinin yapmak istediklerine uyarım. (INTER)

## Appendix B: INDCOL (Wasti & Erdil, 2007)

1 = *Strongly disagree*, 5 = *Strongly agree*

HC= Horizontal collectivism, VC= Vertical collectivism

HI= Horizontal individualism, VI= Vertical individualism

1. Benim mutluluğum çevremdekilerin mutluluğuna çok bağlıdır. (HC)
2. Kazanmak her şeydir. (VI)
3. Yakın çevrem için kişisel çıkarlarımdan fedakârlık ederim. (HC)
4. Başkaları benden daha başarılı olduğunda rahatsız olurum. (VI)
5. Yakın çevremdekilerin birbiriyle uyumunu muhafaza etmek benim için önemlidir. (HC)
6. İşimi başkalarından daha iyi yapmak benim için önemlidir. (VI)
7. Komşularıyla ufak tefek şeyleri paylaşmak hoşuma gider. (HC)
8. İş arkadaşlarımdan iyiliği benim için önemlidir. (HC)
9. Rekabet doğanın kanunudur. (VI)
10. İş arkadaşlarımdan biri ödül kazansa gurur duyarım. (HC)
11. Özgün bir birey olmak benim için önemlidir. (HI)
12. Başkası benden daha başarılı olduğu zaman kendimi gergin ve kamçılanmış hissederim. (VI)
13. Çoğu zaman kendi bildiğim gibi yaşarım. (HI)
14. Yakın çevremde kararlarına saygı göstermek benim için önemlidir. (VC)
15. Başkalarına güvenmektense kendime güvenirim. (HI)
16. Ne fedakârlık gerekirse gereksin aile bireyleri birbirlerine kenetlenmelidirler. (VC)
17. Anne-baba ve çocuklar mümkün olduğu kadar birlikte kalmalıdır. (VC)
18. Başkalarından bağımsız bireysel kimliğim benim için çok önemlidir. (HI)
19. Kendi isteklerimden fedakârlık yapmak gerekirse de aileme bakmak benim görevimdir. (VC)
20. Bireysel kimliğim benim için çok önemlidir. (HI)
21. Ben başkalarından ayrı özgün bir bireyim. (HI)
22. Yakın çevremde çoğunluğun isteklerine saygı gösteririm. (VC)
23. Kendine özgü ve başkalarından farklı olmaktan hoşlanırım. (HI)

24. Bir karar vermeden önce yakın arkadaşlara danışıp onların fikirlerini almak önemlidir. (HC)
25. Maddi güçlük içinde olan bir akrabama imkanlarım ölçüsünde yardım ederim. (HC)
26. Rekabet olmadan iyi bir toplum düzeni kurulamaz. (VI)
27. İnsan hayatını başkalarından bağımsız olarak yaşamalıdır. (HI)
28. Çok hoşuma giden bir şeyden ailem onaylamazsa vazgeçerim. (VC)
29. Başkalarıyla işbirliği yaptığım zaman kendimi iyi hissederim. (HC)
30. Başkalarıyla rekabet edebileceğim ortamlarda çalışmak hoşuma gider. (VI)
31. İnsanlara açık ve dosdoğru konuşmayı tercih ederim. (HI)
32. Çocuklara vazifenin eğlenceden önce geldiği öğretilmelidir. (VC)
33. Benim için zevk başkalarıyla vakit geçirmektir. (HC)
34. Başarı hayattaki en önemli şeydir. (VI)
35. Eğer başarılı oluyorsam bu benim yeteneklerim sayesinde. (HI)
36. Yakın çevremle fikir ayrılığına düşmekten hiç hoşlanmam. (VC)
37. Ailemi memnun edecek şeyleri nefret etsem de yaparım. (VC)

### Appendix C: Turkish Locus of Control Scale (Dağ, 2002)

1 = Strongly disagree, 5 = Strongly agree.

\* Reversed items

- 1- İnsanın yaşamındaki mutsuzlukların çoğu, biraz da şanssızlığına bağlıdır.
- 2- İnsan ne yaparsa yapsın üşütüp hasta olmanın önüne geçemez.
- 3- Bir şeyin olacağı varsa eninde sonunda mutlaka olur.
- 4- İnsan ne kadar çabalarsa çabalasın, ne yazık ki değeri genellikle anlaşılmaz.
- 5- İnsanlar savaşları önlemek için ne kadar çaba gösterirlerse gösterebilirler, savaşlar daima olacaktır.
- 6- Bazı insanlar doğuştan şanslıdır.
- 7- İnsan ilerlemek için güç sahibi kişilerin gönlünü hoş tutmak zorundadır.
- 8- İnsan ne yaparsa yapsın, hiçbir şey istediği gibi sonuçlanmaz.
- 9- Birçok insan, rastlantıların yaşamlarını ne derecede etkilediğinin farkında değildir.
- 10- Bir insanın hala ciddi bir hastalığa yakalanmamış olması sadece bir şans meselesidir.
- 11- Dört yapraklı yonca bulmak insana şans getirir.
- 12- İnsanın burcu hangi hastalığa daha yatkın olacağını belirler.
- 13- Bir sonucu elde etmede insanın neleri bildiği değil, kimleri tanıdığı önemlidir.
- 14- İnsanın bir günü iyi başladıysa iyi; kötü başladıysa da kötü gider.
- 15- \*Başarılı olmak çok çalışmaya bağlıdır; şansın bunda payı ya hiç yoktur ya da çok azdır.
- 16- \*Aslında şans diye bir şey yoktur.
- 17- \*Hastalıklar çoğunlukla insanların dikkatsizliğinden kaynaklanır.
- 18- \*Talihsizlik olarak nitelenen durumların çoğu, yetenek eksikliğinin, ihmalin, tembelliğin ve benzeri nedenlerin sonucudur.
- 19- \*İnsan yaşamında olabilecek şeyleri kendi kontrolü altında tutabilir.
- 20- Çoğu durumda yazı-tura atarak da isabetli kararlar verilebilir.
- 21- \*İnsanın ne yapacağı konusunda kararlı olması, kadere güvenmesinden daima iyidir.
- 22- İnsan fazla bir çaba harcamasa da, karşılaştığı sorunlar kendiliğinden çözülür.

- 23- Çok uzun vadeli planlar yapmak her zaman akıllıca olmayabilir, çünkü birçok şey zaten iyi ya da kötü şansa bağlıdır.
- 24- Birçok hastalık insanı yakalar ve bunu önlemek mümkün değildir.
- 25- İnsan ne yaparsa yapsın, olabilecek kötü şeylerin önüne geçemez.
- 26- \*İnsanın istediğini elde etmesinin talihle bir ilgisi yoktur.
- 27- \*İnsan kendisini ilgilendiren birçok konuda kendi başına doğru kararlar alabilir.
- 28- \*Bir insanın başına gelenler, temelde kendi yaptıklarının sonucudur.
- 29- \*Halk, yeterli çabayı gösterse siyasal yolsuzlukları ortadan kaldırabilir.
- 30- \*Şans ya da talih hayatta önemli bir rol oynamaz.
- 31- \*Sağlıklı olup olmamayı belirleyen esas şey insanların kendi yaptıkları ve alışkanlıklarıdır.
- 32- \*İnsan kendi yaşamına temelde kendisi yön verir.
- 33- \*İnsanların talihsizlikleri yaptıkları hataların sonucudur.
- 34- \*İnsanlarla yakın ilişkiler kurmak, tesadüflere değil, çaba göstermeye bağlıdır.
- 35- İnsanın hastalanacağı varsa hastalanır; bunu önlemek mümkün değildir.
- 36- \*İnsan bugün yaptıklarıyla gelecekte olabilecekleri değiştirebilir.
- 37- \*Kazalar, doğrudan doğruya hataların sonucudur.
- 38- Bu dünya güç sahibi birkaç kişi tarafından yönetilmektedir ve sade vatandaşın bu konuda yapabileceği fazla bir şey yoktur.
- 39- İnsanın dini inancının olması, hayatta karşılaşacağı birçok zorlu daha kolay aşmasına yardım eder.
- 40- Bir insan istediği kadar akıllı olsun, bir işe başladığında şansı yaver gitmezse başarılı olamaz.
- 41- \*İnsan kendine iyi baktığı sürece hastalıklardan kaçınabilir.
- 42- Kaderin insan yaşamı üzerinde çok büyük bir rolü vardır.
- 43- \*Kararlılık bir insanın istediği sonuçları almasında en önemli etkidir.
- 44- \*İnsanlara doğru şeyi yaptırmak bir yetenek işidir; şansın bunda payı hiç yoktur ya da çok azdır.
- 45- \*İnsan kendi kilosunu, yiyeceklerini ayarlayarak kontrolü altında tutabilir.
- 46- İnsan yaşamının alacağı yönü, çevresindeki güç sahibi kişiler belirler.
- 47- \*Büyük ideallere ancak çalışıp çabalayarak ulaşılabilir.

#### Appendix D: Turkish Desirability of Control Scale (Eğrigözlü, 2002)

1 = *Strongly disagree*, 5 = *Strongly agree*.

\* Reversed items

- 1- Neyi, ne zaman yapacağım konusunda kontrolün bende olduğu bir işte çalışmayı tercih ederim.
- 2- Politik katılımlardan hoşlanırım; çünkü ülke yönetiminde söz sahibi olmak isterim.
- 3- Birisinin bana ne yapmam gerektiğini söyleyeceği durumlardan kaçınmaya çalışırım.
- 4- Bir takipçi olmaktansa lider olmayı tercih ederim.
- 5- Diğer insanların tavır ve davranışlarını etkilemek hoşuma gider.
- 6- Uzun bir yolculuğa çıkmadan önce otomobildeki her şeyi dikkatle kontrol ederim.
- 7- \*Benim için neyin daha iyi olduğunu genellikle başkaları bilir.
- 8- Kararlarımı kendim vermekten hoşlanırım.
- 9- Kendi kaderimi kendim tayin etmekten hoşlanırım.
- 10- \*Bir ekip çalışması sırasında yöneticiliği bir başkasının üstlenmesini tercih ederim.
- 11- Değişik olaylarla başa çıkmada kendimi diğer insanlardan daha yetenekli buluyorum.
- 12- Bir başkasından emir almaktansa kendi işimi kendim yürütmeyi ve kendi hatalarımı kendim yapmayı tercih ederim.
- 13- Bir işe başlamadan önce iş hakkında iyice fikir edinmek isterim.
- 14- Bir problem gördüğüm zaman onu kendi haline bırakmaktansa bir şeyler yapmaya çalışırım.
- 15- Emir almayı değil vermeyi tercih ederim.
- 16- \*Keşke yaşamla ilgili günlük kararlar alma sorumluluğunu bir başkasına yükleyebilseydim.
- 17- Araba kullanırken bir başkasının hatası nedeniyle zarar görebileceğim durumlara düşmekten kaçınmaya çalışırım.
- 18- Birisinin bana neyin yapılması gerektiğini söyleyeceği durumlardan uzak durmayı tercih ederim.

19- \*Bir karar vermektense tek bir seçeneğin olmasını tercih ettiğim birçok durum vardır.

20- \*Bir problemle uğraşmaktansa bu problemi çözebilecek bir kişinin ortaya çıkmasını beklemeyi tercih ederim.



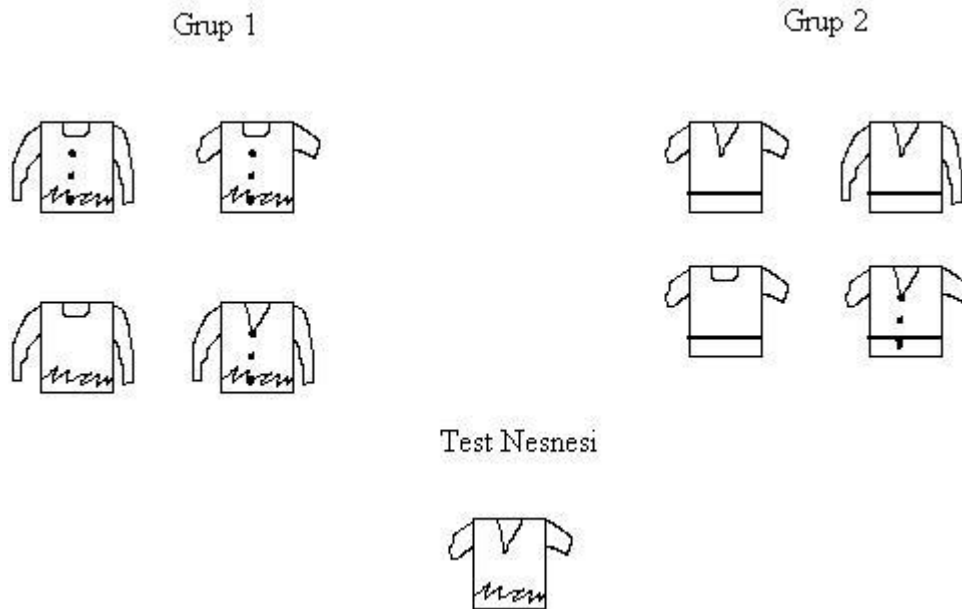
## Appendix E: Turkish Causal Uncertainty Scale (Uz, 2014)

1 = *Strongly disagree*, 5 = *Strongly agree*.

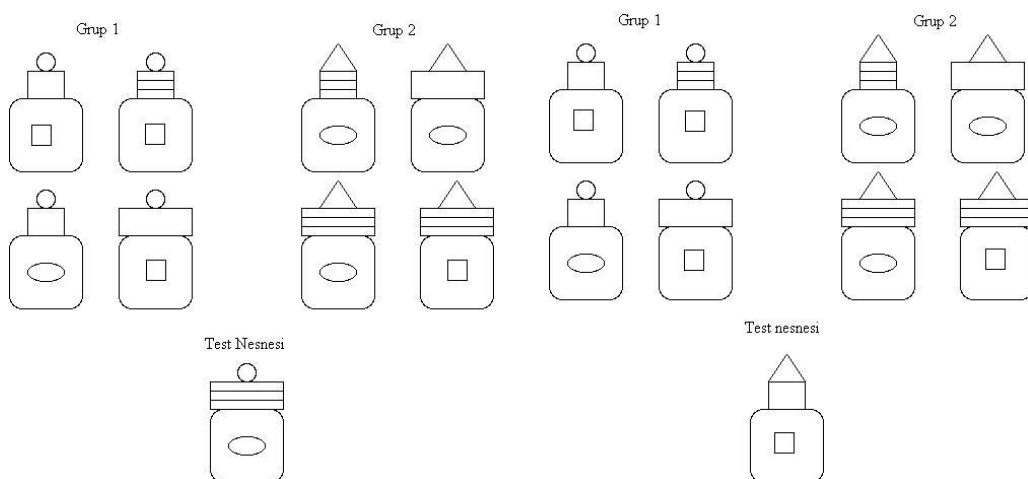
- 1- Başkalarıyla iyi geçinmek için ne yapmak gerektiğini bilmiyorum.
- 2- İyi notlar aldığımda neden o kadar iyi yaptığımı genelde anlayamam.
- 3- Başkalarıyla aramdaki çoğu sorunun neden kaynaklandığını bilmiyorum.
- 4- Başkalarının başına iyi bir şey geldiğinde, neden öyle olduğunu anlayamam.
- 5- Kötü notlar aldığımda neden o kadar kötü yaptığımı genelde anlayamam.
- 6- Tanıdığım bir kötü not aldığında, o kişi bunu önlemek için bir şey yapabilir miydi, bunu çoğu zaman tespit edemem.
- 7- Başıma gelen iyi şeylerin çoğunun sebebini anlayamam.
- 8- İşler yolunda gittiğinde, durumu korumak için ne yapmam gerektiğini bilemem.
- 9- Kötü şeyler olduğunda, genelde nedenini bilmem.
- 10- Bir kişinin bir hareketi yapması için birden fazla muhtemel sebep varsa, hareketin gerçek sebebini bulmak zordur.
- 11- Diğer insanların başına gelen şeyleri açıklamak için, genellikle yeterince bilgi sahibi değilmişim gibi gelir.
- 12- Başkalarının başına kötü bir şey geldiğinde, neden öyle olduğunu anlayamam.
- 13- Başıma gelen şeylerin sebebini bulmaya çalıştığımda, çoğu zaman yeterince bilgi sahibi değilmişim gibi gelir.
- 14- Biri bir şeyi niçin yapar diye düşündüğümde, genelde o kadar çok sebep olabilir ki; gerçek neden hangisiydi tespit edemem.

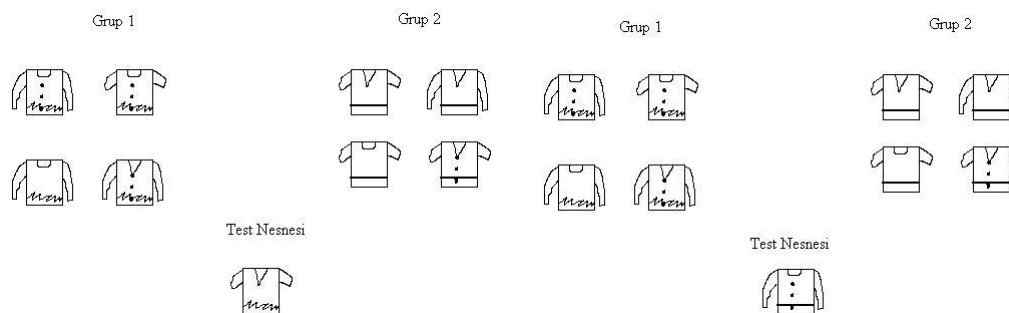
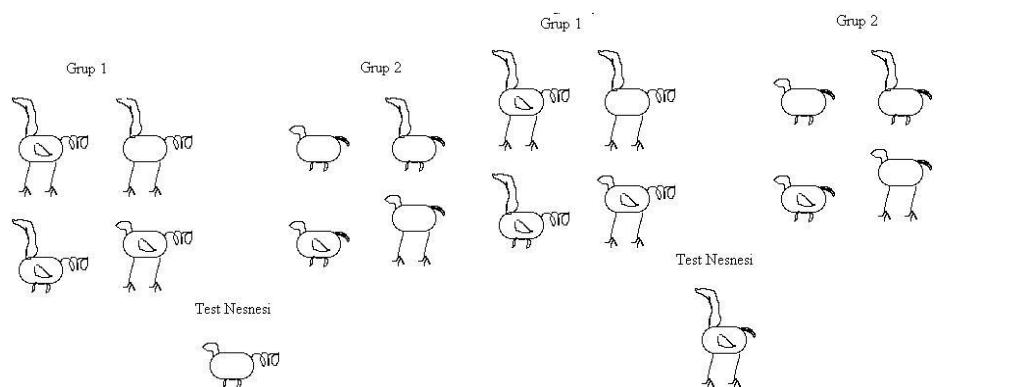
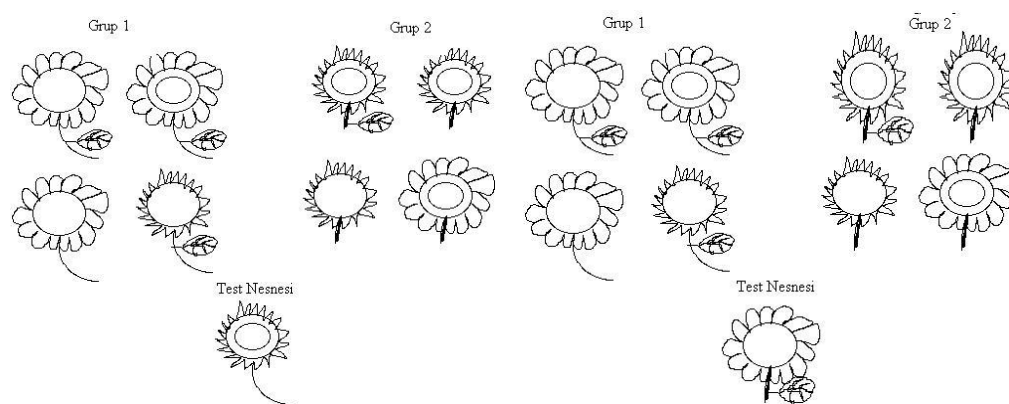
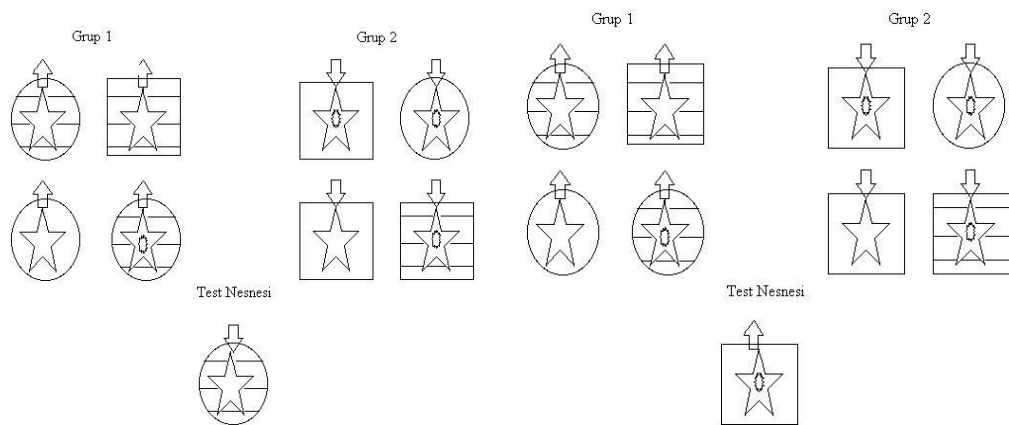
## Appendix F: Rule-based versus Family Resemblance-Based Categorization

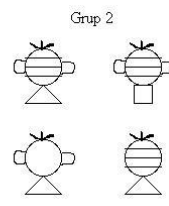
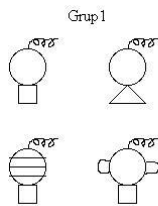
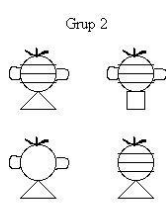
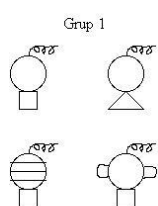
### Stimulus Example



*Note.* In the example above, the target object shares one feature (diagonally drawn line on the lower side of the shirt) with all members of Group 1. If the participant categorizes the target object as belonging to Group 1, then this would be rule-based categorization. The target object has the same kind of collar and sleeve as three of the four shirts (i.e., the majority) in Group 2. If the participant categorizes the target object as belonging to Group 2, then this would be family resemblance-based categorization.



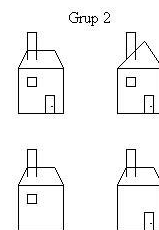
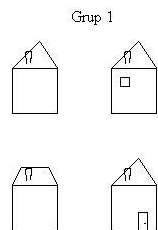
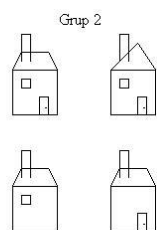
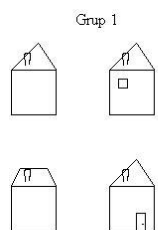




Test Nesnesi



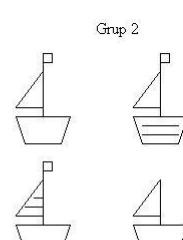
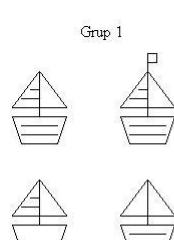
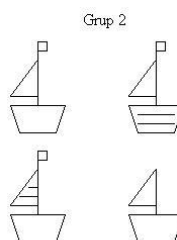
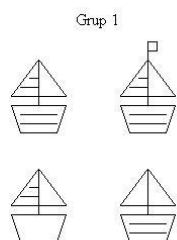
Test Nesnesi



Test Nesnesi



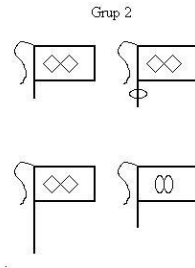
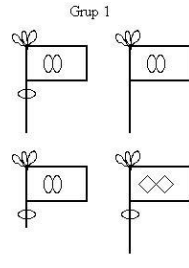
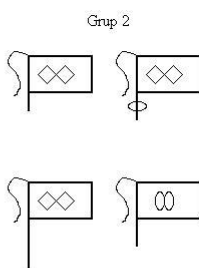
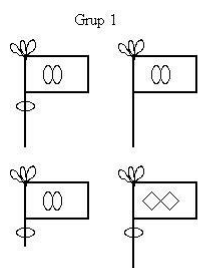
Test Nesnesi



Test Nesnesi



Test Nesnesi

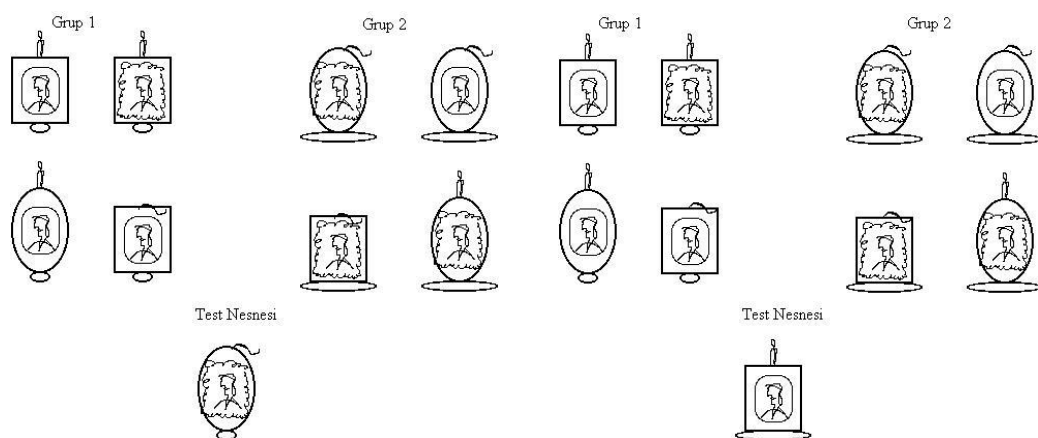


Test Nesnesi



Test Nesnesi





## Appendix G: Graphic Novel Manipulation Materials

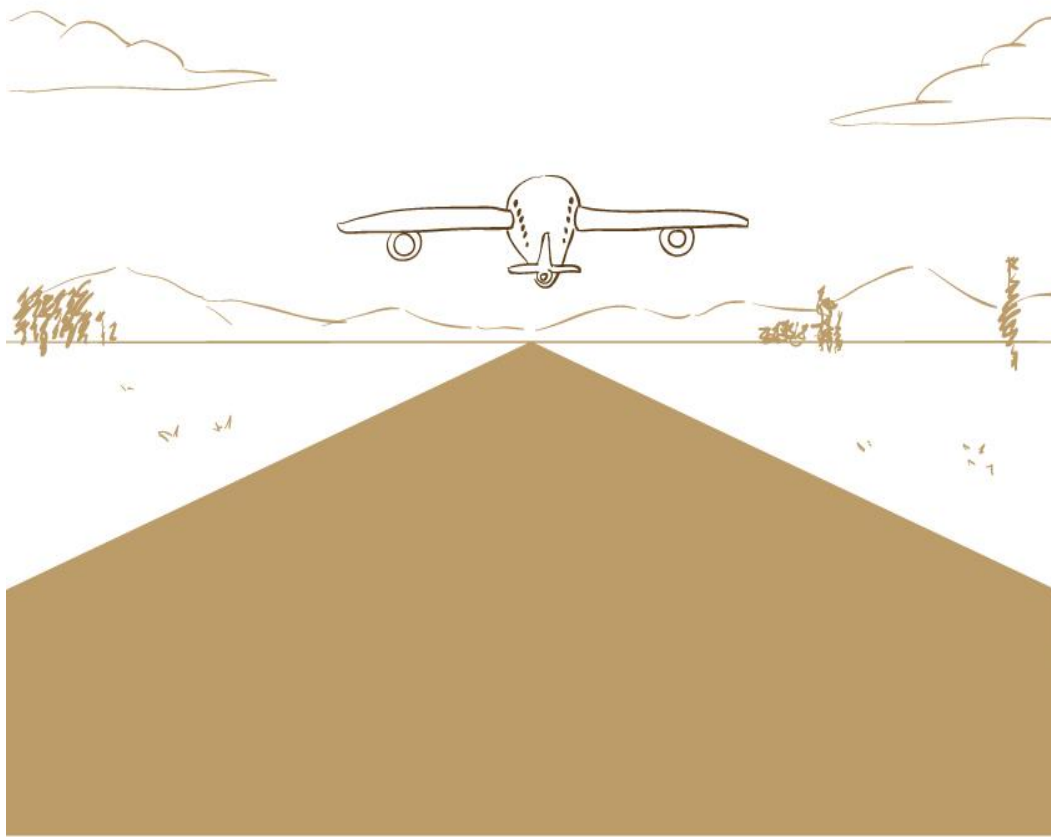












## Appendix H: Tree Photographs Manipulation Materials – Sample Photographs





## Appendix I: Physics Quotes Priming Material

### Randomness condition:

*Ünlü fizik profesörü Diederick Stephens'a göre, evrendeki her olay aslında rastgele gerçekleşiyor. Hayatta bazı şeylerin belli kurallara göre ve öngörülebilir şekilde gerçekleşiyormuş gibi gözüktüğü doğrudur. Ancak Stephens bunun kuantum fiziği açısından aslında doğru olmadığını, kuantum parçacıklarının etkileşimlerinin tamamen rastgele bir şekilde gerçekleştiğini, dolayısıyla bu etkileşimin sonucunu kesin olarak öngörmenin imkansız olduğunu söylüyor. Kuantum mekaniğine göre, hiçbir şeyin gerçekleşip gerçekleşmeyeceği kesin olarak bilinemez, çünkü kurallar değil ihtimaller vardır. Kısaca, Stephens evrende belli bir kural ve algoritmaya göre şaşmaz bir şekilde devam eden hiçbir sürecin olmadığını, evrene rastgeleliğin ve tahmin edilemezliğin hakim olduğunu belirtiyor.*

### Nonrandomness condition:

*Ünlü fizik profesörü Diederick Stephens'a göre, evrendeki hiçbir olay rastgele gerçekleşmiyor. Hayatta bazı şeylerin tesadüfen ve tamamen şansa dayalı gerçekleşiyormuş gibi gözüktüğü doğrudur. Örneğin yazı-tura attığımızda, sonucu kesin olarak öngörmenin mümkün olmadığını, yarı yarıya ihtimalle ya yazı ya da tura geleceğini düşünürüz. Ancak Stephens bunun klasik fizik açısından aslında doğru olmadığını, yazı-tura atarken madeni paranın tutuluş açısı, havaya atılırken uygulanan kuvvetin açısı ve büyüklüğü, ortamdaki hava şartları ve benzeri ayrıntıları bildiğimiz takdirde, sonucun yazı veya tura geleceğini kesin olarak tahmin edebileceğimizi öne sürüyor. Kısaca, Stephens evrende rastgele gerçekleşen hiçbir şeyin olmadığını ve en tesadüfi gibi gözüken şeylerin bile aslında tamamen öngörülebilir olduğunu belirtiyor.*

## Appendix J: Items of Feeling of Insignificance Scale

Aşağıdaki ifadeleri dikkatle okuyunuz. Şu an **geleceğinizi** düşündüğünüzde, gelecekte bu ifadeler sizin için ne kadar doğru olacak? Lütfen her bir ifadenin sizin için ne kadar uygun olacağını işaretleyiniz.

**1 = Hiç uygun değil**

**7 = Son derece uygun**

- 1) Bir davranışta bulunup bulunmamamın olayların genel gidişatı üzerinde pek bir etkisi olmayacak.
- 2) Bir şeyi yapıp yapmamamın, çevremde olup biteni etkileyeceğini düşünmüyorum.
- 3) Davranışlarım, yaşadığım olayların nasıl sonlanacağını belirlemeyecek.
- 4) Yaşadıklarım karşısında kendimi çaresiz, pasif bir nesne gibi hissedeceğim.
- 5) Ne yaparsam yapayım, hayatımın gidişatını belirleyemeyeceğim.
- 6) Yaşamım, benim yapıp ettiklerimden bağımsız bir şekilde ilerleyecek.
- 7) Ne yaparsam yapayım pek fark etmeyecek, sanki her şey olacağına varacak.
- 8) Hayatımda yaşayacağım olaylar bir rüzgârı, ben bu rüzgârı beraber savrulup giden bir kâğıt parçası gibi hissedeceğim.
- 9) Bir yerden diğerine yüzerek giden bir balık gibi değil, suyun akıntısıyla sürüklenip giden bir dal parçası gibi hissedeceğim.
- 10) Gitmesi gereken yöne doğru yürüyen biri gibi değil, yerçekiminin etkisiyle yokuş aşağı yuvarlanan bir nesne gibi hissedeceğim.

## Appendix K: Unscrambling Task

Bu görevde, her biri sıralaması karıştırılmış 4 kelimedenden oluşan 16 seti tamamlamanız istenecek. Her sette, dört kelimedenden üçünü seçerek dilbilgisi kurallarına uygun birer cümle oluşturacaksınız. Örneğin, “**havlıyor köpek beklenmedik o**” yazan karıştırılmış cümleyi görürseniz, kelimelerden üçünü seçip “**o köpek havlıyor**” cümlesini oluşturmalısınız. Lütfen deneme turunu aşağıda tamamlayınız.

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Dört kelimedenden üçünü seçerek dilbilgisi kurallarına uygun bir cümle oluşturun. Cevabınızı aşağıdaki boşluğa girin.

kullandı o araba eğer

.....

“**kullandı o araba eğer**” şeklindeki sıralaması karıştırılmış cümlelerin düzgün hali “**o araba kullandı**” şeklindedir.

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Şimdi cümle düzeltme görevine başlayacaksınız. Her biri tek tek ekrana gelecek kelime sıralaması karıştırılmış 16 set cümle ile karşılaşacağınızı unutmayın. Başlamak için “Devam” tuşuna basın.

<b>Rastgelelik</b>	<b>Olumsuzluk</b>
kaos komiteye kapı hakimdi	tembellik komiteye kapı hakimdi
maviydi oyun rengi masanın	maviydi oyun rengi masanın
düzensizlik halletti anarşistler yaratır	korku halletti ordular uyandırır
tercih rastgele yaptı portakal	tercih kötü yaptı portakal
kolayca dükkan yırtıldı kağıt	kolayca dükkan yırtıldı kağıt
at çember yavaşça topu	at çember yavaşça topu
gelişigüzel ağaçkakan için uçtu	böcek ağaçkakanlar yer uçtu
performansı kargaşa atletlerin öngörülemezdir	sakatlıkları masa atletlerin berbattır
kızıldı kusursuzluk rengi gökyüzünün	kızıldı kusursuzluk rengi gökyüzünün
çalış onu aptal unutmamaya	çalış onu aptal unutmamaya
sana onu mektuba gönderirim	sana onu mektuba gönderirim
kalındı bugün kitap epey	kalındı bugün kitap epey
inanç kargaşa erdemdir bir	inanç kustumuk erdemdir bir
anlamsızdı konuşması karmakarışık Hande'nin	iğrendiler aptallığından kayıp Hande'nin
denedi Murat şansını düz	gördü Murat fare düz
kutuydu sandalyeler büyüktü o	kutuydu sandalyeler büyüktü o



## **Appendix L: Curriculum Vitae**

### **PERSONAL INFORMATION**

Surname, Name: Alper, Sinan

Nationality: Turkish (TC)

Date and Place of Birth: 14 December 1987, Izmir.

Marital Status: Single

Phone: +90 533 353 30 88

email: sinan.alper@metu.edu.tr, sin.alper@gmail.com

### **EDUCATION**

<b>Degree</b>	<b>Institution</b>	<b>Year of Graduation</b>
MS	London School of Economics and Political Science, Organizational and Social Psychology	2011
BS	METU NCC, Business Administration	2010
High School	Izmir 60 <sup>th</sup> Year Anatolian High School, Izmir	2005

### **WORK EXPERIENCE**

<b>Year</b>	<b>Place</b>	<b>Enrollment</b>
2016- Present	METU NCC	Part time lecturer

## **FOREIGN LANGUAGES**

Advanced English

## **PUBLICATIONS**

Alper, S. ve Özkan, T. (2015). Do internals speed less and externals speed more to cope with the death anxiety? *Transportation Research Part F: Traffic Psychology and Behavior*, 32, 68-77. doi:10.1016/j.trf.2015.05.002

## Appendix M: Turkish Summary

Bu çalışmada, rastgeleliğin rahatsız edici bir durum olma sebebinin öznel hissi azaltılması olduğu ve insanların buna özerk veya ilişkisel öznelliklerini yeniden kurarak yanıt verdikleri savunmaktadır. Bu hipotezlerin teorik altyapısını oluşturmak için ilk olarak insanların neden düzen ve örüntü istedikleri evrimsel ve varoluşsal açıdan tartışılmış; rastgeleliğin olumsuz sonuçları ve bunun öznel hissiyle olan ilgisine değinilmiştir. Bu tartışmaların ışığında, rastgelelik algısının öznel hissi azalttığı şeklindeki ilk hipotez öne sürülmüştür. Sonrasında, özerk ve ilişkisel özneliğin farklı özelliklerinden bahsedilmiş ve rastgelelik belirginliği sonrası özneliği yeniden inşa sürecinin bu iki farklı öznelik türü için farklı gelişeceği şeklindeki ikinci hipotez öne sürülmüştür. Devamında, yapılan dokuz farklı çalışma rapor edilmiş; son bölümde ise bulgular ve bu bulguların sağlayabileceği bazı pratik çıkarımlar tartışılmış, çalışmaların olası kısıtlarına değinilmiştir.

İnsanlar, tamamen rastgele gerçekleşen olaylarda bile bir örüntü algılayabilirler (Kahneman ve Tversky, 1972; Nickerson, 2004). Örneğin, basketbol taraftarları önceki atışları başarıya ulaşmış bir oyuncunun “eli sıcak” olduğuna ve sonraki atışlarda da başarılı olduğuna inanır. Ancak yapılan çalışmalar, önceki ve sonraki atışların başarısının birbiriyle alakasız olduğunu göstermiştir (Alter ve Oppenheimer, 2006).

Evrimsel açıdan bakıldığında, insanların örüntü tespit etmeye dair doğuştan gelen bir güdüsü olduğu görülmektedir. Canfield ve Haith (1991) tarafından yapılan bir çalışmada, 2 ila 3 aylık bebeklerin, bir dizi resim gösterildiğinde, örüntüyü fark edebildikleri ve bir sonraki resmin gözükeceği noktaya baktıkları bulunmuştur. Benzer şekilde, 3 ila 3.5 aylık bebeklerin cisimlerin hareket yönleriyle ilgili tutarlı beklentiler oluşturabildikleri (Aguiar ve Baillargeon, 2002) ve 1 yaşındaki çocukların hikayeleri doğru zamansal sıralamasıyla hatırladıkları gözlemlenmiştir (Bauer ve Mandler, 1992). Yetişkinlerde ise, sıralama örüntüsüyle ilgili beklentileri karşılanmadığında, beynin önbeyin kabuğunda birtakım tepkimeler gerçekleştiği bulunmuştur (Huettel, Mack ve McCarthy, 2002). İnsanların öğrenme süreçleri de örüntü tespit edebiliyor olmayı zorunlu hale getirmektedir. Hem klasik hem de edimsel koşullanma,

öğrenmenin gerçekleşebilmesi için tutarlılık ve örüntüye ihtiyaç duymaktadır (Recorla ve Wagner, 1972; Miltenberger, 2011; Zhao, Hahn ve Osherson, 2014).

Örüntü tespit etmek varoluşsal açıdan da önemlidir. İnsanlar genel olarak hayattan bir anlam çıkarmaya çalışmakta ve bu amaçla kendi içinde tutarlı, öngörülebilir çerçeveler oluşturmaktadırlar (Heine, Proulx ve Vohs, 2006; Hennes, Nam, Stern ve Jost, 2012). Proulx, Inzlicht ve Harmon-Jones'a (2012) göre, bu tutarlılık ve bütünlüğü koruma motivasyonu birçok görünürde farklı psikoloji teorisinin temelinde yatan faktörlerden biridir: Bilişsel çelişki (Festinger, 1957), yaklaşım motivasyonu (McGregor, Nash, Mann ve Phills, 2010), dehşet yönetimi (Solomon, Greenberg ve Pyszczynski, 1991), telafi edici kontrol modeli (Kay, Whitson, Gaucher ve Galinsky, 2009), belirsizlik yönetimi (van den Bos, 2001), sistemi meşrulaştırma (Jost, Banaji, & Nosek, 2004), anlam yaratma (Park, 2010), Piaget'nin bilişsel gelişim (Müller, Carpendale ve Smith, 2009), kararsızlık kaynaklı rahatsızlık modeli (Van Harreveld, van der Plight ve de Liver, 2009) ve anlam koruma modeli (Heine et al., 2006) kuramlarının temelinde bu faktör yatmaktadır.

Peki, insanlar ihtiyaç duydukları örüntü ve düzene ulaşamadıklarında ne olmaktadır? Geçmiş çalışmalar, bu şekildeki bir rastgelelik algısının çeşitli olumsuz sonuçları olduğunu göstermiştir. Örneğin telafi edici kontrol modeli (Kay ve ark., 2009) üzerine yapılan çalışmalar, rastgeleliğin rahatsız edici olduğunu ve hem rapor edilen kaygı seviyesini hem de kaygı ile ilgili nörofizyolojik aktiviteleri arttırdığını göstermiştir (Tullett, Kay ve Inzlicht, 2014). Benzer şekilde dehşet yönetimi kuramı (Burke, Martens ve Faucher, 2010; Solomon ve ark., 1991) üzerine yapılan bazı çalışmalarda, ölümlülük farkındalığının kaygı yaratma sebeplerinden birinin ölüm zamanı ve şeklinin insanlar için çoğunlukla belirsiz olması olduğu tespit edilmiştir (Agroskin ve Jonas, 2013; Fritsche, Jonas ve Fankhänel, 2008). Ayrıca, tutarsızlığın ve kişisel belirsizliğin de kaygı uyandırdığı geçmiş çalışmalarca gözlemlenmiştir (Heine ve ark., 2006; Van den Bos, 2009).

Bu çalışmada, rastgeleliğin uyandırdığı bu olumsuz duyguların sebebinin, rastgeleliğin öznelik hissini azaltması olduğu öne sürülmektedir. Çünkü eğer bir insanın hayatındaki olaylar rastgele gerçekleşiyorsa, bu hem o kişinin hayatta kalma ve çevresine uyum sağlama becerisini hem de hayattan kendi içinde tutarlı bir anlam çıkarma olasılığını düşürür. Kişiler hayatlarında aktif bir özne gibi değil, pasif ve

önemsiz birer nesne gibi hissetmeye başlarlar. Buradan hareketle, bu çalışmanın ilk hipotezi şu şekildedir: “Rastgelelik belirginliği, önemsizlik hissini arttırır.”

Geleneksel psikoloji literatüründe, öznellik dünyayı kontrol etme kapasitesi olarak tanımlanmıştır (Rothbaum, Weisz ve Snyder, 1982; Snibbe ve Markus, 2005; Weisz, Rothbaum ve Blackburn, 1984). Ancak bu, özerklik, ayrıklık ve bireysel özgürlükleri ön plana çıkaran Batılı bireyci kültürlerin etkisinde kalmış bir tanımlamadır ve bağlılığı, uyumu ve ilişkinin bir parçası olmayı ön plana çıkaran toplulukçu kültürlerin değerleriyle çelişmektedir (Hofstede, 1980; Markus ve Kitayama, 1991; Triandis, 1989). Bireycilik ve toplulukçuluk her ne kadar kültürel farklar olarak ele alınsa da, geçmiş çalışmalar bu yönelimlere dair bireyler arası farklılaşmalar olduğunu da ortaya koymuştur (Cross, Hardin ve Gercek-Swing, 2011; Singelis, 1994). Bireycilikle ilişkili olan bireysel benlik kurgusu bireyi diğerlerinden ayrı bir varlık olarak anlar ve bireysel seçme özgürlüğüne vurgu yapar (Markus ve Kitayama, 1991). Öte yandan, toplulukçulukla ilişkili olan ilişkisel benlik kurgusu, bireyi daha geniş bir ilişkisel ağı bir parçası olarak görür, görevler, yükümlülükler ve grup içi uyuma vurgu yapar (Markus ve Kitayama, 1991).

Benlik kurgusu kişilerin kendilerini nasıl anladıklarını şekillendirmekle birlikte, öznellikten ne anladıklarını ve hangi koşullarda kendilerini bir özne olarak hissettiklerini de belirler (örn., Markus ve Kitayama, 2003; Kitayama ve Uchida, 2005; Snibbe ve Markus, 2005). Markus ve Kitayama’ya (2003) göre özerk ve ilişkisel olmak üzere iki farklı öznellik biçimi vardır. Buna göre, özerk öznelere davranışlarını kendileri belirlemeyi seçer ve dünyayı kendi arzu ve isteklerine göre şekillendirmeye çalışır. Davranışları üzerinde bireysel kontrol sahibi olmanın yanı sıra, aynı zamanda analitik düşünme biçimini tercih ederler (Kitayama ve Uchida, 2005; Masuda ve Nisbett, 2001). Zira analitik düşünce, ilişkiler ve bağlam yerine nesneleri ayrı olarak merkeze aldığı için özerk öznelere daha uygun bir düşünce yapısıdır (Kitayama ve Uchida, 2005). Ayrıca, özerk öznelere, bireysel hedefleri önemsedikleri için, bu hedeflere ulaşım ulaşılmadıklarına dair olan ayrıştırıcı duyguları (örn., gurur, hüsrana), sosyal olarak birleştirici (örn., yakınlık, utanç) duygulara oranla daha sık ve daha güçlü hissederek (Kitayama, Karasawa ve Mesquita, 2006; Kitayama, Markus ve Kurokawa, 2000).

İlişkisel öznelere için ise, davranışları belirleyen sorumluluklar ve görevlerdir (Markus ve Kitayama, 2003). Davranışlarını grup içi uyumu sürdürmeye yönelik seçen

ilişkisel öznelere, analitikten ziyade bütüncül düşünce biçimini tercih ederler (Kitayama ve Uchida, 2005; Masuda ve Nisbett, 2001). Çünkü bütüncül düşünce sistemi, nesneler arası bağlantıları ve bağlamı ön plana çıkarır ve ilişki odaklı ilişkisel öznelere için daha uygun bir düşünce biçimidir (Kitayama ve Uchida, 2005). İlişkisel öznelere özerklerden duygusal anlamda da farklılaşır ve sosyal olarak ayrıştırıcı duygular yerine, ait hissedilen grupla ne kadar uyum içinde olduğunu gösteren sosyal olarak birleştirici duyguları daha sık ve daha güçlü hissederler (Kitayama ve ark., 2000; Kitayama ve ark., 2006).

İlk bölümden hatırlanacağı üzere, rastgeleliğin öznellik hissini azalttığı öne sürülmüştür. Bu çalışmada, insanların bu azalan öznellik hissini yeniden inşa etmek isteyecekleri, ancak bu sürecin o kişinin özerk veya ilişkisel özne olmasına göre değişeceği savlanmaktadır. Özerk öznelere rastgelelik belirginliği sonrasında öznelliklerini yeniden kurmak için davranışları üzerinde bireysel kontrol sahibi olmayı daha fazla önemseyecekleri, daha analitik düşünecekleri ve sosyal olarak ayrıştırıcı duyguları daha sık ve güçlü hissedecekleri; öte yandan ilişkisel öznelere grup içi uyum sağlamayı daha fazla önemseyecekleri, daha bütüncül düşünecekleri ve sosyal olarak bütünleştirici duyguları daha sık ve güçlü hissedecekleri savunulmaktadır. Buradan hareketle, çalışmanın ikinci hipotezine göre, rastgelelik belirginliği sonrası, öznelliklerini yeniden kurabilmek için, özerk öznelere daha özerk, ilişkisel öznelere ise daha ilişkisel olacaktır.

Özerk ve ilişkisel öznelliklerin hangi konularda farklılaştıklarını tespit etmek için ilk olarak bir keşfedici çalışma yapılmıştır. Buna göre özerk benlik kurgusunun kişisel kontrol isteği, analitik düşünme, ayrıştırıcı duygular ve özgür irade ile; ilişkisel benlik kurgusunun ise ahenk kontrolü, bütüncül düşünme, bütünleştirici duygular ve belirlenimcilik inançları ile ilişkili bulunması beklenmiştir. Ayrıca kapatma isteği, nedensel belirsizlik ve sosyo-demografik faktörlerin de olası ilişkileri incelenmiştir.

## **Çalışma 1**

Qualtrics kullanılarak bir çevrimiçi anket bataryası hazırlanmış, çalışmaya 219'u kadın, 184'ü erkek 403 Orta Doğu Teknik Üniversitesi (ODTÜ) öğrencisi

katılmıştır. Yaş ortalaması 21.70'dir ( $S = 1.56$ ). Türkçeye uyarlanan ölçekler için, ilk ölçümden 3 hafta sonra 84 kişinin katıldığı bir yeniden-ölçüm yapılmıştır.

### Veri Toplama Araçları

**Benlik kurgusu.** Özerk ve ilişkisel benliği ölçmek için, Singelis (1994) tarafından hazırlanan ve Wasti ve Erdil (2007) tarafından Türkçeye uyarlanan 30 maddelik benlik kurgusu ölçeği kullanılmıştır. Katılımcılar özerk ve ilişkisel benlikle ilişkili 15'er ifadeye ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 7 = *kesinlikle katılıyorum*) belirtmişlerdir. Wasti ve Erdil (2007) özerk ve ilişkisel benlik kurgusu için Cronbach alfa güvenirlik katsayılarını sırasıyla .63 ve .72 bulmuştur. Bu çalışmada ise değerler sırasıyla .70 ve .71 bulunmuştur (bkz., Ek A).

**INDCOL.** Yatay ve dikey bireycilik ile toplulukçuluğu ölçmek için INDCOL ölçeği (Singelis, Triandis, Bhawuk ve Gelfand, 1995) kullanılmıştır. Ölçek Türkçeye Wasti ve Erdil (2007) tarafından uyarlanmıştır. Wasti ve Erdil'in (2007) bulguları dikkate alınarak dikey toplulukçuluk, dikey bireycilik ve yatay bireycilikten oluşan, 3 faktörü ve toplamda 29 maddeden oluşan bir ölçek kullanılmıştır. Katılımcılar bu faktörlerle ilişkili ifadeler ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 5 = *kesinlikle katılıyorum*) belirtmişlerdir. Wasti ve Erdil (2007) söz konusu 3 faktör için Cronbach alfa güvenirlik katsayılarını sırasıyla .69, .65 ve .68 bulmuştur. Bu çalışmada ise bu değerler sırasıyla .72, .72 ve .76 bulunmuştur (bkz., Ek B).

**Kontrol odağı.** Rotter'in (1966) hazırladığı, Dağ (2002) tarafından Türkçeye uyarlanan 47 maddeli iç-dış kontrol odağı ölçeği kullanılmıştır. Katılımcılar ifadeler ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 5 = *kesinlikle katılıyorum*) belirtmişlerdir. Daha yüksek skor daha dışsal kontrol odağına karşılık gelmektedir. Dağ (2002) ölçeğin Cronbach alfa güvenirlik katsayısını .92 bulmuştur. Bu çalışmada ise .89 olarak bulunmuştur (bkz., Ek C).

**Kontrol isteği.** Burger ve Cooper'ın (1979) hazırladığı, Eğrigözlü'nün (2002) Türkçeye uyarladığı 20 maddeli kontrol isteği ölçeği kullanılmıştır. Katılımcılar ifadeler ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 5 = *kesinlikle katılıyorum*) belirtmişlerdir. Eğrigözlü (2002) Cronbach alfa güvenirlik katsayısını .75 bulmuştur. Bu çalışmada ise .83 bulunmuştur (bkz., Ek D).

**Nedensel belirsizlik.** Weary ve Edwards (1994) tarafından hazırlanan ve Uz'un (2015) Türkçeye uyarladığı 14 maddeli nedensel belirsizlik ölçeği kullanılmıştır. Katılımcılar ifadeler ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 5 = *kesinlikle katılıyorum*) belirtmişlerdir. Uz (2015) Cronbach alfa güvenirlik katsayısını .82 bulmuştur. Bu çalışmada ise .91 bulunmuştur (bkz., Ek E).

**Kurala dayalı veya benzerlik temelli nesne sınıflandırma.** Nesne sınıflandırma materyalleri Norenzayan, Smirth, Nisbett ve Kim (2002) tarafından hazırlanmış, Uskul, Kitayama ve Nisbett'in (2008) çalışmasında ise Türkiyeli bir örnekleme başarıyla kullanılmıştır. Kullanılan materyaller için Ek F'ye bakınız.

**Sosyo-demografik özellikler.** Katılımcılar yaş, cinsiyet, dindarlık (1 = *hiç dindar değil*, 7 = *fazlasıyla dindar*) ve algılanan sosyoekonomik durum seviyelerini (1 = *en alt düzey*, 10 = *en üst düzey*) bildirmişlerdir.

### **Bu Çalışma Kapsamında Türkçeye Uyarlanan Ölçekler**

Söz konusu ölçekler sosyal psikoloji doktora adayı iki öğrenci tarafından tercüme-geri tercüme yöntemiyle Türkçeye çevrilmiştir. Uyumsuzluklar üçüncü bir araştırmacının gözetiminde çözülmüştür. Yeniden ölçüm ilk ölçümden 3 hafta sonra yapılmıştır.

**Ahenk kontrolü.** Morling ve Fiske (1999) tarafından hazırlanan 21 maddeli ahenk kontrolü ölçeği Türkçeye uyarlanmıştır. Daha yüksek bir güce inanmak, arkadaşların desteğine güvenmek, talihin döneceğine inanmak, başkalarının tepkilerini öngörmek ve kendini başkalarıyla bir bütün halinde hissetmek şeklinde 5 faktörden ve toplamda 21 maddeden oluşmaktadır. Katılımcılar ifadeler ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 7 = *kesinlikle katılıyorum*) belirtmişlerdir. Morling ve Fiske (1999) Cronbach alfa güvenirlik katsayılarının 7 farklı örnekleme .70 ile .78 arasında değiştiğini bulmuştur. Bu çalışmada ise değerler bu 5 faktör için sırasıyla .88, .67, .49, .61 ve .69 bulunmuştur. Ölçüm-yeniden ölçüm güvenirlik katsayıları ise sırasıyla .77, .66, .57, .37, .39 ve .62 olarak bulunmuştur. Ölçeğin maddeleri ve faktörleriyle ilgili ayrıntılı bilgi için Tablo 1'e bakınız.

**Özgür irade ve belirlenimcilik.** Paulhus ve Carey'nin (2011) hazırladığı 27 maddeli özgür irade ve belirlenimcilik ölçeği Türkçeye uyarlanmıştır. Ölçek, kaderci



belirlenimcilik, bilimsel belirlenimcilik, özgür irade ve rastgelelik olarak adlandırılan 4 faktörden oluşmaktadır. Katılımcılar ifadelerine ne oranda katıldıklarını (1 = *kesinlikle katılmıyorum*, 5 = *kesinlikle katılıyorum*) belirtmişlerdir. Paulhus ve Carey (2011) bu faktörler için Cronbach alfa güvenirlik katsayılarını sırasıyla .82, .69, .70 ve .72 olarak bulmuştur. Bu çalışmada ise .87, .63, .68 ve .80 olarak bulunmuştur. Ölçüm-yeniden ölçüm güvenirlikleri ise sırasıyla .74, .38, .56 ve .62 bulunmuştur. Ölçeğin maddeleri ve faktörleriyle ilgili ayrıntılı bilgi için Tablo 2'ye bakınız.

**Analitik-bütüncül düşünme.** Choi, Koo ve Choi (2007) tarafından hazırlanan 24 maddeli analitik-bütüncül düşünme ölçeği Türkçeye uyarlanmıştır. Ölçek nedensellik, çelişkiye yönelik tutum, değişim algısı ve dikkat odağı olarak adlandırılan 4 faktörden oluşmaktadır. Choi ve arkadaşları (2008) bu faktörler için Cronbach alfa güvenirlik katsayılarını sırasıyla .71, .69, .58 ve .56 olarak bulmuştur. Bu çalışmada ise bu değerler .83, .78, .73 ve .79 olarak bulunmuştur. Ölçüm-yeniden ölçüm güvenirlik katsayıları ise sırasıyla .42, .51, .56 ve .55 olarak bulunmuştur. Ölçeğin maddeleri ve faktörleriyle ilgili ayrıntılı bilgi için Tablo 3'e bakınız.

**Kapatma ihtiyacı.** Kapatma ihtiyacı ölçeğinin 9 maddelik kısa formu (Kashima ve Loh, 2006) Türkçeye uyarlanmıştır. Düzeni tercih etmek, öngürülebilirliği tercih etmek ve belirsizlikten rahatsız olmak ile ilgili 3'er madde vardır. Kashima ve Loh (2006) ölçeğin Cronbach alfa güvenirlik katsayısını .80 bulmuştur. Bu çalışmada ise .83 bulunmuştur. Ölçüm-yeniden ölçüm güvenirliği .56'dır. Ölçeğin maddeleri ile ilgili ayrıntılı bilgi için Tablo 4'e bakınız.

**Sosyal olarak bütünleştirici ve ayrıştırıcı duygular.** Sosyal olarak bütünleştirici ve ayrıştırıcı duygular listesi (Kitayama ve Uchida, 2005; Kitayama, Markus ve Kurokawa, 2000; Kitayama, Mesquita ve Karasawa, 2006) Türkçeye uyarlanmıştır. Altı farklı duygu şekli listelenmiştir: Pozitif ayrıştırıcı, negatif ayrıştırıcı, pozitif bütünleştirici, negatif bütünleştirici, genel pozitif ve genel negatif. Duyguların listesi için Tablo 5'e bakınız. Katılımcılar bu duyguları ne sıklıkla deneyimlediklerini bildirmişlerdir (1 = *hiçbir zaman*, 7 = *her zaman*). Bu duygu kategorileri için Cronbach alfa güvenirlik katsayıları sırasıyla .66, .58, .79, .69, .82 ve .86 bulunmuştur. Ölçüm-yeniden ölçüm güvenirlikleri ise .78, .48, .47, .77, .61 ve .52 olarak bulunmuştur.

## Bulgular

**Değişkenler arası korelasyonlar.** Tablo 6’da görüleceği üzere, benlik kurgusu ve öznelik biçimleri arasındaki ilişki beklendiği gibi gerçekleşmiştir. Özerklik dikey bireycilik ile pozitif ve güçlü, dış kontrol odağı ile ise negatif ilişkili bulunmuştur. İlişkisellik ise dış kontrol odağı, yatay ve dikey toplulukçuluk ile anlamlı olarak ilişkili bulunmuştur. Dindarlık ilişkisellik ile pozitif, özerklik ile ise negatif yönde ilişkilidir. Daha yaşlı katılımcılar daha az ilişkisel, daha yüksek sosyoekonomik seviyeye sahip olanlar ise daha az özerk bulunmuştur.

Tablo 7, benlik kurgusu ve kontrol yönelimleri arasındaki ilişkiyi resmetmektedir. Ahenk kontrolü ilişkisellik ile, kontrol isteği ise özerklikle güçlü bir şekilde ilişkili bulunmuştur. Tablo 8’de görüleceği üzere, bütüncül düşünmenin ilişkisellik ile ilişkili olduğu bulunmuştur. Bu da ölçeğin geçerliğine gölge düşürmüştür. Ayrıca, nesne sınıflandırma görevi de özerk ve ilişkisel benlik kurgusundan herhangi biriyle ilişkili bulunamamıştır. Tablo 9’daki sonuçlara göre ise, ayrıştırıcı duygular özerk, bütünleştirici duygular ise ilişkisel benlik kurgusuyla ilişkili bulunmuştur.

Tablo 10 ise diğer değişkenlerin benlik kurgusuyla olan ilişkisini göstermiştir. İlişkisellik kaderci belirlenimcilik, bilimsel belirlenimcilik ve rastgelelik ile; özerklik ise özgür irade inancı ile pozitif ilişkili bulunmuştur. Ayrıca nedensel belirsizlik özerklik ile negatif, ilişkisellik ile ise pozitif ilişkili bulunmuştur.

**Rastgeleliğin etkisini araştırmaya yönelik diğer analizler.** Özgür irade ve belirlenimcilik ölçeğinin rastgele faktörünün skoru bağımsız değişken, benlik kurguları ise düzenleyici değişkenler olarak alınmış ve rastgeleliğin olası etkileri incelenmiştir. Şekil 1’de görüldüğü üzere, rastgelelik ile özerk benlik kurgusu arasındaki ilişki, özgür iradeyi anlamlı olarak yordamıştır ( $\beta = .16, p = .001$ ). Özerklik yüksek olduğunda, rastgelelik pozitif şekilde özgür iradeyi yordamıştır ( $\beta = .20, p = .001$ ). Ayrıca, rastgelelik ile ilişkisel benlik kurgusunun ortak etkisi bilimsel belirlenimciliği yordamıştır ( $\beta = .15, p = .002$ ). Şekil 2’de görüldüğü üzere, ilişkisellik düşük iken, rastgelelik bilimsel belirlenimciliği pozitif şekilde yordamıştır ( $\beta = .35, p < .001$ ).

Kontrol odağı düzenleyici değişken olarak alındığında, rastgelelik ile ortak etkisi kaderci belirlenimcilik için anlamlı bulunmuştur ( $\beta = .09, p = .037$ ). Şekil 4’te

görüldüğü üzere, kontrol odağı dışsal iken rastgeleliğin etkisi güçlü ve anlamlıdır ( $\beta = .25, p < .001$ ). Kontrol odağı içsel iken ise, etki aynı seviyede güçlü değildir ( $\beta = .11, p = .039$ ).

Şekil 5 ve 6'da görüldüğü üzere, rastgelelik ve kontrol odağının ortak etkisi bilimsel belirlenimcilik ( $\beta = .13, p = .011$ ) ve özgür irade ( $\beta = .19, p < .001$ ) için de anlamlıdır. Rastgeleliğin bilimsel belirlenimcilik üzerine etkisi hem içsel ( $\beta = .15, p = .015$ ) hem de dışsal kontrol odağı ( $\beta = .31, p < .001$ ) için anlamlıdır, ancak dışsal kontrol odağı için görece daha güçlüdür. Aynı şekilde, özgür irade için etki hem içsel ( $\beta = .15, p = .015$ ) hem de dışsal kontrol odağı ( $\beta = .47, p < .001$ ) için anlamlıdır, ancak dışsal kontrol odağı için görece daha güçlüdür.

## **Tartışma**

Çalışma 1'in sonuçları genel itibarıyla hipotezlerle tutarlı bir örüntü sergilemiştir. Özerk benlik kurgusu içsel kontrol odağı, bireycilik, bireysel kontrol isteği, ayrıştırıcı duygular ve özgür irade inancı ile ilişkili bulunmuştur. Öte yandan, ilişkisel benlik kurgusu ise dışsal kontrol odağı, toplulukçuluk, ahenk kontrolü, bütünleştirici duygular ve belirlenimcilik inançları ile ilişkili bulunmuştur.

Ancak beklentinin aksine, özerk ve ilişkisel benlik kurgusuna sahip bireyler arasında düşünme tarzına (analitik veya bütüncül düşünme) dair bir fark tespit edilememiştir. Benzer şekilde, her ne kadar ortalama bütünleştirici duygular ilişkisellikle, ortalama ayrıştırıcı duygular ise özerklikle ilişkili bulunsada da, duygusal deneyime dair bulgular tutarlı bir örüntü oluşturmamıştır. Örneğin negatif bütünleştirici duygular hem özerk hem de ilişkisel benlikle ilişkili bulunmuştur.

Son olarak, yapılan regresyon analizlerinin sonucunda benlik kurgusu ve kontrol odağının, rastgeleliğin etkisini düzenledikleri tespit edilmiştir. Buna göre rastgelelik arttıkça, özerk öznelere için özgür irade inancı artarken, ilişkisel öznelere için kadere ve bilimsel belirlenimcilik artmaktadır. Bu bulgu da özneliğin yeniden kurulma hipotezi ile uyum içindedir.

## Çalışma 2

### Katılımcılar

Örneklem kısmi ders notu karşılığında çalışmaya katılan 195 ODTÜ öğrencisinden oluşmuştur. Bunların 69'u erkek, 112'si kadındır. On dört katılımcı cinsiyetini belirtmemiştir. Yaş ortalaması 21.30'dur ( $S = 1.47$ ).

### Veri Toplama Araçları ve İşlem

Çalışma Qualtrics üzerinden hazırlanan çevrimiçi anket bataryasından oluşmuştur. Veri toplama araçları aşağıdaki sıralama ile katılımcılara sunulmuştur.

**Rastgelelik manipülasyonu.** Rastgeleliği manipüle etmek için, 6 kutudan oluşan bir çizgi roman kullanılmıştır (bkz., Ek G).

**Manipülasyon kontrolü.** Öncelikle 2 madde ("Bir şeyi yapıp yapmamamın çevremde olup biteni etkilemediğini düşünüyorum" ve "Bir davranışta bulunup bulunmamamın olayların gidişatını etkilemediğini düşünüyorum") ile önemsizlik hissi ölçülmüştür. Cronbach alfa güvenirlik katsayısı .82'dir. Sonrasında, özgür irade ve belirlenimcilik ölçeğinin (Paulhus ve Carey, 2011) rastgelelik alt ölçeği ile rastgelelik algısı ölçülmüştür. Cronbach alfa güvenirlik katsayısı .88 bulunmuştur. Her iki ölçekte de 7'li ölçek (1 = *kesinlikle katılmıyorum*, 7 = *kesinlikle katılıyorum*) kullanılmıştır.

**Özerklik veya ilişkisellik hazırlaması.** Katılımcıların özneliklerini özerk veya ilişkişel şekilde yeniden kurmaları için, Trafimow, Triandis ve Goto (1991) tarafından geliştirilen bir hazırlama tekniği kullanılmıştır. Katılımcıların yarısından, arkadaşları ve ailelerinden farklı olan 3 özelliklerini düşünmeleri istenmiş ve böylece özerklik ile hazırlanmışlardır. Diğer yarıdan ise, aileleri ve arkadaşları ile ortak sahip oldukları üç özelliği düşünmeleri istenmiş ve bu şekilde ilişkisellik ile hazırlanmışlardır.

**Bağımlı değişkenler.** Çalışma 1'de ayrıntılı bir şekilde incelenmiş kontrol isteği ve ahenk kontrolü ölçekleri doldurulmuştur. Bu ölçekler için Cronbach alfa güvenirlik katsayıları sırasıyla .85 ve .80'dir. Ayrıca katılımcılar, Schwartz'ın Değerler Listesi'nden alınan ve özerklik (örn., özgürlük) ile ilişkisellik (örn., aidiyet

hissi) ile ilgili 9'ar değere (Kam, Zhou, Zhang ve Ho, 2012) ne kadar önem atfettiklerini bildirmişlerdir (1 = *hiç önemli değil*, 7 = *çok fazla önemli*).

## **Sonuçlar**

Rastgelelik manipülasyonu rastgeleliği veya önemsizlik hissini arttırmamıştır ( $ps > .05$ ). Ayrıca rastgelelik ile benlik kurgusu manipülasyonlarının ortak etkisi de hiçbir değişken için anlamlı bulunmamıştır ( $ps > .05$ ).

## **Tartışma**

Çalışma 2'de hipotezler desteklenmemiştir. Bunun, rastgeleliğin etkin bir şekilde hazırlanamadığından dolayı olabileceği düşünülmüştür. Bu sebeple Çalışma 3'te rastgelelik farklı bir yolla hazırlanmıştır.

## **Çalışma 3**

Örnekleme, çalışmaya kısmi not karşılığı katılan, 61'i erkek, 103'ü kadın 164 ODTÜ öğrencisinden oluşmuştur. Ortalama yaş 21.35'dir ( $S = 2.02$ ). Çalışma 3, Çalışma 2'den sadece bir farkla ayrılmıştır: Rastgelelik bir çizgi roman yerine, bir dizi ağaç fotoğrafı ile hazırlanmıştır (bkz., Ek H). Kullanılan materyaller Heintzelman, Trent ve King'in (2013) çalışmasından alınmıştır. On altı farklı ağaç fotoğrafı kullanılmıştır. Her fotoğrafta, ağaçlar mevsimlerden (sonbahar, kış, ilkbahar, yaz) birini temsil etmiştir. Kontrol koşulunda, bu ağaçlar mevsimlerin sırasına göre gösterilmiştir. Deneysel koşulda ise, bu sıralama karıştırılmıştır. Manipülasyonu anlamalarını engellemek için, katılımcılardan fotoğrafların kontrastlarını derecelendirmeleri istenmiştir (1 = *düşük kontrast*, 7 = *yüksek kontrast*). Çalışmanın geri kalanı Çalışma 2 ile aynı olmuştur. Rastgelelik, önemsizlik hissi, kontrol isteği, ahenk kontrolü, özerklik değerleri ve ilişkisellik değerleri için Cronbach alfa değerleri sırasıyla 83, .77, .85, .77, .89 ve .81 olmuştur.

## Sonuçlar

Rastgelelik manipölasyonu rastgelelięi ve önemsizlik hissini arttırmamıştır ( $ps > .05$ ). Ayrıca rastgelelik ile benlik kurgusu manipölasyonlarının ortak etkisi de hiçbir deęişken için anlamlı bulunmamıştır ( $ps > .05$ ).

## Tartışma

Çalışma 3'e benzer şekilde Çalışma 4 de hipotezlere destek sağlama konusunda başarısız olmuş, istatistiki olarak anlamlı farklılaşmalar ortaya koyamamıştır. Çalışma 5'te rastgelelik daha farklı bir materyal kullanılarak manipüle edilecektir.

## Çalışma 4

Örneklem, gönüllü bir şekilde çalışmaya katılan ve sosyal medya vasıtasıyla ulaşılan, 63'ü erkek, 145'i kadın 209 kişiden oluşmuştur. Yaş ortalaması 29.37'dir ( $S = 10.12$ ). Bu çalışmada rastgelelik, varsayımsal bir fizik profesöründen yapılan alıntılar ile manipüle edilmiştir (bkz., Ek I). Kontrol koşulunda, profesör klasik fizięe atıfta bulunarak her şeyin öngörülebilir olduğunu iddia etmiştir. Deneysel koşulda ise, profesör kuantum fiziğine atıfta bulunarak evrende hiçbir şeyin kesin olmadığını belirtmiştir. Katılımcılara bunun bilimsel bilginin topluma aktarımıyla ilgili bir proje olduğu söylenmiş ve profesörün argümanlarının ne kadar açık olduğunu derecelendirmeleri istenmiştir (1 = *hiç açık deęil*, 7 = *fazlasıyla açık*). Çalışmanın geri kalanı Çalışma 2 ve 3 ile aynıdır. Rastgelelik, önemsizlik hissi, kontrol isteęi, ahenk kontrolü, özerklik deęerleri ve ilişkisellik deęerleri için Cronbach alfa güvenirlik katsayıları sırasıyla .84, .74, .77, .79, .82 ve .80 olmuştur.

## Sonuçlar

Rastgelelik manipölasyonu rastgelelik algısını anlamlı düzeyde ( $F(1, 207) = 13.53, p < .001, \eta_p^2 = .061$ ), önemsizlik hissini ise sınırda anlamlı düzeyde ( $F(1, 207) = 3.40, p = .067, \eta_p^2 = .016$ ) arttırmıştır. Rastgelelik ve benlik kurgusu

manipölasyonlarının ortak etkisi sadece ahenk kontrolü için anlamlı bulunmuştur ( $F(1, 205) = 3.64, p = .058, \eta_p^2 = .017$ ). Ayrıntı için Tablo 15 ve 16'ya bakınız.

## **Tartışma**

Çalışma 2 ve 3'ün aksine, Çalışma 4'te rastgelelik başarıyla manipüle edilmiş, ayrıca her ne kadar sınırdan anlamlı olsa da, önemsizlik hissinde de bir artış gözlemlenmiştir. Bu fark, Çalışma 4'te doğrudan rastgeleliğe atıfta bulunan bir manipölasyon materyali kullanılmış olmasından kaynaklanmış olabilir. Çalışma 5'te, farklı bir rastgelelik manipölasyonu materyalinin de rastgelelik ve önemsizlik hissinin artırıp arttırmayacağı incelenecektir.

## **Çalışma 5**

Şimdiye kadar sadece Çalışma 4'te, rastgelelik belirginliğinin, rastgelelik algısı ve önemsizlik hissinin etkisine dair bulgular elde edilmiştir. Bu çalışmada bu hipotez tekrar incelenecek, ayrıca rastgeleliğin durumsal kaygıya olan olası etkisi (Kay ve ark., 2010; Tullett ve ark., 2015) araştırılacaktır.

## **Katılımcılar**

Çevrimiçi olan çalışmaya sosyal medya aracılığıyla gönüllü 164 katılımcı katılmıştır. Uç değerlere sahip katılımcılar çıkarıldıktan sonra geriye 157 kişi kalmıştır. Bunların 104'ü kadın, 51'i erkektir ve 2 kişi cinsiyetini belirtmemiştir. Ortalama yaş 26.25'tir ( $S = 7.94$ ).

## **Veri Toplama Araçları ve İşlem**

Katılımcılar Qualtrics üzerinden hazırlanan çevrimiçi ankete yönlendirilmişlerdir. Veri toplama araçları buradaki sıraları ile sunulmuştur. Tüm araçlarda 7'li ölçek kullanılmıştır (1 = *kesinlikle katılmıyorum*, 7 = *kesinlikle katılıyorum*).

**Deneyisel manipölasyon.** Rastgelelik koşulunda, katılımcılar Őu iki soruya cevap vermiřlerdir: (1) “Hayattaki bazı olaylar tamamen řans ve tesadüfe baēlı olarak geliřir ve bu olayları öngörmek imkansızdır. Lütfen yařadığınız buna benzer bir olayı düşünün ve ařaēıdaki kutucuēa yazın”; (2) “Bu olayın tesadüfi bir řekilde gerçekteřmiř olması size nasıl hissettirdi?” Kontrol koşulunda ise, insanlardan hayatlarında tamamen öngörülebilir bir řekilde gerçekteřmiř bir olay sorulmuřtur.

**Rastgelelik.** Özgür irade ve belirlenimcilik ölçeēinin (Paulhus ve Carey, 2011) rastgelelik alt ölçeēi kullanılmıřtır. Cronbach alfa güvenirlilik katsayısı .81’dir.

**Önemsizlik hissi.** Yazar tarafından 10 maddeli bir önemsizlik hissi ölçeēi oluřturulmuřtur (bkz., Ek J). Dikkatli bir incelemenin sonucunda, bul listedeki ilk 2 maddenin deneyisel manipölasyonun etkilerini en iyi yansıttığı belirlenmiř ve neticesinde bu maddeler kullanılmıřtır. Cronbach alfa güvenirlilik katsayısı .82’dir.

**Durumsal kaygı.** Öner ve Le Compte (1983) tarafından Türkçeye uyarlanan 20 maddelik durumsal kaygı ölçeēi kullanılmıřtır. Cronbach alfa güvenirlilik katsayısı .94’tür.

## **Sonuçlar**

Rastgele bir olayı hatırlayanlar ( $Ort. = 3.74, S = 1.17$ ), öngörülebilir bir olayı hatırlayanlara ( $Ort. = 3.41, S = .99$ ) oranla daha yüksek rastgelelik rapor etmiř, ancak bu sınırdan anlamlı düzeyde gerçekteřmiřtir ( $F(1, 155) = 3.55, p = .061, \eta_p^2 = .022$ ). Rastgelelik aynı zamanda önemsizlik hissini de arttırmıř ( $Ort. = 2.36, S = 1.45$  ve  $Ort. = 1.92, S = 1.02$ ) ve bu farklılařma anlamlı düzeyde olmuřtur ( $F(1, 155) = 4.90, p = .028, \eta_p^2 = .031$ ). Durumsal kaygı ise manipölasyondan etkilenmemiřtir ( $F(1, 155) = .69, p = .407, \eta_p^2 = .004$ ). Ayrıca rastgelelik algısı ile önemsizlik hissi de birbiriyle iliřkili bulunmuřtur ( $r = .22, p = .005$ ).

## **Tartıřma**

Çalıřma 4’tekine benzer řekilde, Çalıřma 5’in de sonuçları önemsizlik hissi hipotezini desteklemiř, rastgeleliēi arttıran bir manipölasyonun önemsizlik hissini de arttırdığını ortaya koymuřtur.



## Çalışma 6

### Katılımcılar ve İşlem

Katılımcılar Sona sistemi üzerinde iki bölümlü bir çalışmaya katılmışlardır. İlk bölümde korelasyonel bir çalışma yapılmış ve benlik kurgusu, kontrol odağı, bireycilik-toplulukçuluk ve demografik form doldurulmuştur. Ancak sonrasında benlik kurgusu değerlerinin kullanılmasına karar verilmiştir. Örneklem kısmi ders notu karşılığı katılan 153 kişiden oluşmuştur. Daha sonrasında katılımcılar rastgeleliğin manipüle edildiği ikinci aşamaya davet edilmişler ve kendilerine rastgele seçilecek 3 kişinin 50 TL kazanacağı söylenmiştir. Çalışmaya toplam 95 kişi katılmıştır. Bunların 57'si kadın, 35'i erkektir, 3 kişi de cinsiyetini belirtmemiştir. Ortalama yaş 21.39'dur ( $S = 3.07$ ).

### Veri Toplama Araçları

**Benlik kurgusu.** Benlik kurgusu ölçeği (Wasti ve Erdil, 2007) ile özerklik ve ilişkisellik ölçülmüştür. Bu alt ölçekler için Cronbach alfa güvenirlik katsayıları sırasıyla .70 ve .71'dir. Hem özerklik hem de ilişkisellik skorları medyandan ikiye ayrılarak yüksek ve düşük skor grupları oluşturulmuştur.

**Rastgelelik manipülasyonu.** Çalışma 4'te kullanılan manipülasyon materyalinin aynısı kullanılmıştır.

**Bağımlı değişkenler.** Özgür irade ve belirlenimcilik (Paulhus ve Carey, 2011), kontrol isteği (Eğrigözlü, 2002), ahenk kontrolü (Morling ve Fiske, 1999) ve sosyal olarak ayrıştırıcı ve bütünleştirici duygular (Kitayama ve ark., 2006) ölçülmüştür. Özgür irade ve belirlenimcilik ölçeğinin alt faktörleri olan rastgelelik, özgür irade, kaderci belirlenimcilik ve bilimsel belirlenimcilik için Cronbach alfa güvenirlik katsayıları sırasıyla .73, .78, .89 ve .66'dır. Kontrol isteği, ahenk kontrolü, birleştirici duygular ve ayrıştırıcı duygular için Cronbach alfa değerleri ise sırasıyla .86, .80, .63 ve .61'dir.

**Sosyodemografik özellikler.** Katılımcılar yaş, cinsiyet ve ne kadar dindar olduklarını (1 = *hiç dindar değil*, 7 = *çok dindar*) belirtmişlerdir.

## **Sonuçlar**

Manipülasyon rastgelelik algısını arttırmıştır ( $F(1, 93) = 4.39, p = .039, \eta_p^2 = .045$ ), ancak rastgelelik ile benlik kurgusunun ortak etkisi hiçbir değişken için anlamlı bulunmamıştır ( $ps > .05$ )

## **Tartışma**

Bu çalışmada her ne kadar rastgelelik başarılı bir şekilde manipüle edilmiş olsa da, rastgelelik ve benlik kurgusu arasındaki etkileşimler, beklentilerle tutarlı ve anlamlı sonuçlar üretmemiştir. Çalışma 7’de, bu sorunun üstesinden gelebilmek için örtük bir manipülasyon tekniği kullanılacaktır. Daha önce, örtük hazırlama tekniklerinin deneysel manipülasyonlarda daha etkili olduğu savunulmuştur (Cross ve ark., 2011; Kühnen ve Hannover, 2000). Buradan yola çıkarak, bir sonraki çalışmada rastgelelik örtük olarak manipüle edilecektir.

## **Çalışma 7**

### **Katılımcılar ve İşlem**

Örneklem Çalışma 1’in katılımcılarından oluşmuştur. Katılımcılara tekrar ulaşıp, yeni çalışmaya katılanların ikisine 100’er TL’lik ödül verileceği söylenmiştir. Son örneklem 99 kişiden oluşmuştur. Bunların 62’si kadın 34’ü erkektir, 3 kişi ise cinsiyetini belirtmemiştir. Ortalama yaş 21.32’dir ( $S = 1.30$ ).

### **Veri Toplama Araçları**

Veri toplama araçları, manipülasyon materyali hariç Çalışma 6 ile aynıdır. Kay ve arkadaşları (2010) tarafından geliştirilen cümle düzeltme görevi kullanılarak rastgelelik manipüle edilmiştir (bkz., Ek K). Görevde rastgelelik ve olumsuzluk koşulları vardır. Katılımcılar karışık sırayla verilen 4 kelimenin 3’üyle kurallı bir cümle kurmuşlardır. Rastgelelik koşulunda verilen 20 setten 10’unda rastgelelik ile,

diğer koşulda ise yine 20 setten 10'unda olumsuzluk ile ilgili bir kelime vardır. Katılımcılar, bu görevi tamamladıktan sonra, Çalışma 6'dakine benzer şekilde özgür irade ve belirlenimcilik, kontrol isteği, ahenk kontrolü, ayrıştırıcı duygular ve bütünleştirici duygular ölçeklerini doldurmuşlardır. Ancak ayrıştırıcı ve bütünleştirici duygular ölçeğinde %16 ila %40 arası değişen oranda boş bırakılan maddeler olduğundan, duygularla ilgili ölçümler analizlere katılmamıştır. Tüm veri toplama araçları 7'li ölçek (1 = *kesinlikle katılmıyorum*, 7 = *kesinlikle katılıyorum*) kullanmıştır. Özgür irade ve belirlenimcilik ölçeğinin rastgelelik, özgür irade, kaderci belirlenimcilik ve bilimsel belirlenimcilik alt ölçekleri için Cronbach alfa güvenirlik katsayıları sırasıyla .78, .75, .90 ve .60 bulunmuştur. Kontrol ihtiyacı ve ahenk kontrolü için ise .85 ve .83 olarak bulunmuştur.

## Sonuçlar

Rastgelelik manipülasyonu algılanan rastgeleliği sınırda anlamlı ölçüde arttırmıştır ( $F(1, 97) = 2.88, p = .093, \eta_p^2 = .029$ ). Dindarlığı kontrol ettikten sonra, rastgelelik ile ilişkiselliğin ortak etkisi kaderci belirlenimcilik için sınırda anlamlı bulunmuştur ( $F(1, 94) = 3.86, p = .052, \eta_p^2 = .039$ ). İlişkisellik düşük iken, rastgeleliğin etkisi anlamsızdır ( $F(1, 44) = .46, p = .503, \eta_p^2 = .001$ ). Öte yandan, ilişkisellik yüksek iken, rastgelelik, dindarlığın etkisi kontrol edildikten sonra, kaderci belirlenimciliği arttırmıştır ( $Ort. = 3.63, S = 1.21$  ve  $Ort. = 3.02, S = 1.46, F(1, 48) = 7.93, p = .007, \eta_p^2 = .142$ ). Diğer ortak etkiler anlamsız bulunmuştur.

## Tartışma

Bu çalışmada rastgelelik örtük bir şekilde manipüle edilmiş ve ilişkisellik ile rastgelelik arasında kaderci belirlenimcilik için bir etkileşim olduğu bulunmuştur. Buna göre, dindarlık seviyesi kontrol edildikten sonra, ilişkiselliği düşük bireylerde rastgelelik kaderci belirlenimciliği arttırmıştır. Bu özerkliğin yeniden kurulumu hipotezi ile çelişmiştir. Çünkü hipoteze göre, rastgelelik belirginliğinden sonra ilişkiselliği yüksek öznelere kaderci belirlenimcilik gibi dışsal kontrol odaklarına yönelmesi beklenmiştir. Bu bulgu telafi edici kontrol modeli (Kay ve ark., 2009) ile

açıklanabilir. Çünkü bu modele göre, bireysel kontrol eksikliği dışsal kontrol kaynaklarına yöneltilmektedir. Buradan hareketle, rastgelelik belirginliği sonrası, ilişkiselliği düşük özerk öznel dışsal kontrol odaklarına yönelerek ilişkisel öznelliklerini ön plana çıkarıyor, bu şekilde de azalan öznelliklerini farklı bir öznellik modeli ile telafi ediyor olabilir. Ancak bu literatürdeki çalışmalarda özerklik veya ilişkisellikten bahsedilmemiştir. Dışsal kontrol ile telafi etme davranışının ilişkiselliği yüksek öznel için daha belirgin olma ihtimali de vardır. Bu olası açıklamaları test etmek için, Çalışma 8, Çalışma 7'yi Amerikalı bir örnekleme tekrarlayacaktır.

## **Çalışma 8**

### **Katılımcılar ve İşlem**

Bu çalışma, Çalışma 7'nin bir tekrarı olmuştur ve örneklemini Amazon Mechanical Turk üzerinden ulaşılan Amerikalı katılımcılardan oluşmuştur. Katılım karşılığı her kişiye 0.30\$ verilmiştir. Ölçeklerin içine gizlenmiş iki dikkat kontrolü sorusuna doğru cevap veremeyen katılımcılar analizden çıkarılmış, son örneklem 111 kişiden oluşmuştur.

### **Veri Toplama Araçları**

Özgür irade ve belirlenimcilik ölçeğinin özgür irade, rastgelelik, kaderci belirlenimcilik ve bilimsel belirlenimcilik alt ölçekleri için Cronbach alfa güvenirlik katsayıları sırasıyla .84, .72, .86 ve .59 bulunmuştur. Özgür irade ve ahenk kontrolü için ise sırasıyla .86 ve .82 bulunmuştur.

### **Sonuçlar**

Dindarlığı kontrol ettikten sonra, rastgelelik ve özerklik ile ilişkiselliğin ortak etkisi, kaderci belirlenimcilik için anlamlı bulunmuştur ( $F(1, 106) = 6.14, p = .015, \eta_p^2 = .055$ ). Buna göre, bireyler nispeten ilişkiselliğe daha yakın iken rastgeleliğin kaderci belirlenimcilik üzerindeki etkisiz anlamsız bulunmuştur ( $F(1, 53) = 1.60, p = .211, \eta_p^2$

= .029). Ancak bireyler, diğer gruba göre, özerkliğe nispeten daha yakınlarken, rastgelelik kaderci belirlenimciliği azaltmıştır ( $Ort. = 2.74$ ,  $S = 1.19$  ve  $Ort. = 3.36$ ,  $S = 1.18$ ,  $F(1, 52) = 4.14$ ,  $p = .047$ ,  $\eta_p^2 = .074$ ). Diğer ortak etkiler anlamlı sonuçlar üretmemiştir.

## **Tartışma**

Çalışma 7, hipotezle çelişecek şekilde, rastgelelik belirginliğinin özerk öznelere ilişkiselliğini arttırdığını göstermişti. Ancak Çalışma 8, aynı işlemi Amerikan örnekleminde tekrarladığında farklı sonuçlar doğurmuştur. Buna göre, özerkliğe daha yakın olan öznelere, rastgelelik belirginliğinden sonra kaderci belirlenimcilikten uzaklaşarak ilişkisellik ile aralarına daha da fazla mesafe koymuştur. Bu da telafi edici kontrol modelinin (Kay ve ark., 2009) önerdiğinden ziyade, bu çalışmadaki öznelere yeniden kurulumu hipoteziyle uyumludur. Bu bulguya destek sağlamak için, Çalışma 9’da telafi edici kontrol modeli çalışmalarındaki gibi doğrudan kontrol yoksunluğu manipüle edilmiş ve sonuçların telafi edici kontrol modeliyle mi, yoksa öznelere yeniden kurulumu hipoteziyle mi uyduğu incelenmiştir.

## **Çalışma 9**

Çalışma 9’da, Çalışma 8 iki istisna harici tekrarlanmıştır: Birincisi, rastgelelik yerine, rastgeleliği örtük biçimde hazırlayan kontrol yoksunluğu manipüle edilmiştir (Kay ve ark., 2009). Ayrıca bağımlı değişkenler arasında “kontrol sahibi bir tanrıya inanç” da (Kay ve ark., 2008) ölçülmüştür. Geri kalan kısımlar Çalışma 8 ile aynıdır.

## **Katılımcılar ve İşlem**

Sona sistemi vasıtasıyla 246 ODTÜ öğrencisine ulaşılmıştır. Katılımcıların 134’ü kadındır ve yaş ortalaması 22.36’dır ( $S = 2.20$ ). Tüm veri toplama araçlarında 7’li ölçek ( $1 = kesinlikle katılmıyorum$ ,  $7 = kesinlikle katılıyorum$ ) kullanılmıştır.

## Veri Toplama Araçları

**Benlik kurgusu.** Wasti ve Erdil'in (2007) uyarladığı benlik kurgusu ölçülmüş ve skora göre katılımcılar yüksek ve düşük gruplara ayrılmıştır. Özerk ve ilişkisel benlik kurgusu için Cronbach alfa güvenirlik katsayıları sırasıyla .49 ve .51'dir.

**Kontrol yoksunluğu manipülasyonu.** Katılımcılar rastgele şekilde iki gruba ayrılmışlardır. Birinci grupta katılımcılardan son birkaç ay içinde yaşadıkları ve tamamen kendi kontrollerine gerçekleşen olumlu bir olayı düşünmeleri ve yazmaları istenmiştir. İkinci gruptan ise son birkaç içinde yaşadıkları ve tamamen kendi kontrolleri dışında gerçekleşen olumlu bir olayı düşünmeleri ve yazmaları istenmiştir.

**Bağımlı değişkenler.** Katılımcılar öncelikle kontrol sahibi bir tanrıya inancı (Kay ve ark., 2008) ölçeği iki maddeye ("Tanrının, veya insanüstü bir başka varlığın, evrenimizdeki olayları en azından kısmen kontrol ediyor olması sizce ne kadar mümkündür?" ve "Bu dünyadaki olayların Tanrının, veya insanüstü bir başka varlığın, planına göre gelişiyor olması sizce ne kadar mümkündür") ne kadar katıldıklarını belirtmişlerdir (Cronbach  $\alpha = .92$ ). Önceki çalışmalardaki gibi, rastgelelik (Cronbach  $\alpha = .80$ ), özgür irade (Cronbach  $\alpha = .74$ ), kaderci belirlenimcilik (Cronbach  $\alpha = .88$ ) ve bilimsel belirlenimcilik (Cronbach  $\alpha = .63$ ) alt ölçeklerini kapsayan özgür irade ve belirlenimcilik ölçeğiyle beraber kontrol isteği (Cronbach  $\alpha = .85$ ) ve ahenk kontrolü (Cronbach  $\alpha = .80$ ) de ölçülmüştür. Ayrıca, katılımcılar yaş, cinsiyet ve dindarlıklarını (1 = *hiç dindar değil*, 7 = *fazlasıyla dindar*) da belirtmişlerdir.

## Sonuçlar

Dindarlığın etkisi kontrol edildikten sonra, özerk benlik kurgusu ve kontrol yoksunluğunun ortak etkisi, kontrol sahibi bir tanrıya inanç için anlamlı bulunmuştur ( $F(1, 241) = 7.45, p = .007, \eta_p^2 = .030$ ). Özerklik düşük iken, manipülasyonun etkisi anlamsızdır ( $F(1, 119) = 2.56, p = .112, \eta_p^2 = .021$ ). Ancak özerklik yüksek iken, kontrol yoksunluğu kontrol sahibi bir tanrıya inancı düşürmüştür ( $Ort. = 5.06, S = 2.04$  ve  $Ort. = 4.34, S = 2.27, F(1, 121) = 4.82, p = .030, \eta_p^2 = .038$ ). Diğer ortak etkiler anlamlı sonuçlar üretmemiştir.

## **Tartışma**

Çalışma 9, Çalışma 8'in bulgularını doğrulamıştır. Buna göre, özerklik yüksek iken, kontrol yoksunluğu, dindarlığın etkisi hesaba katıldıktan sonra, kontrol sahibi bir tanrıya inancı azaltmakta, yani özerk öznelere ilişkisellikten daha da uzaklaşmaktadır. Bu da özneliğin yeniden kurulumu hipotezine destek sağlamıştır.

## **Genel Tartışma ve Sonuç**

Bu çalışmada, öncelikle insanların sürekli olarak örüntü tespit etme peşinde olduğu vurgulanmış, bunun evrimsel ve varoluşsal sebepleri açıklanmıştır. Sonrasında belirsizlik ve tahmin edilemezliğin, yani örüntü eksikliğinin, olumsuz bazı sonuçları tespit edilmiştir. Buradan hareketle, ilk hipotez olarak rastgeleliğin öznelik hissine zarar verdiği öne sürülmüştür. Sonrasında özerk ve ilişkisel özneliğin farklı belirtilerek, rastgelelik belirginliği sonrası özerk öznelere daha özerk, ilişkisel öznelere ise daha ilişkisel olarak özneliklerini yeniden kuracakları öngörülmüştür.

Çalışma 1'in sonuçları, geçmiş çalışmalarla tutarlı şekilde (Markus ve Kitayama, 2003; Kitayama ve Uchida, 2005) özerk ve ilişkisel özerkliklerin özellikle kontrol yönelimi ve duygusal deneyim açısından farklılaştığını ortaya koymuştur. Ayrıca yapılan regresyon analizleri, rastgelelik algısının özerk öznelere için özgür irade inancını, ilişkisel öznelere için belirlenimciliği arttırdığı bulunmuştur. Ancak bilişsel tarz (analitik veya bütüncül) açısından bir farklılaşma bulunamamıştır. Söz konusu durumun sebepleri ileriki çalışmalarda araştırılmalıdır.

Çalışma 2 ve 3'te hem benlik kurgusu hem rastgelelik manipüle edilmiş, ancak hipotezler desteklenmemiştir. Çalışma 3'te rastgelelik daha doğrudan rastgeleliği hatırlatan bir materyalle manipüle edilmiş ve anlamlı sonuçlar vermiştir. Çalışma 4'te de benzer bir işlem uygulanmış ve rastgelelik belirginliğinin aynı şekilde algılanan rastgelelik ve önemsizlik hissini arttırdığı bulunmuştur. Bu sayede, önemsizlik hissi hipotezi desteklenmiştir.

Önceki çalışmalarda benlik kurgusunun her kültürde eşit şekilde manipüle edilemeyeceğiyle ilgili önerileri (Cross ve ark., 2011; Kitayama, Duffy ve Uchida, 2007; Oyserman ve Lee, 2008) dikkate alınarak, sonraki çalışmalarda benlik

kurgusunu manipüle etmek yerine karakter özelliği olarak ölçümünün yapılmasına karar verilmiştir. Ancak bu, Çalışma 6'da uygulandığında yine anlamlı sonuçlar bulunmamıştır. Geçmiş araştırmacıların, daha örtük hazırlama manipülasyonlarının daha etkili olduğu üzerindeki önerileri (Cross ve ark., 2011; Kühnen & Hannover, 2000) dikkate alınarak, Çalışma 7'de karışık kelimelerden cümle kurma görevi kullanılarak örtük bir manipülasyon yapılmıştır ve sonucunda ilişkiselliği düşük öznelere için rastgeleliğin kaderci belirlenimciliği arttırdığı bulunmuştur. Bu bulgu, özneliğin yeniden kurulumu hipoteziyle çelişip, telafi edici kontrol modeline (Kay ve ark., 2009; Kay ve Eibach, 2013) uygun bir sonuçtur. Ancak Çalışma 8 ve 9 hipotezle uyumlu sonuçlar vermiş, özerkliği yüksek öznelere rastgelelik belirginliğinden sonra ilişkisel kontrolden daha da uzaklaşarak kaderciliklerini azalttıkları görüşmüştür.

Önceki çalışmalar rastgeleliğin kaygı ürettiğini göstermiş olmasına rağmen (Kay ve Eibach, 2013; Kay ve ark., 2009; Shepherd ve ark., 2011; Proulx ve ark., 2012; Tullett ve ark., 2014; Van den Bos, 2009), bunun altında yatan temel faktör daha önce gösterilmemiştir. Şimdiki araştırmada, özellikle Çalışma 4 ve 5'te, bunun önemli sebeplerinden birinin önemsizlik hissi olduğu gösterilmiştir. Buna göre, rastgelelik hem hayatta kalma şansını azalttığı hem de varoluşsal anlam arayışına sekte vurduğu için öznellik hissini azaltıp önemsizlik hissini arttırmaktadır.

İkinci hipotez ise bu önemsizlik hissine özerk ve ilişkisel öznelere farklı tepkiler vereceğini öngörmüştür. Özellikle Çalışma 8 ve 9 bu hipoteze kısmi destek sağlamış, özerk öznelere rastgelelik algısından sonra kontrol sahibi bir tanrıya ve kaderci belirlenimciliğe inançlarının azaldığı, yani ilişkisel kontrol yöneliminden daha da uzaklaştığı tespit edilmiştir. Bu da en azından kontrol yönelimi konusunda hipotezi desteklemiştir. Daha önce telafi edici kontrol modeli çalışmaları rastgeleliğe tepkileri incelemiş (Kay ve ark., 2009) ancak şu anki araştırma Markus ve Kitayama'nın (2003) öznellik modellerini de entegre ederek farklı öznelere rastgeleliğe farklı tepkiler verebildiğini ortaya koymuştur. Ancak bulgular bilişsel ve duygusal boyutla ilgili farklılıklar ortaya koymamıştır.



### **Bulguların Sağladığı Pratik Çıkarımlar**

Deprem gibi doğa olaylarının yarattığı kaygı, kısmen ne zaman gerçekleşeceğine dair ortada bir belirsizlik olmasının sonucudur (Başoğlu, Şalcıoğlu ve Livanou, 2002). Ancak bu çalışmanın da ortaya koyduğu gibi, özerk ve ilişkisel özneler rastgeleliğe farklı tepkiler vermektedirler. Bu hipotezi doğrular şekilde, Ecevit ve Kasapoğlu (2002), içsel kontrol odağına sahip (yani daha özerk) kişilerin olası depreme yönelik bireysel tedbirler aldığını, ancak dışsal kontrol odağına sahip (yani daha ilişkisel) kişilerin ise devletin ve diğer kurumların bu tedbirleri almasını beklediklerini ortaya koymuştur. Bu da rastgeleliğin farklı öznellik türleri için farklı kontrol türlerine yönelimi arttırdığına bir örnek teşkil etmektedir.

Başka bir örnek olarak, yaşam öyküsü modeline (Stearns, 1977, 1992) göre belirsizliğin hakim olduğu, gecekondu mahallesi gibi, yerlerde büyüyen kişilerin uzun vadede riskli davranışlar ve şiddet eğilimi gösterme ihtimalleri artmaktadır. Bunun sebebi bu kişilerin dışsal kontrol odağına sahip olması olarak gösterilse de (Miller, Fitch, & Marshall, 2003), ilişkisel özneler için farklı tespitler yapılmıştır. Örneğin, Ward (1995), Amerikalı Siyahi kimliğinin ilişkisel olduğunu belirterek, Siyahi gençlerin ancak ilişkiselliklerini daha fazla ön plana çıkararak bu şiddet çemberinden çıkabileceklerini öne sürmüştür. Buna göre, bu araştırmanın beklentisiyle uyumlu şekilde, farklı tür öznelerin belirsizlikle başa çıkma yolları da farklı olabilmektedir.

### **Olası Kısıtlar ve Gelecek Çalışmalar İçin Öneriler**

Birinci olarak, özneliğin bilişsel ve duygusal boyutu da olduğu daha önce ortaya koyulmuş olmasına rağmen (örn., Kitayama ve ark., 2006; Masuda ve Nisbett, 2001), rastgeleliğin benlik kurgusuyla etkileşimi bu değişken üzerinde anlamlı etki yaratamamıştır. Uskul ve arkadaşlarının (2008) Türkiyeli örneklem üzerindeki çalışması daha önce bilişsel farklılıkları ortaya koymuş ancak söz konusu çalışma balıkçılık ve hayvancılıkla uğraşan bir örneklem üzerinde uygulanmıştır. Şimdiki çalışmadaki hipotezlerin de öğrenci olmayan bir örneklemde uygulanmasında yarar vardır. Ayrıca duygusal farklılıklarla ilgili ölçümlerin davranışsal araçlar kullanılarak yapılması farklı sonuçlar üretebilir.

İkinci olarak, Çalışma 7 ve 8'in sonuçları birbiriyle çelişmiştir. Bunun sebebini, iki çalışmanın farklı kültürlerde (Türkiye ve Amerika Birleşik Devletleri) uygulanmış olması olabilir. İki ülke “belirsizlikten kaçınma” (Hofstede, 2001) boyutunda birbirinden farklılaşmaktadır ve rastgelelik algısı konusundaki bu kronik farklılaşmanın farklı tepkilere yol açtığı tahmin edilmektedir.

Üçüncü olarak, rastgelelik sadece örtük olarak manipüle edildiğinde benlik kurgusuyla anlamlı etkileşimlere girmiştir. Bunun sebebi, dehşet yönetimi kuramında (Solomon ve ark., 1991) olduğu gibi, önemsizlik hissinin bilinç düzeyinde başa çıkmak için fazla ağır bir duygu olması olabilir.

Son olarak, ileriki çalışmalarda, hem rastgeleliğin yeniden kurulumunda oluşan motivasyonları ölçerken, hem de rastgeleliği manipüle ederken laboratuvar ortamında davranışsal ölçümler yapılması tavsiye edilmektedir.

## Appendix N: Tez Fotokopisi İzin Formu

### ENSTİTÜ

Fen Bilimleri Enstitüsü  
Sosyal Bilimler Enstitüsü  
Uygulamalı Matematik Enstitüsü  
Enformatik Enstitüsü  
Deniz Bilimleri Enstitüsü

☐☒☐☐

### YAZARIN

Soyadı: ALPER  
Adı: SİNAN  
Bölümü: PSİKOLOJİ

**TEZİN ADI** (İngilizce): MASTERING THE CHAOS BY ASSERTING AGENCY:  
RANDOMNESS SALIENCE AND ITS EFFECTS FOR DIFFERENT MODELS OF  
AGENCY

**TEZİN TÜRÜ:** Yüksek Lisans

☐

Doktora

☒

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir.
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir.
3. Tezimden bir bir (1) yıl süreyle fotokopi alınamaz.

☒☐☐

**TEZİN KÜTÜPHANEYE TESLİM TARİHİ:**