THE COGNITIVE COST OF INTERPERSONAL CLOSENESS IN DECISION MAKING

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ABSTRACT

THE COGNITIVE COST OF INTERPERSONAL CLOSENESS IN DECISION MAKING

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Prior research has consistently demonstrated that prosocial behavior, cooperation, and trust increase with interpersonal closeness. This dissertation suggests a cognitive computational cost as an explanation for prosocial preferences driven by interpersonal closeness. Current hypothesis is based on the inclusion of other in the self approach suggesting that the overlap between the mental representations of the self and the other increases by closeness, which, in turn, makes it difficult to differentiate between the self-concept and the close other. I argue that people require a distinct and separate self-concept in order to process any self-related information during a decision making process, and closeness interferes with retrieving the self-concept from memory. Based on these assumptions, closeness is expected to interfere with the cognitive processing of information. The decision making process should be more cognitively demanding when the decision incorporates information cues related with both the self and the close other. The studies of this dissertation were, thus, concerned with the cognitive performance during decision making. Time taken to complete decision tasks, response accuracy, and self-reported task difficulty were measured in decision tasks. In eleven experiments and one correlational study, I tested how the cognitive performance during interpersonal economic exchange decisions differs depending on the closeness to the given interaction partner. Five of the studies supported the hypothesis that closeness indeed impairs cognitive performance. The findings are

the first to demonstrate how interpersonal decision processes are not only motivationally driven but also driven by a cognitive computational cost resulting from the self-other overlap.

Keywords: Interpersonal Closeness, Self-Other Overlap, Decision Making.

ÖZ

KİŞİLER ARASI YAKINLIĞIN KARAR VERME ÜZERİNDEKİ BİLİŞSEL MALİYETİ

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Geçmiş araştırmalar kişiler arası yakınlığın özgeci davranış, işbirliği ve güveni artırdığını tutarlı ve tekrarlı biçimde göstermektedir. Bu doktora tezi, kişiler arası yakınlığın özgeci tercihler üzerindeki bu etkisini yakınlığın bilişsel bir maliyeti olduğu önermesi ile açıklamaktadır. Bu araştırmanın temel hipotezi başkasını kendi benliğine dâhil etme yaklaşımına dayanmaktadır. Bu yaklaşıma göre, benliğin ve diğer bir kişinin zihinsel temsilleri arasındaki örtüşmenin derecesi kişiler arası yakınlık ile artmakta ve bu da sonuçta kişinin kendisini, yakın olan diğerinden ayırabilmesini güçleştirmektedir. Bu tez çalışmasında, karar verme sürecinde kendiliğe ilişkin bilgileri işlemleyebilme kapasitesinin ayrı ve belirgin bir benlik kavramı gerektirdiğini ve bilgi işleme sürecinde kişiler arası yakınlığın bu ayrı benlik temsilini hafızadan çağırmayı etkilediğini öne sürmekteyim. Bu varsayımlar temelinde, kişiler arası yakınlığın bilişsel süreci etkilemesi ve bir karar kişinin kendisi ve yakın olduğu biriyle ilgili bilgilerin karşılaştırılmasını gerektirdiğinde karar verme süreci bilişsel olarak daha zahmetli olmalı beklenmektedir. Dolayısıyla, bu tezde yer alan çalışmalar karar verme sürecindeki bilişsel performansı incelemektedir. Bir karar verme surecinde, karar görevlerini tamamlama süresi, tepki doğruluğu ve kişinin farkındalık düzeyinde deneyimlediği zorlanma ölçülmüştür. On bir deneyden ve bir korelasyonel çalışmadan oluşan bu tezde, kişilerarası ekonomik değişim kararlarındaki bilişsel performansın etkileşimde bulunulan kişiye yakınlığa bağlı olarak nasıl farklılaştığı

incelenmiştir. Çalışmaların beşinde yakınlığın bilişsel performansı etkilediği hipotezi desteklenmiştir. Bu tezin bulguları ile ilk kez, kişiler arası karar süreçlerinin yalnızca motivasyonlarla değil, aynı zamanda benlik-diğeri örtüşmesinin sonucu olan bilişsel bir maliyet tarafından da belirlendiği gösterilmiştir.

Anahtar Kelimeler: Kişiler Arası Yakınlık, Benlik-Diğeri Örtüşmesi, Karar Verme.

To My Parents

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CHAPTER I

INTRODUCTION

Before responding to the proposal of his cousin, Charles Darwin made a list of pros and cons of marriage. To him, marriage had several benefits such as female chit-chat and a constant companion, but also costs like loss of time and being forced to visit relatives. After carefully studying his list, Darwin concluded that the benefits of marriage, disregarding the positive aspects of his cousin, outweigh its costs. This is how he decided to marry Emma Wedgwood. Love was not blind for Darwin. From a modern romantic perspective on love, the way Darwin chose to give his decision may be questionable or even criticized. However, the more interesting concern for the current research is that Darwin, to some extent, calculated the costs and benefits of his decision in a close relationship context. In this dissertation, I invite you to question people's ability to engage in such analyses when they are interacting with a person who is close to them. Close relationships fundamentally benefit human lives by providing a social context based on trust and collaboration. However, this communal pattern of interaction bares its own risks. This dissertation investigates the impact of closeness on cognitive processes. Is it always cognitively easy to identify and compute the costs and benefits to the self when the decision process involves close others? What if interpersonal closeness alters the cognitive ability of an individual to comprehend and calculate the costs and benefits during an interpersonal transaction? Whether and to what extent interpersonal closeness impacts the cognitive performance of a person during the decision making process if there are self- as well as other-related outcomes of that decision is the matter of current inquiry. More specifically, I explore the extent of the cognitive ability of an individual to analyze costs and benefits of economic decisions when the

decision making process involves information about a close or a distant other as well as about the self.

1.1. Closeness Influences Social Behavior

Closeness influences social behavior and it particularly increases trust and cooperation with others. Literature has consistently and repeatedly demonstrated that prosocial behavior, cooperation, and trust increase with interpersonal closeness. In typical cooperation studies that use the dictator game, where the participant takes decisions over the allocation of a fixed amount of resources between herself and another passive subject, participants against all odds share on average 28% of their resources with unknown others (see Engel, 2011 for a review), even though there are no obvious costs for not giving any share at all. Importantly, however, the allocated amount significantly increases when people give to a close other: people allocate on average 50% more to their friends compared to strangers (e.g., Brañas-Garza et al., 2010; Lieder, Möbius, Rosenblat, & Do, 2009). For instance, in one study Jones and Rachlin (2006) first asked participants to make an imaginary list of 100 people based on the extent of closeness. Participants, then, imagined playing a dictator game with other people from this list. More specifically, in a series of resource allocation rounds, participants indicated how much money they would forgo to allocate a certain amount of money to the other person. Results showed that participant gave less to the other person if the person was distant from themselves. Favoring close others over distant ones is prevalent among 10 to 12-year-old children (Goeree, McConnell, Mitchell, Tromp, & Yariv, 2010): among these children, the amount of allocated resources is determined by the level of interpersonal closeness. Even subtle manipulations that amplify perceived closeness can increase the amount of donations a person receives in a dictator game. For example, people give more by being exposed to a photo of the receiver prior to the decision (Burnham, 2003). This tendency to give more to close others is not influenced by whether or not the other is assumed to know the decision maker's allocation choices (Aron, Aron, Tudor, & Nelson, 1991).These studies indicate that the tendency to give more to close others is prevalent across various situational contexts. Moreover, people do not only give more to close others, but people who tend to give more to others

also perceive others as closer to themselves (Cornelissen, Dewitte, & Warlop, 2011).

Group membership is one of the aspects of human interaction in which interpersonal similarity and closeness are inherently associated. As in the case of minimal group paradigms, even cues of shared identity can increase cooperation among strangers (Tajfel, Billig, Bundy, & Flament, 1971). In a study on the effects of group membership on trust (Foddy, Platow, & Yamagishi, 2009), participants were offered a choice to receive unknown outcomes allocated by an in-group or an out-group member. In the condition where participants were ostensibly told that the allocator had been informed about the group to which the participant belongs, participants dominantly chose the in-group allocator over the out-group allocator. This in-group preference was dominant even when the stereotype of the in-group was relatively more negative than that of the out-group. These findings demonstrate that people do not only allocate more to close others but they also expect others to allocate more to them as a function of closeness.

As one special instance of cooperation, past findings on trust games have also demonstrated a higher level of trust among close others than among strangers (e.g., Binzel & Fehr, 2013). Different from a dictator game, in a trust game both players have an effect on the final outcome of a resource distribution (see Rilling & Sanfey, 2011). In a trust game, an investor sends a certain amount of money to a receiver (i.e., the trustee). Before this money is transferred, the amount that the investor has sent is multiplied by a factor (e.g., twice) by the researcher. The trustee (i.e., the receiver) receives this multiplied amount. For example, imagine that the investor has $50 in total. If they decide to send $20 to the trustee, then the trustee receives $40 (if multiplied by 2, $20 x 2). The receiver then can choose to send any amount, up to entire sum of the multiplied money (i.e., $40), back to the investor, or may decide to keep the entire amount for themselves. In this game, both parties win when decisions are based on trust and reciprocity. The association between closeness and trust is consistently replicated in various experimental settings. Even subtle cues of closeness such as facial similarity (DeBruine, 2002; 2005), or consuming similar foods (Woolley & Fishbach, 2016) have been shown to increase trust. Facial similarity, manipulated through

morphed faces, also leads to higher attributions of trustworthiness (DeBruine, 2005). The association between similarity and trust is bilateral. Not only does similarity effects trustworthiness, but people also perceive the faces of trustworthy interaction partners as more similar to one's own face than those of untrustworthy interaction partners (Farmer, McKay, & Tsakiris, 2014). In sum, past studies have provided support for a strong positive relationship between interpersonal closeness, cooperative behavior and trust. This relationship is highly robust and has been consistently and repeatedly demonstrated. People are particularly generous towards close others.

A number of accounts have been offered to explain why people favor close others in trust- and cooperation-related decisions. The vast majority of arguments in this arena have stemmed from the social exchange approach (Thibaut & Kelley, 1959) that focuses primarily on the benefits of closeness in interpersonal interaction (e.g., Cropanzano & Mitchell, 2005; Molm, 2010; Vanyperen & Buunk, 1991). Considering the typically repetitive and long-lasting nature of close relations and the likelihood of future reciprocity, humans should benefit more from giving to a close other than to a distant one in the long term. This is in line with the central idea of the social exchange approach which suggests that people are motivated to obtain a maximum level of rewards at the lowest possible costs (Colquitt et al., 2014, Vanyperen & Buunk, 1991). From this perspective, humans would adopt the type of behavior which provides a higher benefit to cost ratio. Note that, material gain is only one of the domains that people could benefit from giving more to close others. There can also be psychological benefits such as satisfying the need to belong (Baumeister & Leary, 1995). Baumeister and Leary argued that the drive to form and maintain lasting, positive, and significant interpersonal relationships stimulates people to perform goal-directed behavior and develop interpersonal contacts to a point where a minimum level of relatedness has been achieved. Giving more to close others can thus be seen as a strategic tool to fulfill goals including the satisfaction of belongingness needs. What seems to be typical in these motivational views, summarized above, is a tendency to relate cooperation or trust to its "rational" purpose of maximizing some sort of benefit, either material or psychological. Taken together, these

approaches explain social behavior in favor of close others with the simple argument that giving more to close others pays off.

The accounts that have been offered to explain why people favor close others in trust- and cooperation-related decisions do not only focus on the causes that lead humans to be motivated to give more to close others. They also focus on causes that lead humans to be implicitly inclined to do so. Similar to the motivational explanations above, evolutionary approaches including kin selection, group-based models, and reciprocal altruism relate to the adaptive advantages of cooperation with close others (Caporael & Brewer, 1995; Kerr & Levine, 2008). The kin selection theory (Hamilton, 1964) proposes that traits that increase the fitness of relatives have been favored through natural selection processes, because a close relative also transfers part of one's own genes to the next generation (Kurzban, Burton-Chellew, & West, 2014). Accordingly, cooperation and social bonds are means of contributing to the reproductive success of a kin. Second, the group selection hypothesis proposes that groups that cooperate within the group and compete with outgroups have an increased survival potential (Sober & Wilson, 2011). Hence, cooperation among close others is advantageous (Kerr & Levine, 2008). Lastly, the reciprocal altruism perspective suggests that the high probability of reciprocity between in-group members (i.e., the probability that group members will reciprocate to altruistic behaviors) decreases the initial costs of altruistic behaviors and increases the chance of the individual's survival (see Kurzban et al., 2014). This evolutionary reasoning about adaptive benefits has been influential on many researchers (e.g., Rand et al., 2014; Zaki & Mitchell, 2013) who tend to explain the intuitive nature of trust and prosocial behavior in a broader view as well.

In summary, the body of literature discussed above approaches the phenomenon of giving more to close others from an instrumental perspective by suggesting increases in personal benefits in the long run as a driving factor behind the effects of closeness on behaviors. Notice that all explanations above assume that humans have the capacity to calculate or intuitively perceive the costs and benefits of a transaction to the self, also while interacting with close others.

1.2. Closeness: A Source of Confusion for the Self

Closeness does not only influence behavioral choices in a social context, but it also mirrors a particular cognitive structure that has effects on the self and self-related judgments. *The inclusion of other in the self* approach (Aron & Aron, 1986, 1996; Aron et al., 1991) suggests that the mental representation of the self highly overlaps with the mental representation of close others: the closer the other person is, the higher the overlap of the two mental representations. According to this view, judgments about the self and close others are at least partially driven by the extent of the overlap between the knowledge structures of close others and the knowledge structure of the self. The key determinant of closeness is, thus, the amount of the shared cognitive elements (Mashek, Aron, & Boncimino, 2003).

In line with this argument, several studies showed that people are more likely to confuse the information related to the self with the information about a close person compared to the information about a distant person. For example, people take more time to make decisions and make more errors when they compare personality traits of the self with a close other compared to with a distant other (Aron et al., 1991). According to these findings, when asked to make "me/not me" decisions for several personality traits it takes a longer time for people to complete the task, while also making more errors when asked to compare between traits of the self and a close other than when the comparison is in between the self and a distant other (Aron et al., 1991). These results support the argument that interpersonal closeness mirrors the mental overlap of cognitive representations of the self and other people. In another series of experiments Mashek and colleagues (2003) asked people to rate different lists of personality traits for the self and for a close or a distant other. There were two groups of participants. One group rated lists of personality traits for themselves and a close other. The other group rated personality traits for themselves and a distant other. Results showed more confusion in the memory of personality traits for the self and close others than there was for distant others: in a following recall task people confused the source of the rating (the self vs. a close or a distant other) more often for traits rated for the self and close others compared to traits rated for the self and distant others. Thus, closeness defines as a greater overlap of the cognitive

structures seems to lead to more confusion. A similar self-other confusion is also observed when recalling past actions. People, for instance, are more likely to misremember having performed actions themselves which they have merely observed if the actual actor is an in-group compared to an out-group member (Linder, Schain, Kopietz, & Echterhoff, 2012).

If the mental representation of self-other overlap is higher when the other person is close compared to when they are distant; then thinking about close others should activate similar brain regions as self-referential thinking does, while close and distant others should activate different brain regions. Consistent with the inclusion of other in the self approach, recent social neuroscience studies provide support for this assumption when focusing on the similarity dimension of closeness: mentalizing similar others activates the same brain regions that menatilizing the self does, while mentalizing dissimilar others activates different brain regions (Mitchell, Banaji, & Macrae, 2005; also see Jenkins & Mitchell, 2011, for a review). Mitchell, Banaji, and Macrae (2005) compared brain regions that were activated when mentalizing about similar others to the regions activated when mentalizing about dissimilar others. In this study, participants underwent fMRI scanning while judging a series of faces. Following the completion of the scanning phase, researchers showed participants each photograph one more time. Participants were then asked to rate the degree of similarity between themselves and the people in the photos. Analyses revealed a correlation between the ratings of similarity and the activity in the ventral mPFC. Importantly, the ventral mPFC area has been repeatedly suggested as the neural basis of self-referential processing (e.g., Gusnard, Akbudak, Shulman, & Raichle, 2001; Macrae, Moran, Heatherton, Banfield, & Kelley, 2004). Taken together, neuroscientific findings also point to a greater mental self-other overlap with increased closeness.

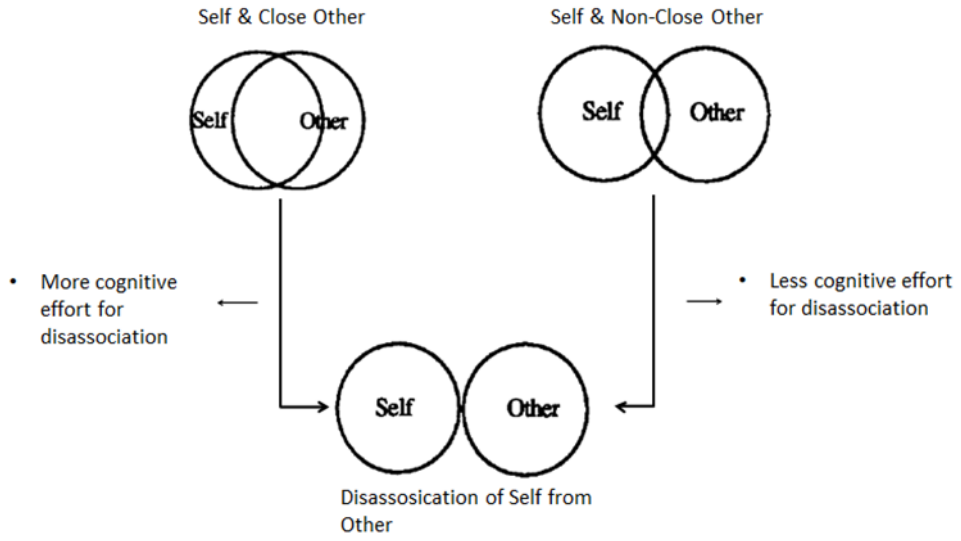


*Figure 1.*Self-Other Disassociation Process

Figure 1 illustrates the extent of cognitive overlap depending on two levels of interpersonal closeness, and the cognitive process of the self-other disassociation. The circles were originally used by Aron, Aron, and Smollan (1992) to demonstrate the inclusion of other in the self. The circles in this figure illustrate cognitive elements of the self and of another person. In line with the arguments made in the inclusion of other in the self approach (Aron et al, 1992), the higher the intersection between the self and another person, the greater the amount of shared cognitive elements. What is particularly important here is the process that takes place between the representation of the extent of the self-other overlap and the disassociation of the self from the other. Because of the greater amount of mental overlap, this process should be cognitively more demanding when the other person is a close person compared to when the other person is a distant one.

My first assumption is that people require a distinct and separate self-concept to process any self-related information during a decision making process. That is, knowing what is good and what is bad for the self necessitates knowing the self. In other words, processing self-related information requires retrieving the self-concept from memory as a separate entity. I argue the mental representation

of the self as a separate and bounded construct is a prerequisite to efficiently calculate self-related costs and benefits during interpersonal transactions. Whenever a person needs or wants to find a choice that satisfies their goal, independent of their motivation, they would need to be able to identify their bounded "self". My primary focus here is, therefore, on the decision-maker's ability to retrieve the cognitive representation of the self as a separate entity. Slightly more complex, but a closely related task is inserting others into this equation. My second assumption is that closeness interferes with retrieving the self-concept from memory as a distinct entity. If the mental self-overlap is high when the other person is a close one, then it should be more confusing to draw the lines separating the self from the other, which in turns hinders disassociating the self from the other. Thus, when a person has to give a decision that necessitates processing information of the self and another person, the decision making will be cognitively more or less demanding depending on how close the other person is.

These arguments lead to the following hypothesis. If humans need a separate self-construct to be able to calculate the self-related costs and benefits efficiently, and if separating the self from a close other is cognitively more demanding, then closeness will hinder the processing of any decisions that involve information about the self and a close other. In short, interpersonal closeness should interfere with the cognitive processing of information in interpersonal transactions during the decision making processes.

1.3. Closeness Has a Cognitive Cost

I argue that interpersonal closeness brings with it a cognitive cost which operates on an automatic level. More specifically, I argue that decisions that incorporate processing of self- and other-related information should necessitate more cognitive effort when the interaction partner is a close person compared to a distant person. I reason that whenever a decision involves information about the self and also about another person, it should be more cognitively demanding to disassociate the self-related information when the other person is a close other. In other words, the same self-related information should be more distinct and easily accessible when the interaction partner is a distant other compared to a close other. Accordingly closeness should, in turn, decrease the cognitive performance

in processing information about self-related decisions. This leads to the following predictions. During an interaction with a close other (1) optimizing a decision should require more time and cognitive effort; and (2) when there is a cognitive constraint, such as time limit, closeness should lead more errors. These predictions are in line with the arguments of bounded awareness (see Chugh & Bazerman, 2007) which suggests that humans are also limited in their capacity to see, seek, use or share information which is highly relevant for decision making and which is easily-accessible and readily-perceivable. I suggest that interpersonal closeness acts as a source imposing a cognitive computational limit which prevents humans from focusing on easily observable and self-relevant data. Thus interpersonal closeness causes cognitive difficulty, longer response times, and more errors in self-related decision making process.

I expect the proposed differences in the information search process while making decisions to be particularly situated on an automatic level, because the cost of closeness in the cognitive process should diminish once the self is disassociated from the other. The closeness as a cognitive cost hypothesis, thus, lies in the area of the dual mechanisms approach (e.g., Kahneman, 2003; Zaki & Oschner, 2011) which argues for a difference between intuitive processes and deliberate thinking, both following different paths in information processing. Dual process models suggest that in the intuitive mode, judgments and decisions come to mind rapidly, automatically, effortlessly, and without much reflection. The deliberate process is structured by cognitively demanding reflective thinking, operates much slower, and is more controlled. I suggest the cognitive cost of closeness to be observed under circumstances that foster intuitive processing, such as when people are in lack of time to deliberate their decisions, or when they hesitate to do so and instead decide according to their gut feelings. Thus, it is plausible to argue that interpersonal closeness is expected to impact decision making during implicit information processing beyond conscious awareness.

In line with this reasoning, recent studies have indeed demonstrated that closeness leads to cooperation particularly on an automatic level. Two prior studies (Acar-Burkay, Fennis, & Warlop, 2014; Cornelissen et al., 2011) have provided evidence supporting the automaticity hypothesis. In a dictator game,

people allocate more to the close other compared to the distant other only when the decisions are based on automatic judgments (Study 3, Cornelissen et al., 2011). Moreover, people transfer more money to the close other in an investment game only when the decision time is limited (Study 4); or when they are asked to go with their initial gut decisions instead of carefully considering all possible aspects of the issue (Study 5, Acar-Burkay et al., 2014). The positive effect of interpersonal closeness on the amount sent to the other person disappears when people are given a chance to deliberate their decisions. The primary concern of these studies was not to explain why the effects of closeness on behaviors (i.e., trust and cooperation) varies by time or by cognitive load per se, but instead to demonstrate how social value orientation (Cornelissen et al., 2011) and need for closure (Acar-Burkay et al., 2014) interact with closeness on decision making. While these findings are currently interpreted in terms of needs and motivations, they are also what the hypothesis of this dissertation would predict without needing to make any assumptions concerning needs and motivations. I predict that once the self is disassociated from the other through deliberation, the cognitive cost of closeness should decrease or disappear, allowing people to be capable of computing costs and benefits for the self.

In light of the theoretical reasoning and empirical findings discussed, this dissertation aims to test the following hypothesis: Closeness interferes with the decision-making process on the automatic level when the decision involves information about the self and a close other. The cognitive difficulty in the decision making process generated by closeness is the cognitive cost of closeness. The closer we perceive ourselves and others to be, the harder it is to differentiate between the self and the other, and the more likely we are to confuse self- and other-related information. This, in turn, creates cognitive difficulty while calculating the costs and benefits in interpersonal transactions. In this dissertation the focus exceeds a normative position, which might emphasize the self-interested choices as the most efficient basis of decisions. Instead, omitting motivations, I suggest the cognitive cost of closeness as a simplified alternative explanation of why we cooperate more with close others when decisions are taken under time constraint or cognitive load. Note that, in contrast to earlier approaches, the

cognitive cost of closeness hypothesis is founded on the idea that deliberate thinking about the costs and benefits of a transaction for the self is possible only when people can retrieve their self-concept as a separate and distinct entity. Whether and to what extent the decision making process indeed becomes more cognitively demanding as a result of the level of interpersonal closeness is a matter for the current inquiry.

1.4. The Present Research

The cognitive cost of closeness hypothesis proposed in this dissertation is a novel argument. Importantly, the focus of this argument is on the cognitive performance during decision making (i.e., cognitive difficulty in completing the task, response times, and errors) rather than the decision preferences (i.e., the behavioral outcome such as the extent of cooperation).In contrast the classic economic games, such as the trust game or the dictator game, are concerned with measuring behavioral outcomes. Testing the effect of self-other confusion on the reasoning processes necessitated the development of a new tool (1) that would examine cognitive performance in the reasoning process by comparing the response times as well as response errors in different interpersonal closeness contexts; and (2) in which cognitive performance is linked to the capacity to differentiate between self- and other-related information. Integrating these two aspects into one tool led to the development of a two-person economic problem solving game called the “Me/Other Game”. Instead of asking people to give a decision, the me/other game asks participants to find a clearly correct answer in a two-person resource allocation game frame. Thus, the me/other game is not concerned with decision preferences. It measures the cognitive performance in finding solutions to decision problems by employing the predefined decision rules.

	Me	Other
Option 1	10	50
Option 2	40	20
Option 3	10	20
Option 4	40	50

Figure 2. The Me/Other Game: An Example

Figure 2 presents an example of a me/other game round. Participants imagine that they and another person –a close versus a distant other- will receive the resources in the game. In this game, participants are presented with several resource allocation alternatives. In the example above, for instance, Option 1 offers ten to the participant and 50 to the other person, whereas in the second option the offer is 40 for the participant and 20 for the other person, and so on. Importantly, the task of the participant is to find a clearly correct solution that satisfies a predefined decision rule. The two predefined decision rules in the game are (1) the self-interested rule: self-benefitting and other-harming option and (2) the altruistic rule: self-harming and other-benefitting option. In the self-interested rule participants are asked to *find the option that maximizes their payoff and minimizes the other person's payoff*. In the altruistic rule participants asked to *find the option that minimizes their payoff and maximizes the other person's payoff*. For example, when the predefined rule in a particular round is the altruistic rule, in Figure 2, participants should click on Option 1. In Option 1, not only does the participant (i.e., "Me") receive the amount that minimizes her payoff, but the other person also receives the amount that maximizes his payoff (i.e., "50"). Therefore, according to the altruistic rule Option 1 is the correct solution. In this game, participants are not asked to decide based on their own preferences, but to find the clearly correct solution that the predefined decision rule necessitates. It is hypothesized that the cognitively demanding nature of closeness is independent of a specific goal or motivation and arises automatically. I incorporated two contrasting rules into the me/other game to control for the effect of any likely matching between a social context and a relational motivation.

To solve the allocation problem participants would need to disassociate the self- and other-related information (i.e., allocation outcomes for each recipient) and apply the predefined decision rule. I measure the cognitive performance in finding the correct resource allocation option. I expect solving the me/other game to be cognitively more demanding when the game includes *a close other and the self* compared to *a distant person and the self*. There are two specific predictions. When the decision problem includes the self and a close other (1) solving the problem should take more time and require more searching for cues; and (2) if there is a time limit, the solutions of the me/other game should be less accurate, and the task itself should be perceived as more difficult. Thus, depending on the design of the me/other game, several cognitive performance measures including task completion time, the number of informational cues searched, self-reported task difficulty, and accuracy were used to assess the extent of cognitive effort.

I tested the cognitive cost of closeness hypothesis in twelve studies. The first eleven studies were experimental studies and all compared the cognitive performance in decision making process between a close and a distant other condition. In the last study, I tested the cognitive cost of closeness hypothesis in a correlational design. The me/other game was the basic research paradigm of all the current studies. However, various versions of the me/other game were used depending on the type of the cognitive performance measure under examination.

In Chapter 2, I discuss the five experiments that displayed the me/other game in an information search paradigm. Chapter 3 discusses five more experiments which were conducted with the recall (memory) version of the me/other game. Chapter 4 presents another experiment that was based on the me/other game within the information search paradigm, but with a specific focus on error rates as a cognitive performance measure. Chapter 5 describes a correlational study that suggested independent self-construal type as a proxy for dispositional closeness to others and explored self-construal types' link to cognitive performance. In Chapter 6, I discuss the findings in general and make suggestions for future studies.

CHAPTER 2

THE COGNITIVE COST OF CLOSENESS: INFORMATION SEARCH EXPERIMENTS

The first group of experiments tested the cognitive cost of closeness hypothesis within an information search paradigm. There were five studies. The design of the information search version of the me/other game is as follows. Participants are presented all the allocations options of a me/other game trial on one screen (see Figure 3 for a display example). Information regarding the options (and recipients) is presented behind closed boxes. Participants have to move their mouse over a box or click on a box to see the hidden information.

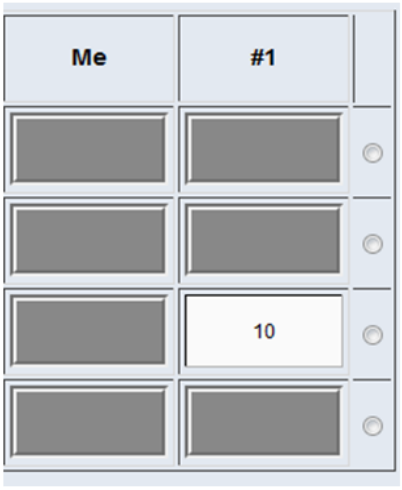


Figure 3. A Display Example of the Me/Other Game.

I used the MouselabWEB software (MouselabWEB, Willemsen, & Johnson, 2008) to design the information search version of the game. MouselabWEB is a process tracing tool which helps monitor information search processes of people by recording mouse movements during an online (and also offline) task. This software collects various types of data including the reaction

times, the number of information cues searched to complete a task, and the information search routes. To design the experiments, first, I constructed MouselabWEB pages of each separate part of the experiments (e.g., consent form, me/other game trials, demographic questions, etc.) by using the Designer tool of the MouselabWEB (http://www.mouselabweb.org/designer/index.html). After I extracted the php files from the Designer tool, I created a web-site named *social-lab.org* to run the experiments and collect data online. Then I uploaded the MouselabWEB php files into the database of this web-site. In order to randomly assign participants to experimental conditions, the links to the conditions were embedded in Qualtrics. Thus, participants were first directed to Qualtrics and then followed the link for the social-lab.org web-site.

Five experimental studies were conducted to test the cognitive performance in the me/other game by measuring the task completion time (Study 1), the number of information cues searched (Study 2), the perceived task difficulty and (Study 3) and the response accuracy (Study 3, 4, & 5). Interpersonal closeness was manipulated in the same way in all experiments. Participants played the game with either a close or a distant other. These five studies, thus, test closeness as a cognitive cost argument by manipulating the closeness to the interaction partner and measuring the cognitive performance.

2.1. Study 1

In Study 1, I investigated whether solving the me/other game requires more time when the me/other game involves a close versus a distant person. Thus, response time was used as a proxy for cognitive performance. Faster response times indicated better cognitive performance. Closeness was manipulated by asking participants to imagine playing the me/other game with a close versus a distant other. I predicted that solving the me/other game would take more time while interacting with a close other.

2.1.1. Participants

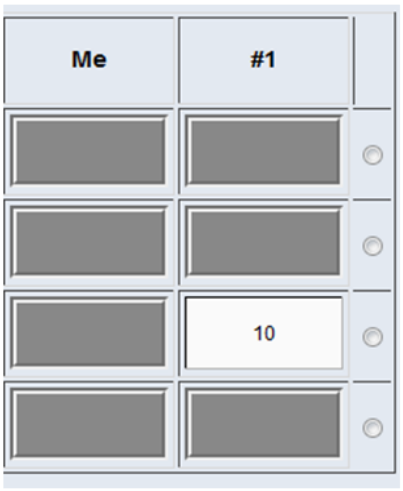
Two hundred fifty-four U.S.-based participants (116 female) recruited through Amazon MTurk completed this online study in return for monetary compensation ($1.00). The study took about 10-15 minutes.

2.1.2. Method

Practice Session. After offering their informed consent, participants played a practice session to get familiar with the me/other problem solving task. The practice session explained the me/other game with two examples. The detailed explanations of the correct answers were presented. In order to avoid manipulating interpersonal closeness at the practice stage and to make participants focus on the logic of the problem solving of the game instead of the characteristics of the recipients, practice trials allocated resources between Person A and Person B instead of the self and a close (vs. a distant) other.

Closeness Manipulation. Interpersonal closeness was manipulated by adapting the manipulation used by Jones and Rachlin (2006). Participants were first asked to imagine a list of a hundred people they know to varying degrees (1 = the closest other, 100 = someone only met once). Then, they wrote down the initials of that person into a text field on the screen (see Appendix A for instructions). Participants simulated interacting with the person at the first place (close other condition) or the one at the 100^{th} place (distant other condition) on this list. Closeness was a between-subjects factor.

Me/Other Game - Search Version. All allocation options in the me/other game were displayed on the screen in a fixed closed display format (see Figure 4). There were four allocation options in every trial. The allocated amounts in the options were embedded behind closed boxes. Every option presented a payoff value for the participant and for a close (or a distant) other. Fixed columns represented recipients: the first column presents the participant's payoffs (i.e., Me) and the second column presents the other person's payoffs (i.e., #1 vs. #100). There were four rows for four different allocation options. Participants moved their mouse over closed boxes to reveal the hidden payoff information. When the participant moved the mouse to another box, the previous box was closed again. Thus, the pairs of the recipient (i.e., "me" or "the close/distant person") and the payoff amount were not shown simultaneously. In this game payoff amounts were easy to compare. I avoided a difficult game structure to make it possible for participants to solve games correctly.



Note. Figure 4 presents a fixed closed display. Information is hidden behind closed boxes. Participants move the mouse to reveal the payoff information of each recipient. Recipients are located into fixed columns. The second column is represented by #1 in the close and by #100 in the distant other condition.

Figure 4. The Display of the Me/Other Game in Study 1.

The me/other game was consisted of 20 trials. The first round with ten trials were for the self-interested rule (i.e., "find the option that maximizes your and minimizes other person's payoff") and the second round with the other ten trials were for the altruistic decision rule (i.e., "find the option that minimizes your and maximizes other person's payoff"). In the first round, thus, participants were asked to find the option that provided the highest amount for themselves and the lowest amount for the other person. In the second round they did the opposite: they were asked to find the option that offered the lowest amount for themselves and the highest amount for the other person. To clarify those rules, participants were asked to restate the rule in a text field (see Appendix B for instructions). Participants were asked to clearly state each of the conditions (maximize/minimize the payoff of the self/other) of the decision rules at the beginning of each round (i.e., self-interested and altruistic rounds).

The task of the participant was to find the correct solution according to the predefined decision rules. Participants stated the correct option by clicking on the

relevant button next to options. They were asked to be as fast and accurate as they could while performing the task. Subsequent trials began when the participant was ready to continue.

After the me/other game, participants were asked several demographic questions as well as an open-ended question for further comments. At the end a completion code to receive the compensation was provided.

2.1.3. Results and Discussion

An independent samples t-test was conducted to test whether people take more time to complete the me/other game when the other person in the game is a close versus a distant other. Interpersonal closeness was a between-subjects factor. The mean response time measured in milliseconds was higher in the close other condition (M = 5386.33, SD = 3483.19) than in the distant other condition (M= 4595.22, SD= 1341.14), $t(252) = 2.34$, $p = .021$, $d = 0.29$. However, as is common procedure to account for outliers, response times were transformed by log 10 transformation (Ratcliff, 1993). As the hypothesis predicted, identifying the correct solution took more time in the close other condition (M = 3.69, SD = 0.17) than in the distant other condition (M= 3.64, SD= 0.13), $t(252) = 2.52$, $p = .012$, $d = 0.32$.

The findings of Study 1 provided initial support for the cognitive cost of closeness hypothesis. Participants took a longer time to solve me/other tasks when the interaction partner was a close compared to a distant other. Remember that the performance in the me/other game is linked to the capacity of disassociating the self- and other-related information.

2.2. Study 2

Study 1 showed that people took more time to solve the decision problem when a close other was involved. Study 2 explored the same cognitive cost hypothesis by focusing on another measure of cognitive performance. If people confuse self- and other-related information more when they are interacting with a close other compared to a distant other, then they would need to study decision cues to a greater extent in the close other condition. Study 2 was designed to test whether people search decision problem cues more often to solve the task when the decision problem involves the self and a close other than when it involves the

self and a distant other. To do so, Study 2 measures the number of information cues searched in the me/other game as an indicator of cognitive performance, which is argued to result from the self-other confusion. I expected that the number of information cues searched is higher when the interaction partner is a close vs. distant other.

Study 2 was also designed with the information search version of the me/other game. I made several adaptations to the previously used version in Study 1. First, in Study 2, participants were required to click on closed boxes to reveal recipients and payoff amounts instead of simply moving the mouse over boxes. In Study 1 the measure was response times. Accordingly, mouse movements (i.e., mouse over and mouse out to open and to close a box) provided a more sensitive measure of timing. However, mouse movements hinder accurately calculating the number of information cues searched. In the mouse movement option, participants could open boxes even though they did not intend to look for the hidden information, because they could also open boxes while simply moving the mouse from one box over another box. Replacing the mouse movement option to a mouse click option solved this problem. Furthermore, in order to induce more confusion into the me/other game, (1) I hid also the information of recipients behind closed boxes as well as the payoff amounts and (2) increased the number of options in games.

Interpersonal closeness was manipulated in the same way as in Study 1. The measure of cognitive performance was the number of information boxes searched in the me/other game.

2.2.1.Participants

Two hundred one U.S.-based participants (86 female, M_{age} = 34.78) recruited through Amazon MTurk completed this online study in return for monetary compensation ($1.25). The study took about 10-15 min.

2.2.2. Method

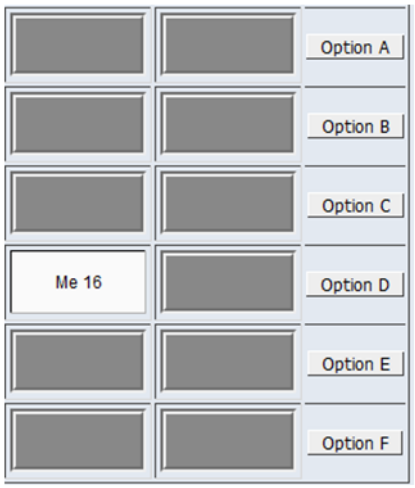
Practice session. After offering their informed consent, participants completed a practice session which was similar to the practice session of Study 1 to get familiar with the me/other game.

Closeness Manipulation. Closeness was manipulated in the same way as it was in Study 1. Participants played the me/other game with the person who was either at the 1st or the 100th place on their imagined list. Closeness was a between-subjects factor.

Me/Other Game - Search Version. The basic structure of the me/other game was the same as in Study 1 with some exceptions. Different from Study 1, in Study 2, all allocation options of the me/other game were presented by a random closed display of information boxes (see Figure 5). The amounts in the options as well as the recipients of the amounts (i.e., "me" or "other") were embedded behind closed boxes. Different from Study 1, the initials of the first or the 100th person were used in the game to represent the close or the distant person as reported by the participant, instead of the symbols "#1" or "#100".

In every option the places of the recipient randomly changed between columns. For example, in the first option the first column could present the amount that the participant (i.e., "Me") receives whereas in the second option the first column could present the amount that the other person receives.

Each trial consisted of six options instead of four. Importantly, in contrast to Study 1, participants had to click on a box by mouse to reveal the hidden information. When participants clicked on a closed box, the box revealed both the recipient and the payoff amount. When the participant moved the mouse over another box, the previous box was closed. Two information boxes could not be opened at the same time. I decreased the total number of the me/other game trials to ten to reduce the overall duration of the experiment. The first five trials followed the self-interested rule (i.e., "find the option that maximizes your and minimizes other person's payoff") and the other five used the altruistic rule (i.e., "find the option that minimizes your and maximizes other person's payoff"). As in the first study, to clarify the rules, participants were asked to restate the rule in a text field.



Note. Random closed display. Information is hidden behind closed boxes. Participants move the mouse to reveal the payoff information of each recipient. In each row, recipients are randomly located into one of the two columns.

Figure 5. The Display of the Me/Other Game in Study 2, 3, and 4.

Participants were asked to find and state the correct solution and to be as fast and accurate as they could. The next trial started when the participant was ready to proceed. Participants were then asked several demographic questions as well as an open-ended question for further comments. At the end a completion code to receive the compensation was provided.

2.2.3. Results and Discussion

In Study 2, the number of information cues searched (i.e. the number of boxes opened) was the indicator of cognitive performance. The hypothesis predicted that people would search for more information, and therefore would open more boxes, to solve the same decision problem when the other person in the me/other game is a close compared to a distant other. Among 200 participants who completed the study, 197 participants clicked on at least one information box to search for information. An independent samples t-test analysis was conducted with 197 participants. Findings showed no significant difference on the total number of information cues searched between close (M = 14.84, SD = 4.28) and distant other (M = 14.59, SD = 4.12) conditions, $t(195) = 0.42$, $p = .678$.

The results of Study 2 did not support the hypothesis. However, the mean number of information searches showed that the design of the me/other game in Study 2 was not effective enough in creating confusion. To be more specific, participants had to open at least 12 boxes to reveal all the hidden information in order to be able to solve the decision problem. There were 12 closed information boxes in the game. However, as the results showed, the average number of opened boxes was only 14.72. That is, on average, participants opened only two or three more boxes in addition to the number of boxes they had to open to see every option at least once. It, thus, seems that this design was ineffective to grasp any potential impact the closeness manipulation could have on the number of information cues searched.

2.3. Study 3

Study 3 focused on the second part of the prediction: when there is a time limit, the solutions of the me/other game should be less correct and the task itself should be perceived as more difficult. That is, if disassociation from a close other requires more cognitive effort on an automatic level, then people should perceive this interaction as more difficult and should make more errors, because the capacity to retrieve the separate self-concept from memory is limited by the time constraint. Study 3 tested whether interacting with a close versus a distant other would lead to more errors in finding the correct solution and higher levels of self-reported difficulty. Closeness was manipulated by asking participants to imagine playing the me/other game with a close versus a distant other. To foster intuitive judgments relying on automatic processes, the information search time was limited and the task was designed to be particularly difficult.

2.3.1. Participants

Two hundred three U.S.-based participants (103 female, M_{age} = 34.85) recruited through Amazon MTurk completed this online study in return for monetary compensation ($0.75). The study took about 8-10 min.

2.3.2. Method

Practice Session. After approving informed consent, to get familiar with the me/other game, participants completed a practice session which was similar to the practice session of Study 2.

Closeness Manipulation. Closeness was manipulated in the same way as it was in Study 1 and Study 2. Participants played the me/other game with either the first or the 100th people on their imagined list. Closeness was a between-subjects factor.

Me/Other Game - Search Version. The design and the display of the me/other game were the same as in Study 2 with some exceptions. First, in Study 3 the time for every trial was limited to six seconds. Second, information boxes were revealed by mouse movements instead of mouse clicks. There were two rounds, one with the self-interested rule and the other with the altruistic rule, each of which with five trials.

The six second time limit was for the information search. Participants could not see any more hidden information after the time limit ran out. However, they still had time to click on the options to state their solutions. Participants stated their solutions by clicking on the relevant button next to the options. They were asked to be as fast and accurate as they could when completing the games. The next trial started when the participant was ready to proceed.

Task Difficulty. After the me/other game, participants were asked to state how difficult they perceived the task. They stated the task difficulty on a 10-point Likert scale (1 = Very Easy, 10 = Very Difficult).

Participants were asked several demographic questions as well as an open-ended question asking for further comments. At the end a completion code for receiving the compensation was provided.

2.3.4. Results and Discussion

The hypothesis in Study 3 predicted that in the me/other game people would make more errors and would perceive the task to be more difficult when the game includes a close compared to a distant other. To compare the accuracy and the perceived difficulty between the close and distant other conditions, two separate independent samples t-tests were conducted. In each trial, correct answers were coded as "1" and incorrect answers as "0". The first independent samples t-test revealed that the mean of correct answers in the close other condition ($M_{close} = 0.55$, $SD_{close} = 0.22$) did not significantly differ from the distant other condition ($M_{distant} = 0.58$, $SD_{distant} = 0.22$), $t(201) = 1.07$, $p = .286$.

The second independent samples t-test was conducted with 198 participants who responded to the task difficulty question. The results showed that participants who were matched to a close other (M_{close} =7.58, SD_{close} = 2.42) perceived the game marginally more difficult than participants who were matched to a distant other ($M_{distant}$ = 6.97, $SD_{distant}$ = 2.33), $t(196) = 1.90$, $p = .060$, $d = 0.27$.

The findings of Study 3 did not support the expected accuracy difference in the me/other game. However, there was a marginally significant effect on the second dependent variable, i.e., the perceived task difficulty. Under the same time limit and with the same accuracy performance, people who solved the me/other game in the close other condition perceived the problem as marginally more difficult than the participants in the distant other condition. This marginal effect was in line with expectations. The results provided partial support for the cognitive cost of closeness hypothesis by demonstrating that the same decision problem task could be perceived as cognitively more demanding when the decision involves a close other compared to a distant other.

In the current version of the me/other game it appears that the six second time limit might be too short to open twelve hidden information boxes. In this version, the time limit was used to increase cognitive load in order to prompt participants to go with their gut decisions when solving the game. However, excessive guessing as a result of the difficulty was also a likely outcome. If this is the case, then extreme guessing might have the potential to overshadow any likely effect of closeness on the game performance.

2.4. Study 4

Study 1 and Study 3 provided partial support for the cognitive cost hypothesis by using response time and perceived task difficulty as measures of cognitive performance. In Study 4, I aimed to focus particularly on the accuracy differences as a measure of cognitive performance. Study 4 was designed to test the assumption that people would be less accurate in the me/other game when the game includes a close compared to a distant other. One likely problem of Study 3 was that participants might be depending on excessive guessing in their responses. In Study 4, in order to increase the motivation to find the correct answers, participants were given an incentive in the form of a bonus payment for each

correct answer. In addition, considering the possibility of running underpowered studies, I increased the sample size in Study 4. The experimental design was similar to the one in Study 3.

2.4.1. Participants

Four hundred and one U.S.-based participants (205 female, M_{age} = 35.77) recruited through Amazon MTurk completed this online study in return for monetary compensation ($0.75) and a bonus payments for each correct answer ($0.02). The study took about 8-10 min.

2.4.2. Method

Practice trial. After offering their informed consent, participants completed a practice session which was similar to the practice session of Study 3 in order to get familiar with the me/other game.

Closeness manipulation. Closeness manipulation was the same as in Study 3.

Me/Other Game - Search Version. The design and display of the me/other game were the same as in Study 3.

Importantly, in Study 4 participants were asked to define a nickname for themselves. They were asked to write this nickname into two text fields, one was in the experiment at the end of the game, and the other was found in the MTurk page. This nickname was then used to match each participant's information in the experiment to their Amazon MTurk accounts anonymously. This matching allowed me to pay the bonuses.

Participants were asked several demographic questions as well as an open-ended question asking for further comments. At the end a completion code to receive the compensation was provided.

2.4.3. Results and Discussion

The response time was limited. An independent t-test was conducted to test whether people make more errors in the me/other game when the game incorporates a close other compared to a distant other. Findings did not show any significant difference in the mean accuracy of responses between the close (M = 0.58, SD = 0.21) and distant other (M = 0.58, SD = 0.21) conditions, $t(399) = 0.05$, $p = .957$.

The findings did not provide supporting evidence for the hypothesis. Two alternative explanations could explain these findings. One is that, if the prediction is in fact correct, incentivizing participants to find correct answers might override the expected effect of closeness on cognitive performance. The second explanation is related to the nickname that participants defined for themselves. The cognitive cost of closeness hypothesis suggests that closeness has a cognitive cost on the processing of self-related information because closeness hinders the ability of retrieving the self-concept from memory as a distinct unit. However, in Study 4, the nicknames participants chose for themselves (e.g., "bookworm" and "Redbeard") were potentially associated to self-concepts. This, in turn, implies that by asking participants to choose a nickname for themselves, the study might allow participants to retrieve their self-concept from memory. Importantly, they decided on the nicknames before they started the experiment. Asking for a nickname, thus, could override the effect of closeness by activating the separate self-concept that closeness would be expected to hinder.

2.5. Study 5

Study 3 and Study 4 failed to provide evidence for the prediction that closeness leads to more errors in the decision problem task when under a time limit. The designs of Study 3 and 4 had problems that might have weakened the effectiveness of the manipulation. Study 5 aimed to develop a better design paradigm by again adapting the earlier experimental designs of the me/other game to measure accuracy more effectively.

The me/other game is concerned with measuring the cognitive capacity to disassociate the self from the other person. The basic assumption of this game is that its structure requires participants to match payoff amounts (i.e., allocation options) to recipients ("Me" or "The close/distant other"). Nevertheless, the open-ended questions in the earlier experiments indicated that to solve the me/other game, participants follow alternative strategies that are not necessarily based on recipient-payoff matching. For example, instead of pairing the recipient to the payoff, some participants calculated the differences between the payoff amounts, without considering the recipient, and thus estimated the correct option based on the highest or lowest payoff gaps. Study 5 aimed to overcome this problem.

2.5.1. Participants

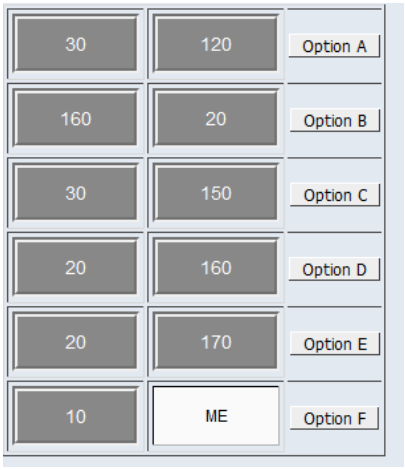
Four hundred U.S.-based participants (218 female, M_{age} = 35.43) recruited through Amazon MTurk completed this online study in return for monetary compensation ($1.00). The study took about 8-10 min.

2.5.2. Method

Practice trial. After offering their informed consent, participants completed a practice session which was similar to the practice session of Study 4 to become familiar with the me/other game.

Closeness Manipulation. Closeness was manipulated in the same way as in Studies 2, 3 and 4.

Me/Other Game - Search Version. The design and the display of the me/other game were the same as in Study 3, with three exceptions. First of all, considering that six seconds might be too short to search, I increased the time limit of each trial to seven seconds. Second, payment amounts were openly displayed on information boxes, but the receiver information was hidden behind closed boxes (see Figure 6). Participants were openly seeing payment values, but they were required to move their mouse over closed boxes to learn the recipient's identity. Third, although the allocation options were kept the same, the allocation was not always between themselves ("Me") and a close (versus distant) other in each option. In some options, to confuse the participant, both columns included "Me" information as the recipient. The option that included only "Me"s as recipients was definitely wrong. However, I expected that participants would not be able to use shortcuts to guess the correct answers, because they likely could not find the right answer by considering only one of the columns in an option. This change was made to prevent estimations without checking all information cues in a game.



Note. Random closed display. Information is hidden behind closed boxes. Participants move the mouse to reveal recipients information.

Figure 6. The Display of the Me/Other Game in Study 5.

Participants were asked several demographic questions as well as an open-ended question for further comments. At the end a completion code to receive the compensation was provided.

2.5.3. Results and Discussion

An independent t-test was conducted to test the hypothesis that people are less accurate in solving the me/other game under a time limit when the game incorporates a close other compared to a distant other. Findings did not show any significant difference in the mean accuracy of responses between the close (M = 0.50, SD = 0.25) and distant other (M = 0.50, SD = 0.24) conditions, $t(398) = 0.13$, $p = .894$.

Study 5, too, did not provide support for the hypothesis: the accuracy levels did not differ among conditions. The design of Study 5 also failed to improve accuracy: the mean of accurate answers was even lower than the earlier studies.

2.6. Analysis of the Merged Data

Although the expected effect of closeness was found related to the time taken to complete the game in Study 1, and on difficulty in Study 3, no supporting evidence was found for the effect of closeness regarding the amount of correct

answers given when time for the task was limited in the me/other game. One alternative explanation for this may be that individual studies were underpowered. Also, there were several design issues in studies. To see the overall pattern for accuracy, I combined the data across studies and ran an independent t-test on the combined data. Although the display patterns of the me/other game were different, Study 2, 3, 4, and 5 used the same me/other game trials with the same option structures. This similarity allowed me to merge the data files. The merged data file included a total of 1205 participants. I conducted another independent samples t-test to explore the effect of closeness on accuracy levels in the aggregate data file. This additional test demonstrated a significant difference: participants were less accurate in finding the correct option when the task incorporated a close (M = 0.58, SD = 0.26) compared to a distant other (M = 0.61, SD = 0.26), $t(1203) = 2.02$, $p = .044$, $d = 0.11$. Although the effect size in this analysis is very small, the result is in line with the expectations for the individual studies. This finding implies that it might be the specific individual designs or the sample sizes of individual studies which had been inefficient at grasping any likely effects of closeness on the accuracy levels.

2.7. Discussion on Findings of the Information Search Experiments

Five experiments tested the cognitive cost of closeness hypothesis in the information search paradigm. All of the experiments manipulated interpersonal closeness on two levels. Participants solved a decision problem called the me/other game with either a close or a distant other. The cognitive performances in finding the predefined solutions in the me/other game were compared. Study 1 showed that it took more time to find the solution in the me/other game when the game involved a close versus a distant other. In Study 2, the aim was to test the differences in cognitive performance by comparing the number of information cues searched while finding the answer in the me/other game. However, in this study, participants did not search for a sufficient number of information cues, at least to the extent that was intended by the design. Study 2 failed to design a me/other game that could effectively test the number of information cues searched. Study 3 showed that people perceived the same decision problem as more difficult when the problem incorporated a close compared to a distant other.

Study 2, Study 4, Study 5, and partially Study 3 did not show any significant differences between close and distant other conditions.

CHAPTER 3

THE COGNITIVE COST OF CLOSENESS: MEMORY EXPERIMENTS

A second group of experiments was created aimed at replicating the findings of the information search experiments in a different experimental setting. Furthermore, they were developed to provide a new experimental design structure that might be more efficient at testing the cognitive cost of closeness hypothesis than the information search versions was. Specifically, the time limit, which initially was intended to have participants go with their gut decisions in the information search version of the me/other game, seems to lead to estimation-based solutions instead. That is, people might have answered without having enough time to see the problem solving cues; i.e., the recipient and payoff information. In the memory version, participants were first presented all options and, then, were asked to recall the correct option. Recall time as well as recall accuracy were, therefore, included as two variables in the memory version of the game. A combined measure of recall time and accuracy was used to account for the variation in those two cognitive performance measures at once.

I used the Qualtrics software to design the recall version of the games. The basic design structure of the recall version of the me/other game is as follows: Participants are provided with all the allocations options of the me/other game on consecutive screens for short times. Following the presentation of options participants are asked to recall the correct solutions. Recall performance is measured as a proxy for cognitive performance. Five studies tested the cognitive cost of closeness hypothesis with the memory version of the me/other game. In Studies 6, 7, and 8, participants were presented allocation options used in Study 2 (and also in Studies 3, 4, and 5) on consecutive screens and asked to recall the correct solution. The time taken to recall the correct option was measured by dividing the response time by the percentage of accurate responses. Study 9 and 10 tested the hypothesis in a within-samples design. Study 9 presented allocation

options similar to the earlier experiments. In the me/other game in Study 10, recipients (i.e., “Me”, “Close other”, or “Distant other”) were matched to objects instead of numbers and participants were asked to solve some decision problems based on the recalled information.

3.1. Study 6

Study 6 aimed to test whether people require more time to accurately solve the me/other game in the close other condition than in the distant other condition. Closeness was manipulated and cognitive performance was measured by calculating the time taken to recall the correct option in the close versus distant other condition.

3.1.1. Participants

One hundred ninety-eight U.S.-based participants (70 female, M_{age} = 35.55) recruited through Amazon MTurk completed this online study in return for monetary compensation ($0.50). The study took about 10 min.

3.1.2. Method

Closeness Manipulation. Closeness was manipulated in the same way as it was in the first five experiments. Participants imagined a list of hundred people and stated the initials of the first or the 100th person in that imagined list. Those initials were then used in the problem solving task to identify close or distant others. Closeness was a between-subjects factor.

Me/Other Game– Recall Version. The game consisted of a problem solving tasks in a two-person resource allocation games. There were ten trials: five trials using the self-interested rule (i.e., “find the option that maximizes your and minimizes other person’s payoff”) and the another five trials using the altruistic rule (i.e., “find the option that minimizes your and maximizes other person’s payoff”). Participants played the game with a close or a distant other. To strengthen the manipulation, participants were asked to write the initials of the first (or the 100th) person in a text field on the computer screen. The initials were then used in the me/other game to represent close or distant others.

There were six allocation options in each trial. Every option was presented on consecutive screens for two seconds. After the presentation of the options, participants were asked to recall the correct option as well as the payoff values of

the correct option. Additionally, in order to increase participants' focus on recipient-payoff matching, two randomly chosen payoffs among the incorrect options were presented to the participants on a separate screen. Cognitive performance was measured by calculating the recall time for the correct option and of the correct payoff values. To do this in accordance with the procedure used by Todd, Forstmann, Burgmer, Brooks, and Galinsky (2015), the mean for the task completion time of all trials was divided by the percentage of accurate answers, which results in the processing cost.

Before playing the me/other game, participants were first instructed about the predefined decision rule and then asked to state the decision rule (among four options) that they were going to apply in the me/other game (see Appendix C for instructions). They were asked to state the correct rule two times, one time for the self-interested rule round and one other time for the altruistic rule round.

Participants were asked several demographic questions as well as an open-ended question asking for further comments. At the end a completion code to receive the compensation was provided.

3.1.3. Results and Discussion

An independent t-test was conducted to test the prediction that people take more time to recall the correct solution in the me/other game when the game incorporates a close as opposed to a distant other. The response times were transformed by log 10 transformation (Ratcliff, 1993). The time taken to complete the task was divided by the percentage of correct answers, following the processing cost calculations of Todd, Forstmann, Burgmer, Brooks, and Galinsky (2015). An independent samples t-test demonstrated that the processing cost, i.e., the time taken to recall the correct option, in the close other condition (M_{close}= 0.029, SD_{close} = 0.069) was significantly longer than that of in the distant other condition ($M_{distant}$= 0.015, $SD_{distant}$= 0.018), $t(196) = 2.11$, $p = .037$, $d = 0.28$.

In additional to the results above, the difference between close and distant other conditions on the response time was also significant without taking the differences of accuracy levels into account. The mean response times measured in milliseconds were higher in the close other condition (M = 111.76, SD = 94.09) than in the distant other condition (M= 95.88, SD= 47.57), $t(196) = 2.04$, p =

.042, d = 0.29. The pattern also stayed the same when the response times were transformed by log 10 transformation (Ratcliff, 1993): solving the decision problems took more time in the close other condition (M = 2.00, SD = 0.21) than in the distant other condition (M= 1.95, SD= 0.17), $t(196) = 2.20$, $p = .029$, d = 0.31.

Study 6 showed that people took more time to recall the correct options when the interaction partner is a close other versus a distant other. The findings replicated the findings of Study 1 and provided additional support to the cognitive cost of closeness hypothesis in another experimental setting.

3.2. Study 7

Study 7 aimed to replicate the findings in Study 6 with a larger sample size. In Study 7, the same experimental procedure was followed as in Study 6, with one exception. In Study 6, in order to increase the participants' focus on receiver-payoff matching, there were two questions on a separate screen which were about two randomly chosen payoffs among the incorrect options. To reduce the time taken to complete the experiment, those two questions were removed from the design in Study 7.

3.2.1. Participants

Four hundred U.S.-based participants (185 female, M_{age} = 35.13) recruited through Amazon MTurk completed this online study in return for monetary compensation ($0.75). The study took about 10 min.

3.2.2. Method

Closeness Manipulation. The manipulation was the same as in Study 6.

Me/Other Game – Recall Version. The task was the same as in Study 6 except one difference. There were no recall questions about incorrect options.

Participants were asked several demographic questions as well as an open-ended question asking for further comments. At the end a completion code to receive the compensation was provided.

3.2.3. Results and Discussion

Among the 400 participants who completed the study, 391 participants had accuracy values different than "0"; a mathematical prerequisite to calculate the processing cost (i.e., time/percentage of accuracy). Therefore, an independent

samples t-test with 391 participants compared the processing costs of both closeness conditions. Results did not show any difference regarding the time taken to recall the correct answers, i.e., processing cost, between the close (M = 0.04, SD = 0.05) and distant other (M = 0.05, SD = 0.09) conditions, $t(389) = 1.24$, p = .216.

Although the experimental procedure was not exactly the same, Study 7 had been designed to replicate the findings of Study 6. However, the expected replication was not observed. Nevertheless, Study 7 did not include the questions about the incorrect options that were meant to make participants focus on recipient-payoff pairings. Further research is required to understand why and to what extent the change in the design of Study 7 had influenced the task performance.

3.3. Study 8

Study 8 was designed to replicate the findings in Study 6 in a lab experiment instead of in an online study and also by using a different interpersonal closeness manipulation. One of the aims of Study 8 was to shed light on the reason for the failed replication in Study 7. The other reason was to test the effect of closeness with a potentially stronger manipulation. Also, in the previously conducted experiments in this project, interpersonal closeness was manipulated by asking people to imagine other people they know. Study 8 developed a closeness manipulation that could eliminate some alternative explanations driven by this specific type of manipulation. For example, an alternative explanation might be that people have more information about others who are closer to themselves. If this is the case then part of the impact of closeness on cognitive performance might be related to the level of information complexity; the extent of information stored in memory for a close versus a distant other could lead to a difference in cognitive processing. In Study 8, participants completed the me/other task which always incorporated themselves and a stranger. The closeness to the other person in the game was manipulated experimentally. The other person in the game was ostensibly presented as a person who is either similar or dissimilar to the participant. Cognitive performance was measured in the same way as it was in Study 6.

3.3.1. Participants

One hundred thirteen students from University of Cologne (43 female, M_{age} = 24.13) completed this study in return for course credits. The study took about 10-15 min.

3.3.2. Method

Closeness Manipulation. A novel closeness manipulation was developed for this study. Closeness was manipulated based on similarities in aesthetic preferences. Participants were ostensibly told that they would play an economic game which incorporated another person who was also present in the lab. Participants could see the other person during the experiment session. This other person was either another participant or a confederate. Participants were told to first assess several pairs of drawings and indicate which one they liked more. There were a total of 15 pairs of paintings that participants had to evaluate. Participants were asked to lift their arms when the painting assessment task was finished so that the experimenter knew they completed the first aesthetic preferences task. The experimenter then ostensibly compared the answers of the participant to the answers of another participant in the room. Participants were then informed about whether they and the other person in the room had similar (i.e., close other condition) or dissimilar (i.e., distant other condition) aesthetic tastes. Closeness was a between-subjects factor.

Me/Other Game – Recall Version. The task was the same as in Study 6.

Manipulation Check. Following the completion of the me/other game, participants were asked how close they had felt to the other participant in the room. They indicated the extent of their perceived closeness on a scale ranging from values 0 (i.e., not close at all) to 100 (i.e., very close). The sample included students from the same university, thus, the extent of closeness prior to the experiment was also measured by a similar scale from 0 to 100.

Participants were asked several demographic questions as well as an open-ended question asking for further comments.

3.3.3. Results and Discussion

First, an independent samples t-test was conducted to test whether the feedback regarding the similarity versus dissimilarity of their preferences had

changed the perceived closeness to the other person. Results indicated that the feedback on aesthetic preferences failed to manipulate the perception of interpersonal closeness: there were no significant difference on the perceived closeness between the participants who were told that the other person was similar to them (M = 10.84, SD = 17.07) and the participants who were told that the other person was dissimilar to them (M = 9.54, SD = 16.24), $t(111) = 0.41$, $p = .680$.

The closeness manipulation did not work. Findings on the processing cost (i.e., the time taken to complete the task / percentage of accuracy) also showed no difference between close (M = 0.02, SD = 0.02) and distant other (M = 0.02, SD = 0.03) conditions, $t(111) = 0.20$, $p = .843$.

Because the manipulation did not work in the expected way, Study 8 was not informative in testing the cognitive cost of closeness hypothesis.

3.4. Study 9

As previously mentioned, the structure of the me/other game is focused on measuring the capacity to disassociate the self from the other person. In the me/other game, it is crucial that participants actively try to match receivers ("Me" or "The close/distant other") to the payoffs amounts. However, in the information search paradigm as well as during the recall version of the game used in Studies 6, 7, and 8, participants could still focus on memorizing the highest and the lowest payoff values instead of pairing receivers and payoff amounts. Study 9 aimed to develop a game that could solve the problems associated with a lack of attention to the matching, and tested the cost of closeness hypothesis in a within-subjects design. Different from all the previous experiments, in Study 9, participants were presented payoff values of three people (i.e., themselves, a close other, and a distant other) in each option. Also, before the games started, the predefined decision rules (i.e., self-interested and altruistic) were not told to the participants. Instead, participants first studied the options and then were randomly asked to recall the option that would satisfy the self-interested or the altruistic rule. Thus, during the presentation of options participants needed to attend all information and to match receivers and payoffs in order to be able to correctly solve the tasks.

In Study 9, it was predicted that participants would take more time to recall the correct answer (i.e., higher processing cost) when they were asked to

make comparisons between themselves and a close other than between themselves and a distant other.

3.4.1. Participants

One hundred seventy-three U.S.-based participants (96 female, M_{age} = 35.82) recruited through Amazon MTurk completed this online study in return for monetary compensation ($1). The study took about 15-20 min.

3.4.2. Method

Closeness Manipulation. Different from earlier studies, closeness was a within-subjects factor. Participants imagined a list of 100 people they know to varying degrees (1 = the closest other, 100 = someone only met once). Then, they wrote down the initials of the person at the first (i.e., close other) and at the 100th (i.e., distant other) places into two different text fields provided on a screen. The initials were then used in the me/other game to represent other people.

Me/Other Game– Recall Version. Within. In Study 9, the me/other game consisted of resource allocation options for three people (i.e., "Me", "Close", and "Distant"). Participants played the game with an imagined close and a distant other. There were 16 trials in total. Each trial involved two options (see Figure 7 for an example). Each option was presented on consecutive screens for four seconds. After the presentation of options, participants were asked to recall the option as well as the amounts in that option that satisfies one of the two decision rules.

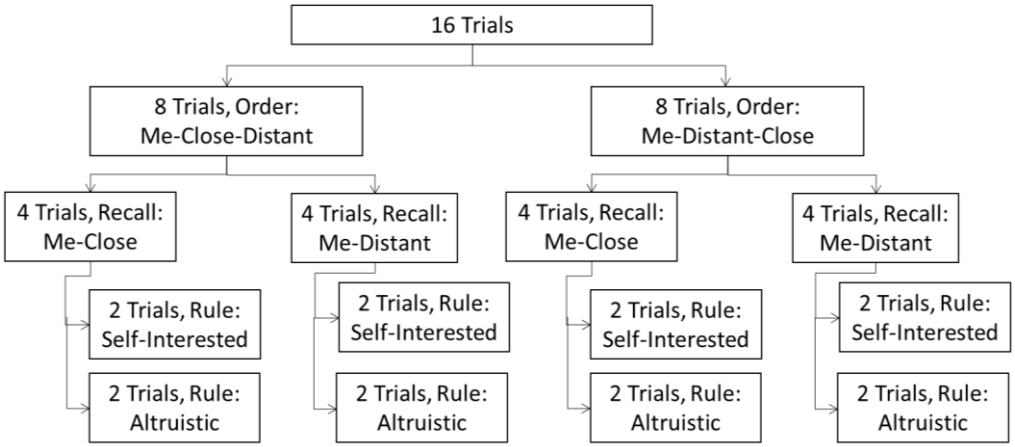
Option A		
Me	Close	Distant
8	3	7

Option B		
Me	Close	Distant
5	4	9

Figure 7. Display of the Options in the Me/Other Game, Study 9.

In contrast to earlier studies, participants were not given any predefined rules before the presentation of the options. They were randomly asked to recall

the option that either maximizes their and minimizes close or distant other's outcome (self-interested rule); or minimizes their and maximizes close or distant other's outcome (altruistic rule). They were asked to either compare (a) themselves and a close person, or (b) themselves and a distant person.



Note. Second row: order of the recipient display; Third row: comparison groups; Fourth and fifth rows: decision rules.

Figure 8. The Me/Other Game Option Structures in Study 9.

Figure 8 presents the structure of the me/other game in Study 9. There were eight different allocation trials in the me/other game. There were two blocks of the same eight trials, with each block presenting recipients in different orders. In one block, the order of the recipients was "Me -Close Other - Distant Other" whereas in the other block the order was "Me - Distant Other - Close Other". The order of the recipients was counterbalanced in two blocks to avoid any memory performance differences that might be driven by the closeness to the "Me". The effect of closeness on the recall performance was expected to be independent of the degree of spatial distance from "Me".

The recall questions were also counterbalanced. Every block consisted of eight trials: within every block four of the trials (and the recall questions) were about comparing the self and a close other; whereas the other four were about comparing the self and a distant other. Among those four questions, two were

asking participants to recall the option that maximizes the participant's outcome and minimizes the other person's outcome (i.e., self-interested rule); and the other two were asking participants to recall the option that minimizes the participant's outcome and maximizes the other person's outcome (i.e., altruistic tule).

Cognitive performance was measured by the time taken to recall the correct option, i.e., the processing cost.

Participants were asked several demographic questions as well as an open-ended question asking for further comments. At the end a completion code to receive the compensation was provided.

3.4.3. Results

A dependent sample t-test analysis showed that there were no significant differences between the processing cost in the close (M = 0.02, SD = .01) and distant other (M = 0.02, SD = 0.01) conditions, $t(172) = 0.57$, $p = .570$.

The findings did not provide support for the cognitive cost of closeness hypothesis. However, in the open-ended question part some participants mentioned that the game was too difficult and instead of memorizing the options they wrote down the numbers of the options during the task. For example, one of the participants reported the following about the experiment: "*I could not memorize the options that quickly. In general, I don't remember numbers well at all. I eventually began writing them down.*" Because this was an online study, there was hardly any possibility to control the way participants completed the task. The fact that the participants had four seconds to study each option might provide them with enough time be able to note down the information they had been asked to memorize.

3.5. Study 10

In all experiments, participants were required to match recipients to payoff values. The results of Study 9 indicated that this matching was particularly difficult. Therefore, in Study 10, instead of numbers, participants were asked to match recipients with images of daily objects such as an umbrella or a ball. Incorporating objects into the me/other game instead of numbers was expected to improve the recall performance. Study 10 was also different than the previous experiments because the self-interested and altruistic rules that had been used as

recall questions in the earlier studies of this dissertation project, were replaced with a new line of questions. Participants were presented many object-recipient pairings and after the presentation, they were asked to answer some inference questions that required accurate recall of the pairs.

In Study 10 participants played the me/other game with a close and a distant other as was the case in Study 9. Recall accuracy was measured.

3.5.1. Participants

One hundred seven U.S.-based participants (43 female, M_{age} = 34.74) recruited through Amazon MTurk completed this online study in return for monetary compensation ($ 0.5). The study took about 8-10 min.

3.5.2. Method

Closeness Manipulation. Participants were asked to imagine that they were playing a game that incorporated themselves, a person who is close to them, and another person whom they do not know. As in the earlier studies, they wrote the initials of the closest person in a text field. However, the distant person in this game was a stranger who was presented as "KPE". Thus, in the games were “Me”, “Close other” and “KPE”. The aim of including a stranger that the participants did not know instead of asking them to choose a distant other was to increase the perceived distance between close and distant others. Closeness was a within-subjects factor.

Me/Other Game– Object - Recall Version. Participants were told that they were going to play a memory game. They were presented the images of various daily objects (e.g., umbrella, lamp, pen, etc.) on consecutive screens, each for three seconds. They were asked to imagine that either they, their closest other or KPE received the objects. Each object and the person who receives the object appeared on the screens automatically. Participants were shown a total of 21 object-recipient pairings. There were seven objects paired with each of the recipients. Participants were randomly assigned to one of the two versions of the game (see Figure 9). The two versions were created in order to counterbalance the objects paired with the close or the distant other. Both of the versions paired the same objects with the participant (i.e., “Me”). However, the objects which were

paired with the close and the distant other were interchanged between the two versions.

Version 1		
ME	**Close**	**Distant**
Basketball	Guitar	Comb
Trash bin	Tennis ball	Football
Tea pot	Fork	Couch
Mug	Spoon	Camera
Car	Umbrella	Bicycle
Picnic basket	Lamp	Tool kit
Pen	Pot	Running Shoe

Version 2		
ME	**Close**	**Distant**
Basketball	Comb	Guitar
Trash bin	Football	Tennis ball
Tea pot	Couch	Fork
Mug	Camera	Spoon
Car	Bicycle	Umbrella
Picnic basket	Tool kit	Lamp
Pen	Running Shoe	Pot

Figure 9. The Me/Other Game Object-Recipient Pairings, Study 10.

After the presentation of all object-recipient pairs, participants were asked recall questions. Participants were first told that every object could be used only by the person who received it. Then they were asked to imagine that three of them (i.e., themselves, the close person and KPE) needed to perform several simple tasks. They were explicitly told that the aim of the game was to match the person and the task. A total of ten questions were asked to the participants. The questions were about making inferences based on the recalled object-recipient pairs (e.g. "There is a problem in the sink. Who should fix it?"; see Appendix D for the complete list of questions).

Participants were asked several demographic questions as well as an open-ended question for further comments. At the end the completion code to receive the compensation was provided.

3.5.3. Results

A dependent sample t-test analysis showed that there were no significant difference of the accuracy level between the close (M = 0.65, SD = 0.33) and distant other (M = 0.68, SD = 0.32) conditions, $t(106) = 0.91$, $p = .367$.

The findings did not provide support for the hypothesis that the cognitive performance is better when the decision problem involves a distant compared to a close other. However, certain strategies that participants followed to solve the object-recipient pairing version of the me/other game indicated that the experimental procedure has several important problems. Incorporating concrete objects instead of abstract numbers did in fact help participants to remember information related to close other better. For instance, one participant answered the open-ended question at the end of the game as following:

"Everything was clear and easy to understand. I had certain ways of remembering things. For example MG and I like to go camping and I always have to bring a fork and spoon for her, so I kind of remembered that SHE would be the one to bring it this time. She always told me recently she needs a foldable umbrella - so that was easy to associate with her. I just bought a new car, so I had no trouble remembering that I had the car."

If the example above is true for many participants, then the ease of associating close others to specific objects as a result of previous experiences might have confounded the expected effect of closeness on cognitive performance. In fact, there were other participants who had mentioned examples of memory strategies which were based on associating real-life experiences to the recipients. Below is another example from the open-ended answers of Study 10:

"In case you are wondering my memorization technique, i try to put all things together, for instance the first three things for me were a trash can, a teacup, and a basketball. i just kept repeating "I drink trash while playing basketball. and i added to it i imagined we were at a picnic and i drove and brought the basket while KDE took pictures and AD brought the cookware and played guitar. etc. not sure if this helps your research but thought you ought to know."

Notice that extent of previous experiences with a close person, in the case above, might have made it easier to associate the close with a specific object. Thus, previous experiences was a confounding factor in this design.

3.6. Discussion on Findings of the Memory Experiments

Five experiments tested the cognitive cost of closeness hypothesis in the recall version. All the experiments manipulated interpersonal closeness. In the first three experiments participants solved the decision problem that included a close or a distant person. In the last two experiments, closeness was a within-subjects factor. Participants were asked to solve a me/other game which incorporated a close other, and a distant other. Cognitive performance in recalling the information in the me/other game was measured. Study 6 showed that when the decision problem (i.e., the me/other game) included a close compared to a distant other, it took more time for the participants to recall the correct the solution (i.e., high processing cost). The rest of the experiments did not lead to any significant differences between close and distant other conditions.

The results of the memory/recall version of the me/other game experiments indicated the importance of conducting this version of the study in the lab instead of collecting data online for several reasons. The most important problem related to the online data collection was the lack of control on the experimental process. In the recall version, it was particularly important to make participants memorize the options. However, some participants informed us that they were writing down the options while completing the recall version of the me/other game. In Study 6, where a difference for processing cost was found, each option was shown only for two seconds. I increased the presentation time to let participants study the options more carefully in Study 9 and 10, however, the additional time might have created enough space for participants to note down the options.

CHAPTER 4

ACCURACY UNDER TIME LIMIT

4.1. Study 11

The two key measures that were used in this dissertation research were response times and response accuracy, both of which are sensitive to distractions. Although online experiments were easier to implement and less costly, they are open to various kinds of distractions. Moreover, the recall versions of the me/other game experiments that were discussed in the previous chapter emphasized the importance of the control on the experimental process. Thus, a lab study was required. The only study that was conducted in the lab (Study 8) failed to manipulate closeness. Study 11 tested the same cognitive cost of closeness hypothesis in the lab again, with a particular focus on accuracy as a measure of cognitive performance. I made some changes on both the closeness manipulation and on the structure of the me/other game. Firstly, in prior experiments of this research (except Study 8) participants were asked to play the me/other game with a close or a distant other that they know in person. In Study 11, participants were instead asked to play with a stranger who might be a person who is similar (close) or dissimilar (distant) to them. This closeness manipulation follows the same logic with the one used in Study 8, but this time participant were allowed to define what makes them and another person similar or dissimilar. Secondly, Study 11 focused on the accuracy dimension of the cognitive performance. Participants were provided with a fixed time and asked to complete as many trials as accurately as they could within this fixed time limit. I then counted the number of tasks completed. One other difference of the me/other game in Study 11 was that the games could have more than one correct answer. In the previous experiments there was always only one correct answer. Considering that participants might be focusing on only one of the two criteria in the decision rules (max/min your payoff or min/max other's payoff), different options that

satisfied each of the criteria in the predefined rule set were created separately. Both of these answers were counted as accurate. Thus, this time, there were different options in the game that satisfied one of the conditions of the decision rule. The dependent variable was the number of tasks completed correctly in the me/other game.

4.1.1. Participants

One hundred thirty one participants from Germany studying at the University of Cologne (89 female, M_{age} = 23.65) were recruited and completed this study in the laboratory in return for course credit. The study took about 10 min.

4.1.2. Method

Closeness manipulation. Participants were asked to imagine that they were going to play a game with an unknown person whose initials are A.K. They wrote five things that could make them consider A.K. as someone similar (close) or dissimilar (distant) to themselves. Similarity was used as a proxy for interpersonal closeness to a stranger. Closeness was a between-subjects factor.

Me/Other Task –Search Version. The game was similar to the one used in the information search versions (e.g., Study 2) with some exceptions. Firstly, all information about the options was displayed in an open format (see Figure 10). Second, there were one or more correct answers in accordance with one of the two conditions of predefined decision rules: maximizing (minimizing) the self versus minimizing (maximizing) the other. Both were coded as accurate. Participants were asked to find as many correct solutions as possible within 3 minutes in each of the two rounds (i.e., self-interested and altruistic rounds). In each round the number of trials (i.e., 45 per round) was more than could be completed in 3 minutes. Lastly, to boost participants' attention on the recipient-payoff matching, some trials involved random initials that were different than "Me" ("Ich" in German) and "A.K.".

1	Ich 5	A.K. 70
2	A.K. 12	Ich 15
3	Ich 9	A.K. 14
4	Ich 3	A.K. 1
5	A.K. 18	Ich 20
6	A.K. 3	Ich 30

Note. Random open display. Information is open and participants can see the payoff and the recipient information on the screen openly. Recipients are located into the columns randomly as in the Study 2.

Figure 10. The Display of the Me/Other Game in Study 11

After completing the me/other game, participants were asked a manipulation check question to measure the change in perceived closeness. They rated *The Inclusion of Other in the Self Scale* (IOS, (Aron, Aron, & Smollan, 1992)) which measured the perceived closeness to the stranger in the game (i.e., A.K.). The IOS scale involves seven pairs of circles that intersect to varying degrees representing the extent of mental overlap of the self and the other person. The experiment ended with several demographic questions and an open-ended question asking for further comments.

4.1.3. Results and Discussion

First, an independent samples t-test was conducted to test whether the perceived closeness (measured by the IOS scale) had increased due to the similarity manipulation. The manipulation led to significant differences in perceived closeness: participants in the close other condition (M = 3.12, SD = 1.74) perceived the stranger in the game closer to themselves than participants in the distant other condition (M = 1.98, SD= 1.05), $t(129) = 4.51$, $p < .001$, $d = 0.79$.

A second independent samples t-test was conducted to test the prediction that people would make more errors in the me/other game when the interaction partner was a close versus a distant person. In line with this prediction, participants completed less tasks accurately in the close other condition (M_{close} =

18.82, SD_{close}= 5.85) than in the distant other condition ($M_{distant}$= 21.89, $SD_{distant}$= 7.26), $t(129) = 2.67$, $p = .009$, $d = 0.47$.

Study 11 provided further evidence to the cognitive difficulty while interacting with a close person hypothesis. In this study, the cognitive cost of interpersonal closeness was tested and supported by using accuracy as the measure of cognitive performance. Importantly, this study tested the impact of closeness by experimentally manipulating the perceived closeness to a stranger. Thus, current findings also provide support for the argument that the effect of closeness on cognitive performance was not driven by the extent of information one has about a close other, or by the extent of shared experiences one has with a close other.

CHAPTER 5

THE RELATIONSHIP BETWEEN INDEPENDENT SELF AND COGNIVE PERFORMANCE

5.1. Study 12

The key argument in this dissertation is that interpersonal closeness has a cognitive cost, because closeness hinders the disassociation of the self from others, which in turn, makes it difficult to retrieve the self-concept as a separate entity and to match any self-related decision information to the self. Individuals differ according to the extent that others are included in the self-construct (see Cross, Hardin, & Gercek-Swing, 2011; Markus & Kitayama, 1991). If the self is structured as a more separate construct, then the disassociation of the "self" from the other person should be cognitively less demanding. In the last study, the link between the level of an independent self-construct and cognitive performance was examined. I argue that a more independent self-construct would necessitate less cognitive effort to disassociate the self from the other person and to calculate the costs and benefits to the self.

Two types of self-construal (Markus & Kitayama, 1991), independent and interdependent, have the potential to identify interpersonal differences of the construction of the self. An independent self constitutes a bounded, autonomous, and unique entity, whereas an interdependent self is relational, contextual, and socially situated. I expected participants with a more separate and autonomous self-construct to perform better at identifying the costs and benefits of transactions. To test this, the link between one's self-construal types and their cognitive performance recognizing and recalling correct solutions in the me/other game was examined. It was predicted that people who construct their selves as more independent should be faster in recalling the correct answers that involve self- and close other-related information.

Interdependent self-construal is a construct under discussion; various sub-types of interdependence were suggested in the literature (see Cross, Bacon, & Morris, 2000). Two major interdependent self-construal types are the collectivist and the relational- interdependent self-construal (Cross et al., 2000; Gabriel & Gardner, 1999), with the latter focusing on close and significant others. This study explored the link between cognitive performance and interdependent self-construal subscales as well.

5.1.2. Participants

Two hundred U.S.-based participants (91 female, Mage = 36.53) recruited through Amazon MTurk completed this online study in return for monetary compensation ($0.85). The study took about 10 min.

5.1.2. Method

Me/Other Game – Recall Version. The task was the same as in Study 6. There were six allocation options in each trial. Each option was presented for two seconds on a consecutive screen. After the presentation of all the six options participants answered two sets of questions. They were asked to recall the correct option and the amounts presented in the correct option. Additionally, to increase the participants' focus on the recipient-payoff matching, I also asked about two randomly chosen payoffs given among the incorrect options on a separate screen. I measured cognitive performance by measuring the mean time taken to recall the correct option (i.e., the processing cost).

Self-construal measures. Following the me/other game, participants rated nine items that measure self-construal types. A shortened version of the scales was used. There were three items to measure each self-construal types (see Appendix E). Six items were taken to measure the independent and the collectivist self-construal from Gudykunst and Lee (2003) and three items to measure the relational-interdependent self-construal from Cross, Bacon, and Morris (2000). The highest loading items were chosen based on their loading factors on the relevant construal.

Participants answered one multiple choice attention check question, some basic demographic questions, as well as an open-ended question about further

comments. At the end we provided them with a completion code to receive the compensation.

5.1.3. Results and Discussion

Table 1 reports the means, standard deviations, and correlations for all measures. Reliability analyses for the three self-construal scales showed Cronbach's alpha values α = .72 for the independent**,** α = .78 for the collectivist-interdependent, and α = .84 for the relational self-construal scales. Those values indicate an acceptable level of internal consistency for all scales.

Table 1

Means, Standard Deviations, and Bivariate Correlations

Variable	*M*	*SD*	1	2	3
1. Processing cost	0.04	0.04			
2. Independent Self-Construal	5.57	1.05	-.19**		
3. Collectivist-Interdependent Self-Construal	4.72	1.15	-.03	-.09	
4. Relational-Interdependent Self-Construal	5.08	1.33	-.09	.02	.47***

* $p < .05$ ** $p < .01$ *** $p < .001$

The analysis was conducted with 180 participants who were successful in the attention check question. To examine whether the scores in self-construal scales predict the processing cost (i.e., time taken to accurately complete the task), a multiple regression was performed on the data. In the statistical analyses, log transformed values of the task completion time were used (Ratcliff, 1993) to account for skewed response times. The overall regression was significant, $F(3, 195) = 2.91$, $p = .036$. Importantly, independent self-construal, $\beta = -.19$, $p = .008$, negatively predicted the processing cost. Two of the interdependent self-construal types, collectivist, $\beta = -.01$, $p = .903$, and relational, $\beta = -.08$, $p = .300$, self-construal did not predict the cognitive performance.

The results of Study 12 were in line with the assumption that people who construct their self-concept more independently need less time to identify and recall self- and other- related information. The improved cognitive performance predicted by independent self-construal in the me/other game provides further support for the hypothesis that disassociating the self from the other person is

linked to cognitive performance. This study demonstrates the positive link between the independence of the self-concept (a distinct and autonomous self-construct) and the performance in recalling the correct option in the me/other game. An Independent self was the only self-construal type that predicted cognitive performance.

CHAPTER 6

GENERAL DISCUSSION

This dissertation suggested increased cognitive computational costs as an explanation for the effects of closeness in the decision making process, and eventually on the resulting decisions. The cognitive cost of closeness hypothesis is based on the argument that the mental representations of close others highly overlaps with the mental representations of the self, making it harder to differentiate between the concept of the self and the other. The current research argues that: (1) the high overlap between the mental representations of the self and a close other hinders accessing the self-construct as a separate entity; (2) a separate self-construct is a prerequisite for a cost-benefit calculation of self-related decisions; and (3) therefore, closeness hurts cognitive performance during decision making when the decision involves information about the self and another person. It was predicted that when a decision problem incorporates the self and a close other, solving the problem should (1) take more time and (2) require more searching for decision problem cues. Furthermore, when there is a time limit, the solutions of the me/other game should be (3) less accurate and the task itself should be (4) perceived as more difficult. To test these predictions a novel, two-person economic game (i.e., the me/other game) was developed. This game measures the extent of cognitive performance in the capacity to differentiate between the self- and other-related information. Instead of asking people to give a decision, participants find a clearly correct answer in a two-person resource allocation game frame. In this dissertation research, twelve studies tested the cognitive cost of closeness hypothesis by incorporating the me/other game as the measure of cognitive performance.

6.1. Discussion and Contribution of the Present Research

In this dissertation research, out of 12 studies, four experiments (one with marginal significance) and one correlational study yielded support for the cognitive cost of closeness hypothesis. The direction of the effect was consistent among these studies. In the experiments, closeness to another person was manipulated. Participants played a two-person resource allocation problem solving task (i.e., the me/other game) with a close or a distant other. Half of the participants solved a me/other game which incorporated the self and a close other as the recipients of resources. The other half solved a me/other game that incorporated the self and a distant other. The cognitive performances between two groups of participants were compared. All four experiments demonstrated that solving a two-person decision problem is cognitively more demanding when the interaction partner is a close other. The studies employed various forms of cognitive performance and closeness manipulations. Study 1 demonstrated that people took more time to find the solutions of the me/other game in the close other condition. Study 3 showed that under a time limit finding correct responses was marginally more difficult when the me/other game involved a close person compared to a distant person. Study 6 replicated the findings of Study 1 in a different experimental setting, and demonstrated that participants took more time to recall the correct options in the me/other game. Study 11 showed that under a time limit, participants completed less of the me/other games correctly when the interaction partner in the game was a close other compared to a distant other. In addition to those experimental findings, Study 12 tested the correlational link between the tendency to represent the self as a separate unit and the cognitive performance in the me/other game. The results showed that the more of an independent-self a person has, the less time they need to recall the correct options. Overall, the link between closeness and cognitive performance in self-related decisions has been demonstrated and the effect has been tested with both experimental and correlational designs using various measures of cognitive performance (i.e., response time, perceived task difficulty, and accuracy).

There were studies yielding non-significant effects of closeness on cognitive performance. No study showed the reverse effect (i.e., the close other

condition leading to a better cognitive performance). More specifically, among the 12 studies conducted in this dissertation, five of them provided support to the cognitive cost of closeness hypothesis whereas the rest of the experiments did not show any effect. Part of the reason why some studies did not show any impact of closeness on cognitive performance may be related to ineffective designs. For example, in Study 2 the aim was to measure the number of information cues searched as a proxy for cognitive performance. However, the results showed that participants did not search as many information cues as the study aimed to prompt. It seems that the structure of the me/other game was not appropriate to foster the search for information cues. A future study can provide a better understanding for the impact of closeness on the number of information cues searched by incorporating more outcome information cues (i.e., more options) or more confusing information cues among the options in a me/other game.

Another study that resulted in non-significant findings was Study 8. In Study 8, the feedback about one's similarity to the other person did not function effectively as a closeness manipulation. That is, the closeness manipulation failed. There was no difference on perceived closeness between the participants who were told that the other person in the game was someone who had similar aesthetic tastes to their choices and the participants who were told that the other person in the game was someone who had different tastes. Thus, Study 8 failed to differentiate closeness levels in the close versus distant conditions in the first place.

Except Study 11, all of the studies were conducted online. Although online studies offer several practical advantages, they can cause confounding factors, particularly when the measures are cognitive (i.e., reaction times, accuracy, etc.) as it was in the current dissertation research. For example, in the memory version of the me/other game, participants were to recall from memory (e.g., Study 9). However, there were participants who said that they had written down the information presented in the me/other game options. The lack of control over the experimental procedure was an important limitation, particularly when the study was concerned with memory performance. Importantly, further analysis on the merged data set, consisting of the data from the individual studies that failed to

show any effect on accuracy in the information search version, demonstrated a significant difference between closeness conditions. Participants in the close other condition were less accurate than the participant in the distant other condition. Although it would be misleading to draw any conclusion regarding the hypothesis from this aggregated data, this secondary analysis indicated that the me/other paradigm or the sample sizes can be improved in order to measure accuracy in a more efficient way.

Nevertheless, studies with null results were particularly informative in improving the me/other game. This dissertation research has focused on developing a new paradigm, the me/other game, as well as testing a novel hypothesis about the cognitive cost of closeness. Trials and errors have been an inevitable part of the process of developing this new game. As a methodological conclusion, the design of Study 11 can be suggested as the most effective way of conducting the me/other game experiments. In Study 11, different from other studies of this dissertation (i.e., Study 3, 4, & 5) the time was not limited per trial. Instead, participants were given a total time for all the trials (i.e., 3 min.), thus, were allowed to study on the individual trials to the extent that they needed. Therefore, counting the number of accurate answers in a limited total time enabled combining two dimensions of cognitive performance, i.e., accuracy and reaction time, in the same design. This design seems to be less sensitive to speed/accuracy trade-off. However, the next studies may develop new versions and research designs of the game so that the analysis can be based on more established approaches such as the diffusion decision model (Ratcliff & McKoon, 2008).

In the me/other game, participants need to disentangle the information regarding the self and another person and then make computations to find the solutions. Importantly, two different predefined decision rules were used in this game: a self-interested rule (finding the maximum reward for the self and the minimum reward for the other) and an altruistic rule (finding the minimum reward for the self and the maximum reward for the other). The findings are thus independent of one specific type of decision preference and decision making process. The structure of the me/other game allows arguing that the effect of closeness on the cognitive processes is beyond the explanation of certain

relational schemes of the corresponding social roles (Fiske, 1991). Following the logic of the relational schemes approach (Fiske, 1991; Fiske & Haslam, 1996), people should be faster in solving the resource allocation problems under the self-interested rule when matched with the distant other and under the altruistic rule when matched with the close other. However this was not the case in the findings of this dissertation. Incorporating two of the rules into the game strengthens this dissertation's argument that the effect of cognitive cost is not influenced by a specific motivation. Further designs man also incorporate predefined decision rules that tap into other motivational arguments such as inequity aversion. Other alternative predefined decision rules can be finding equally benefiting or finding equally harming options for both of the recipients.

The findings of this dissertation provide an overarching explanation for several prior research findings that were primarily focused on the motivational basis of behavioral differences caused by closeness. Among them is a study showing that people focus more on the total benefit than individual outcomes in an allocation game when the partner is a close compared to a distant other (Tu, Shaw, & Fishbach, 2015). Although this study suggests a motivation to increase the total benefit instead of individual gains when the receiver is a close other as a reason for the finding, the findings of this dissertation suggest that this might not be the only explanation. It might as well be that in close relationships it is easier to focus on the total benefit because calculating individual costs and benefits requires more cognitive effort when the interaction partner is a close other. However, further research is needed to explore how much of this effect can be explained by the cognitive cost, and how much by the intentions and purposes in the total benefit focus. Additionally, Xue and Silk (2012) found that people follow their friends' decision making process in an economic game less carefully than that of strangers. They explained this effect from a motivational perspective. Their argument was that people are not motivated to follow information regarding the friend because they trust them. The findings of this dissertation suggest the cognitive difficulty in following a close other's decisions could be an alternative explanation. The cognitive cost of interpersonal closeness hypothesis is about what occurs at an automatic level and can be integrated with motivational

explanations of prior studies. This dissertation is the first to show that cognitive costs as well as motivation could be explanations of the trust and cooperation with close others. Further research should focus on disentangling the effects of motivations from the cognitive ability to perform the behavior.

Study 12 showed the link between independent self-construal and the cognitive performance. This result is comparable to the results of Fiedler, Glöckner, Nicklisch, and Dickert (2013) which showed that the deviation in social-value orientations from individualistic behavior was related to increases in decision time, the number of fixations, and the proportion of information cues inspected. Their study showed that people classified as cooperators or competitors take more decision time for a money allocation tasks than people classified as individualistic or altruistic. Fiedler and colleagues argued that competitors and cooperators would take more time because they consider both themselves and the other person. Besides the differences in individual motivations or orientations, part of the reason why deviations from individualistic behavior were linked to increased cognitive effort could also be explained by the cognitive cost of closeness approach. If, as shown in this dissertation's results, the independent self-construal is linked to more efficient cognitive processing during self-related decisions, and if individualistic people have also higher scores for independent self-construal, then one can expect the cognitive overlap of the mental representations of the self and others to cause longer reaction times.

In different studies the display of the me/other game was altered to test various indicators of cognitive performance. One of the basic assumptions was that the cognitive cost of closeness should manifest itself at an automatic level. I limited the time for individual trials in Studies 3, 4, and 5, and for a whole set of trials in Study 11, which allowed measuring the extent of confusion between the self-related and other-related information when participants were required to go with their gut decisions. Study 11 fully and Study 3 partially supported the assumption. When a time limit is present people make more errors and find the game more difficult when interacting with a close other. From a broader perspective, the automaticity hypothesis fits well and corroborates studies suggesting that intuitive processes in general promote prosocial behavior

(Righetti, Finkenauer, & Finkel, 2013; also see Rand et al., 2014, for a review), and real life examples (Rand & Epstein, 2015). In contrast, reflection and deliberation during the decision making process leads to more selfishness (Rand & Nowak, 2013). It has also been shown that prosocial behaviors show characteristics of automaticity such as fast response times and robustness to distraction (Zaki & Mitchell, 2013). Although, as the findings of this dissertation research show, it is cognitively more demanding to disassociate the self from the close other, there should be still some cognitive effort required to disassociate the self from others. An extension of this work can investigate how the cognitive process of disassociating the self from the others in general affects the automaticity of prosocial behavior.

6.2. Future Studies

Whenever people need to calculate the self-related costs and benefits of a decision that involves both themselves and another person, their ability to do so should be influenced by the level of closeness. A critical next step is to examine how closeness influences decision making in various social contexts. One of the relevant research areas is on joint-decision making processes. In a study, Cicirelli (2006) observed the progress of the decision making process for individuals depending on the relational context. The author found that during the joint decision making processes of mother-adult children pairs, instead of following logical evaluations (i.e., the analysis based on rational-analytic approaches), these pairs came to a decision mostly based on automatic and intuitive responses. Further research can test whether the decision process itself is affected by the cognitive cost of closeness as discussed in this dissertation. An extension to that would be testing the decision process during the collective decisions of groups composed of different closeness levels.

Closeness can be an inherent part of an interaction as in the mother-child relation. Most interesting, closeness can also be induced such as in a typically neutral context as in buyer-seller interactions. The cognitive cost of closeness could lead to negative outcomes for the one whose interaction partner tends to take advantage of closeness. Schwartz, Luce, and Ariely (2011) found that the long-term relationship with a particular dentist increases out-of-pocket expense

for patients who receive routine procedures and that this relationship is independent of the quality of the treatment. As in this example, the behavioral outcomes of interpersonal closeness, such as trust and cooperation, also present risks because there is always the possibility of deception. I do not argue that trust and cooperation with close others is good or bad per se. Trust is certainly one of the most desired relationship qualities. It is one of the key determinants of developing personal relationships (e.g., Holmes & Rempel, 1989) and a core component of social capital in a society (Coleman, 1988) which improves individual and societal welfare (Rahn, Yoon, Garet, Lipson, & Loflin, 2009). However, in interpersonal relationships, trust that emerges from bounded awareness may also increase the likelihood of deception and abuse, if the trustee tends to take advantage. Consider sellers who can use closeness as a strategy. A future study can test whether consumers are less likely to calculate costs and benefits of a transaction efficiently when the seller first positions herself as a close person. Buyer-seller interactions are only one example. What might be no less interesting is to examine the role of closeness bias in a politician-voter context. For example, is it cognitively more demanding for the voters to judge a politician's arguments when she uses "we" language?

The theoretical frame of this research has been particularly concerned with trust and cooperation related decisions. The cognitive cost of closeness can, at least partially, explain why humans trust and cooperate more with close others. Prior studies demonstrated that cooperation is particularly strong when automatic information prevails (Rand et al., 2014), and that deliberate processing reduces the positive effect of closeness on cooperation (Cornelissen et al., 2011). Further studies can explore whether and to what extent the cognitive cost of closeness explains the level of trust and cooperation. The findings of this dissertation indicate that closeness to an interaction partner should increase the difficulty of computing the personal costs and benefits of a transaction. Different from motivational explanations, such as expected reciprocity from an economic viewpoint, or altruistic tendencies from an evolutionary perspective, these findings support the cognitive computational cost as an explanation for the effect

of closeness on social behavior. Further research will have the potential to add a motivation-independent, cognitive explanation for cooperation with close others.

Moreover, in this dissertation the key assumption was that retrieving the self-concept as a separate mental construct is a prerequisite to process any self-related information. A body of literature discusses why the self-concept might have evolved in human history (e.g., Baumeister, 2011). One argument focuses on the potential role of the self-concept in humans' capacity to engage in self-related decision making processes. More specifically, the self-concept might have allowed humans to project themselves into the future and consider oneself in alternate times and circumstances as possible selves (Markus & Nurius, 1986). Such mental time travel, which might be related to episodic memory (Suddendorf, Addis, & Corballis, 2009), is particularly important because this critical ability might have enabled human beings to not only make short-term, but also long-term future plans with reference to wants, desires, intentions, beliefs, and emotions. Thus, the self-concept might contribute to the effectiveness of decision making by creating a motivation to maximize one's outcomes and engage in behaviors that match one's personal goals (Sedikides & Skowronski, 1997). Humans, with the ability to monitor and control their own behavior in the distant future might have become more flexible and complex in terms of decision-making and planned behaviors such as cooperation and deception (Focquaert & Platek, 2007). Those evolutionary arguments, which explicitly point out the link between the self and decision making, are thoughtful and inspiring, but lack empirical evidence. By approaching interpersonal closeness as a barrier to retrieve the separate and distinct self-concept, the findings in this dissertation have provided indirect evidence for the role of self in decision making performance. Further research can directly test the role of self-concept in cognitive performance. Also it is important to explore whether activating the distinct sense of self through self-activation manipulation could improve the cognitive processing.

The last study in this dissertation showed that a high independent self-construal is linked to better cognitive performance in solving self- and other-related decision problems. I reasoned that the more independent the self-construct is, the easier it is to retrieve the self-concept as a separate and distinct construct,

and therefore, the better the performance when disassociating the self from the other. Importantly, self-construal is a dimension that is used to differentiate between cultures. Differentiating between independent (typically western) and interdependent (typically eastern) cultures has been a powerful tool to predict judgment, decision-making, and behavior (see Cross, Hardin, & Gercek-Swing, 2011 for a review). A future study can follow the cross-cultural literature that uses country as a proxy for self-construal and compare countries with high independent and interdependent self-construal levels on how they identify the self-other related costs and benefits of an interpersonal transaction. Moreover, social identities can be natural triggers for social closeness, and thus interacting with in- vs. out-group members may lead to differences in cognitive performance. Political membership, profession, national identity or gender might be approached as examples of social categories which could alter the perceived social distance among the group members, and thus could lead to cognitive costs when the interacting parties are in-group members.

6.3. Concluding Remarks

Closeness as a cognitive cost in the decision making process is a simple and elegant alternative explanation to the evolutionary and motivational explanations of interpersonal behavior. I suggested that closeness has a computational cognitive cost. The findings are the first to demonstrate how self-interested and altruistic behaviors are not only motivationally driven, but also driven by a cognitive computational cost resulting from the self-other overlap. Closeness to the interaction partner is likely to interfere with the self-other differentiation and hinder computing the self-interested benefits of a transaction. Existing motivational or evolutionary approaches implicitly ascribe people the capacity to calculate the short- or long-term benefits of a transaction for the self. Different from those approaches, I predicted and the findings supported that the decision itself is more difficult to the judge if it involves a close rather than a distant other. It seems that close relationships may come with its cognitive cost.

REFERENCES

Acar-Burkay, S., Fennis, B. M., & Warlop, L. (2014). Trusting others: the polarization effect of need for closure. *Journal of Personality and Social Psychology, 107*(4), 719-735.

Aron, A., & Aron, E. N. (1986). *Love as the expansion of self: Understanding attraction and satisfaction.* New York: Hemisphere.

Aron, A., & Aron, E. N. (1996). Self and self-expansion in relationships. In G. Fletcher & J. Fitness (Eds.), *Knowledge structures in close relationships: A social psychological approach* (pp. 325-344). Hillsdale, NJ: Lawrence Erlbaum.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63*(4), 596-612.

Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including other in the self. *Journal of Personality and Social Psychology, 60*(2), 241-253.

Baumeister, R.F. (2011). Self and identity: a brief overview of what they are, what they do, and how they work. *Annals of the New York Academy of Sciences*. 1234(1), 48–55.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.

Binzel, C., & Fehr, D. (2013). Social distance and trust: Experimental evidence from a slum in Cairo. *Journal of Development Economics, 103*, 99–106.

Brañas-Garza, P., Cobo-Reyes, R., Espinosa, M. P., Jimenez, N., Kovarik, J., & Ponti, G. (2010). Altruism and social integration. *Games and Economic Behavior*, *69*(2), 249–257.

Burnham, T. C. (2003). Engineering altruism: A theoretical and experimental investigation of anonymity and gift giving. *Journal of Economic Behavior and Organization, 50*, 133–144.

Caporael, L. R., & Brewer, M. B. (1995). Hierarchical evolutionary theory: There is an alternative, and it's not creationism. *Psychological Inquiry*, *6*(1), 31–34.

Chugh, D., & Bazerman, M. H. (2007). Bounded awareness: What you fail to see can hurt you. *Mind and Society, 6*(1), 1–18.

Cicirelli, V. G. (2006). Caregiving decision making by older mothers and adult children: Process and expected outcome. *Psychology and Aging. 21*(2), 209–221.

Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*, 95–120.

Colquitt, J. A., Baer, M. D., Long, D. M., & Halvorsen-Ganepola, M. D. K. (2014). Scale indicators of social exchange relationships: A comparison of relative content validity. *Journal of Applied Psychology, 99*(4), 599–618.

Cornelissen, G., Dewitte, S., & Warlop, L. (2011). Are social value orientations expressed automatically? Decision making in the dictator game. *Personality and Social Psychology Bulletin. 20*(5), 1-11.

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management, 31*(6), 874–900.

Cross, S. E., Bacon, P. L., & Morris, M. L. (2000). The relational-interdependent self-construal and relationships. *Journal of Personality and Social Psychology, 78*(4), 791.

Cross, S. E., Hardin, E., & Gercek-Swing, B. (2011). The what, how, why, and where of self construal. *Personality and Social Psychology Review, 15*(2), 142-179.

DeBruine, L. M. (2002). Facial resemblance enhances trust. *Proceedings of the Royal Society B: Biological Sciences, 269*(1498), 1307–1312.

DeBruine, L. M. (2005). Trustworthy but not lust-worthy: Context-specific effects of facial resemblance. *Proceedings of the Royal Society B: Biological Sciences, 272*(1566), 919– 922.

Engel, C. (2011). Dictator games: A meta study. *Experimental Economics, 14*(4), 583–610.

Farmer, H., McKay, R., & Tsakiris, M. (2014). Trust in me: Trustworthy others are seen as more physically similar to the self. *Psychological Science. 25*(1). 290-292.

Fiedler, S., Glöckner, A., Nicklisch, A., & Dickert, S. (2013). Social Value Orientation and information search in social dilemmas: An eye-tracking analysis. *Organizational behavior and human decision processes, 120*(2), 272-284.

Fiske, A. P. (1991). *Structures of social life: The four elementary forms of human relations: Communal sharing, authority ranking, equality matching, market pricing*. New York: Free Press.

Fiske, A. P. & Haslam, N. (1996). Social cognition is thinking about relationships. *Current Directions in Psychological Science, 5*(5), 143–148.

Focquaert, F., & Platek, S. (2007). Social cognition and evolution of self-awareness. In S. M. Platek, J. P. Keenan, & T. K. Shackelford (Eds.) *Evolutionary cognitive neuroscience* (pp. 457–497). Michigan: MIT.

Foddy, M., Platow, M. J., & Yamagishi, T. (2009). Group-based trust in strangers: The role of stereotypes and expectations. *Psychological Science, 20*(4), 419-422.

Goeree, J. K., McConnell, M. A., Mitchell, T., Tromp, T., & Yariv, L. (2010). The 1/d low of giving. *American Economic Journal: Microeconomics, 2*(1), 183–203.

Gudykunst, W. B., & Lee, C. M. (2003). Assessing the validity of self construal scales. *Human Communication Research, 29*(2), 253-274.

Gusnard, D. A., Akbudak, E., Shulman, G. L., & Raichle, M. E. (2001). Medial prefrontal cortex and self-referential mental activity: Relation to a default mode of brain function. *Proceedings of the National Academy of Sciences*, *98*, 4259 – 4264.

Hamilton, W. D. (1964). The genetical evolution of social behaviour. II. *Journal of Theoretical Biology, 7*(1), 17–52.

Holmes, J. G., & Rempel, J. K. (1989). Trust in close relationships. In C. Hendrick (Ed.), *Close relationships* (pp. 187–220). Newbury Park, CA: Sage.

Jenkins, A. C., & Mitchell, J. P. (2011). How has cognitive neuroscience contributed to social psychological theory? In A. Todorov, S. Fiske, & D. A. Prentice (Eds.) *Social neuroscience: Toward understanding the underpinnings of the social mind* (pp. 3–13). New York: Oxford University Press.

Jones, B., & Rachlin, H. (2006). Social discounting. *Psychological Science, 14*(7). 283-286.

Kahneman, D. (2003). A Perspective on Judgment and Choice: Mapping Bounded Rationality. *American Psychologist, 58*(9), 697–720.

Kerr, N. L., & Levine, J. M. (2008). The detection of social exclusion: Evolution and beyond. *Group Dynamics: Theory, Research, and Practice, 12*(1), 39–52.

Kurzban,R., Burton-Chellew, M. N., & West, S. A. (2015). The evolution of altruism in humans. *Annual Review of Psychology, 66*, 575–99.

Leider, S., Mobius, M., Rosenblat, T., & Do, Q. (2009). Directed altruism and enforced reciprocity in social networks. *Quarterly Journal of Economics, 124*(4), 1815–51.

Linder, I., Schain, C., Kopietz, R., & Echterhoff, G. (2012). When do we confuse self and other in action memory? Reduced false memories of self-performance after observing actions by an out-group vs. in-group actor. *Frontiers in Psychology, 3*, 1-6.

Macrae, C. N., Moran, J. M., Heatherton, T. F., Banfield, J. F., & Kelley, W. M. (2004). Medial prefrontal activity predicts memory for self. *Cerebral Cortex, 14*, 647–654.

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

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist, 41*, 954–969.

Mashek, D. J., Aron, A., & Boncimino, M. (2003). Confusion of self with close other. *Personality and Social Personality Bulletin, 29*(3), 382-392.

Mitchell, J. P., Banaji, M. R., & Macrae, C. N. (2005). The link between social cognition and self-referential thought in the medial prefrontal cortex. *Journal of Cognitive Neuroscience, 17*(8), 1306–1315.

Molm, L. D. (2010). The structure of reciprocity. *Social Psychology Quarterly, 73*(2), 119 - 131.

Rahn, W.M., Yoon, K.S., Garet, M., Lipson, S., & Loflin, K. (2009). Geographies of trust. *American Behavioral Scientist*, 52(12), 1646-1663.

Rand, D. G., & Epstein, Z. G. (2015). Risking Your Life without a Second Thought: Intuitive Decision-Making and Extreme Altruism. *PLoS ONE*, *9*(10), 1-6.

Rand, D.G., & Nowak, M. A. (2013). Human Cooperation. *Trends in Cognitive Sciences, 17*(8), 413–425.

Rand, D. G., Peysakhovich, A., Kraft-Todd, G. T., Newman, G. E., Wurzbacher, O., Nowak, M. A., & Greene, J. D. (2014) Social Heuristics Shape Intuitive Cooperation. *Nature Communications, 5*(3677), 1-12.

Ratcliff, R. (1993). Methods for dealing with reaction time outliers. *Psychological Bulletin, 114*(3), 510-532.

Ratcliff, R., & McKoon, G. (2008). The Diffusion Decision Model: Theory and Data for Two-Choice Decision Tasks. *Neural Computation*, 20(4), 873–922.

Righetti, F., Finkenauer, C., & Finkel,E. J. **(**2013). Low self-control promotes the willingness to sacrifice in close relationships. *Psychological Science, 24*(8) 1533–1540.

Rilling, J. K., & Sanfey, A. G. (2011) The neuroscience of social decision-making. *Annual Review of Psychology, 62*, 23–48.

Sober, E., & Wilson, D.S. (2011). Adaptation and natural selection revisited. *Journal of Evolutionary Biology*, *24*(2), 462–468.

Schwartz, J., Luce, M. F., & Ariely, D. (2011). Are consumers too trusting? The effects of relationships with expert advisers. *Journal of Marketing Research*, *48*(SPL), 163-174.

Sedikides, C., & Skowronski, J. J. (1997). The symbolic self in evolutionary context. *Personality and Social Psychology Review, 1*(1), 80–102.

Suddendorf, T., Addis, D. R., & Corballis, M. C. (2009). Mental time travel and the shaping of the human mind. *Philosophical Transactions of the Royal Society of London B: Biological Sciences, 364*(1521), 1317-1324.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971) Social categorization and intergroup behavior. *European Journal of Social Psychology,* 1, 149–178.

Thibaut, J. W., & Kelley, H. H. (1959). *The Social Psychology of Groups.* New York: John Wiley & Sons.

Todd, A. R., Forstmann, M., Burgmer, P., Brooks, A. W., & Galinsky, A. D. (2015). Anxious and egocentric: how specific emotions influence perspective taking. *Journal of Experimental Psychology: General, 144*(2), 374-391.

Tu, Y., Shaw, A., & Fishbach, A. (2016). The friendly taking effect: How interpersonal closeness leads to seemingly selfish yet jointly maximizing choice. *Journal of Consumer Research, 42*(5), 669-687.

Vanyperen, N. W., & Buunk, B. P. (1991). Equity theory and exchange and communal orientation from a cross-national perspective. *The Journal of Social Psychology, 131*(1), 5–20.

Willemsen, M. C., & Johnson, E. J. (2008). The MouselabWeb Page. http://www.mouselabweb.org

Woolley, K., & Fishbach, A. (2016). A recipe for friendship: Similar food consumption promotes trust and cooperation. *Journal of Consumer Psychology, 27*(1), 1-10.

Xue, M., & Silk, J. (2012). The role of tracking and tolerance in relationship among friends. *Evolution and Human Behavior, 33*(1), 17–25.

Zaki, J., & Mitchell, J. P. (2013). Intuitive Prosociality. *Current Directions in Psychological Science, 22*(6), 466–470.

Zaki, J., & Oschner, K. (2011). You, me, and my brain: Self and other representations in social cognitive neuroscience. In A. Todorov, S. Fiske, & D. A. Prentice (Eds.) *Social neuroscience: Toward understanding the underpinnings of the social mind* (pp. 3–13). New York: Oxford University Press.

APPENDICES

Appendix A: Instructions: Closeness Manipulation

Close Other Condition

Imagine that you have made a list of the 100 people closest to you in the world ranging from your dearest friend or relative at position #1 to a mere acquaintance at #100. The person at #1 would be someone you know well and is your closest friend or relative. The person at #100 might be someone you recognize and encounter but perhaps you only know her/his name. You do not have to physically create the list, just imagine that you have. Now again please write down the person's name initial who may be the #1 in your list.

[*Text field entry*]

In the following games you will be asked to choose options for you and for this person, the columns are named as "Me" and "#1" (, respectively. Whenever you see "#1" please think of the person you mentioned here. In the following games you receive the amounts in the first column and #1 receives the amounts in the second column.

Please continue to learn the new rule of the game. Games of the second round of the study will start afterwards.

Appendix B: Instructions: Predefined Decision Rule

RULE

In the following games please find the option that:

MINIMIZES Your payoff and

MAXIMIZES #1's payoff.

Please memorize and rewrite the rule in the text fields below to be sure that you learned who will get the maximum and who will get the minimum amount.

Please find the option that:

[*Text field entry*] Your payoff and

[*Text field entry*] #1's payoff.

Get ready for the second round of the game and start!

Appendix C: Instructions: Self-Interested Rule in Study 6

RULE

In the following games you will be asked to choose options for you and for the person you mentioned, represented as "Me" and "[Close/Distant Other Initials]", respectively. Whenever you see the initials please think of the person you have mentioned.

In the following games please find the option that:

- **MAXIMIZES** Your payoff (Me) and

- **MINIMIZES** #1's / #100's ([Close/Distant Other Initials]) payoff.

Please memorize the rule.

Indicate the correct option below to be sure that you learned who will get the maximum and who will get the minimum amount.

The rule is to find the option that:

- MAXIMIZES my payoff and MAXIMIZES [Close/Distant Other Initials]'s payoff
- MINIMIZES my payoff and MAXIMIZES [Close/Distant Other Initials]'s payoff
- MAXIMIZES my payoff and MINIMIZES [Close/Distant Other Initials]'s payoff
- MINIMIZES my payoff and MINIMIZES [Close/Distant Other Initials]'s payoff

Appendix D: The Me/Other Game Questions In Study 10

1. There is a problem in the sink. Who should fix it?
2. There is a tournament for basketball shooting. Who should join this tournament?
3. An old person needs help to travel to another city. Who should drive this person to the city?
4. A web-site asks for new photos of some objects. Who should take the photos?
5. There is a running competition in the city. Who should run?
6. Your group needs to buy a newspaper from the corner of the street but it is raining outside. Who should buy the newspaper?
7. For the dinner some potatoes should be boiled. Who should do this?
8. Someone asks for help to style her hair. Who should help this person?
9. A small child needs help to learn biking. Who should help this child?
10. For a house party, some live music is needed. Who should play the music?

Answer options for each question is as follows:

- Me
- [Close Other Initials]
- KPE

Appendix E: Self-Construal Scales – Short Form

Please state to what extent the following statements describe yourself.

	1 Strongly Disagree (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 Strongly Agree (7)
I prefer to be self-reliant rather than depend on others. (1)	❍	❍	❍	❍	❍	❍	❍
I respect decisions made by my group. (2)	❍	❍	❍	❍	❍	❍	❍
I will sacrifice my self-interest for the benefit of my group. (4)	❍	❍	❍	❍	❍	❍	❍
When I feel very close to someone, it often feels to me like that person is an important part of who I am. (5)	❍	❍	❍	❍	❍	❍	❍
In general, my close relationships are an important part of my self-image. (6)	❍	❍	❍	❍	❍	❍	❍
It is important for me to act as an independent person. (7)	❍	❍	❍	❍	❍	❍	❍
I maintain harmony in the groups of which I am a member. (8)	❍	❍	❍	❍	❍	❍	❍
I enjoy being unique and different from others. (9)	❍	❍	❍	❍	❍	❍	❍
My close relationships are an important reflection of who I am. (10)	❍	❍	❍	❍	❍	❍	❍

Appendix F: Curriculum Vitae

PERSONAL INFORMATION

Surname, Name: Uğurlar, Nesibe Pınar
Date and Place of Birth: 1984, Amasya

EDUCATION

Degree	Institution	Year of Graduation
MA	Ege University Social Psychology	2011
MA	Dokuz Eylül Üni., Business Administration	2008
BA	Dokuz Eylül Üni., Business Administration	2006
High School	Adnan Menderes Anadolu Lisesi, Aydın	2001

WORK EXPERIENCE

Year	Place	Enrollment
2017-Present	University of Cologne	Research Associate
2013-2017	TOBB University of Economics and Technology	Research Assistant
2010-2017	Gediz University	Research Assistant

ACADEMIC VISITS

Year	Place
04/2016-10/2017	University of Cologne, Social Cognition Center Cologne
09/2009-01/2010	Université Paul Verlaine,Master of Work Psychology, Metz

PUBLICATIONS

Book Chapter

Bilgin, N., & Uğurlar, N. P. (2013). Ölümü Evcilleştirmek, in N. Bilgin, Tarih ve Kolektif Bellek, İstanbul: Bağlam Yayıncılık.

Monographies

Ugurlar, N. P. (2011). Consumption behavior from the perspective of terror management theory [Transl.]. (Unpublished master thesis). Ege University, Turkey.

Ugurlar, N. P. (2008). The effects of corporate social responsibility on competitiveness of firms: a research on consumers' attitudes. (Published master thesis). Dokuz Eylül University, Turkey.

AWARDS & GRANTS

2017	Junior Start-Up Grant (together with Dirk Wulff), C-SEB, University of Cologne
2017	Runner-Up for the Best Paper Award, European Social Cognition Network
2017	International Fellowship Grant (together with Ann-Christin Posten), C-SEB, University of Cologne
2016	Junior Start-Up Grant (together with Ann-Christin Posten), C-SEB, University of Cologne
2016 – 2017	International Research Fellowship, The Scientific and Technological Research Council of Turkey
2015	Fellow, Summer School on Meaning and Purpose, IDC Herzliya, Israel
2014	Fellow, Summer Institute on Bounded Rationality, Max Planck Institute for Human Development, Berlin
2012 – 2017	National PhD Scholarship Award, Merit–Based, The Scientific and Technological Research Council of Turkey
2014, 2009	Travel Grants, The Scientific and Technological Research Council of Turkey
2009	International Graduate Exchange Scholarship, Erasmus Program

CONFERENCE PRESENTATIONS

Uğurlar, N. P., & Posten, A-C. (2017, August). *Can closeness hurt? Self-other overlap interferes with decision making.* Paper presented at the 19th ESCON Transfer of the Knowledge Conference, Gdansk.

Uğurlar, N. P., & Posten, A-C. (2017, June). *The role of social distance on trust and cooperation.* Paper presented at the 10th JDM Meeting for Early-Career Researchers, Bonn.

Uğurlar, N. P., & Posten, A-C. (2017, March). *The role of social distance on trust and cooperation.* Paper presented at the 59th Conference of Experimental Psychologists, Dresden.

Uğurlar, N. P.,&Uysal, A. (2015, February). *The influence of basic needs on materialism: When and how do threats to basic needs enhance materialistic*

values? Poster presented at the 16th Annual Meeting of the Society for Personality and Social Psychology, Long Beach, California.

Uğurlar, N. P., & Sümer, N. (2014, July). *Attachment insecurity moderates the effects of global socio-cultural indicators on propensity to trust*. Paper presented at the 37th Annual Meeting of the International Society of Political Psychology (ISPP), Rome.

Uğurlar, N. P. (2014, May).*Human mind in the pursuit of belongingness: Do humans have domain-specific cognitive mechanisms for belongingness?* Poster presented at the Summer Institute for Bounded Rationality at the Max Planck Institute for Human Development, Berlin.

Uğurlar, N. P. (2011, May). *Kurumsal sosyal sorumluluğun tüketici tutumlarına etkisi* [*Transl.* The effect of corporate social responsibility on consumer attitudes], Paper presented at the 10th National Conference of Business Administration, Kuşadası. Published in *Proceedings of 10th National Conference of Business Administration*, p. 371-374.

Bilgin, N., &**Uğurlar**, N. P. (2009, October). *İzmir ve İzmirlilere ilişkin algı ve temsiller* [*Transl.* Perceptions and representations of the city of and the people of Izmir], Paper presented at the Symposium of Izmirian, Izmir. Published in *Proceedings oftheSymposium of Izmir,* p. 105-121.

Appendix G: Turkish Summary/Türkçe Özet

KİŞİLERARASI YAKINLIĞIN KARAR VERMEDEKİ BİLİŞSEL MALİYETİ

Giriş

Günlük hayat çeşitli konularda alınan kararlarla doludur. Bu kararların önemli kısmı hem kendimizi hem de bize yakın olan ya da uzak olan başka biri ya da birileri ile ilgili bilgiler ve diğerlerini de etkileyen sonuçlar barındırır. Bu çalışma, verilecek olan bir karar (örn., belirli bir finansal kaynağın kişiler arasında dağıtılması), hem kişinin kendisiyle hem de başka biriyle ilgili sonuçlar içerdiğinde, diğer kişiye yakınlığın karar verme sürecindeki bilişsel performansı nasıl etkilediğini incelemektedir. Daha açık olmak gerekirse, bu tez dâhilinde yapılan çalışmalarda, bir kişinin aldığı ekonomik kararlar kendisine yakın ya da uzak olan başka biriyle ilgili bilgiler içerdiğinde, karar vericinin bilişsel performansının nasıl değiştiği araştırılmaktadır.

Kişilerarası yakınlığın güven, işbirliği ve özgeci davranış üzerindeki olumlu etkisi literatürde tekrar tekrar ve tutarlı bir şekilde ortaya konulmuştur. İşbirliğini ölçmek için sıkça başvurulan araçlardan biri diktatör oyunudur. Bu oyunda katılımcı sabit bir kaynağı kendisi ve oyunda pasif olan başka birisi arasında paylaştırır. Diktatör oyununun kullanıldığı bu çalışmalarda katılımcılar diğerlerine kaynaklarının ortalama olarak yüzde 28'ini göndermektedirler (bkz., Engel, 2011). Bu oran kaynağın paylaşıldığı diğer kişi yakın biri olduğunda yüzde 50 oranında artmaktadır (örn., Brañas-Garza ve ark., 2010; Lieder, Möbius, Rosenblat ve Do, 2009). Diktatör oyunundan önce oyundaki diğer kişinin fotoğrafının katılımcıya gösterilmesi gibi algılanan yakınlığın örtük olarak manipülede edilmesi bile kaynak paylaşımını önemli ölçüde artmaktadır (Burnham, 2003). Güven üzerinde yapılan çalışmalarda da kişilerarası yakınlığın etkisi görülür (örn., Binzel ve Fehr, 2013). Kişinin kendi yüzü ve diğerinin yüzü arasındaki benzerlik (DeBruine, 2002; 2005) ya da diğer kişiyle benzer yiyecekleri tüketmek (Woolley ve Fishbach, 2016) gibi yakınlığa ilişkin belirsiz

ipuçları bile güveni artırmaktadır. Özetle, geçmiş çalışmalarda kişilerarası yakınlık ve işbirliği ve güven arasında güçlü bir bağın olduğu ortaya konmuş ve bu ilişkinin tutarlılığı farklı bağlam ve biçimlerde yapılan çalışmalarda tekrar tekrar gösterilmiştir. İnsanlar özellikle kendilerine yakın olan diğerlerine karşı daha cömerttirler.

İnsanların kendilerine yakın olan diğerlerine neden daha fazla güvendiği ve onlarla neden daha fazla işbirliği kurduğu konusundaki tartışmaların büyük bir çoğunluğu, kişilerarası etkileşimde yakınlığın sağladığı ek faydalara odaklanan sosyal takas yaklaşımından hareket etmektedir (örn., Cropanzano ve Mitchell, 2005; Molm, 2010; Vanyperen ve Buunk, 1991). Buna göre, yakın ilişkilerin tekrarlı ve uzun süren etkileşim içeren doğası ve verilen bir kaynağın karşılığının gelecekte alınma ihtimalinin yakın ilişkilerde daha fazla olması, insanların uzun vadede yakın oldukları diğerlerinden daha fazla fayda sağlayabileceğine işaret etmektedir. Bu perspektife göre, insanlar maliyet/fayda oranı daha yüksek olana yönelimlidirler ve yakın ilişkilerdeki yoğun işbirliği de bu amaca hizmet eder. Yukarıda ele alınan yaklaşımlar, yakın olan diğerlerine yönelik daha fazla kaynak ayırmak gibi olumlu sosyal davranışları yakın ilişkilerin bir biçimde kişinin kendisine daha fazla fayda sağladığı temel varsayımından hareketle izah etmektedirler. Bu motivasyonel açıklamalara benzer şekilde, akraba seçilimi, grup temelli modeller ve karşılıklı fedakârlık da dâhil olmak üzere öne sürülen evrimsel yaklaşımlar, yakın kişilerle işbirliğinin sağladığı adaptif avantajları tartışmaktadırlar (Caporael ve Brewer, 1995; Kerr ve Levine, 2008). Tüm bu yaklaşımların temel savı, yakın ilişkilerde işbirliğinin çeşitli sebeplerle bireyin üreme ve hayatta kalma becerisini artırdığı, dolayısıyla insanların yakın ilişkilerde daha verici olduğudur (örn., Kerr ve Levine, 2008. Kurzban ve ark., 2014). Özetle motivasyonel ve evrimsel argümanlar yakınlarımıza daha fazla güvenmemiş ve onlarla daha fazla işbirliği kurmamızı bu eylemlerin araçsal özellikleri çerçevesinde ele almaktadırlar.

Kişilerarası yakınlık yalnızca sosyal davranışları farklılaştıran bir faktör değildir. Aynı zamanda kişinin kendi benliğini ve kendisiyle ilgili yargılarını etkileyen bir bilişsel yapılanmayı yansıtmaktadır. Diğerini benliğe dahil etme yaklaşımı (Aron ve Aron, 1986, 1996; Aron ve ark., 1991) benliğin ve

başkalarının zihinsel temsillerinin yakınlık derecesiyle orantılı olarak bilişte örtüştüğünü öne sürmektedir: başka bir kişi ne kadar yakınsa zihinsel temsiller arasındaki örtüşme de bir o kadar fazladır. Bu görüşe göre benlik ve yakın olan diğerlerine ilişkin yargılar, kısmen de olsa, benliğe ve diğerine ilişkin bilişteki enformasyon yapılanmalarının örtüşme derecelerinden etkilenmektedir. Yakınlığın temelinde de paylaşılan bilişsel unsurların derecesi yer almaktadır (Mashek, Aron ve Boncimino, 2003). Bu argümanı destekler biçimde, yapılan çalışmaların bulguları kişilerin kendileri ve yakın olan diğerleri arasındaki kişilik özelliklerini karşılaştırırken daha fazla zaman harcadıklarını ve daha fazla hata yaptıklarını ortaya koymaktadır (Aron ve ark., 1991). Buna göre, bilişsel yapılanmalardaki örtüşmenin fazla olması karışıklığa neden olmaktadır.

Benliğe ilişkin bilgilerin bilişte yakın olan diğer bir kişinin bilgileriyle örtüşmesi kişilerarası etkileşimlerin yakınlıktan nasıl etkileneceğini açıklamada önemli bir noktadır ve bu tezin dayanağını oluşturan temel teorik çerçeveyi sunar. Bu tezdeki en kritik varsayımım insanların kendilerine ilişkin herhangi bir bilgiyi analiz edebilmek için, ilk olarak belirgin ve ayrı bir benlik kavramına ihtiyaç duyacaklar olmalarıdır. Yani, kişinin kendisine dair neyin iyi neyin kötü olacağını belirleyebilmesi ve önündeki seçenekler içerisinden kendisine uygun olanı seçebilmesi için öncelikli olarak benliğine ilişkin bilgiye ulaşabilmesi gerekir. Burada bahsedilen süreç, kişinin hafızasından benlik kavramını diğer şeylerden ayrı bir bilişsel yapı olarak çağırabilmesidir. Bir kişi ne zaman kendisi ile ilgili bir karar vermek isterse bu karar verme sürecini başlatabilmek için, amacından ya da motivasyonundan bağımsız olarak, öncelikle kendi içinde bütünlüklü ve diğer şeylerden bağımsız bir benlik kavramına ulaşabilmesi gerekir. Kişilerarası yakınlıkla birlikte bilişteki ben-diğeri temsillerinin örtüşmesinin arttığı bulgusundan hareketle, ikinci varsayımım yakın olan biriyle etkileşim esnasındayken benlik kavramına ayrı bir bilişsel yapı olarak ulaşmanın daha güç olduğudur. Bu iki varsayımdan hareketle şu hipotezi öne sürmekteyim. Bir kişi kendisi ve bir başka kişiyle ilgili bilgilerin analiz edilmesini gerektiren bir karar sürecindeyken, diğer kişi yakın biri olduğunda, karar verme süreci daha fazla bilişsel kaynak gerektirecektir. Çünkü yakın ilişkilerde var olan bilişsel

temsillerdeki örtüşme benlik kavramına ayrı bir yapı olarak ulaşmayı engellemektedir.

Bu tez çalışması kişilerarası yakınlığın bilişsel bir maliyeti olduğunu öne sürmektedir. Burada bahsi geçen süreçler farkındalığın dışında, otomatik olarak işleyen bilişsel süreçlerdir. Bu hipotez çerçevesinde iki önerme ileri sürülmektedir: Etkileşim partneri yakın biri olduğunda (1) uygun kararı bulmak daha fazla bilişsel çaba ve dolaysıyla daha fazla zaman gerektirecek ve (2) zamanın kısıtlanması gibi bilişsel işleyişin sınırlandırıldığı durumlarda karar verme süreci daha fazla hatayla sonuçlanacaktır. Bu önermeler sınırlı farkındalık yaklaşımının (bkz., Chugh ve Bazerman, 2007) perspektifiyle aynı doğrultudadır. Bu yaklaşıma göre, insanlar kolaylıkla ulaşılabilen ve hâlihazırda algılanabilir olan bilgiyi görme, arama, kullanma veya paylaşma kapasiteleri bakımından da sınırlıdırlar. Bu tezde kişilerarası yakınlığın bilginin farkındalığına ilişkin bu türden bir sınırlandırıcı etken oluşturduğunu öne sürmekteyim. Kişilerarası yakınlık, dolayısıyla, benlikle ilgili karar verme süreçlerinde bilişsel zorlanmaya, karar verme süresinde uzamaya ve kararda daha fazla hataya yol açacaktır. Bilgi işleme süreçlerindeki yakınlığa bağlı farklılaşmaya ilişkin beklediğim bu etki otomatik seviyede gerçekleşecektir.

Bu tezde tartışılan yakınlığın bilişsel bir maliyeti olduğu hipotezi yeni bir argümandır. Bu argümanla test edilmek istenen nihai karar tercihleri (işbirliği derecesi gibi davranışsal neticeler) değil, karar verme sürecinde ortaya çıkan bilişsel performanstır (bir karar görevini tamamlamak için harcanan süre, hata sayısı ve bilişsel zorlanma). Kişilerarası etkileşimleri test etmek ve davranışsal eğilimleri ölçmek için literatürde kullanılan diktatör ya da güven oyunları gibi tipik ekonomi oyunları bu tezin hipotezini test etmek için uygun değildir. Bundan dolayı, bu tez kapsamında muhakeme sürecinde ben-diğeri örtüşmesinden ve karışıklığından kaynaklanan bilişsel performansı test edebilmek için yeni bir deneysel paradigmaya ihtiyaç duyulmuş ve bu doğrultuda "Ben/Diğeri Oyunu" adı verilen bir ekonomik problem çözme oyunu geliştirilmiştir. Bu oyunun geliştirilmesinde hipotezin testini olanaklı kılabilmek için iki amaç gözetilmiştir: Oyun (1) benlik ve diğer bir kişiye ilişkin bilgiler içermeli ve oyunu çözebilmek benliği diğerinden ayırabilmeyi gerektirmelidir ve (2) kişilerarası yakınlıktan

kaynaklı görevi tamamlama zamanı ya da hata oranı gibi bilişsel ölçümleri almaya izin vermelidir.

Geliştirilen ben/diğeri oyunu şöyledir. Katılımcı iki kişi arasında yapılan farklı kaynak dağılımı seçenekleri içerisinden belirli kurallara göre doğru olan seçeneğin bulmaya çalışır. Bu oyunda katılımcıdan kendi tercihini belirtmesi istenmez. Amaç belirli bir kuralı karşılayan doğru seçeneği bulabilmektir. Oyunda iki farklı kural kullanılmıştır: bencil ve özgeci kural. Bencil kurala göre katılımcı oyundaki seçenekler içerisinde kendi çıkarının en yüksek olduğu, diğerinin çıkarının en düşük olduğu seçeneği bulur. Özgeci kurala göre ise katılımcı kendi çıkarının en düşük, diğerinin çıkarının ise en yüksek olduğu seçeneği bulur. Birbirinin tersi olan bu iki kuralın oyuna dâhil edilme sebebi bu oyundaki performansın kuraldan bağımsız olduğunu göstermektir. Oyunda katılımcının doğru seçeneği ararken ortaya koyduğu bilişsel performans ölçülür. Bu oyunu çözmenin oyundaki kaynak dağılımı katılımcının kendisi ile yakın olduğu birisi arasında yapıldığında, katılımcının kendisi ile uzak olduğu birisi arasında yapıldığı duruma göre daha zor olması beklenmektedir. Buna göre ben/diğeri oyunu yakın olunan birini içerdiğinde (1) oyunun sonucunu bulmak daha uzun zaman alacak ve daha fazla bilgi aramayı gerektirecek ve (2) karar verme süresi kısıtlandığında oyunda daha fazla hata yapılacak ve oyunun kendisi daha zor olarak algılanacaktır. Ben/diğeri oyununun tasarımına bağlı olarak, bilişsel çabanın seviyesini değerlendirmek için görev tamamlama zamanı, aranan bilgi sayısı, görevin algılanan zorluk derecesi ve doğru çözüm seviyesi gibi çeşitli bilişsel performans ölçümleri kullanılmıştır.

Bu tez çalışması yakınlığın bilişsel bir maliyeti olduğu hipotezini 12 çalışma ile test etmektedir. İlk 11 çalışma deneysel düzende tasarlanmış ve hepsinde karar verme süreçlerinin oyundaki diğer kişi yakın biri ya da uzak biri olduğunda nasıl değiştiği karşılaştırılmıştır. Son çalışmada ise, yakınlığın bilişsel maliyeti hipotezini korelasyonel bir desende test edilmiştir.

Yakınlığın Bilişsel Maliyeti: Bilgi Arama Deneyleri

Yakınlığın bilişsel maliyeti hipotezini test etmek için tasarlanan birinci grup deneylerde ben/diğeri oyununun bilgi arama versiyonu kullanılmıştır. Bu paradigma ile beş tane çalışma gerçekleştirilmiştir. Ben/diğeri oyununun bilgi

arama versiyonu şu şekildedir: Katılımcılar ben/diğeri oyununun her bir turunda bütün kaynak dağılımı seçeneklerini bilgisayarda tek bir ekranda görürler. Seçeneklere ilişkin bilgiler kapalı bilgi kutularının ardında sunulur. Yani seçenek bilgileri ilk aşamada görünür değildir. Katılımcıların kapalı kutuların ardına gizlenmiş bu bilgileri görebilmeleri için bilgisayar farelerini bu kutuların üzerine getirmeleri ya da fareyle kutuların üzerine tıklamaları gerekmektedir.

Beş deneysel çalışma ile ben/diğeri oyununda bilişsel performans, oyunun tamamlanma süresi (Çalışma 1), oyunu çözmek için aranan bilgi sayısı (Çalışma 2), oyunun algılanan zorluğu (Çalışma 3) ve oyundaki doğru cevap oranı (Çalışma 3, 4 ve 5) kullanılarak ölçülmüştür. Kişilerarası yakınlık her çalışmada aynı biçimde değişimlenmiştir. Bu beş çalışma yakınlığın bilişsel maliyeti hipotezini etkileşim partnerini değişimleyip oyup performansında buna bağlı olarak ortaya çıkan bilişsel performansı ölçerek test etmektedir.

Çalışma 1

Birinci çalışmada ben/diğeri oyununu çözmenin oyun yakın olan birini içerdiğinde uzak olan birini içerdiği duruma göre daha fazla zaman alıp almadığı araştırılmıştır. Oyunu tamamlama süresi, bilişsel performans ölçütü olarak kullanılmıştır. Tamamlama süresinin kısa olması bilişsel performansın daha iyi olduğunu göstermektedir. Kişilerarası yakınlığı değişimlemek için katılımcılardan ben/diğeri oyununu yakın oldukları ya da uzak oldukları biriyle oynadıklarını hayal etmeleri istenmiştir. Ben/diğeri oyununun çözülmesinin yakın diğeri koşulunda daha fazla zaman alacağı beklenmiştir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 254 katılımcı (116 Kadın) çalışmayı ücret (1$) karşılığı tamamlamıştır. Çalışma ortalama olarak 10-15 dakika sürmüştür.

Yöntem

Deneme oturumu. Çalışma ile ilgili bilgilendirme yapılıp onay alındıktan sonra, katılımcılara ben/diğer oyunundaki görevi öğrenmek için bir deneme oturumu sunulmuştur. Bu oturumda ben/diğeri oyunu iki örnek üzerinden katılımcıya açıklanmıştır.

Yakınlık manipülasyonu. Kişilerarası yakınlık Jones ve Rachlin (2006) tarafından geliştirilmiş bir manipülasyon tekniği adapte edilerek değişimlenmiştir. Katılımcılardan farklı derecelerde tanıdıkları 100 kişiden oluşan bir liste hazırladıklarını düşünmeleri istenmiştir. Bu listedeki birinci kişinin kendilerine en yakın olan kişi, yüzüncü kişinin ise sadece ismen bildikleri, daha önce en fazla bir kez karşılaşmış oldukları biri olacağı söylenmiştir. Daha sonra da bu listedeki birinci ya da yüzüncü kişinin isminin baş harflerini bilgisayar ekranındaki bir kutucuğa yazmaları istenmiştir. Katılımcılar oyunu bu listedeki birinci (yakın diğeri) ya da 100. (uzak diğeri) kişiyle oynamışlardır. Kişilerarası yakınlık denekler arası değişkendir.

Ben/Diğeri Oyunu – Arama Versiyonu. Ben/diğeri oyununun her bir turundaki bütün kaynak dağılım seçenekleri aynı ekranda katılımcıya sunulmuştur. Her turda toplam dört seçenek vardır. Bu seçenekler dört satırda sunulmuştur. Seçeneklere ait bilgiler, her bir alıcı için (kişinin kendisi ya da diğer kişi) belirli bir sütunda, kapalı kutular ardında sunulmuştur. Birinci sütundaki değerler katılımcının kendisinin alabileceği miktarları, ikinci sütundaki değerler ise oyundaki diğer kişinin (yakın olan diğer ya da uzak olan diğeri) alabileceği miktarları göstermektedir. Katılımcıların kapalı kutuların ardına gizlenmiş dağılım miktarlarını öğrenebilmek için bilgisayar farelerini ilgili kutunun üstüne getirmeleri gerekmektedir. Katılımcı fareyi bir kutunun üstüne getirdiğinde, farenin bir önceki aşamada açtığı değer yeniden gizlenmiştir. Dolayısıyla katılımcı her durumda sadece bir bilgiyi açık şekilde görebilmektedir. Oyundaki miktarlar karşılaştırması kolay (örn. onluk ya da beşlik) sayılar içermektedir.

Çalışma 1'deki oyun iki elden ve 20 turdan oluşmuştur. Birinci eldeki on turda katılımcılardan bencil kurala ("kendi kazanımınızın en yüksek, diğerinin kazanımının en düşük olduğu seçeneği bulunuz") göre, ikinci eldeki on turda ise özgeci kurala ("kendi kazanımınızın en düşük, diğerinin kazanımının en yüksek olduğu seçeneği bulunuz") göre doğru seçeneği bulmaları istenmiştir.

Katılımcının görevi kendisine önceden belirtilen kurala göre doğru olan cevabı bulması ve belirtmesidir. Katılımcılar seçeneklerin yanında bulunan cevap kutucuklarını işaretleyerek cevaplarını belirtmişlerdir. Bu oyun esnasında olabildiğince hızlı cevap vermeleri ve doğru cevapları belirtimleri istenmiştir.

Oyunun turları arasındaki geçiş katılımcının kontrolündedir. Kendini hazır hissettiğinde bir sonraki tura geçebilmektedir.

Sonuçlar ve Tartışma

Katılımcıların yakın diğeri koşulunda ben/diğeri oyununu tamamlamak için daha fazla zaman harcayıp harcamadıklarını test etmek için bağımsız örneklemler için t-testi analizi yapılmıştır. Kişilerarası yakınlık denekler arası değişkendir. Süre milisaniye cinsinden ölçülmüştür. Sonuçlara göre cevap verme süresi yakın diğeri koşulunda (M = 5386,33, SD = 3483,19) uzak diğeri koşuluna (M= 4595,22, SD= 1341,14) göre daha uzundur, $t(252) = 2.34$, p = ,021, d = 0,29. Ancak cevap verme süresi ölçümlerinde genel olarak önerildiği ve yapıldığı üzere (Ratcliff, 1993) bu süreler log 10 ile dönüştürülerek analize sokulmuşlardır. Logaritmik dönüşüm sonrası değerlerde de tekrar görüldüğü gibi cevap verme süreleri yakın diğeri koşulunda (M = 3,69, SD = 0,17) uzak diğeri koşuluna (M= 3,64, SD= 0,13) göre daha uzundur, $t(252) = 2,52$, p = ,012, d = 0,32.

Bu deneyin sonuçları hipotezle aynı doğrultudadır ve yakınlığın bilişsel maliyeti hipotezine ilk desteği sağlamıştır. Katılımcılar ben/diğeri oyununu tamamlayabilmek için yakın diğeri ile eşleştirildikleri koşulda daha fazla zamana ihtiyaç duymaktadırlar.

Çalışma 2

Birinci çalışma insanların kendilerine ilişkin bilgilerle birlikte yakın oldukları diğer bir kişiyle ilgili bilgileri içeren bir problem çözme oyununda – kendilerine uzak olan biriyle ilişkili bilgileri içeren oyuna göre - daha fazla zamana ihtiyaç duyduklarını göstermiştir. Çalışma 2 yakınlığın bilişsel maliyeti hipotezini farklı bir bilişsel performans ölçümü kullanarak araştırmıştır. Eğer kişiler kendileri ve başkasına ait bilgileri kişilerarası yakınlık koşulunda daha fazla karıştırıyorlarsa, ben/diğeri oyununu çözebilmeleri için oyunda sunulan bilgiler üzerinde daha fazla çalışmaları gerekecektir. Çalışma 2 bu beklentiyi test etmiştir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 201 katılımcı (86 Kadın) çalışmayı ücret (1,25$) karşılığı tamamlamıştır. Çalışma ortalama olarak 10-15 dakika sürmüştür.

Yöntem

Deneme Oturumu. Çalışma ile ilgili bilgilendirme yapılıp onay alındıktan sonra, katılımcılar ben/diğer oyunu görevini öğrenmek için Çalışma 1'deki gibi bir deneme oturumu tamamlamışlardır.

Yakınlık Manipülasyonu. Kişilerarası yakınlık Çalışma 1'dekine benzer biçimde değişimlenmiştir. Katılımcılar ben/diğeri oyununu hayali olarak oluşturdukları 100 kişilik listeden birinci (yakın diğeri) ya da yüzüncü (uzak diğeri) kişi ile oynamışlardır. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu-Arama Versiyonu. Ben/diğeri oyununun temel yapısı Çalışma 1'dekiyle benzerlik göstermektedir. Çalışma 1'den farklı olarak Çalışma 2'de kaynak dağılımı seçenekleriyle ilgili bilgilerle birlikte kaynakları alan kişilerin (katılımcının kendisi ve yakın ya da uzak olan diğer kişi) bilgileri de kapalı kutular ardına gizlenmiştir. Yine Çalışma 1'den farklı olarak kaynakların alıcılarının bilgilerinin hangi sütunda olacağı rastgeledir. Yani, ilk seçenekte birinci sütun katılımcının kendisine dair miktarı, ikinci sütun diğer kişiye dair miktarı gösterirken, diğer bir seçenekte bunun tam tersi olabilmektedir. Dolayısıyla katılımcı yalnızca bir sütundaki kapalı kutuları açarak belirli bir alıcının bilgisine ulaşamaz.

Yine Çalışma 1'den farklı olarak her tur dört yerine altı seçenekten oluşmuştur. Katılımcıların kapalı kutuların ardındaki bilgileri görebilmek için bu çalışmada fareyle kutunun üstüne gelmeleri yeterli değildir, kutular ancak üzerlerine tıklandığında açılmıştır. Böylece katılımcının kapalı kutuların ardındaki bilgileri kaç defa görmek istedikleri daha net ölçülebilmiştir. Deney süresini kısaltmak için Çalışma 2'de tur sayısı on ile sınırlandırılmıştır. İlk beş tur bencil kurala göre, ikinci beş tur ise özgeci kurala göre doğru seçeneğin bulunmasını istemiştir.

Sonuçlar ve Tartışma

Çalışma 2'de bilişsel performansın göstergesi olarak aranan bilgi sayısı, yani açılan kutu sayısı, ölçülmüştür. Hipoteze göre insanlar yakın diğeri koşulunda, uzak diğeri koşuluna göre, daha fazla bilgi arayacaklardır. Çalışmaya katılan 201 kişiden 197'si en az bir kapalı kutuya tıklamış ve analizler bu 197 kişi üzerinden yapılmıştır. Bağımsız örneklemler için t-testi analizi sonuçlarına göre yakın diğeri (M = 14.84, SD = 4.28) ve uzak diğeri (M = 14.59, SD = 4.12)

koşulları arasında aranan bilgi sayısı bakımından anlamlı bir farklılık gözlenmemiştir, $t(195) = 0.42$, $p = .678$.

Çalışma 2'nin sonuçları hipoteze destek sağlamamıştır. Ancak, bu çalışmada ortalama olarak aranan bilgi yani açılan kutu sayısı Çalışma 2'deki ben/diğeri oyununun tasarımının katılımcılar üzerinde yeterince karışıklığa yol açmadığını göstermektedir. Daha açık olmak gerekirse, bu oyunda en az 12 kutunun doğru seçeneğin bulunması için açılması gerekmekteydi. Sonuçlara göre ortalama olarak açılan kutu sayısı 14,72 oldu. Bu sayı asgari açılması gerekenden yalnızca 2-3 birim fazla. Dolayısıyla, bu çalışmada kullanılan oyun hedeflenen zorluğu sağlayamamıştır.

Çalışma 3

Çalışma 3, temel önermenin ikinci kısmına odaklanmaktadır: oyunu tamamlama zamanı kısıtlandığında katılımcılar yakın kişilerle etkileşimde daha fazla hata yapacak ve oyunun kendisi daha zor olarak algılanacaktır. Açacak olursak, eğer yakın olan bir kişiden benliği ayırmak otomatik seviyede bilişsel olarak daha zor ise, insanlar bu ayrımı gerektiren ben/diğeri oyununda zaman sınırı altındayken etkileşim partneri yakın olan biri olduğunda daha çok zorlanacak ve daha fazla hata yapacaklardır. Çalışma 3 oyun yakın ya da uzak olan diğerini içerdiğinde hata oranının ve kişinin kendisinin değerlendirdiği zorluk derecesinin nasıl değiştiğini test etmektedir. Kişilerarası yakınlık önceki iki çalışmadakine benzer biçimde değişimlenmiştir. Otomatik süreçlere dayanan sezgisel yargıları ortaya çıkarmak için oyundaki bilgi arama süresi sınırlandırılmış ve oyun özellikle zor olarak tasarlanmıştır.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 203 katılımcı (103 Kadın, $M_{\text{yaş}}$ = 34,85) çalışmayı ücret (0,75$) karşılığı tamamlamıştır. Çalışma ortalama olarak 8-10 dakika sürmüştür.

Yöntem

Deneme Oturumu. Çalışma ile ilgili bilgilendirme yapılıp onay alındıktan sonra, katılımcılar ben/diğer oyunu görevini öğrenmek için Çalışma 1 ve 2'deki gibi bir deneme oturumu tamamlamışlardır.

Yakınlık Manipülasyonu. Kişilerarası yakınlık Çalışma 1 ve 2'dekine benzer biçimde değişimlenmiştir. Katılımcılar ben/diğeri oyununu hayali olarak oluşturdukları 100 kişilik listeden birinci (yakın diğeri) ya da yüzüncü (uzak diğeri) kişi ile oynamışlardır. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu-Arama Versiyonu. Ben/diğeri oyununun tasarımı ve sunumu Çalışma 2'dekiyle şu noktalar dışında aynıdır. İlk olarak, Çalışma 3'te ben/diğeri oyununun her bir turunda bilgi arama süresi altı saniye ile sınırlandırılmıştır. İkinci olarak, kapalı olan seçenekler bilgisayar faresinin tıklanmasıyla değil farenin kutunun üzerine getirilmesiyle açılmaktadır. Çalışma 3'te de toplam on tur vardır, bunlardan beşi bencil kurala, diğeri özgeci kurala göre yapılandırılmıştır.

Ben/diğeri oyunundaki altı saniye kısıtlaması bilgi arama süresi içindir. Süre dolduktan sonra katılımcılar kutuların ardına gizlenmiş bilgileri daha fazla görememektedirler. Ancak, doğru seçeneği belirtmek için zamanları bulunmaktadır.

Oyunun Zorluk Derecesi. Ben/diğeri oyunu bittikten sonra katılımcılara oyunu ne derece zor buldukları sorulmuştur. Oyunun zorluğu 10'luk Likert ölçeğinde (1 = Çok basit, 10 = Çok zor) değerlendirilmiştir.

Sonuçlar ve Tartışma

Çalışma 3'ün hipotezini test etmek için iki tane bağımsız örneklemler için t-testi analizi yapılmıştır. İlk analizde yakın ve uzak diğeri koşullarında verilen cevapların doğruluk oranları karşılaştırılmıştır. Bunun için her turda verilen cevaplar doğru ise "1", yanlış ise "0" olarak kodlanmış, daha sonra bunların ortalaması hesaplanmıştır. Sonuçlara göre, doğru cevapların ortalaması yakın biri koşulu ($M_{\text{yakın}}$ = 0,55, $SD_{\text{yakın}}$ = 0,22) ve uzak biri koşulu (M_{uzak} = 0,58, SD_{uzak} = 0,22), arasında anlamlı bir fark yaratmamıştır $t(201) = 1,07$, $p = ,286$.

Oyunun zorluğuna ilişkin soruya toplamda 198 katılımcı yanıt vermiştir. Bu katılımcılar üzerinden yapılan ikinci bir bağımsız örneklemler için t-testi sonuçlarına göre yakın biri koşulundaki katılımcılar ($M_{\text{yakın}}$ =7,58, $SD_{\text{yakın}}$ = 2,42) uzak biri koşulundakilere göre (M_{uzak} = 6,97, SD_{uzak} = 2,33), ben/diğeri oyununu marjinal olarak daha zor olarak değerlendirmişlerdir, $t(196) = 1,90$, $p = ,060$, d = 0,27.

Çalışma 3'ün sonuçları ben/diğeri oyununda ortaya çıkması beklenen yakın kişiyle etkileşimde uzak kişiyle etkileşime göre daha az doğru cevap verileceği beklentisine destek sağlamamıştır. Öte yandan, oyundaki zaman sınırını (altı saniye) oyunu fazla zorlaştırmış ve sonuçların büyük oranda tahmine dayanmasına sebep olmuş olabilir. Bununla birlikte oyunun algılanan zorluğuna ilişkin beklenen farklılık marjinal olarak anlamlı bir destek bulmuştur. Ben/diğer oyunu kişinin kendisiyle birlikte yakın olan birine dair bilgileri içerdiğinde, etkileşim partneri uzak olan biri olduğu duruma göre, daha zor olarak algılanmıştır.

Çalışma 4

Çalışma 1 ve Çalışma 3 yakınlığın bilişsel maliyeti hipotezine ben/diğeri oyununun tamamlama süresi ve oyunun algılanan zorluğu ile ölçülen bilişsel performans üzerinden ilk destekleri sağlamışlardır. Çalışma 4 yakınlığın bilişsel maliyetinin testinde ben/diğeri oyunundaki doğruluk oranına odaklanmıştır. Öne sürülen hipoteze göre yakınlık derecesi bu bilişsel performansı etkileyeceği ve etkileşim partneri yakın ilişki içinde olunan biri olduğunda ben/diğeri oyununda daha fazla hata yapılacağı öngörülmektedir. Bu argümanı ilk olarak test eden Çalışma 3'te katılımcıların oyuna yeterince odaklanmamış ve cevapların daha çok tahmine dayanmış olması mümkündü. Bu olası problemin üstesinden gelebilmek için Çalışma 4'te katılımcıların verdiği doğru cevaplar bonus ödemeleri yoluyla ödüllendirilmiş ve böylece katılımcıların doğru cevapları bulmada motivasyonlarını artırmak hedeflenmiştir. Ayrıca, önceki çalışmanın açıklama gücünün de düşük olabileceği düşünülerek çalışmanın örneklem büyüklüğü artırılmıştır. Çalışma 4'ün deneysel deseni Çalışma 3'e oldukça benzerdir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 401 katılımcı (205 Kadın, $M_{\text{yaş}}$ = 35,77) çalışmayı ücret (0,75$) karşılığı tamamlamıştır. Çalışmada ayrıca her doğru cevap için ayrıca bonus ödemesi verilmiştir (0,02$/doğru cevap). Çalışma ortalama olarak 8-10 dakika sürmüştür.

Yöntem

Deneme Oturumu. Çalışma ile ilgili bilgilendirme yapılıp onay alındıktan sonra, katılımcılar ben/diğer oyunu görevini öğrenmek için Çalışma 3'teki gibi bir deneme oturumu tamamlamışlardır.

Yakınlık Manipülasyonu. Kişilerarası yakınlık Çalışma 3'tekine benzer biçimde değişimlenmiştir. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu –Arama Versiyonu. Ben/diğeri oyununun tasarımı ve sunumu Çalışma 3'tekiyle aynıdır.

Çalışma 3'ten farklı olarak deneye Çalışma 4'te deney başlamadan önce katılımcılar kendilerine bir takma ad belirlemiş ve bu takma adı hem Amazon MTurk sayfasındaki hem de deneyin girişindeki metin alanlarına yazmışlardır. Bunu yapmaktaki amaç bonus ödemeleri için katılımcı bilgilerini anonim bir biçimde birleştirebilmektir.

Sonuçlar ve Tartışma

Yakın ve uzak diğeri koşullarında verilen cevapların doğruluk oranlarını karşılaştırmak içim bağımsız örneklemler için t-testi analizi yapılmıştır. Bunun için her turda verilen cevaplar doğru ise "1", yanlış ise "0" olarak kodlanmış, daha sonra bunların ortalaması hesaplanmıştır. Sonuçlara göre, yakın biri koşulu (M = 0,58, SD = 0,21) ve uzak biri koşulu (M = 0,58, SD = 0,21) arasında verilen doğru cevapların ortalaması üzerinde anlamlı bir farklılık gözlenmemiştir, $t(399) = 0,05$, $p = ,957$.

Çalışmanın bulguları hipotezi desteklememiştir. Bu sonuçlarla ilgili iki alternatif açıklamadan bahsedilebilir. Bunlardan birincisi, katılımcıları bonus ödemeleriyle odaklanmaya teşvik etmek olası olan yakınlık etkisinin baskılanmasına ve geçersiz kalmasına sebep olmuş olabilir. Bir diğer açıklama ise katılımcılara deneyden önce takma isim yazdırmanın kendisi yakınlığın performans üzerindeki rolünü etkilemiş olabilir. Bu tezin temel önermesine göre kişilerarası yakınlık bilişsel performansı etkilemektedir çünkü yakın olan diğeri benlik kavramına ayrı bir yapı olarak erişilmesini güçleştirmektedir. Öte yandan takma isimlerin seçimleri esnasında benlik kavramının aktive edilmiş olması olasıdır. Bu durumda yakınlığın etkisinin geçersizleşmesi mümkündür.

Çalışma 5

Çalışma 5, deney desenine bağlı Çalışma 3 ve 4'te görülen problemlerden bazılarını çözmeyi hedefleyerek bu çalışmalardaki hipotezi tekrar test etmek için tasarlanmıştır. Önceki çalışmalardaki önemli olası problemlerden biri katılımcıların ben/diğeri oyununda kaynaklardaki değerlerle kaynakların alıcılarını eşleştirerek problemleri çözmek yerine farklı stratejiler izlemiş olma ihtimalleridir. Örneğin, açık uçlu sorularda oyun seçeneklerinde sunulan miktarların arasındaki farklara odaklanarak doğru seçeneği bulmaya çalıştığını söyleyen katılımcılar olmuştur. Çalışma 5 özellikle bu kaynak-alıcı eşleşmesine odaklanılmasını sağlayabilmek üzere şekillendirilmiştir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 400 katılımcı (218 Kadın, $M_{yaş}$ = 35,43) çalışmayı ücret (1$) karşılığı tamamlamıştır. Çalışma ortalama olarak 8-10 dakika sürmüştür.

Yöntem

Deneme Oturumu. Önceki çalışmalardaki gibi bir deneme oturumu tamamlanmıştır.

Yakınlık Manipülasyonu. Kişilerarası yakınlık Çalışma 4'tekine benzer biçimde değişimlenmiştir. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu –Arama Versiyonu. Ben/diğeri oyununun tasarımı ve sunumu Çalışma 3'tekiyle şu farklılıklar dışında aynıdır. İlk olarak, zaman limitini biraz daha esnetebilmek için süre altı saniyeden yediye çıkarılmıştır. İkinci olarak, bu sefer katılımcının kendisine ve diğer kişiye dağıtılan kaynak miktarları seçeneklerin üzerinde açık bir şekilde belirtilmiş ancak o miktarı kimin alacağı kapalı kutuların ardına gizlenmiştir. Üçüncüsü, alıcılar her seçenekte katılımcının kendisi ("Ben") ve diğeri değildir. Örneğin rastgele bazı seçeneklerde iki sütunda da alıcı olarak "Ben" görünebilmektedir.

Sonuçlar ve Tartışma

Ben/diğeri oyununun yakın ya da uzak olan diğer birini içerdiği koşullarda farklı doğruluk oranlarına neden olup olmadığını incelemek için bağımsız örneklemler için t-testi analizi yapılmıştır. Sonuçlara göre, yakın biri koşulu (M = 0,50, SD = 0,25) ve uzak biri koşulu (M = 0,50, SD = 0,24) arasında verilen doğru

cevapların ortalaması üzerinde anlamlı bir farklılık gözlenmemiştir, $t(398) = 0,13$, $p = ,894$.

Çalışma 5'te de cevaplardaki doğruluk oranları arasında yakın ve uzak kişilerle oynanan oyunlarda bir farklılık bulunmamıştır. Diğer yandan, Çalışma 5'te doğruluk oranları ortalamaları bir önceki çalışmanın dahi altında kalmıştı.

Birleştirilmiş Veri Analizi

Ben/diğeri oyununun bilgi arama versiyonu ile yapılan çalışmalarda doğruluk oranları karşılaştırmasında beklenen farklılık bulunmamıştır. Bunun sebebinin çalışma desenlerindeki eksikliklerden kaynaklanıp kaynaklanmadığı merak konusudur. Bunu incelemenin bir yolu olarak aynı seçenek düzenlerini paylaşan Çalışma 2, 3, 4 ve 5'in veri seti birleştirilmiş ve bu birleştirilen veri üzerinde kişilerarası yakınlığın doğru cevabı bulma performansı üzerindeki etkisi topluca test edilmiştir. Sonuçlar beklenen yöndedir. Yakın olan diğeriyle oynanan oyundaki doğru cevapların ortalaması ($M = 0,58$, $SD = 0,26$), uzak olan diğeriyle oynana oyundaki doğru cevapların ortalamasından ($M = 0,61$, $SD = 0.,6$) anlamlı biçimde düşüktür, $t(1203) = 2,02$, $p = ,044$, $d = 0,11$. Her ne kadar birleştirilmiş veri üzerindeki bu analiz doğrudan hipotezin kendisinin testi için uygun bir analiz yöntemi olmasa da, doğru cevap miktarı üzerinde beklenen etkinin gözlenmemesinin bireysel çalışmaların zayıflığından kaynaklanıyor olabileceği iddiasını güçlendirmektedir.

Yakınlığın Bilişsel Maliyeti: Hafıza Deneyleri

İkinci grup çalışmalar ile ben/diğeri oyununun farklı bir versiyonu kullanılarak yakınlığın bilişsel maliyeti hipotezi tekrar test edilmiştir. İlk grup deneylerde ben/diğeri oyunundaki seçeneklerin aranmasına ilişkin performans ölçümleri alınmaktaydı. Fakat bu çalışmalardan bazılarında ben/diğeri oyunundaki problemi çözebilmek için gerekli zamanın katılımcılara tanınmamış olması ve bu oyundaki cevapların çok fazla tahmine dayanmış olması muhtemeldir. Bu ikinci gruptaki deneylerde önemli değişikliklerden birisi ben/diğeri oyunundaki bütün seçeneklerin öncelikle katılımcıya sunulup bilişsel performans ölçümlerinin daha sonra hatırlama sorularıyla alınmasıdır. Ben/diğeri oyununun hafıza versiyonunda bütün kaynak dağılımı seçenekleri birbirini izleyen ekranlarda kısa sürelerle

sunulmuş, daha sonra doğru cevabın ne olduğu seçenekleri izleyen ekranda ayrıca sorulmuştur. Bu hatırlama görevinde hatırlama zamanı ve doğru hatırlanan cevapların oranı ölçülmüş ve bu iki ölçümden birleşik bir bilişsel performans ölçümü oluşturulmuştur.

Ben/diğer oyununun hatırlama versiyonu ile beş deney yapılmıştır. Çalışma 6, 7 ve 8'de Çalışma 2'de kullanılan kaynak dağılımı seçenekleri birbirini izleyen ekranlarda katılımcılara sunulmuş ve daha sonra katılımcılardan doğru seçeneği hatırlamaları istenmiştir. Doğru cevabı hatırlamak için geçen süre doğru cevap yüzdesine bölünmüş ve farklı yakınlık derecelerindeki bilişsel performans karşılaştırılmıştır. Çalışma 9 ve 10'da ise yakınlığın bilişsel maliyeti hipotezi denekler-içi desende test edilmiştir.

Çalışma 6

Çalışma 6'da insanların yakın diğerleri koşulunda uzak diğerleri koşuluna göre ben/diğeri oyununu doğru olarak çözmek için daha fazla zaman harcayacağı hipotezi ben/diğeri oyununun hatırlama versiyonu ile test edilmiştir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 198 katılımcı (70 Kadın, $M_{yaş}$ = 35,55) çalışmayı ücret (0,5$) karşılığı tamamlamıştır. Çalışma ortalama olarak 10 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Kişilerarası yakınlık daha önceki çalışmalardakine benzer biçimde değişimlenmiştir. Katılımcılar değişen yakınlık derecelerinde tanıdıkları 100 kişiden oluşan bir listeyi zihinlerinde oluşturmuşlar ve daha sonra bu listedeki birinci (yakın diğeri) ya da yüzüncü (uzak diğeri) kişinin isimlerinin baş harflerini bilgisayara yazmışlardır. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu –Hatırlama Versiyonu. Oyun daha önceki çalışmalarda olduğu gibi iki kişi arasında kaynak dağılımı yapan seçenekler içerisinden doğru olanın bulunmasının istendiği bir ekonomik problem çözme görevidir. Katılımcılar oyunun beş turunda bencil kurala, diğer beş turunda da özgeci kurala göre doğru cevabı bulmaya çalışmışlardır.

Oyunun her turunda altı tane kaynak dağılımı seçeneği sunulmuştur. Her bir seçenek birbirini takip eden ekranlarda ikişer saniyelik sunumlarla gösterilmiştir. Seçeneklerin sunumunun ardından izleyen ekranda verilen kurala uygun olan doğru seçeneğin ve bu seçenekteki kaynak dağılım miktarlarının ne olduğu sorulmuştur. Başka bir ekranda ise katılımcıların oyuna odaklanmasını artırmak için doğru olmayan rastgele diğer seçeneklerden bazı miktarların kimlere ait oldukları sorulmuştur. Bilişsel performansı karşılaştırmak için Todd, Forstmann, Burgmer, Brooks ve Galinsky (2015) tarafından da önerildiği gibi doğru cevabı bulmak için harcanan zamanın doğru cevap yüzdesinde bölünmesi ile işleme maliyeti hesaplanmıştır. İşleme maliyetinin yüksekliği bilişsel performansın düşüklüğüne işaret etmektedir.

Sonuçlar ve Tartışma

Katılımcıların yakın diğeri koşulunda ben/diğeri oyununu doğru olarak tamamlamak için daha fazla zaman harcayıp harcamadıklarını, yani işleme maliyetinin daha yüksek olup olmadığını test etmek için bağımsız örneklemler için t-testi analizi yapılmıştır. Kişilerarası yakınlık denekler arası değişkendir. İşleme maliyeti hesaplanmadan önce oyunu tamamlama süresi log 10 ile dönüştürülmüştür (Ratcliff, 1993). Sonuçlara göre işleme maliyeti yakın diğeri koşulunda ($M_{yakın}$= 0,029, $SD_{yakın}$ = 0,069), uzak diğeri koşuluna göre (M_{uzak}= 0,015, SD_{uzak}= 0,018), anlamlı biçimde daha yüksektir, $t(196) = 2,11$, $p = ,037$, $d = 0,28$.

Çalışma 6'nın sonuçları hipotezi desteklemiş ve Çalışma 1'de bulunan sonuçları başka bir desende tekrarlamıştır.

Çalışma 7

Çalışma 7'nin amacı bir önceki çalışmanın bulgularını daha geniş bir örneklemle tekrar test etmektir. Çalışma 7, bir önceki çalışmadaki desenin aynısını kullanmakla beraber tek bir noktada Çalışma 6'dan ayrılmaktadır. Çalışma 7'de deney süresini kısaltmak amacıyla bir önceki çalışmadan farklı olarak deneydeki yanlış seçeneklerle ilgili rastgele sorular sorulmamıştır.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 400 katılımcı (185 Kadın, $M_{yaş}$ = 35,13) çalışmayı ücret (0,75$) karşılığı tamamlamıştır. Çalışma ortalama olarak 10 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Çalışma 6'daki manipülasyonun aynısı kullanılmıştır.

Ben/Diğeri Oyunu –Hatırlama Versiyonu. Çalışma 6'daki oyunun aynısıdır. Yalnızca yanlış seçeneklere ilişkin soru ekranı bu çalışmada yer almamıştır.

Sonuçlar ve Tartışma

Çalışma 6'daki gibi, katılımcıların yakın diğeri koşulunda ben/diğeri oyununu doğru olarak tamamlamak için daha fazla zaman harcayıp harcamadıklarını, yani işleme maliyetinin daha yüksek olup olmadığını, test etmek için bağımsız örneklemler için t-testi analizi yapılmıştır. Sonuçlara göre işleme maliyeti yakın diğeri koşulu (M = 0,04, SD = 0,05), uzak diğeri koşulu (M = 0,05, SD = 0,09), arasında anlamlı bir farklılık yoktur, $t(389) = 1,24$, $p = ,216$.

Çalışma 7'nin sonuçları bir önceki çalışmanın bulgularını tekrarlamamış ve iki koşul arasında işleme maliyeti açısından anlamlı bir fark bulunmamıştır. Bu da demektir ki Çalışma 7'nin tasarımından çıkarılan yanlış cevaplara ilişkin rastgele soruların etkisini test etmek için yeni çalışmalar yapılması gerekir.

Çalışma 8

Çalışma 8'in amacı Çalışma 6'yı laboratuvar ortamında test etmek ve bunu yaparken aynı zamanda farklı bir kişilerarası yakınlık manipülasyonu kullanmaktır. Bu çalışmanın yapılmasının diğer bir amacı da Çalışma 7'nin neden Çalışma 6 ile aynı sonucu bulmadığını daha iyi anlamaktır.

Katılımcılar

Köln Üniversitesi'nde eğitim gören 113 öğrenci (43 Kadın, $M_{yaş}$ = 24,13) çalışmayı ders kredisi karşılığı tamamlamıştır. Çalışma ortalama olarak 10-15 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Bu çalışma için yeni bir yakınlık manipülasyonu geliştirilmiştir. Birbirine yabancı olan iki kişi arasındaki yakınlık derecesi bu kişiler arasındaki estetik tercihlerin benzerliğine ilişkin verilen geribildirim ile değişimlenmiştir. Laboratuvarda ikişer olarak çalışmayı tamamlayan katılımcılar önce çeşitli resimleri ne kadar beğendiklerini ifade etmişlerdir. Daha sonra deneyci katılımcılara estetik beğenilerinin diğer katılımcıyla benzediğini (yakın diğeri koşulu) ya da benzemediğini (uzak diğeri koşulu) söylemiştir. Yakınlık denekler-arası faktördür.

Ben/Diğeri Oyunu –Hatırlama Versiyonu. Çalışma 6'daki oyunun aynısıdır.

Manipülasyon Kontrolü. Katılımcılar ben/diğeri oyununu tamamladıktan sonra odadaki diğer katılımcıya ne derece yakınlık hissettiklerini 0 (hiç yakın hissetmedim) – 100 (çok yakın hissettim) arasında değişen bir ölçekte değerlendirmişlerdir.

Sonuçlar ve Tartışma

Öncelikle manipülasyonun işleyip işlemediğini test etmek için bir bağımsız örneklemler için t-testi uygulanmıştır. Buna göre diğer katılımcıyla benzer estetik tercihlere sahip oldukları söylenen kişiler (M = 10,84, SD = 17,07) ve farklı estetik tercihlere sahip oldukları söylenen kişiler (M = 9,54, SD = 16,24) arasında diğer katılımcıyı kendine daha yakın görme üzerinde anlamlı bir farklılık bulunmamıştır, $t(111) = 0{,}41$, $p = {,}680$. Dolayısıyla bu çalışmada arzulanan manipülasyon işlememiş, iki deney grubu oluşturulamamıştır.

İşleme maliyeti üzerinde yapılan bağımsız örneklemler için t-testi sonuçlarına göre işleme maliyeti yakın diğeri koşulu ile (M = 0,04, SD = 0,05), uzak diğeri koşulu (M = 0,05, SD = 0,09), arasında anlamlı biçimde fark oluşturmamıştır, $t(389) = 1{,}24$, $p = {,}216$.

Kişilerarası yakınlık anlamlı biçimde manipüle edilemediği için bu çalışmanın sonuçları bilgilendirici değildir.

Çalışma 9

Çalışma 9, oyunun önceki versiyonlarında alıcı ve kaynak eşleştirme görevinin vurgusunun zayıf kaldığı düşünülerek, oyunu çözmede alıcı-kaynak

eşleştirmesini daha kritik bir öneme getirmek üzere tasarlanmıştır. Önceki çalışmalardan farklı olarak Çalışma 9'da oyun içerisinde iki kişiye değil üç kişiye (katılımcının kendisi, yakın diğeri ve uzak diğeri) ait kaynak dağılım seçenekleri sunulmuştur. Dolayısıyla kişilerarası yakınlık denek-içi faktör olarak oyuna dâhil edilmiştir. Çalışma 9, Çalışma 6, 7 ve 8'de test edilen işleme maliyeti farklılığını yeni bir deney düzeninde test etmektedir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 173 katılımcı (96 Kadın, $M_{yaş}$ = 35,82) çalışmayı ücret (1$) karşılığı tamamlamıştır. Çalışma ortalama olarak 15-20 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Diğer çalışmalardan farklı olarak yakınlık denek-içi faktördür. Çalışma 6'da olduğu gibi yine katılımcıdan 100 kişilik bir liste hazırlamaları istenmiş ve ama bu sefer hem birinci hem de yüzüncü kişinin isimlerinin baş harflerinin yazılması istenmiştir.

Ben/Diğeri Oyunu –Hatırlama Versiyonu – Denek-İçi Düzen. Çalışma 9'daki ben/diğeri oyunu katılımcının kendisi, yakın olduğu birisi ve uzak olduğu birisi arasında yapılan kaynak dağılımı seçeneklerini içerir. Toplamda 16 tur oynanmıştır. Bu turlar ben-yakın diğeri ve ben-uzak diğeri karşılaştırmalarını aynı seçeneklerle ve sunum sırasından bağımsız hesaplayabilmek üzere düzenlenmiştir. Ayrıca diğer çalışmalardan farklı olarak doğru seçeneği bulabilmek için kullanılması gereken kural (bencil ya da özgeci kural) oyunlardan önce değil, her bir turda seçenekler görüldükten sonra rastgele olarak verilmiş ve katılımcılardan bu kurallara uygun doğru seçeneği hatırlamaları istenmiştir.

Çalışma 9'da ben/diğeri oyununda her tur iki seçenekten oluşur. Seçenekler birbirini izleyen ekranlarda üçer saniye ile sunulmuştur.

Sonuçlar ve Tartışma

İşleme maliyeti üzerinde yapılan bağımlı örneklemler için t-testi sonuçlarına göre işleme maliyeti yakın diğeri koşulu ile (M = 0,02, SD = ,01), uzak diğeri koşulu (M = 0,02, SD = 0,01), arasında anlamlı biçimde fark oluşturmamıştır, $t(172) = 0,57$, $p = ,570$.

Bu çalışmanın sonuçları hipotezi desteklememiştir. Öte yandan, çalışma sonucunda belirtilen değerlendirmelerde, bu oyunu çok zor bulduğu için oyundaki seçenekleri hatırlamak yerine not aldığını ifade eden katılımcılar olmuştur. Deney sonuçları üzerinde karıştırıcı etkisi olabilecek bu durumun ne derece yaygın olduğu ve olası etkinin ortaya çıkmasını engelleyip engellemediği tartışma konusudur.

Çalışma 10

Bu tezde şimdiye kadar aktarılan bütün çalışmalarda katılımcıların belirli kaynak dağılımı miktarları ile alıcıları eşleştirmeleri gerekmekteydi. Çalışma 9'un sonuçları özellikle ben/diğeri oyununun hatırlama versiyonunda bu görevin çok zorlayıcı olduğuna işaret etmiştir. Bu problemi azaltmak için Çalışma 10'da katılımcılardan belirli sayılarla alıcıları eşleştirmek yerine bazı gündelik objelerle alıcıları eşleştirmeleri ve bu eşleştirmelerden hareketle bazı çıkarımlar yapmaları istenmiştir. Kişilerarası yakınlık denek-içi faktördür.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 107 katılımcı (43 Kadın, $M_{yaş}$ = 34,74) çalışmayı ücret (0,5$) karşılığı tamamlamıştır. Çalışma ortalama olarak 8-10 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Yakınlık denek-içi faktördür. Yine katılımcılardan 100 kişilik bir liste hazırlamaları ve Çalışma 9'dan farklı olarak sadece birinci kişinin (yakın diğeri) baş harflerini yazmaları istenmiştir. Uzak olan diğer bu oyunda baş harfleri "KPE" olan bir yabancıdır.

Ben/Diğeri Oyunu –Hatırlama Versiyonu – Denek-İçi Düzen. Katılımcılara bir hafıza oyunu oynayacakları söylenmiştir. Daha sonra katılımcılar birbirini takip eden ekranlarda kendileri, yakın olan diğeri ya da KPE ile eşleştirilen toplamda 21 adet gündelik eşya görmüşlerdir. Bu sunumdan sonra omlardan beklenen bu eşleştirmelerden hareketle kimin hangi işi yapması gerektiği ile ilgili bazı çıkarım sorularına cevap vermeleridir.

Sonuçlar ve Tartışma

İşleme maliyeti üzerinde yapılan bağımlı örneklemler için t-testi sonuçlarına göre işleme maliyeti yakın diğeri koşulu ile (M = 0,65, SD = 0,33),

uzak diğeri koşulu (M = 0,68, SD = 0,32), arasında anlamlı biçimde fark oluşturmamıştır, $t(106) = 0,91$, $p = ,367$.

Çalışmanın sonuçları hipotezin beklentilerini karşılamamıştır. Öte yandan bu çalışmanın açık uçlu sorularında bazı katılımcılar yakın oldukları diğer bir kişi ile ilgili daha önce yaşadıkları deneyimlerin belirli gündelik objeleri o kişilerle eşleştirmeyi kolaylaştırdığını ifade etmişlerdir. Bu çalışmanın deseninin önceki hatıraların ben/diğeri oyunundaki hafıza üzerinde, etkileşimde olunan yakın bir kişi olduğunda, olumlu etkisinin olabileceği düşünülmektedir. Bu da karıştırıcı bir unsurdur.

Zaman Sınırlaması Altında Doğruluk Oranı

Çalışma 11

Bu tezin temel iki bilişsel ölçümü (cevaplama süresi ve doğruluk oranı) dikkati dağıtıcı unsurlardan etkilenmeye açık ölçümlerdir. Çalışma 8 hariç, bütün deneyler deney prosedürü üzerindeki kontrolün yetersiz olduğu çevrimiçi ortamda gerçekleştirilmiştir. Çalışma 11, laboratuvar koşullarında bu hipotezi test etmeyi ve bunu yaparken de farklı bir kişilerarası yakınlık manipülasyonu geliştirmeyi hedeflemiştir. Kişilerarası yakınlık, katılımcıların tanımadıkları birine hissettikleri benzerlik değişimlenerek manipüle edilmiştir. Çalışma 11'deki bir diğer değişiklik ben/diğeri oyununun seçenekleri ve doğru cevap sayısıdır. Çalışma 11'de bencil kuralın ve özgeci kuralın içerdiği iki farklı koşulu karşılayan farklı seçenekler oyuna dâhil edilmiş ve her iki koşulu ayrı ayrı karşılayan cevap seçenekleri doğru olarak kabul edilmiştir.

Katılımcılar

Köln Üniversitesi'nde eğitim gören 131 öğrenci (89 Kadın, $M_{yaş}$ = 23,65) çalışmayı ders kredisi karşılığı tamamlamıştır. Çalışma ortalama olarak 10 dakika sürmüştür.

Yöntem

Yakınlık Manipülasyonu. Bu çalışma için yeni bir yakınlık manipülasyonu geliştirilmiştir. Birbirine yabancı olan iki kişi arasındaki yakınlık derecesi bu kişiler arasındaki benzerlik ile değişimlenmiştir. Katılımcılardan oyunu A.K isimli biriyle oynadıklarını hayal etmeleri ve oyuna başlamadan önce A.K. ve kendileri

arasında benzer olabilecek (yakın diğer koşulu) ve farklı olabilecek (uzak diğeri koşulu) noktaların neler olabileceğini yazmaları istenmiştir. Yakınlık denekler arası faktördür.

Ben/Diğeri Oyunu – Arama Versiyonu. Oyun şu farklılıklar dışında Çalışma 2'dekiyle benzerdir. İlk olarak kaynak dağılımı seçenekleri açık olarak katılımcılara sunulmuştur, Çalışma 11'de kapalı kutular yoktur. İkinci olarak bencil kurala ve özgeci kurala göre cevaplanan iki elin her biri üç dakika ile sınırlandırılmış, katılımcılardan bu üç dakika boyunca mümkün olan en yüksek sayıda oyunu doğru olarak çözmeleri istenmiştir.

Manipülasyon Kontrolü. Oyundan sonra katılımcıların A.K.'ye ne kadar yakınlık hissettiklerini ölçmek için *Diğerini Benliğe Dahil Etme Ölçeği'ni* (IOS, (Aron, Aron ve Smollan, 1992)) cevaplamaları istenmiştir.

Sonuçlar ve Tartışma

Manipülasyonun işleyip işlemediğini test etmek için yapılan bağımsız örneklemler için t-testi analizine göre A.K.'nin katılımcının kendisine benzer olarak düşünüldüğü koşulda (M = 3,12, SD = 1,74) farklı olarak düşünüldüğü koşula (M = 1,98, SD= 1,05), $t(129) = 4,51$, göre A.K. daha yakın biri olarak algılanmıştır, $p <$,001, d = 0,79, Dolayısıyla manipülasyon hedefine ulaşmıştır.

İkinci bir bağımsız örneklemler için t-testi ile verilen doğru cevaplar karşılaştırılmıştır. Buna göre, yakın diğeri koşulunda (M = 18,82, SD = 5,85) uzak diğeri koşuluna göre (M = 21,89, SD= 7,26), daha az sayıda oyun doğru olarak tamamlanmıştır, $t(129) = 2,67$, p = ,009, d = 0,47.

Çalışma 11'in sonuçları hipotezin beklediği gibidir. Katılımcılar yakın olan bir kişi ile etkileşim halinde olduklarında zaman sınırlaması altında daha az sayıda görevi doğru olarak tamamlamışlardır. Bu tezin önceki çalışmalarındaki anlamlı bulgularla aynı doğrultuda olan bu sonuçlar, hipotezin laboratuvarda test edilerek desteklenmesi bakımından da önemlidir.

Bağımsız Benlik ile Bilişsel Performans Arasındaki İlişki

Çalışma 12

Bu tezdeki kilit varsayım yakınlığın, benliğin diğerlerinden ayrıştırılmasını ve dolayısıyla benliğe ayrı ve bütünlüklü bir bilişsel yapıl olarak ulaşılmasını

engellemek yoluyla bilgi işleme sürecini güçleştiriyor olduğudur. Çalışma 12 ile benliğin bağımsız bir yapı olarak ele alınmasında görülen kişilerarası farklılığın ben/diğeri oyunundaki performansı nasıl etkileyeceğini test etmektir. Hipoteze göre beklenen benlik inşası ne kadar bağımsız ise ben/diğeri oyunundaki performansın o kadar yüksek olacağıdır.

Literatürde benliğin bağımsız ve bağımlı benlik-inşaları ile oluşturulma derecelerinin kişiler ve kültürler arasında değiştiği ortaya konulmuştur (bkz., Cross, Hardin, ve Gercek-Swing, 2011; Markus ve Kitayama, 1991). Bağımsız benlik-inşası benliğin bütünlüklü, otonom ve özgün olarak ele alınma yönünü, bağımlı benlik-inşası ise benliğin ilişkisel ve bağlamsal olarak ele alınma yönünü ifade eder. Çalışma 12'de bağımsız benlik-inşası ile birlikte, üzerine tartışmaların devam ettiği ve farklı boyutlarının tartışıldığı (bkz., Cross, Bacon ve Morris, 2000; Gabriel ve Gardner, 1999) bağımlı benlik-inşası iki boyutuyla ölçülmüş (ilişkisel ve kolektivist) ve bunların bilişsel performansla ilişkileri incelenmiştir.

Katılımcılar

Amazon MTurk üzerinden Amerika Birleşik Devletleri'nde yaşayan 200 katılımcı (91 Kadın, $M_{yaş}$ = 36,53) çalışmayı ücret (0,85$) karşılığı tamamlamıştır. Çalışma ortalama olarak 10 dakika sürmüştür.

Yöntem

Ben/Diğeri Oyunu – Arama Versiyonu. Oyun Çalışma 6'dakinin aynısıdır. Bütün katılımcılar ben/diğeri oyununu yakın oldukları biri ile oynamışlardır.

Benlik-İnşası Ölçümleri. Benlik-inşalarını ilgili ölçeklerin üçer maddelik kısaltılmış formları kullanılarak ölçülmüştür. Bağımsız ve kolektivist benlik inşalarının maddeleri Gudykunst ve Lee (2003)'den, ilişkisel benlik-inşasının maddeleri ise Cross, Bacon ve Morris (2000)'ten alınmış, bu çalışmalarda ilgili yapıya en yüksek oranda yüklenen maddeler seçilmiştir.

Sonuçlar ve Tartışma

Analiz çalışma esnasındaki dikkati ölçmek için sorulan soruyu doğru yanıtlayan 180 katılımcı üzerinde gerçekleştirilmiştir. Benlik-yapılarının işleme maliyetini tahmin edip etmediğini test etmek için çoklu regresyon analizi gerçekleştirmiştir. Sonuçlara göre yalnızca bağımsız benlik-inşası işleme maliyetini anlamlı biçimde tahmin etmektedir, β = -.19, p = .008. Buna göre bir

kişinin benlik-inşası ne kadar bağımsızsa ben/diğeri oyunundaki bilişsel performansı o kadar yüksektir. Bu sonuç bu çalışmanın beklentisiyle aynı yöndedir.

Genel Tartışma

Bu tez 12 çalışma ile yakınlığın bilişsel bir maliyeti olduğu argümanını test etmiştir. Bu çalışmalar için ben/diğeri oyunu adı verilen bir ekonomik problem çözme oyunu geliştirilmiş ve bu oyundaki performans bilişsel maliyeti ölçmede kullanılmıştır.

Tartışma ve Çalışmanın Katkıları

Bu tez kapsamında üç deney anlamlı biçimde yakınlığın bilişsel maliyeti hipotezini desteklemiştir. Bu çalışmalarda kişinin kendisi ve diğeri ile ilgili bilgilerin analizini gerektiren ekonomik bir problem çözme görevinde yakın olan birisi ile etkileşim içinde olmanın problemi çözme performansını etkilediği, oyunun daha fazla zamanda çözüldüğü ve zaman kısıtlandığında da oyundaki cevapların daha hatalı olduğu görülmüştür (Çalışma 1, 6 ve 11). Dördüncü bir deneyde ise ekonomik problemi (ben/diğeri oyunu) çözmede aynı performansı sergileyen kişiler arasında, oyunda yakın biriyle eşleştirilen katılımcıların oyunun kendisini daha zor bulduğu görülmüştür, bu fark marjinal olarak anlamlıdır (Çalışma 3). Beşinci bir çalışmada ise benlik temsilleri daha bağımsız olan kişilerin ben/diğeri oyununda genel olarak daha iyi olduğu bulunmuştur (Çalışma 12). Bu sonuçlarla yakınlığın bilişsel maliyeti hipotezine ilk kez destek sağlanmıştır.

Bu tezdeki diğer yedi deneyde yakın olan kişiler ya da uzak olan kişilerle eşleştirilmek ben/diğeri oyununda anlamlı bir fark yaratmamıştır. Bu deneylerin bazılarında yakın ve uzak kişilerle eşleştirilme koşullarını oluşturmada manipülasyon yetersiz kalmış (Çalışma 8), ben/diğeri oyununun versiyonu yeterince karmaşık olarak tasarlanamamış (Çalışma 2) ya da çok zor bir oyun tasarlanmıştır (örn., Çalışma 9). Bu tez çalışması kapsamında ben/diğeri oyunun geliştirilmesi ve hangi koşullarda bu oyunun çeşitli bilişsel performans göstergelerini ölçebileceği de araştırma sorularından biri olmuştur. Yapılan deneyler sonucu Çalışma 11'de kullanılan yöntemin, yani problemleri çözmek için belirli bir zaman verip bu zaman süresince çözülen toplam doğru oyun

sayısının bilişsel performans göstergesi olarak kullanılmasının diğer yöntemlere göre daha az problemli olduğu görülmektedir.

Bu çalışma birbirinden farklı iki kuralı, yani bencil ve özgeci kuralı, ben/diğeri oyununa dâhil ederek bu oyunda ölçülen bilişsel performansın belirli motivasyonlara ya da sosyal rollere (bkz., Fiske, 1991) uygun davranışlarda bulunmaktan kaynaklanmadığını göstermektedir. Bu oyun başka sosyal motivasyonlara karşılık gelebilecek eşitlikçi kural gibi farklı kuralların da dâhil edilmesiyle ilerleyen çalışmalarda genişletilebilir. Yine de, bu sonuçlar özgeci davranış, işbirliği ya da güven konularında yakın olan diğerine yönelik daha olumlu davranışların açıklanmasında yalnızca sosyal tercihlerin (örn., Fiedler, Glöckner, Nicklisch ve Dickert, 2013) ve motivasyonların (örn., Tu, Shaw ve Fishbach, 2015) değil ama yakınlığın sebep olduğu bilişsel sınırlamanın da göz önünde bulundurulması gerektiğine işaret etmektedir.

Gelecekte Yapılabilecek Çalışmalar

İnsanlar, başkalarına ait bilgilerin de sürece dâhil olduğu kararlarda, ne zaman kendileriyle ilgili bir maliyet/fayda analizi yapmaları gerekse bu karar süreçlerindeki performansları diğer kişiye yakınlığın derecesinden etkilenecektir. Bir sonraki aşamada başka biriyle ortak kararlar almanın bu bilişsel maliyetten nasıl etkileneceği araştırılabilir. Örneğin Cicirelli (2006) anne ve yetişkin çocukları birlikte bir karar alırken, karar süreçlerinin daha az analitik ve daha az mantıksal olduğunu gözlemlemiştir. Bu tez tek bir kişinin aldığı kararlara ilişkin performansı ölçmüştür. İlerleyen çalışmalarda ortak kararlardaki bilişsel performansın yakınlık derecesine göre nasıl şekillendiği araştırılabilir. Ayrıca, kişilerarası yakınlığın belirli bir amaç doğrultusunda manipüle edilebileceği durumlarda (örn,, satıcı - müşteri ilişkisi) bu bilişsel sınırlılığın tercihler ve kararlar üzerinde nasıl etki yaratabileceği ve bu sınırlılığın çeşitli stratejilerle aşılıp aşılamayacağı test edilebilir. Bu tezin sonuçlarından hareketle çalışılabilecek bir diğer konu, benlik temsillerinin genel olarak daha diğerlerinden bağımsız olduğu (tipik olarak batı toplumları) ya da bağımlı olduğu (tipik olarak doğu toplumları) toplum arasında bilişsel performansın karşılaştırılmasıdır.

Appendix H: Tez Fotokopisi İzin Formu

ENSTİTÜ

Fen Bilimleri Enstitüsü [ ]

Sosyal Bilimler Enstitüsü [x]

Uygulamalı Matematik Enstitüsü [ ]

Enformatik Enstitüsü [ ]

Deniz Bilimleri Enstitüsü [ ]

YAZARIN

Soyadı : Uğurlar
Adı : Nesibe Pınar
Bölümü : Psikoloji

TEZİN ADI (İngilizce) : The Cognitive Cost of Interpersonal Closeness in Decision Making

TEZİN TÜRÜ : Yüksek Lisans [ ] Doktora [x]

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 (1) yıl süreyle fotokopi alınamaz. [x]

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: