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THE EFFECT OF SELF-CONSTRUAL ON VISUAL MANDELA EFFECT WITH A METACOGNITIVE PERSPECTIVE

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ÖZET

ÖZER, İlkyaz. Üstbilişsel Bir Bakış Açısıyla Benlik Kurgusunun Görsel Mandela Etkisine Etkisi. Başkent Üniversitesi, Sosyal Bilimler Enstitüsü, Tezli Sosyal Psikoloji Yüksek Lisans Programı, 2023.

Görsel Mandela Etkisi (GME), popüler görsellerin kolejtif bir biçimde yanlış hatırlanması anlamına gelmektedir. Şu an için bu olgunun neden gerçekleştiği hala tam olarak belli değildir. Olası sebepleri arasında görsel hafıza gösterilmiştir ancak görsel hafıza ile ilişkili olan görsel dikkat çalışılmamıştır. Kurgusal benlik, görsel dikkati bütünsel ve lokal olmak üzere etkileyen bilişsel bir etkene sebep olmaktadır. Bu bağlamda, kurgusal benliğin etkisi GME üzerinde araştırılmıştır. Araştırmanın örneklemi gönüllülük esasına dayalı olup 18-35 yaş aralığındaki yetişkinlerden oluşmaktadır. Dışlanma kriterleri ele alınarak toplam 221 katılımcının verisi değerlendirilmiştir. Araştırmada ilişkisel, bağımsız kurgusal benlik ve kontrol koşulları olmak üzere üç farklı grup bulunmaktadır. Popüler görsellerin yarısı lokal ve bütünsel olarak manipüle edilmiş, katılımcılardan orijinal görseli seçmesi istenmiştir. Buna ek olarak, reaksiyon süresi, ceveplardan emin olma derecesi ve emin olma derecesinin tepki süreleri ölçülmüştür. Görsel manipülasyonlar dört ayrı ölçümde anlamlı bir şekilde birbirlerinden farklı çıkmışlardır: lokal manipülasyonlarda bütünsel manipülasyonlara göre daha fazla yanlış yapılmış ve cevaplardan emin olma derecesi daha yüksek çıkmıştır. Diğer taraftan, katılımcılar bütünsel manipülasyonları lokal manipülasyonlara göre daha uzun süre incelemiş ve emin olma derecelerini cevaplarken daha fazla zaman harcamıştır. Kurgusal benliğin etkisi sadece emin olma derecelerindeki tepki süresinde çıkmıştır: bağımsız kurgusal benlik grubu lokal manipülasyonların emin olma derecelerinde daha fazla zaman harcarken ilişkisel benlik grubu her iki görsel manipülasyonda da anlamlı bir şekilde fazla zaman harcamıştır. Beşi lokal, biri bütünsel olmak üzere altı adet GME görseli bulunmuştur. Çalışma görsel manipülasyonların GME üzerindeki etkisini göstermiş, görsel manipülasyonlar temelinde üstbilişsel yapıların kurgusal benlikle ilişkisi hakkında bilgi vermiştir. Araştırmanın güçlü yönleri, sınırlılıkları ve katkıları literatür ile beraber tartışılmıştır.

Anahtar Kelimeler: Görsel Mandela Etkisi, kurgusal benlik, görsel dikkat, üstbilişsel faktörler

ABSTRACT

ÖZER, İlkyaz. The Effect of Self Construal on Visual Mandela Effect with a Metacognitive Perspective. Başkent University, Institute of Social Sciences, Master with Thesis in Social Psychology, 2023.

The Visual Mandela Effect (VME) refers to collegial misremembering of popular images. For now, it is still not entirely clear why this phenomenon occurs. Visual memory has been given as a possible cause, but visual attention, which may affect this phenomenon, has not been studied. In this context, the effect of self-construal, which is related to visual attention, has been investigated on the VME. The sample of the study is based on voluntary participation and consists of adults between the ages of 18-35. The data of a total of 221 participants were evaluated by considering the exclusion criteria. Participants were primed with either interdependent, independent self-construal or control conditions. Participants were presented with focally and globally manipulated and original popular images and asked to choose the correct image. In addition to this, the reaction time, confidence rating about the answers and the reaction times of confidence rating were measured. Visual manipulations differed significantly from each other in four separate measures: in local manipulations, participants made more mistakes than holistic manipulations, and the degree of confidence in the answers was higher. On the other hand, participants examined holistic manipulations longer than local manipulations and spent more time answering their confidence rating. The effect of the self-construal was only in the reaction time in the confidence ratings: the independent self-construal group spent more time on the confidence rating of the local manipulations, while the interdependent self-construal group spent significantly more time on both visual manipulations. Six images of VME, five local and one holistic, were found. The study showed the effect of visual manipulations on VME and gave information about the relationship of metacognitive structures with self-construal based on visual manipulations. The strengths, limitations and contributions of the research are discussed together with the literature.

Keywords: Visual Mandela Effect, self-construal, visual attention, metacognitive functions

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LIST OF ABBREVIATIONS

VME	visual Mandela effect
RT	grand average of reaction times
CR	grand average of confidence ratings
RTCR	grand average of confidence ratings' reaction times
F-N	number of false answers
TF-N	number of false answers in focally manipulated images
GF-N	number of false answers in globally manipulated images
F-CR	average of confidence ratings in focally manipulated images
G-CR	average of confidence ratings in globally manipulated images
G-RT	average of reaction times of globally manipulated images
F-RT	average of reaction times of focally manipulated images
F-RTCR	average of confidence ratings' reaction time of focally manipulated images
G-RTCR	average of confidence ratings' reaction time of globally manipulated images
SCC	self-construal conditions
SRQ	sureness rating question

1. INTRODUCTION

Logos and characters, popular icons, are designed to be eye-catching and memorable. Unless there is a change in design people are repeatedly exposed to the same figures, which seems to create a sense of familiarity. Although there is a fixed version of the images in the world, people can remember the image differently. This type of recalling goes as a false memory. Popular icons can be remembered differently from their original version and this false remembering is not dependent on one person, but it seems that people have shared false memories (Prasad & Bainbridge, 2021). Visual Mandela Effect (VME) is a new concept in the scientific area and its first formal research was done by Prasad & Bainbridge (2021) under the notion of false memory. This phenomenon is believed to be happening because of shared false memories, but research is still needed on different concepts.

1.1. Visual Mandela Effect (VME)

The original term was formed by Brome (2010) to depict her false memory of Nelson Mandela dying in prison in 1980. She posited that she and other people also have this false memory. The term is spread to the internet to explain falsely remembered names, events, and images. For instance, people had a strong claim that Monopoly Man, which is the mascot of the Monopoly board game, wears a monocle but in reality, he does not (Prasad & Bainbridge, 2021). VME simply represents this situation; there is a false memory of the common and popular images; these mistakes people make are expected to be made not only by one person but by many other people. In this case, people are remembering the images wrong on a collective basis (Prasad & Bainbridge, 2021). Brome (2010) indicated this can be the evidence of shared false memory.

Visual memory can be powerful, but it does not mean it is perfect; it is still sensitive to errors (Brady et al., 2008; Hollingworth & Henderson, 2002; Nickerson, 1965). In added or subtracted figures, people demonstrated false memories of popular icons like the Apple logo (Blake et al., 2015). VME has been discussed in casual pop science; one reason for VME is assumed as schema theory. It is explained in Bartlett's (1932) book of Remembering; people tend to remember details about a war story that was not in the story originally. It is found that they falsely remember the details of the story to make it more understandable to themselves. This process also goes as "effort after meaning". People are remembering particular details with similar cues with them; for instance, the words pillow,

and bed can create the word in the mind "sleep" even though it is not mentioned (Dagnall & Drinkwater, 2018). Although these hypotheses have not studied scientifically, they remain as ideas. Prasad and Bainbridge (2021) argue this hypothesis is probable since false memory consists of schemas such as a Monopoly man being a rich man and a monocle being something that a rich man can have. In previous studies of schema theory people falsely recalled features of schemas consistently but their recollection varied across people. In contrast, VME seems to be consistent among people; they falsely remember images in a similar or identical fashion (Prasad & Bainbridge, 2021).

1.1.1. VME and visual attention

VME has been studied in the sense of visual memory but there could be another approach for it to understand the concept better. Visual perception has the category of visual-cognitive functions; visual memory and visual attention are the main features of this concept (Case-Smith & O'Brien, 2014). Since these categories are overlapping in the notion of visual-cognitive functions visual attention can be another reason why VME happens.

Visual attention consists of the selection of visual input. It requires a proper time frame in which visual information can be processed by the eye to the primary visual cortex of the brain; the place where visual processing can happen. Willing eye movements of localization, fixation, ocular tracing, and gaze switch form the foundations of visual attention (Hyvarinen, 1994).

Attention and memory seem to be related to visual working memory (Chun & Wolfe, 2005). Attention influences what we experience and recall, and our experiences and memories also affect what we intend to see (Chun & Nakayama, 2000). How attention should be focused on the visual scene is biased by memory traces of previous perceptual interactions (Chun & Jiang, 1998; Desimone & Duncan, 1995). Visual working memory also depends on the inhibition of distraction which is heavily related to the mechanism of attention (Chun et al., 2011). There is a critical neural mechanism that seems to have a relationship with the suppression of the temporoparietal junction (TPJ) (Todd et al., 2005). It allows for orientation to recent or salient sensory inputs (Corbetta & Shulman, 2002). The TPJ is suppressed more as the visual working memory load increases (Todd et al., 2005), which is likely to protect working memory preservation. Because previous activity in the prefrontal cortex and basal ganglia predicted the effectiveness of working memory, control mechanisms for this suppression may be located there (McNab & Klingberg, 2008).

Consequently, visual attention and visual working memory are closely related to each other (Awh, et al., 2006), such that maintaining visual working memory reflects actively maintaining attention to a small number of visual events and objects (Chun, 2011). It could be said that not only visual memory is responsible for VME, but also visual attention can be another reason for it too.

1.2. Self-Construal

Self-construal consists of shared beliefs and behavioral norms; it has a significant effect on human lives by sustaining a meaningful system for both people and communities and it can shape their motivation within the specific cultural context. It provides a framework for people to structure their behavior by setting up rules and norms. The learning in self-construal does not only demonstrate certain rules to people about how to behave but they are also affected by these certain rules emotionally and cognitively (Nisbett et al., 2001; Tsai, 2013). The transformation in self-construal and knowledge of it comes from one generation to another and affects the social and physical environment (Richerson et al., 2010). It also interacts with genes to form human behavior (Kim & Sasaki, 2014).

Self-construal is about how one perceives, understands, and interprets the self; this concept is used widely to explain cultural differences in behavior and affection/cognition (Han & Humphreys, 2016). Markus and Kitayama (1991) posited that Western culture forms an independent self-construal. It presents a self that focuses on being an autonomous and bounded entity, making an emphasis on the distinctiveness of the self. On the opposite, East Asian culture encourages interdependent self-construal that presents the self as consolidated and overlapped with close others and it stresses harmony with the close people around the self. Self-construal seems to mediate cultural group distinctions in emotion and cognition (Ren et al., 2014; Su et al., 2012). Moreover, the temporary priming of self-construal (interdependent and independent) can lead to casual alternations in cognition and behavior (Kühnen & Oyserman, 2002; Lin & Han, 2009).

1.2.1. Independent self-construal

People with independent self-construal maintain their behavior around their own judgments, thoughts, emotions, and actions rather than focusing on others' opinions and actions and using them as a reference to themselves (Markus & Kitayama, 1991). In many Western cultures, people will hold a view that they are separate from others in the name of uniqueness, as the accepted norm for this culture is to become independent from others and

search for a person's own unique attributes (Johnson, 1985; Marsella et al., 1985; Miller, 1988; Shweder & Bourne, 1984). This type of self encourages the ideas of "self-actualization", "realizing oneself", and "cultivating one's unique capacities". A significant part of the perspective of self involves the concepts of autonomy and independence; Markus and Kitayama (1991) in this case named this concept "independent self-construal".

The independent self is still a respondent to the social environment, but this process does not happen for the sake of being responsive or for social context most of the time. Being responsive demonstrates itself as a chance to show the unique attributes of self within the social context (Markus & Kitayama, 1991).

This self-construal seems to form a specific thinking style which is the analytic thinking style (Nisbet et al 2000; Nisbett & Miyamoto, 2005). People perceive their world and themselves with the fundamental culture they live in (Kağıtçıbaşı, 2017), and in this concept, people are keener to focus on focal features and evaluate the events by discrete categories (Nisbett & Miyamoto, 2005).

1.2.2. Interdependent self-construal

Non-Western cultures accept the view of "connectedness" as the principle human beings hold to each other (Kondo, 1982). There is a normative obligation among non-Western cultures to sustain interdependence among individuals (De Vos,1985; Hsu, 1985; Miller, 1988; Shweder & Bourne, 1984). The concept of interdependence involves perceiving oneself as a part of a comprised relationship and comprehending one's behavior is determined, compatible, and to a wider extent maintained by what the actor senses thoughts, emotions, and behaviors are influenced and canalized by others (Markus & Kitayama, 1991).

The perspective examines the self between the self and other features that surround the self; a person recognizes the connections between the self and other features (Markus & Kitayama, 1991). People seem to be motivated to find a way to fit in with other people, to create and fulfill this obligation they find themselves in various relationships. This type of self, unlike the independent self, seems to be more inclined toward the public component, therefore it is depicted as an interdependent construal of the self. This concept has illustrations of socio-centric, holistic, collective, allocentric, connected, and relational (Markus & Kitayama, 1991).

The concept of an interdependent self comes from the monistic philosophical view that a person is thought of as the same material rest of nature (Bond, 1986; Phillips, 1976; Roland, 1988; Sass, 1988). Consequently, the self and the other, in other words, the object and subject seem to be much closer. Moreover, many non-Western cultures persist in the inseparability of basic elements (Galtung, 1981), involving the self and other; person and situation (Markus & Kitayama, 1991). For example, in Chinese culture, there is stress on synthesizing the constitutive parts of any problem or situation into harmony and integration (Moore, 1967; Northrop, 1946). This holistic view is in contradiction with the Cartesian, dualistic concepts that obtain Western thinking that the object is separated from nature (Markus & Kitayama, 1991).

Interdependent self-construal also seems to form a particular thinking style: people tend to perceive their world and themselves more holistically (Nisbett et al., 2000; Nisbett & Miyamoto, 2005). This means they seek harmony and contingency between events, images, people, and with themselves (Nisbett & Miyamoto, 2005).

There are numerous examples of interdependent cultures: one of them can be seen in the book of Bond (1986) that Chinese people tend to act in accordance with the expectations of other people and set social forms rather than acting on their own wishes, thoughts, and attributes. Like East Asian countries, Turkish culture is also explained as interdependent/collective (Hofstede, 1980), demonstrating similar values with interdependent cultures such as relatedness, the focus on interpersonal relations, harmony, and close connections with the family, and group members. The structure of self-construal in Turkey does not come as white and black as in Western and East Asian countries. Kağıtçıbaşı (2017) explained self-construal in six dimensions to demonstrate the notion in a more particular way. According to Kağıtçıbaşı (2017), self-construal consists of intrinsic features that belong to the individual that form their requirements, abilities, and motivations. Moreover, self-construal can affect all feelings, thoughts, and behaviors creating the baseline of our existence by indicating how we see and perceive the world and ourselves (Markus & Kitayama, 1991). The three construals were presented by Kağıtçıbağı (2005) to explain the self in Turkish culture: autonomous self, relational self, and autonomous relational self. The socioeconomic changes in the family play a great role in the emergence of the autonomous relational self which is the combination of autonomy and relationality. The relational self is more inclined with close and intimate with others, people try to define themselves with their relationship with others. The autonomous self is inclined to the features that have an interest

in the person itself; the person is more interested in her own objectives, desires, and motives. Kağıtçıbaşı (2017) posited that the culture that the person lives within determines specific self-construal. Alper et al. (2018) found that interdependent self-construal priming is more effective, especially in women, and it could be interpreted that in the culture of Turkey, the interdependent self-construal outweighs the independent self-construal.

1.2.3. Holistic vs. analytic thinking in self-construal

In the nature of self-construal, there could be many historical orientations that could help the main structure to evolve. The two opposite cultures that formed the specific self-construal concepts (independent vs. interdependent) could be examined in this fashion: Chinese and Greek cultures. Their metaphysical beliefs, philosophy, and understanding of science seem to differ by two distinct approaches: analytic and holistic thinking (Nisbett, 1998). Holistic thought can be described as involving an approach to the context or area as a whole, including attention to relationships between a focal object and the field, and a choice for explaining and predicting events in the manner of similar relationships (Nisbett et al., 2000). Holistic thinking involves experience-based knowledge rather than abstract logic; which means that they are dialectical; the thinking style searches for different perspectives and in the end, it seeks to find a 'middle way' between contradictions (Nisbett et al., 2000). Analytic thinking is explained as the detachment of the focal object from its context, and the tendency to use strategies and rules to understand the behavior of the object. The deductions are made from the rest of the part, and the agent uses the practice of decontextualizing the structure from the content, utilization of formal logic, and abstinence from contradiction (Nisbett et al., 2000).

In the comparison of Greek and Chinese cultures, we could talk about five different distinct differences: continuity and discreteness, field versus object, relationships and similarities versus categories, and rules, dialectics versus foundational principles and logic, experience-based knowledge versus abstract analysis (Nisbett et al., 2000). 'continuity and discreteness' and 'field versus object' seem to be the ones that can be related the most with the concept of vision.

In the category of continuity and discreteness, Chinese culture interpreted the world as a collection of materials that are overlapping and intertwining with each other (Hansen, 1983). On the other hand, Greeks see the world as a whole collection of substances and are keener to focus on the concrete structures of the materials. Therefore, the Greek seems to

focus on the structure of the material although the Chinese do not seem bothered by that issue (Needham, 1962).

The category of field versus object can also be examined in the concept of vision. Since the Chinese were focused on continuity and harmony, the single object did not seem to be the starting object (Moser, 1996). On the contrary, objects are only recognized as the parts within the whole, and those objects seem to have inseparable connections (Munro, 1985). The Greeks had almost the opposite direction, they were oriented mostly on the focal object and its features (Hansen, 1983). These orientations are explained by two specific cultures, but it is important to keep in mind that interdependent or independent self-construals are formed around these understandings. The attributes of each culture that are in line with each self-construal are also expected to bring these social attributes to a cognitive level: social tendencies can also affect the perception of the world (Nisbett et al., 2000). Markus and Kitayama (1991) argued that if a person perceives herself/himself as accommodated within a larger condition and that person is an interdependent part of the condition, the objects and events related to the particular condition could also be interpreted in a similar fashion. In this example, the person starts to interpret the world more holistically and starts thinking about others, not just himself or herself.

These findings have also opened a discussion of the perception of visual stimuli that are in line with the self-construal of a person. Visual perception and visual attention could be altered by self-construal.

1.2.4. Self-Construal and visual attention

Self-construal can be one of the reasons for the formation of visual attention. Under the category of self-construal, people form a specific visual perception and attention (Nisbett & Miyamoto, 2005). Western cultures tend to think analytically which means they tend to focus on the focal objects and discrete categories; on the other hand, non-Western (e.g., East Asian) cultures are keener to focus on the background and complementary features of the concepts (e.g., images) (Nisbett et al., 2001). In an illustrative study, Chinese and American students have demonstrated a picture of a family that involves a mother, father, and child (Chiu, 1972). They were asked to choose two people from the picture; Chinese students mostly chose mother and child (because the mother takes care of the child), and American students chose mostly mother and father (because they are both adults). This is an example of how people perceive visual images with contextual similarities, but research shows that people can perceive images purely based on perceptual stimuli (Norenzayan et al., 2002).

European American, Asian American, and East Asian participants were presented with the main object and demonstrated two groups of four different objects and asked which of the group was similar to the main object. One group shared one particular feature with the main object whereas the second group shared multiple features of the main object but there was no feature that was mainly shared by the other images. The first group shared a unique feature of the main object and it was mainly selected by European Americans since they were focusing on the unidimensional feature more. East Asian participants selected the second group mostly because it had more holistic properties than the first group. Asian Americans were in the middle of these two groups in the ratings of choices.

Several findings can support the idea that self-construal has an evident effect on visual attention. One of the earliest findings was a study by Abel and Hsu (1949) on the usage of Rorschach cards. The cards were presented to Chinese Americans and European Americans. While Chinese Americans were more likely to give so-called 'whole card' responses, European Americans were found to be focusing on single features on the visuals of the Rorschach card test. Masuda and Nisbett (2001) showed realistically animated visuals of fish and underwater materials to the Japanese and American participants and asked them to report what they had seen. Americans mostly recognized the focal fish in the first place, while Japanese participants mostly recognized background objects. Although the reorganization of focal fish was nearly the same by American and Japanese participants, Japanese participants mentioned the background objects and features %70 more than American participants. In similar research of the recognition test, Japanese participants recalling the scene (fish and the underwater background) seemed to be dependent on the background changes, but American participants were not affected by the background change and remembered more accurately than Japanese participants when there is a change (Chalfonte & Johnson, 1996). There is another finding that can support the discourse of self-construal can affect our visual attention. Ji and her colleagues (2000) used the Rod and Frame Test (Witkin et al., 1954) with East Asians and Americans. In the test, participants should tell that when the rod in the frame is vertical. Field dependence is specified by the degree of discourses about the position of the frame and the changing shape of the rod according to the frame. Since this task requires the detachment of the object (rod) from the field to understand its true shape, Americans should be better than East Asians. The hypothesis was supported by this foresight: Americans were better able to understand when the rod is vertical, and they were more confident in their answers by East Asians.

Eye-tracking studies also seem to have evidence for this issue: Chua et al. (2005)

found that when participants were presented with a picture that had a focal object in the foreground and a scene in the background American participants spent %35 more time looking at the focal object than Chinese participants. On the other hand, Chinese participants spent more time looking at the background scene. Recent research demonstrated similar findings in this direction. American and Japanese participants were given an image including one person in the foreground and four people in the background (Masuda et al., 2012). Japanese participants made %47 more fixations to the context than American participants.

The effect of self-construal is found on visual perceptual learning too: Asian students (interdependent self-construal background) and European students (independent self-construal background) were put into an education program that is about distinguishing between concentric and radial patterns in visuals (Chua et al., 2022). The results demonstrated that Asian students were better than European students in the training which was in line with the literature: interdependent self-construal background made it easier to understand the holistic shapes and distinguish them in the visuals; independent self-construal backgrounded students showed a negative association. Grossman and Jowhari (2018) replicated the self-construal priming of Gardner et al. (1999) and applied spatial memory recall. They found that interdependent self-construal primed participants were more successful in finding the objects with the correct background images than the participants who were primed with independent self-construal priming. In consumer behavior, there are still effects of analytic vs. holistic thinking. The placement of food images seems to have an impact on consumer behavior, the moderation effect of holistic vs. analytical thinking makes people more affected by the location of the food images (Togawa et al., 2019).

1.2.5. Self-Construal and metacognition

Adequate self-insight requires epistemic motivation for comprehending the self from a third-person perspective, like an observer (Brinol & DeMarree, 2012). Metacognition is explained as the awareness of one's own cognitive process. It is an ability to assess one's own knowledge, skills, and comprehension of own task-related features (Bowman, et al., 2001). Confidence ratings are demonstrated to reflect the metacognition of the person (Keren, 1991; Stankov, 1999). Although self-confidence can be a detached feature of metacognition, it still is a robust indicator of the concept (Kleitman & Stankov, 2007). There are findings in self-confidence about self-construal (Balcetis & Dunning, 2008; Brycz et al., 2015). Balcetis & Dunning (2008) found that individualistic (independent) cultures have less self-insight than collectivistic cultures. This finding is explained in the self-enhancement

concept for independent self-construal; people who have an independent self-construal focus on enhancing their self and sometimes find themselves exaggerating some features including the self (Heine, 2003; Heine & Hamamura, 2007). This could shed light on the situation that self-construal can affect metacognitive functions such as being confident in a cognitive structure (e.g., being confident about the answer).

Confidence as a metacognitive factor is also found in visual stimuli (Mazor & Fleming, 2020; Song et al., 2010). A recent study by Mazor & Fleming (2020) argues that metacognitive functions do not depend on only the discrimination task (deciding on which item is present) but also depend on the detection task, and it simply means that people also think about the correctness of the stimulus (Bahrami et al., 2010; Frith, 2012). It could be interpreted in the sense that detecting a visual stimulus if it is correct or not and deciding on it can also be demonstrated as evidence of a metacognitive factor alongside the confidence of the decision.

Reaction times are another component to measure metacognition. Most of the time when there is a correct answer the reaction time seems to be shorter (Benjamin et al., 1998). Working memory span tasks can also be found to show the reaction times to indicate the presence of metacognition (Barrouillet et al., 2004; Engle et al., 1999). It is explained as paying attention refreshed and recalling long-term memory takes time to complete the task; therefore, response times should increase when there is another component to focus on. Because when there is something to remember, and there is a load on the functioning of the memory, attentional resources slow down to maintain the overall process. This slowing is explained as a reactive control strategy (Braver et al., 2007).

The reaction time of confidence ratings also seems to show the sureness of the primary decision and the metacognition factor (Hilgenstock et Al., 2014). The confidence ratings of a decision may not always be aligned with the perceptual choices (Petrusic and Baranski, 2003). Accordingly, studies by Fleming et al. (2010, 2012) and Yokoyama et al. (2010) offer proof that the anterior prefrontal cortex (APFC) is where metacognitive capacity, or the correctness of confidence, is predominantly found. Hilgenstock et. Al. (2014) suggested by the analysis of confidence reaction times, perceptual choice and post-decision confidence differ in terms of their temporal evolution. Perceptual choice and post-decision confidence have different primary sites of processing because the perceptual choice is processed independently of post-decision confidence in the APFC and dorsolateral prefrontal cortex (DLPFC) when the participants decide on the perceptual stimuli. It is also found that

when the degree of reaction times and uncertainty are increased in post-decision there was also an increase in the BOLD responses in DLPFC; it is also known that DLPFC is associated with awareness and metacognition (Crick and Koch, 2003; Dehaene et al., 2003; Lau and Passingham, 2006). Thus, Kiani et al. (2014) indicated that certainty can be informed by reaction times of confidence ratings. In the end, it could be said reaction times of confidence ratings are also a strong indicator of confidence and metacognitive functions.

There is also evidence for the metacognitive functions of the self-construal; Lin & Han (2009) primed participants with independent (vs. interdependent) construal with texts that include pronouns "I" for independent self-construal priming or "we" interdependent self-construal (Gardner et al., 1999). They were given large or small letters and asked to detect the global or local features of the letters. They were time recorded during this process. Interdependent self-construal primed participants were faster in detecting global features of letters and it found the opposite for the independent self-construal primed participants; they were faster in detecting local features of letters; independent self-construal priming channeled participants into analytic thinking made focus on focal features. This finding can be interpreted in metacognition as the functioning of reaction times; interdependent-self priming made participants focused on holistic thinking (Nisbett et al., 2000) therefore they were thinking and seeing more globally. Recognizing global features required less time because the thinking style and attentional resources were rich in global areas. The same thing can be said for independent priming; their thinking style is formed around analytic thinking (Nisbett et al., 2000). This process requires less time because the attentional span for detecting focal features was composed by the independent priming and their attentional resources were also rich in focal areas. From the perspective of reactive control strategy, they did not have to spend more time on the areas they have the predisposition to detect; their attention also was gathered around the tendencies they have had in the specific priming of the self-construal.

1.3. Purpose

This study aims to find if independent or interdependent self-construal creates differences in visual attention that could affect VME, and the self-confidence participants will have for their answers. It is predicted that independent self-construal primed participants will be likely to make more mistakes in globally manipulated images and they will be less confident in their answers. Because of their attentional span, they are expected to spend more time in globally manipulated images. Interdependent self-construal primed participants will

be keener to make more mistakes in focally manipulated images and they will be less confident in their answers when it is compared to independent self-construal primed participants. Again, because of the attentional span, they are expected to spend more time in focally manipulated images and in their decision times.

The research holds the importance of exploring the effect of self-construal in VME. Independent self-construal and interdependent self-construal can affect a person's visual attention; people who have independent self-construal mostly focus on focal objects (analytic thinking) on visuals, on the other hand, people who have interdependent self-construal mostly focus on global features (holistic thinking) on visuals. In this case, this phenomenon could be another possible reason for VME which is a highly new topic in psychology. False memory is counted as the possible explanation for this situation, but it still has some defects, and it still is a mystery why people collectively choose certain images wrong. In this manner, the research can show the effect of self-construal, as a result of visual attention, on VME which is a new subject to science and awaits to be explored with new understandings.

1.4. Hypotheses

The hypotheses related to the study are listed below.

H_1: Participants who are primed with independent self-construal will be likely to make more mistakes and spend more time in globally manipulated images than the participants who are primed with interdependent self-construal and control groups.

H_2: Participants who are primed with interdependent self-construal will be likely to make more mistakes and spend more time in focally manipulated images than the participants who are primed with independent self-construal and control groups.

H_3: Participants who are primed with independent self-construal will be keener to less confident and will be slower in their answers in globally manipulated images than participants who are primed with interdependent self-construal and control groups.

H_4: Participants who are primed with interdependent self-construal will be keener to be less confident and will be slower in their answers in focally manipulated images than the participants who are primed with independent self-construal and control groups.

2. METHOD

2.1. Sample

The sample of the research contained young adults and adults between the ages of 18-35. The required number of samples was computed using a priori type power analysis in G*Power 3 (Faul et al., 2007). The size of the population was calculated with special effects and interactions. The total size of the sample is calculated as 120 (effect size: .05, err probability: .05, power: 0.80). Data were collected from 285 participants; 32 participants who have psychologic and/or neurologic disorders were excluded; 12 participants who have eye disorders and do not use any protection were also excluded from the experiments, and finally, 6 participants who did not conform to the rules of priming (did not highlight the pronouns) were excluded. 4 participants' data who were detected as outliers were also deleted. A total of 221 participants' data were evaluated in the ages of 18-35 (M = 25.47, SD = 5.34). 161 people who participated in the study were female (%72.9), 57 participants were male (%25.8), and 3 people were under the category of "other" (%1.4). Most of the participants are undergraduate students (%62.9).

2.2. Materials

2.2.1. Informed consent form

At the beginning of the study, participants were given informed consent (Appendix 1) about the study and whether they are willing to be in the study or not. The informed consent form covered the true purpose of the study for the sake of self-construal manipulation.

2.2.2. Demographic information form

A demographic information form was given to the participants (Appendix 2). In the demographic information form, participants were asked about age, gender, education level, department, if they have any eye disease (e.g., myopic), and if they use any tool to prevent it (e.g., glasses), usage of any psychiatric or neurologic medicine, along with the type of condition for the medicine use is asked to the participants.

2.2.3. Self-Construal priming

There was a pilot study to maintain the proper manipulation. In the pilot study, the participants were given self-construal priming texts about a trip (Gardner et al., 1999) (Appendix 3). The texts had three different versions: independent, interdependent, and

control. The independent version of the text has singular pronouns (e.g., me, I), and the interdependent version of the text will have plural pronouns (e.g., us, we). The control condition contained third-person pronouns (e.g., they, them). Participants were asked two 5 Point-Likert-type questions for independent and interdependent conditions to maintain manipulation checks. Self-construal questions consisted of questions of independent-self priming (e.g., When I think about myself, I usually also think about my memories, my life, and myself, Kendimi düşündüğüm zamanlar, genellikle anılarımı, yaşantımı ve benliğimi de düşünürüm.) and interdependent-self priming (e.g., When I think about myself usually, I think my friends and my family, Kendimi düşündüğüm zamanlar, genellikle yakın dostlarımı ve ailemi de düşünürüm) (Appendix. 4). Two questions determined two conditions: independent, interdependent. Participants were asked to rate these questions after the priming conditions on the 5-point rating system. It was expected that at least one of the self-construal manipulation checks will show a meaningful difference across the two groups: it was anticipated that participants who are primed with the independent condition will be choosing high rates in the sentence "When I think about myself, I usually also think about my memories, my life, and myself". Similarly, it was expected for the participants who were primed with the interdependent condition will be choosing high rates in the sentence "When I think about myself usually, I think about my friends and my family". For the control group, it is expected that there will be no significant difference among the manipulation check questions. As a result, participants only showed a difference in the independent self-construal question; the independent self-construal group chose significantly higher rates than the independent self-construal group. The interdependent self-construal group did not demonstrate significant results among the two groups. The control group also showed a significant difference with the interdependent self-construal manipulation check between the interdependent self-construal group.

Overall, participants showed the expected difference that is in line with the priming questions, and the texts were assumed ready for the actual study. Since the expectation was not the expected result for the control condition, the actual study consisted of a "control condition" with no priming texts to observe the participants' behaviors without any priming effects. The flowchart of the pilot study is shown in Figure 2.1.

2.2.4. Visual Mandela effect images

There was a pilot study to maintain an appropriate version of the actual study. Participants were given 45 images that are popular icons (e.g., logos, popular culture icons). The images were manipulated under two main categories: holistic and focal (23 focal images; 22 holistic images). The images were chosen according to the visibility and popularity of the image. The most popular social media icons and logos were chosen (e.g., Twitter, Instagram). The rest of the images were also chosen from the popular logos of different companies (e.g., cars, holdings). There are two common things in all of the images: they are seen most of the time and are present for years for people to remember them. In each image, participants were asked one question; participants were asked how much they find the image familiar to them (Appendix 5). The rating was on a 5-Point-Likert type question (1: I do not find familiar at all, 5: I find it quite familiar). Images that were rated in familiarity with 3 and higher ratings were chosen for the actual study and assumed as popular enough to conduct the actual study. Only one image (blogger) did not receive a sufficient familiarity score with a mean of 2.00. This image was excluded from the original study. As a result, 44 images were used in the actual study: 22 of them were focally manipulated (Appendix 6) and 22 of them were globally manipulated (Appendix 7). The flowchart of the pilot study is shown in Figure 1.

2.2.5. Sureness rating question

Participants were told that there were original and manipulated popular icons in the study, and in this case, they were asked how sure they were in finding the original image in the study on a 5-point Likert scale (1: Not sure at all, 5: Completely sure) (Appendix 8).

2.2.6. Confidence rating questions

The participants were asked how much they are confident in their answers to Visual Mandela Effect images (Appendix 9). There was a 5-point Likert scale (1: Not confident at all, 5: Completely confident) question that asks the participant's confidence rating in every answer for all images.

2.2.7. Debriefing form

The participants were informed about the true purpose of the study at the end of the study with a debriefing form (Appendix 10).

2.3. Procedure

The study was conducted in the online service platform (Qualtrics). Participants were requested to fill out an informed consent form before participating in the study with information about the research that covered the true information of the study for the sake of manipulation. Then, participants were asked to fill out a demographic questionnaire. In the experiment, participants were put in self-construal priming conditions in random assigning. Independent and interdependent versions included texts that were about a trip. The control condition did not include any text. After they are assigned, participants highlighted the particular pronouns (*me*, *I* for independent self-construal; *we*, *us* for interdependent self-construal). After the priming conditions were done participants were given 88 images. Half of the pictures were manipulated globally or focally. Before they see the original/manipulated images, they were asked how much they were sure that they can guess the correct answers. They were asked to rate their sureness on a 5-point-Likert type question (1: I am not sure at all, 5: I am quite sure). After that, participants saw the original and the manipulated images together. Their reaction time was measured while they were asked to choose the "correct" answer. After they choose any image, participants saw the confidence rating questions. They were asked how much they were confident they are in their answers on a 5-point-Likert type question (1: I am not sure at all, 5: I am quite sure). Their reaction time was also measured during this process. Participants repeated this process for every 44 images. After they completed the true-false answer and confidence rating sequence the experiment was done. Finally, participants read a debriefing form about the true purpose of the study. The flowchart of the actual study is shown in Figure 2.2.

2.4. Design

The study was conducted in a 3x2 experimental design. Self-construal priming was the independent variable with three levels: independent, interdependent, and control conditions. The separation of globally and focally manipulated images was the second independent variable. Participants' answers to Visual Mandela Effect (reaction time and true-false answers) were the dependent variable. Participants' confidence, their reaction time on confidence ratings, and sureness ratings about their answers to images were the other dependent variables.

Figure 2.1.

Flowchart of the Pilot Studies

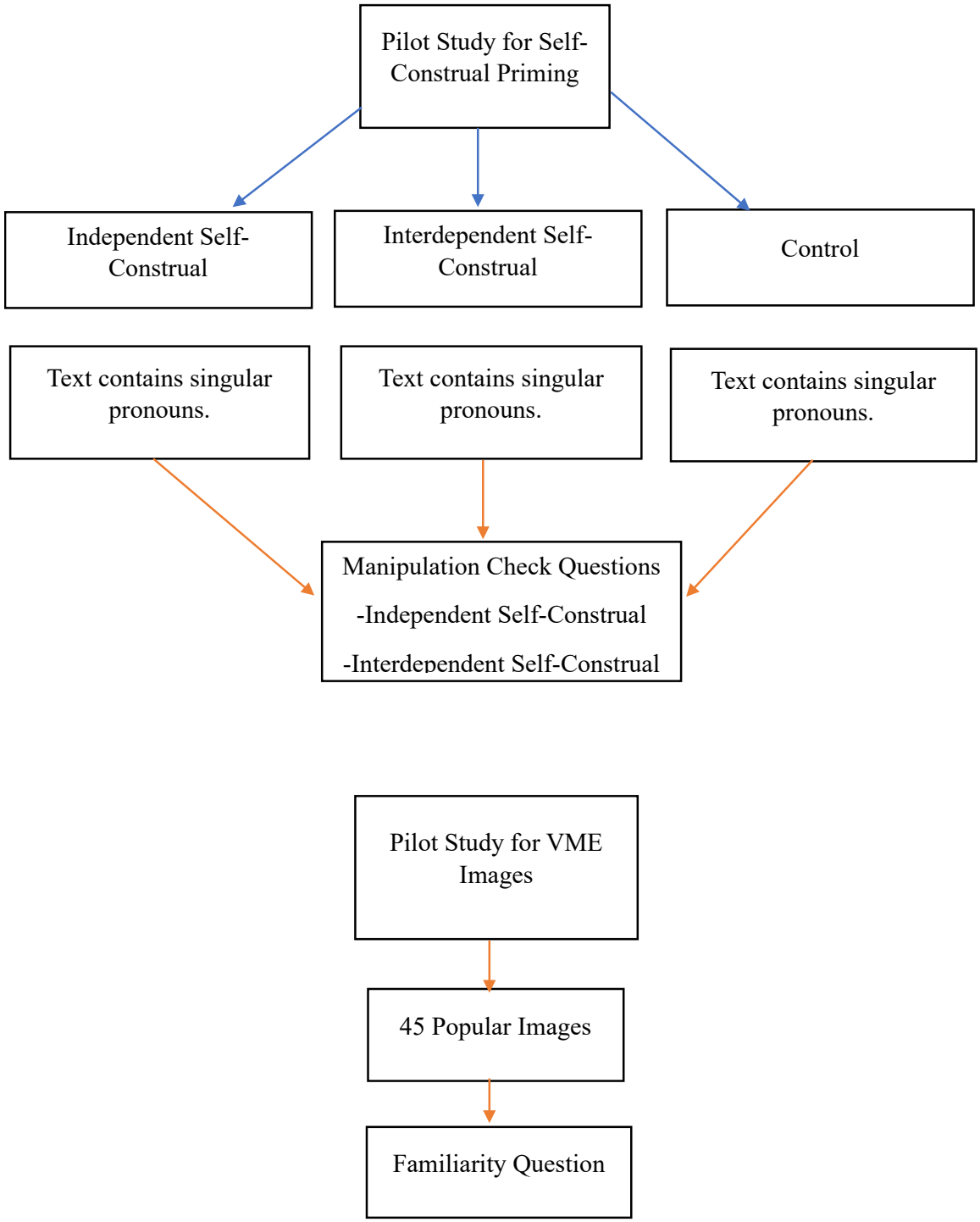
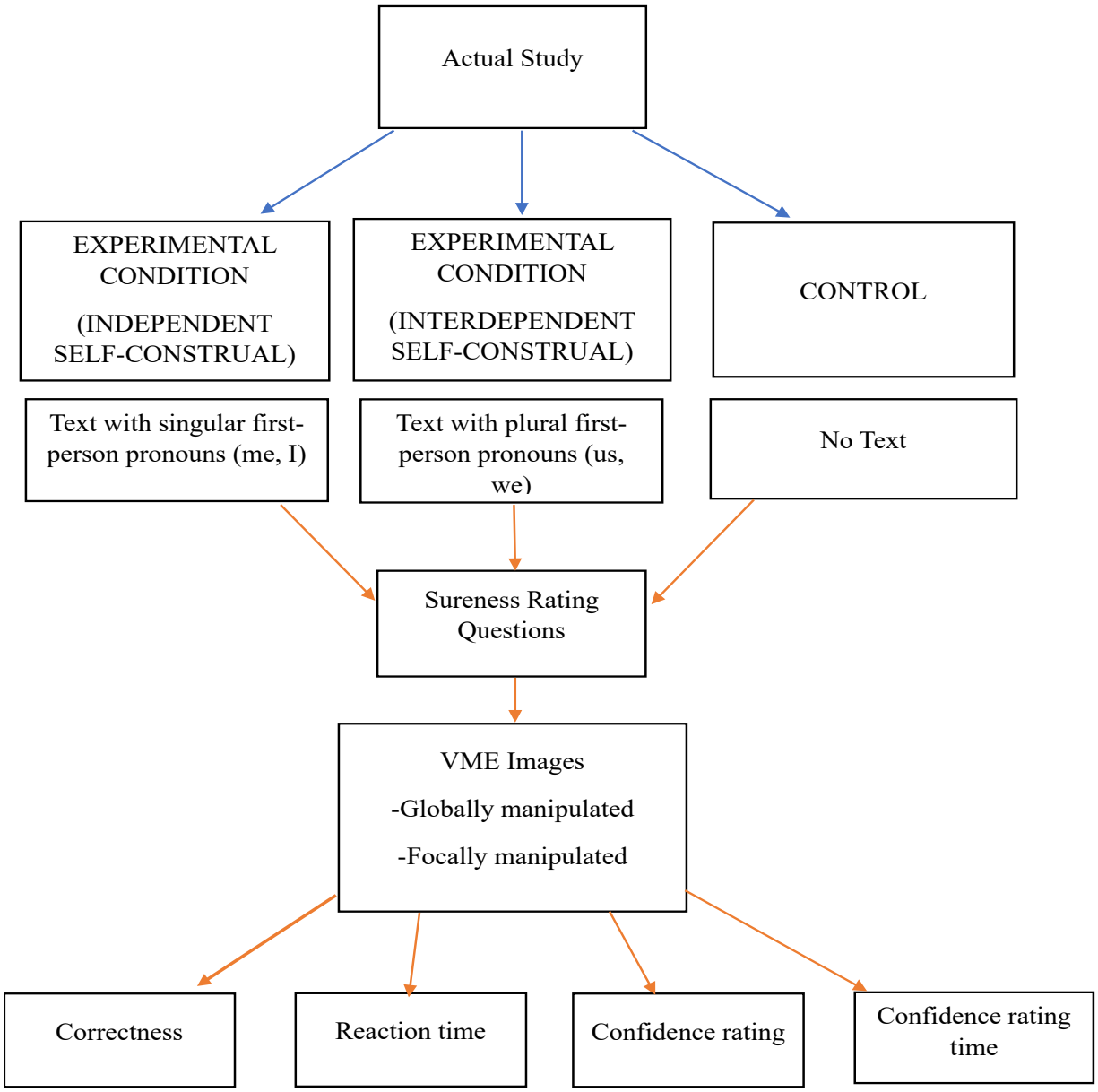


Figure 2.2.

Flowchart for the Actual Study



3. RESULTS

3.1. Descriptive Statistics

In this chapter, the descriptive statistics (mean, standard deviation, minimum and maximum values, skewness, kurtosis) of the values will be demonstrated. There are five dependent variables: SRQ, TF, RT, CR, and RTCR. These variables are determined in two sections: focal and global. The total of images is 44 (22 focal, 22 global images). The focal and global averages are taken from each participant's variables That means all of the dependent variables' mean is taken from both focal and global visuals except sureness rating SRQ) since it was in the beginning and participants were not exposed to the images before answering the question. In this way, the four dependent variables had two levels: focal and global. Self-construal conditions were also determined; there were three conditions: independent, interdependent, and control. There was no violation of the normality assumption based on skewness and kurtosis values (< +2 or > -2; George and Mallery, 2010). The descriptive analysis of the variables is shown in Table 3.1.

A bivariate correlation analysis was also conducted on the variables. The correlation analysis between the variables is shown in Table 3.2.

Table 3.1

Descriptive Statistics of the Variables

Dependent Variables	Self-Construal Conditions	Visual Manipulation	Mean	SD	Min	Max	Skewness	Kurtosis
Number of False Answers (F-N)	Independent	Global	5.94	2.68	1	12	2.68	-.728
		Focal	6.71	2.78	1	13	2.78	-.390
	Interdependent	Global	5.83	2.82	1	13	.341	.291
		Focal	7.02	3.01	2	15	.250	.574
	Control	Global	6.08	2.69	0	12	-.162	-.531
		Focal	7.02	2.70	1	14	.204	-.30
Reaction Time (RT)	Independent	Global	6.72	3.99	1.85	20.39	1.66	4.80
		Focal	5.69	2.85	1.72	12.10	.880	.563
	Interdependent	Global	6.97	2.63	2.70	21.18	1.66	3.05
		Focal	6.09	2.29	1.63	13.89	1.05	.505
	Control	Global	6.78	3.06	1.74	17.87	1.05	1.04
		Focal	6.01	2.63	1.68	17.4	1.47	2.99
Confidence Rating (CR)	Independent	Global	3.44	.571	2.44	4.90	-.337	-.267
		Focal	3.63	.572	2.12	4.82	-.069	.171
	Interdependent	Global	3.56	.635	2.07	4.90	-.003	-.608
		Focal	3.64	.592	2	4.91	.029	-.170
	Control	Global	3.60	.571	2.56	4.90	-.036	.575
		Focal	3.65	.622	2	4.88	-.140	-.020
Reaction Time of Confidence Rating (RTCR)	Independent	Global	2.02	.617	1.07	3.84	1.05	.905
		Focal	1.84	.590	1.05	4.12	1.47	3.41
	Interdependent	Global	2.13	.666	1.08	4	.920	.435
		Focal	1.97	.703	.934	4.60	1.54	3.01
	Control	Global	1.81	.444	1.08	3.46	1.01	1.67
		Focal	1.73	.616	.99	3.95	1.95	5.03
Sureness Rating Questions (SRQ)	Independent		3.69	1.08	1	5	-.369	-.179
	Interdependent		3.53	1.15	1	5	-.617	-.036
	Control		3.65	1.04	1	5	-.499	-.155

Note: number of false answers (N-F), sureness rating questions (SRQ), grand average of confidence ratings' reaction time (RTCR), grand average of confidence ratings (CR), grand average of reaction times of images (RT).

3.2. Inferential Statistics

In this section, first, the results of the pilot study were reported; the satisfactory and unsatisfactory results were mentioned for the actual study.

3.2.1. Pilot studies

Two pilot studies were done to determine the function of self-construal priming texts and the familiarity of the images. In the self-construal priming texts, two manipulation check questions were used; one question indicated independent self-construal; other question indicated interdependent self-construal. 12 people the independent and interdependent self-construal group; 10 people participated in the control group; overall there were 34 participants. Manipulation check questions were determined as the dependent variables, and self-construal groups were determined as the independent variable. A MANOVA is used for the analysis between two groups. The difference between the two groups was found to be significant (p= .009). It is found that only the interdependent manipulation check question differed among the two groups significantly (p= .047); the interdependent self-construal group had a higher mean for the question (M= 4.08, SD= 1.08) than the independent self-construal group (M= 3.08, SD= 1.24). This means the interdependent manipulation check question works to test the function of the priming that is aligned with the literature. On the other hand, the independent self-construal question did not differ among the groups (p= .850). Since the interdependent self-construal question is significant and still shows that priming works to differentiate people in self-construal conditions, priming is accepted to be used for the actual study. After this, an ANOVA was conducted between interdependent and control manipulation check questions; the result was found to be significant (p= .011), because of this result, the control condition text was not used; the control condition consisted of the rest of the experiment without any priming text.

For the familiarity questions, each image was asked to participants how much they find the particular image familiar on a 5-point Likert question. A total of 47 people participated in the study. The images that have an average higher than 3 points are assumed to be popular enough to use in the actual study. 45 images were presented and only one of them did not receive an average point of 3 or higher (M= 2.00, SD=1.30). The rest of the images received scores of more points than 3. The most familiar image was Pepsi with a mean of 4.96 (SD= 0.20). The least familiar image was Reddit with a mean of 3.23 (SD= 1.73). In the light of the results, only one image was eliminated (Blogger) and the rest of

them were allowed to use it in the actual study. The descriptive information of the images is shown in Table 3.3.

Table 3.3

The Descriptive Statistics of the Images

Images	M	SD	Min	Max	Variance
Adidas	4.91	0.35	3	5	0.12
Algida	4.89	0.42	3	5	0.42
Apple	4.85	0.50	3	5	0.25
BMW	4.83	0.52	3	5	0.27
Canva	3.74	1.49	1	5	2.23
Chrome	4.89	0.42	3	5	0.18
Dominos	4.81	0.61	2	5	0.37
Getir	4.89	0.42	3	5	0.18
Google	4.87	0.44	3	5	0.20
Hyundai	4.81	0.70	1	5	0.50
Instagram	4.94	0.32	3	5	0.32
Mastercard	4.91	0.35	3	5	0.12
Mini Cooper	4.26	1.31	1	5	1.72
Pepsi	4.96	0.20	4	5	0.04
Snapchat	4.81	0.61	2	5	0.37
Spotify	4.91	0.35	3	5	0.12
Steam	3.66	1.70	1	5	2.91
Twitch	4.32	1.32	1	5	1.75
Ups	4.55	0.96	1	5	0.93
Word	4.94	0.32	3	5	0.10
Ziraat	4.77	0.86	1	5	0.73
Adobe	4.51	1.03	1	5	1.06
Android	4.77	0.59	3	5	0.35
Banvit	4.81	0.67	1	5	0.45
Coco-cola	4.89	0.42	3	5	0.18
Discord	3.89	1.38	1	5	1.89
Facebook	4.94	0.24	4	5	0.06
Eti	4.87	0.53	2	5	0.28
Gratis	4.91	0.35	3	5	0.12
Lay’s	4.89	0.42	3	5	0.18
Redbull	4.91	0.35	3	5	0.12
Reddit	3.23	1.73	1	5	2.99
Sabancı	4.74	0.73	1	5	0.53
Starbucks	4.87	0.44	3	5	0.20

Tiktok	4.55	1.09	1	5	1.18
Toyota	4.83	0.66	1	5	0.44
Trendyol Go	4.77	0.72	1	5	0.52
Twitter	4.89	0.42	3	5	0.18
Whatsapp	4.94	0.32	3	5	0.10
Xiaomi	4.30	1.29	1	5	1.66
no feature was	4.51	1.16	1	5	1.36
Volkswagen	4.83	0.66	1	5	0.44
Ford	4.87	0.64	1	5	0.64
Cartoon Network	4.85	0.41	3	5	0.17
Blogger	2.00	1.30	1	5	1.69

3.2.2. Actual study

In the actual study, the distinction between the four dependent variables (false responses, reaction time of the images, confidence ratings, and reaction time of the confidence rating) was assigned as global and focal averages of every dependent variable for each participant. In this perspective, false answers of globally (GF-N) and focally (FF-N) manipulated images, reaction time of globally (G-RT) and focally (F-RT) manipulated images, confidence rating globally (G-CR) and focally (F-CR) manipulated images, and reaction time of the confidence rating of globally (G-RTCR) and focally manipulated images (F-RTCR) were determined as the dependent variables. There are two independent variables: Self-Construal conditions (control, independent, and interdependent) as a between-subject factor and visual manipulation (global and focal) as a within-subject factor. 3x2 Analysis of Variance (ANOVA) is used to test the hypotheses. An ANOVA was conducted between SRQ and SCC.

A 3x2 mixed-design ANOVA was conducted to test whether SCC and visual manipulation have an effect on a number of false answers. The main effect of SCC was not significant. The main effect of visual manipulation is found to be significant, Wilks' Lambda= .913 $F(1, 218)= 20.860$, $p< .001$, partial $\eta 2= .087$. In a pairwise comparison of the main effect of visual manipulation, participants' number of false answers in focally manipulated images ($M= 6.92$, SE= .191) was significantly more than the false answers in globally manipulated images ($M= 5.95$, SE= .185). The interaction effect between SCC and visual manipulation (global and focal) on the number of false answers was found to be non-significant. From this perspective, there was a significant difference between the false answers of globally and focally manipulated images and there was no difference in the SCC groups. The first condition of Hypothesis 1 that independent self-construal group will be making more mistakes in focally manipulated images was not confirmed. Similarly, the first condition of Hypothesis 2 that interdependent self-construal groups will be making more mistakes in global images was not confirmed. The results are shown in Table 3.4.

Table 3.4

The Effect of SCC and Visual Manipulation on the Number of False Answers

Source	*df*	*F*	*p*	η^2
Between-Subject Effects				
Self-Construal Conditions	2	.182	.834	.002
Error	218			
Within Subject Effects				
Visual Manipulation (FF-N and GF-N)	1	20.860	.000	.084
Error	218			
Visual Manipulation x Self-Construal Conditions	2	.309	.734	.003
Error	218			

A 3x2 mixed-design ANOVA was conducted to test whether SCC and visual manipulation have an effect on reaction time. The main effect of SCC was not significant. The main effect of visual manipulation was found to be significant, Wilks' Lambda= .864, $F(1, 218)= 34.38$, $p< .001$, partial $\eta^2= .136$. In pairwise comparison of the main effect of visual manipulation, participants' reaction time of globally manipulated images ($M= 6.82$, SE= .220) was significantly higher than the reaction time of focally manipulated images ($M= 5.93$, SE= .178). The interaction effect between SCC and visual manipulation (global and focal) on reaction time was found to be non-significant. As a result, participants spent more time on globally manipulated images than focally manipulated images while deciding on their answers but there was no difference between the groups. Therefore, the second condition of Hypothesis 1 that the independent self-construal group will be spending more time on globally manipulated images than other groups was not confirmed. Again, the second condition of Hypothesis 2 that the interdependent self-construal group will be spending more time on focally manipulated images than other groups was not confirmed. The results are shown in Table 3.5.

Table 3.5

The Effect of SCC and Visual Manipulation on Reaction Times

Source	*df*	*F*	*p*	η^2
Between-Subject Effects				
Self-Construal Conditions	2	.250	.779	.002
Error	218			
Within Subject Effects				
Visual Manipulation (G-RT and F-RT)	1	34.38	.000	.136
Error	218			
Visual Manipulation x Self-Construal Conditions	2	.251	.778	.002
Error	218			

A 3x2 mixed-design ANOVA was conducted to test whether SCC and visual manipulation have an effect on confidence rating. The main effect of SCC was not significant. The main effect of visual manipulation was significant, Wilks' Lambda= .932, $F(1, 218)= 15.823$, $p< .001$, partial $\eta^2 = .068$. The pairwise comparison for main effect of visual manipulation demonstrated the mean of the confidence ratings of focally manipulated images ($M= 3.67$, SE= 0.40) were significantly higher ($p< .001$) than confidence ratings of globally manipulated images ($M= 3.53$, SE= 0.40). The interaction effect between SCC and visual manipulation was not significant. According to the results, participants were more confident in their answers of focally manipulated images than globally manipulated images even though they significantly made more mistakes on focally manipulated images. There was no difference in SCC. In that sense, the first condition of Hypothesis 3 that the independent self-construal group will be less confident than other groups in globally manipulated images was not confirmed. Similarly, the first condition of Hypothesis 4 that the interdependent self-construal group will be less confident than other groups in focally manipulated images was not confirmed. The results are shown in Table 3.6.

Table 3.6

The Effect of SCC and Visual Manipulation on Confidence Ratings

Source	*df*	*F*	*p*	η^2
Between-Subject Effects				
Self-Construal Conditions	2	4.55	.635	.004
Error	218			
Within Subject Effects				
Visual Manipulation (G-CR and F-CR)	1	15.823	.000	.068
Error	218			
Visual Manipulation x Self-Construal Conditions	2	2.516	.635	.004
Error	218			

Finally, a 3x2 mixed-design ANOVA was conducted to test whether SCC and visual manipulation have an effect on the reaction time of confidence rating. The main effect of SCC was significant, $F(2, 218)= 5.050$, $p= .007$, partial $\eta 2= .044$.The main effect of visual manipulation was significant, Wilks' Lambda= .921, $F(1, 218)= 18.76$, $p< .001$, partial $\eta 2= .079$. The pairwise comparison for the main effect of SCC demonstrated that in G-RTCR both independent ($M= 2.02$, SE= 0.063, $p=. 023$) and interdependent self-construal ($M= 2.13$, SE= 0.066, $p= .001$) group spent more time in confidence rating than the control group ($M= 1.81$, SE= 0.064). In F-RTCR, only the interdependent self-construal primed group ($M= 1.97$, SE= 0.067, $p= .017$) spent more time than the control group ($M= 1.73$, SE= 0.067). The pairwise comparison for the main effect of visual manipulation demonstrated the mean of the reaction time of confidence ratings of globally manipulated images ($M= 1.99$, SE= 0.39) were significantly higher ($p< .001$) than reaction times of the confidence ratings of focally manipulated images ($M= 1.85$, SE= 0.41). The interaction effect between SCC and visual manipulation was not significant.

According to the results, participants spent more time on confidence ratings in globally manipulated images than in focally manipulated images. The effect of SCC was significant; there was a difference in self-construal groups. In globally manipulated images both independent and interdependent self-construal groups spent more time than the control while deciding their confidence rating. It was hypothesized the independent self-construal group would be spending more time on confidence rating, but interdependent self-construal was not the expected result. In focally manipulated images, only interdependent self-construal primed participants spent significantly more time than the control group. It was

expected that the interdependent self-construal group would be spending more time in focally manipulated images than both groups, but there was only a significant relationship with the control group. In this case, the second condition of Hypothesis 3 that the independent self-construal group will be slower in G-RTCR than the other two groups was partly supported. The second condition of Hypothesis 4 that the interdependent self-construal group will be slower in F-RTCR than the other two groups was partly supported; the interdependent self-construal group was slower only than the control group. The results are shown in Table 3.7.

Table 3.7

The Effect of SCC and Visual Manipulation on Reaction Time of Confidence Ratings

Source	*df*	*F*	*p*	η^2
Between-Subject Effects				
Self-Construal Conditions	2	5.050	.007	.044
Error	218			
Within Subject Effects				
Visual Manipulation (G-RTCR and F-RTCR)	1	18.76	.000	.079
Error	218			
Visual Manipulation x Self-Construal Conditions	2	1.112	.331	.010
Error	218			

An ANOVA was conducted to observe the relationship between SRQ and SCC. Levene's Test of Equality of Error Variances is found to be not significant, p= .630. As a result, the assumption of homogeneity of variances between the groups is accepted. The effect of SCC on SRQ is not found to be significant, $F(2, 218)$= .420, p= .657, partial η^2 =.012. SCC does not have any effect on SRQ which is used to determine the metacognitive function before the study began.

Last of all, A Chi-Square analysis was conducted on the images that the manipulated image was more chosen than the original image (searching for potential VME Images). In this manner, VME images are determined, among the 44 visuals 6 of them were chosen wrong significantly. These images are Apple (p= .002), Coco-Cola (p< .001), Pikachu (p <

.001), Ford (p< .001), UPS (p= .003), and Reddit (p=.014). Only one image is globally manipulated (Apple), the rest of them are focally manipulated images. The familiarity scores in the pilot study are mostly high; in the same order, M= 4.85, M= 4.89, M= 4.87, M= 4.51, M= 4.55, and M =3.23. The least familiar image is also found to be significant to be a VME image, it could be interpreted that this result could be one of the potential reasons.

The sum of the false answers of VME images was taken to determine if SCC has an effect on them. An ANOVA was conducted on the false answers of VME and SCC. The results were not significant. The SCC is not found to have an effect on VME on choosing the right picture.

Since there is only a significant result between SCC and RTCR, a 3x2 mixed-design ANOVA was conducted for VME images too; the effect of SCC and visual manipulation on the reaction time of confidence rating was tested. In this case, the only global image was Apple, and the focal images were determined as Coco-Cola, Pikachu, Ford, UPS, and Reddit. The main effect of visual manipulation was significant, Wilks' Lambda= .954, F(1, 218)= 10.52, p= .001, partial η^2= .046. The main effect of SCC was significant F(2, 218)= 5.314, p= .006, partial η^2= .046. In pairwise comparison of main effect of visual manipulation, RTCR of globally manipulated VME image (M= 2.16, SE= 0.073) was significantly higher (p< .001) than the RTCR of the focally manipulated VME images (M= 1.90, SE= 0.073). The interaction effect was not significant. A post hoc analysis was conducted via Games Howell, there was no significant relationship for Apple in SCC groups. For the focally manipulated VME images, it was found that only interdependent self-construal group spent more time than the control group, p= .023. This result was also found in the overall focally manipulated images, the pattern was the same for VME images. The results are shown in Table 3.8.

Table 3.8

The Effect of SCC and Visual Manipulation on Reaction Time of Confidence Ratings of VME Images

Source	*df*	*F*	*p*	η^2
Between-Subject Effects				
Self-Construal Conditions	2	3.17	.006	.046
Error	218			
Within Subject Effects				
Metacognitive Responses	1	10.52	.000	.046
Error	218			
Metacognitive Responses x Self-Construal Conditions	2	.070	.933	.001
Error	218			

As a result, in every analysis, there was a significant relationship in main effects. Participants choose more false answers in focally manipulated images than globally manipulated images. The reaction time was longer for globally manipulated images than for focally manipulated images. In confidence rating, even though there were more false answers in focally manipulated images, the confidence rating was higher in focally manipulated images than globally manipulated images. In the reaction time of confidence rating, participants spent more time deciding on globally manipulated images than focally manipulated images.

From the perspective of hypotheses, the first two hypotheses were refuted; there was no effect of SCC in true-false answers and reaction times in globally and focally manipulated images. There was also no difference in reaction time based on SCC. The effect of SCC on G-RTCR and F-RTCR demonstrated significant results. The Independent self-construal group only spent more time on G-RTCR, on the other hand, the interdependent self-construal group spent more time both in F-RTCR and G-RTCR. Focally manipulated VME images also demonstrated a similar result with overall focally manipulated images in reaction time of confidence rating; the interdependent self-construal group spent more time deciding on their confidence rating. Even though the results did not completely align with hypotheses 3 and 4, the results still show that SCC is effective in differentiating the metacognitive function in perceptual stimuli which is the reaction time of confidence ratings.

Table 3.2

Bivariate Relationships Among Variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	SCC												
2	SRQ	-.011											
3	F-RTCR	-.039	.070										
4	G-RTCR	-.011	.021	.689**									
5	G-CR	-.043	-.083	.291**	-.073								
6	F-CR	.008	-.004	.241**	-.083	.774**							
7	TF-N	-.004	-.016	-.035	.073	-.181**	-.188**						
8	GF-N	-.041	-.031	-.041	.111	-.269**	-.160*	.365**					
9	F-RT	.001	.155	.138*	.204**	.119	.106	-.188**	-.270**				
10	G-RT	.018	.108	-.043	.187**	.153*	.168*	-.193**	-.228**	.726**			
11	RTCR	.211**	.077	.920**	.918**	-.044	-.074	.042	.047	.320**	.184**		
12	CR	-.020	.294**	-.065	-.053	.940**	.939**	-.169**	-.248**	.137*	184**	-.064	
13	RT	.018	.128	.287**	.297**	.159*	.166*	-.200**	-269**	.912**	.943**	.318**	.175**

Note: $p < .05$; $^{**}p < .01$. SCC= self-construal conditions, SRQ=Sureness Rating Questions, F-RTCR=average of confidence ratings' of focally manipulated images, G-RTCR=average of confidence ratings' of globally manipulated images, G-CR=average of confidence ratings of globally manipulated images, F-CR= average of confidence ratings of focally manipulated images, TF-N=Number of false answers in focally manipulated images, GF-N=number of false answers in globally manipulated images, F-RT=average reaction times globally manipulated images, F-RT=average reaction times of focally manipulated images, RTCR=grand average of confidence ratings' reaction times, CR=grand average of confidence ratings, RT= grand average of reaction times of images.

4. DISCUSSION

4.1. Overview of the Findings

Data were collected from 285 participants, after the exclusion criteria (psychologic/neurologic disorders and unprotected eye diseases) and detection of 4 outliers were implemented the 221 participants' data were used in the analysis. The majority of the participants are female. Their education status demonstrates that most of them are university students. Data is collected from an online platform via Qualtrics; random sampling is used in the gathering of the data. SPSS is used to analyze collected data.

The research aimed to study the effect of self-construal on VME with a metacognitive perspective. VME, which is a highly new subject in literature, is a mystery for now: the possible reasons for why this phenomenon happens are not clear. It came into being as an internet phenomenon and the first formal study was done by Prasad & Bainbridge (2021). The results indicate that this phenomenon is not only an internet topic but an actual situation under certain results. False memory is proposed as the potential reason for VME. The results were mixed; there could be other reasons for VME. Self-construal is hypothesized as one of the possible reasons that could cause VME in four hypotheses. Self-construal is used and studied in priming with texts (Gardner et al., 1999).

Visual manipulations were significant in four dependent variables: Participants made significantly more mistakes and were more confident in their answers to focally manipulated images. On the other hand, participants spent more time examining the globally manipulated images and their duration of confidence ratings was longer in globally manipulated images.

The hypothesis that participants who are primed with independent self-construal will be likely to make more mistakes and spend more time than the participants who are primed with interdependent self-construal in globally manipulated images (H1) is not confirmed, similarly, participants who are primed with interdependent self-construal will be likely to make more mistakes and spend more time than the participants who are primed with independent self-construal in focally manipulated images (H2) is not confirmed. Hypothesis 3 and hypothesis 4 are partly supported; participants who were primed with independent self-construal were not more confident in globally manipulated images but spent more time while deciding; but results also indicated that interdependent self-construal primed participants also seemed to spend more time on confidence ratings of globally manipulated images. In

line with that participants who were primed with interdependent self-construal were not more confident in focally manipulated images but spent more time while deciding in comparison to the control group. In F-RTCR, both independent and interdependent self-construal groups significantly differed in reaction time of confidence ratings from control groups but not from each other. The control group made a significant difference and served as a bridge between the two groups while creating a difference.

4.2. Relationship of Variables with Demographic Information

4.2.1. Relationship with self-construal and gender

Self-construal conditions can be delicate to gender; the priming seems to affect women more, especially the interdependent self-construal (Alper et al., 2018). The majority of participants are female, and this could be interpreted in the way that interdependent self-construal might demonstrate stronger effects than independent self-construal condition. In the study, interdependent self-construal conditions showed a significant difference between the control group in F-RTCR and G-RTCR. It is known that people who have interdependent self-construal have more self-insight and can evaluate themselves more than people who have interdependent self-construal (Balcetis & Dunning, 2008). It could be interpreted that this uneven situation between the genders could have affected the results of the study; since the majority of participants are female, interdependent self-construal could make the participants more evaluative about their decisions.

4.3. Relationship of Main Variables with Self-Construal Conditions

4.3.1. Relationship with visual manipulation

The first two hypotheses were about the VME and the possible effect of self-construal conditions on this concept. Participants were presented with 44 images that could generate VME. Two visual manipulation techniques were used: focal and global. 22 images were focally manipulated which means only one feature in the image was changed and it was expected that participants would focus on a single change in the image. This single change was anticipated to drive the focal visual attention to the images that were expected to be stimulated by independent self-construal priming text. A similar pattern was created for interdependent self-construal; again 22 images were globally manipulated which means more than one feature or the whole image was manipulated (e.g., color change or change of direction). This manipulation technique is expected to drive the attention of interdependent

self-construal primed participants on a global basis. Given the literature, they are hypothesized to global visual attention and examine the image more holistically (Chua et al., 2021; Lin et al., 2008; Lin & Han, 2009; Miyamoto and Nisbett, 2005). In the control group, there was no text, participants who were in the control group only saw the VME images and metacognitive function questions (SRQ, CR, and RTCR).

It was found that focally manipulated images were significantly chosen as wrong, and their confidence rating was higher in comparison to globally manipulated images. In these cases, there was no effect of self-construal. Whether G-RT and GF-N and, F-RT and FF-N demonstrated significant results based on SCC. As a result, Hypotheses 1 and 2 were not confirmed. It is clear that visual manipulation made a difference, but this situation was not affected by SCC. It could be said that the visual structure and the behavior of choosing the wrong answer do not conclude from SCC.

The results of reaction time are also aligned with this result. The effect of self-construal priming can be questioned in this section, even though it is known as effective priming used in visual perception studies (Chua et al., 2021; Lin et al., 2008; Lin & Han, 2009), for the first time this priming is used in visual perception in Turkey which is a country that self-construal is neither heavily interdependent nor independent (Kağıtçıbaşı, 2005; 2017) and this could be one of the potential reasons why there is no effect of SCC on VME and reaction times of the images. In addition to that, in the reaction time, we do not know which parts of the images the participants examined; they could have examined the focal and global features of images in a way that could differ significantly among SCC. In this perspective, even though they did not differ in true-false responses, reaction time is still questionable because of the missing data on the gaze and eye movements.

Lastly, one of the possible reasons why SCC is found not to be effective on VME can be the reason that the images only are two-dimensioned although most of the studies that are done on self-construal and visual perception use three-dimensioned images that have backgrounds and perspectives (Chua et al., 2005; Masuda et al., 2012; Nisbett et al., 2001). The separation between focal and global features could be less powerful in two-dimensioned images than in three-dimensioned images and the expected visual attention between interdependent and independent self-construal could not be powerful enough to create this distinction.

Unfortunately, we only have data on the total amount of time they spent looking at the images. The possible explanation for why globally manipulated images' duration of reaction was longer could be the nature of the images itself; there were more changes than

focally manipulated images and this could make participants easily spend more time on the images. Because of the spent time, the false answers can be lower. It was mentioned that maintaining visual working memory also affects our attentional span; we might focus on single changes (Chun, 2011) but in the cases of globally manipulated images the attention on the changed figures could induce visual memory because we know that our memory is also affected by our attention (Chun & Nakayama, 2000). According to the reactive control strategy (Braver et al., 2007) when there is a load on the long-term memory our attentional resources slow down to create a balance between memory and attention. From the perspective of globally manipulated images, there were more changes in the images, and this could reinforce the long-term memory more than the focally manipulated images could. Furthermore, we can observe that visual manipulation made certain differences, but self-construal priming did not make any difference in the behavior of choosing the wrong image or the reaction time.

4.3.2. Relationship between metacognitive functions and visual manipulation

In Hypothesis 3 and 4 participants' confidence rating and reaction times of confidence are measured by the division of global and focal images. In hypothesis 3, it was foreseen that participants who were primed with independent self-construal priming would be less confident and slower in their answers. A post hoc analysis via LSD demonstrated both the interdependent self-construal group spent significantly more time and were less confident than the control group. The independent self-construal group demonstrated the expected results; their attentional span was focused on the focal changes and their reaction time on their confidence rating decision time was higher. It is also known that the reaction times of confidence time reveal the confidence of the decision Hilgenstock et. Al. (2014), and sometimes it is a better indicator than the confidence rating itself (Kiani et al., 2016). The possible reason why interdependent self-construal also happened to spend more time than control could be the natural structure of the self-construal itself. Balcetis & Dunning (2008) found that people who have interdependent self-construal have more insight and are more judgmental toward their decisions. People who have independent self-construal seem to have more confidence in their decisions; self-enhancement seems to be higher in this self-construal. The results of Hypothesis 4 are also in the condition to explain this situation.

In hypothesis 4, it was foreseen that participants who are interdependent self-construal primed will be less confident and slower in their answers in focally manipulated images. F-RT was found to be not significant. F-RTCR is found to be close to a significant

level. A post hoc analysis via LSD was done and it demonstrated that only interdependent self-construal primed participants significantly spent more time than the control group but not from the independent self-construal group. It shows that the independent self-construal group did not spend their time in their confidence as they did in the globally manipulated images. Again, it could be interpreted that the interdependent self-construal group was less sure in focally manipulated images because reaction times of confidence ratings are a strong indicator of confidence in the decision (Hilgenstock et al., 2016; Kiani et al., 2016).

Besides SCC, it is found that participants were significantly more confident in the answers of focally manipulated images even though there were more wrong answers of focally manipulated images in comparison to globally manipulated images. Moreover, they were faster in the confidence rating of focally manipulated images. According to the reactive control strategy (Braver et al., 2007) load on long-term memory could slow down the attentional resources to maintain the balance between them. Because of this situation, a single change in the images could reinforce the long-term memory less than global changes do and this might drive people into answering faster. Even though it is known that when the reaction is faster the answer is mostly correct (Benjamin et al., 1998) this is not the case here. Since every participant saw all the focal and global images, the detection of single changes might create the assumption of choosing the true answer. The globally manipulated images included more changed elements, and the detection of the correct image might take longer which is why this might create the assumption of being less confident about the answers. Of course, new research is needed to understand this situation better.

4.3.3. VME images

This is the second study that is done in VME, and it is important to emphasize the VME images. Among 44 images only 6 images were found to be collectively and significantly chosen wrong. These images are Apple, Coco-Cola, Pikachu, Ford, UPS, and Reddit. Only one image is globally manipulated (Apple), the rest of them are focally manipulated images. Reddit was found to be the least familiar image that is also found to be significant to be VME effect, it could be interpreted that being less familiar could be the reason for this situation besides VME.

Certain techniques are used to manipulate images: subtraction, adding, change of direction, and color change. Subtraction and adding are used for focally manipulated images particularly, in globally manipulated images all the techniques are used in different images.

These techniques do not seem to create a pattern across the VME images. When the VME images are examined, these techniques vary between them. Apple is manipulated through color change. Coca-Cola, Ford, and UPS have the subtraction method. Pikachu and Reddit are created by adding. Among 6 images, 5 of them are focally manipulated images. This could be interpreted in different ways; the manipulation of the global images could be weak when it is compared to focal images. Another possible reason could be the independent variable, self-construal conditions. The effect of SCC is not found to be significant, even though the conditions did not have any effect on the VME images based on false answers, the interdependent self-construal could be more effective to make people more mistakes on the focally manipulated images. However, it is clear that more self-construal measurement techniques will be needed to address this situation from diverse perspectives.

In addition to different self-construal measurement techniques, the structure of the VME images gives a clue about why this phenomenon happens. Out of 6 images, 5 of them are focally manipulated. A single change in the images could drive people's attention to the rest of the images and choose the image of the single change that automatically completes the image. This could be some kind of a pattern; the black places in Pikachu's ears could reinforce the image of the point of the tail being black too. Or the logo of Reddit having two antennae might seem more logical because they complete the face in a more coherent way. In this perspective, the possible reasons could be about the images and the constructed design they have.

Since there is a significant difference in RTCR, the global and focal distinction between the VME images is examined. The effect of SCC on the Apple logo was not found to be significant. but the effect of SCC on focally manipulated VME images was significant. A post hoc analysis via Games Howell was done, again, as in the main results, the interdependent self-construal group significantly spent more time than the control group. Overall, the interdependent self-construal group spent more time in the focally manipulated VME images' RTCR. This result also showed that only participants who were independent self-construal primed spent more time on the focal images. Their decision time was significantly longer.

Last, of all, there are differences with the first study in VME images. The images and manipulation techniques that are used as same gave different results. Coco-Cola was found to be not significant as a VME image in the study of Prasad & Bainbridge (2021), but it is

significant in this study. Conversely, the logo of Volkswagen is counted as a VME image in the original study, but it was not found as a VME image in this study; people mostly chose the right answer for Volkswagen. One of the possible explanations is that VME became too popular with these images, like Pikachu and Volkswagen. It is found that Pikachu still works as a VME image like in the study of Prasad & Bainbridge (2021), but Volkswagen failed to be one. Both are determined as focally manipulated images; the technique used in Coca-Cola is adding, and Volkswagen is manipulated by subtracting.

From the perspective of self-construal, there are differences in the studies that are done by region. The first study was done in Chicago, America which is independent self-construal is highly dominant in the region, in Turkey interdependent self-construal is more dominant (Kağıtçıbaşı et al., 2005). The difference is not coming from focal or global manipulations which is why the distinction between the self-construal in the countries does not offer an explanatory answer. Since VME is highly popular on the internet, even so, it came from the internet and was tested scientifically later, that is why, the image of Volkswagen could be seen and became more popular in the times between the study of Prasad and Bainbridge (2021) and this study which was done almost two years later. The popularity of the image could make the image especially more popular, and people may be more informed about the original image of Volkswagen.

4.4 Research's Contribution, Implications, and Limitations

The research is done on a topic that is coming from an internet phenomenon, and it is only known that VME exists, but the possible reasons are not explored yet. Self-construal is assumed as one of the potential reasons why people behave in this way. The concept of visual attention is assumed as one of the potential reasons why people collectively choose the wrong images. Holistic and analytic thinking is found to make a difference in visual perception too; analytic thinking can make us focus on more focal/local features while analytic thinking can make us focus on more global/features in visual perception. While VME is only studied in America, it is hypothesized different self-construal constructions could differ in VME results. In the findings, self-construal is formed by priming to make the separation between independent and interdependent self-construal clearer. The scales mostly take multiple dimensions; in most scales, horizontal and vertical dimensions are looked at. To observe the clear distinction between holistic and analytic thinking, a priming technique was used. According to the results, self-construal does not affect VME. Whether people are primed with independent, interdependent self-construal or in control conditions the answer they had given did not differ significantly. Visual attention is assumed to be a potential reason for this collective behavior for VME, but the results proposed the opposite. As a limitation, the priming could be weak to create enough difference for visual attention in the culture of Turkey, and using a scale could be another approach. However it is important to stress that self-construal is hard to manipulate; it is rooted in people for years which is why directly studying with two peak self-construal conditions (e.g., making the study in America and China) could give clearer results.

Besides other self-construal measurements (e.g., using a scale, participants from other areas like China and America), there could be other approaches that could be taken. The focal manipulations in the images seem to make people more delicate to make mistakes. The single change could serve as a complementary element for the images. For instance, the Gestalt approach can be taken to measure VME images in a more advanced way. In the end, the results indicate that self-construal does not specify why VME happens, it only gives information about the metacognitive functions. Taking a different approach can highlight discoveries.

Reaction time and confidence ratings were also used to comprehend the effect of metacognitive functions. The reaction of the images did not differ in SCC, but it differed in confidence rating reaction times. Even though confidence ratings did not differ in SCC, the

decision times were significantly different in globally and focally manipulated images: independent self-construal primed participants spent more time in deciding their confidence in the answers of globally manipulated images. Interdependent self-construal showed the same pattern for focally manipulated images. This result also indicates the effect of priming on some level and demonstrates that images were differentiated globally and focally in terms of visual attention. The metacognitive functions played a larger role in the difference between SCC and VME.

Measuring reaction time in an online study is one of the limitations of the study. We do not know how much participants were focused, or if any other distraction was in the way of the study. Since this study relies on the concept of visual attention, the study was not in the place to secure this attention. In the lab conditions, this study could offer different results by securing visual attention and making the measurement of reaction times more reliable. In a lab condition, the movement of gaze also could be studied with eye-tracking to detect the effect of self-construal, and visual attention, on VME in a more advanced way.

5. CONCLUSION

In this study, VME, a highly new concept in psychology, was studied. The possible reasons for this concept are not clear. False memory was proposed as one of the reasons but there are still some defects. Self-construal is used to examine why VME happens with the knowledge that different self-construal conditions can create different visual attention spans. The analyses showed that focal and global manipulations make a difference on every four dependents: focal manipulations caused people to make more mistakes and made them think that they were right in their answers in comparison to globally manipulated images.

The results demonstrated that self-construal does not affect VME directly. Even though there is no effect of self-construal priming on choosing the right or wrong image, participants' duration of time on confidence ratings has changed under three self-construal conditions. This could also be enlightening information about decision-making in visual perception and self-construal. From this perspective, the structure of the images might reinforce the behavior of choosing the wrong answer and the metacognitive structures along with it.

Among 6 VME images, 5 of them were focally manipulated. In this manner, the interpretation of focally manipulated images can give more insight into what influences this phenomenon. A single change in the images could make it trickier for people to remember the popular images. The data demonstrated that the false answers did not change in any self-construal condition but the metacognitive function yields that the attentional resources are affected by self-construal. In this sense, a different perspective of visual perception can explain why VME happens more clearly, such as the design and gestalt approaches. In the end, self-construal is used as the construction of visual attention, but it is not found effective enough to examine the behavior of the choosing wrong image. Consequently, in this study, self-construal is determined as not the possible reason for VME, and it is still a new subject that waits for possible explanations.

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APPENDICES

APPENDIX 1, CONSENT FORM

Bilgilendirilmiş Onam Formu

Bu çalışma, Başkent Üniversitesi Sosyal Bilimler Enstitüsü Sosyal Psikoloji Yüksek Lisans öğrencisi Psk. İlkyaz Özer tarafından Doç. Dr. Elvin Doğutepe danışmanlığında tez kapsamında yürütülmektedir. Araştırmada dikkatin görsel bellek üzerindeki etkisine bakılmaktadır. 18-35 yaş aralığında katılımcılar aranmaktadır Çalışma yaklaşık 10-15 dk. sürmektedir. Bu araştırmaya katılımda gönüllülük esas alınmaktadır, istediğiniz anda araştırmayı bırakabilirsiniz. Hem kimliğiniz hem de cevaplarınız anonim olarak tutulacaktır. Bu çalışma kesinlikle katılımcılara ait bir bireysel değerlendirme içermemektedir.

Bu araştırmaya katılımınız için çok teşekkür ederiz. Araştırmaya veya araştırma sürecine dair sorularınız için Psk. İlkyaz Özer ile iletişim kurabilirsiniz.

Okudum ve kabul ediyorum. ☐

APPENDIX 2, DEMOGRAPHICAL INFORMATION FORM

DEMOGRAFİK BİLGİ FORMU

1. Cinsiyetiniz: K: ( ) E: ( ) Diğer: ( )

2. Yaşınız: …….

3. Okumakta olduğunuz bölümü belirtiniz:
……

4. Eğitim durumunuzu belirtiniz:

Lise Mezunu: ( ) Ön Lisans: ( ) Doktora: ( )

Lisans: ( ) Yüksek Lisans: ( )

5. Herhangi bir göz hastalığınız varsa belirtiniz (Miyop, astigmat vb.)

……..

(Bu soruyu önceki soruyu cevapladıysanız cevaplayınız.)

6. Göz hastalığınız için kullandığınız herhangi bir yardımcı alet (gözlük, lens vb.) var ise belirtiniz.
……

7. Herhangi bir psikiyatrik ya da nörolojik ilaç kullanıyor musunuz?

( ) Evet ( ) Hayır

(Bu soruyu önceki soruyu cevapladıysanız cevaplayınız.)

8. Hangi rahatsızlık için ilaç kullanıyorsunuz?

…….

APPENDIX 3, SELF-CONSTRUAL PRIMING TEXTS

Independent Self-Construal

Şimdi lütfen aşağıdaki paragrafı okuyunuz ve bu paragraftaki birinci tekil kişi zamirlerini (örn.: ben, bana, benim) işaretleyiniz. İşaretlemek için kelimenin üzerine tıklayıp üstünde çıkan "işaretle" yazısına basmanız gerekmektedir. Okumayı bitirdikten sonra çalışmanın ikinci kısmına geçebilirsiniz.

Ben şehre sık sık giderim. Bazen kendi başıma otobüsle gittiğim de olur. Kendime ait köşe bulur, sadece şehri izlerim. Bazen ben de diğerleri gibi arabayla giderim. Gökdelenleri gördükçe, benim beklentim her seferinde artar. Ben, her köşeyi keşfetmek için fırsat kollar, hiçbir cazibenin benden kaçmasına da izin vermem. Bu şehir bana ayrılmış gibi hissederim. Tüm şehrin içinde, benim sesim havayı ve sokağı doldurur. Duygularım benim gördüğüm her yere dokunur. Tüm manzara ve vitrinler adeta bana bakar ve gittiğim her yerde yüzlerce pencerenin camında yine bana bakan yansımamı görürüm. Bu sokaklarda bazen sadece ben yürür, koşar, keşfim boyunca hayal gücümün uçmasına izin veririm. Benim hayal gücümün şehri çeşitlendirdiğini hissederim. Akşam karanlığında kendimle oyalanır, en sonunda şehirde bana ayrılan zamanın sona erdiğini anlarım. Benim de ayrılmam gerektiğinde, bunu yakında geri döneceğimi bilerek yaparım. Bu şehir bana ait.

Interdependent Self-Construal

Şimdi lütfen aşağıdaki paragrafı okuyunuz ve bu paragraftaki birinci çoğul kişi zamirlerini (örn.: biz, bizim, hepimiz) işaretleyiniz. İşaretlemek için kelimenin üzerine tıklayıp üstünde çıkan "işaretle" yazısına basmanız gerekmektedir. Okumayı bitirdikten sonra çalışmanın ikinci kısmına geçebilirsiniz.

Biz şehre sık sık gideriz. Bazen hep beraber otobüse biner, bize ait bir köşeye oturur ve şehri izleriz. Bazen biz de diğerleri gibi arabayla gideriz. Gökdelenleri gördükçe, hepimizin beklentisi her seferinde artar. Biz her köşeyi keşfetmek için fırsat kollar, hiçbir cazibenin bizden kaçmasına izin vermeyiz. Bu şehir bize ayrılmış gibi hissederiz. Tüm şehrin içinde, bizim seslerimiz havayı ve sokağı doldurur. Duygularımız bizim gördüğümüz her yere dokunur. Tüm manzaralar ve vitrinler adeta bize bakar ve gittiğimiz her yerde yüzlerce pencerenin camından yine bize bakan yansımamızı görürüz. Bu sokaklarda bazen sadece biz yürür, koşar, keşfimiz boyunca hayal

gücümüzün uçmasına izin veririz. Bizim hayal gücümüzün şehri çeşitlendirdiğini hissederiz. Akşam kalabalığında beraberce oyalanır, en sonunda hepimiz şehirdeki zamanımızın sona erdiğini anlarız. Bizim de ayrılmamız gerektiğinde, bunu yeniden ve hep beraber geri döneceğimizi bilerek yaparız. Bu şehir bize ait.

APPENDIX 4, MANIPULATION CHECK QUESTIONS FOR SELF-CONSTRUAL PRIMING

Yukarıdaki yazıyı okuduktan sonra aşağıdaki cümleyi, bu cümleye ne kadar katıldığınızı belirtilen numaralara göre değerlendiriniz.

Kendimi düşündüğüm zamanlar, genellikle anılarımı, yaşantımı ve benliğimi de düşünürüm.

1 2 3 4 5

Hiç katılmıyorum Son derece katılıyorum

Yukarıdaki yazıyı okuduktan sonra aşağıdaki cümleyi, bu cümleye ne kadar katıldığınızı belirtilen numaralara göre değerlendiriniz.

Kendimi düşündüğüm zamanlar, genellikle yakın dostlarımı ve ailemi de düşünürüm.

1 2 3 4 5

Hiç katılmıyorum Son derece katılıyorum

APPENDIX 5, FAMILIARITY QUESTIONS

Yukarıdaki görseli ne kadar tanıdık bulduğunuzu aşağıdaki numaralar ile değerlendiriniz.

1 2 3 4 5

Hiç tanıdık değil Son derece tanıdık

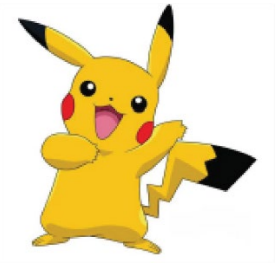
APPENDIX 6, FOCALLY MANIPULATED VISUAL MANDELA EFFECT QUESTIONS

gratis

gratis

Lay's

Lays

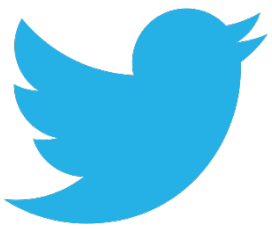


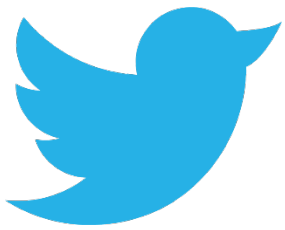
Red Bull

Red Bull

SA

SA





TM
TM
TOYOTA
TOYOTA
trendyol
go
trendyol
go

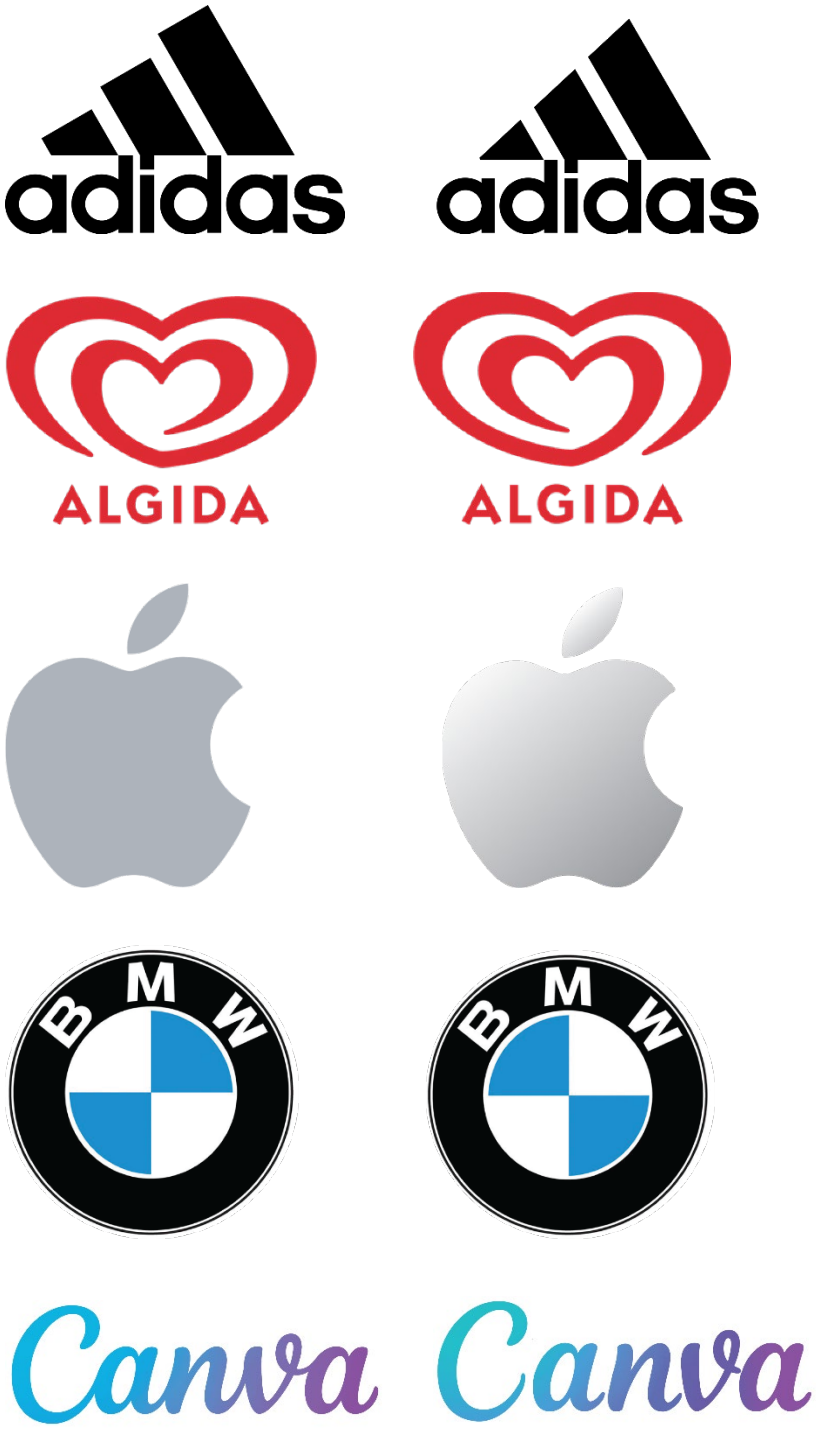
ups

ups

MINI

MINI
cooper

APPENDIX 7, GLOBALLY MANIPULATED VISUAL MANDELA EFFECT QUESTIONS

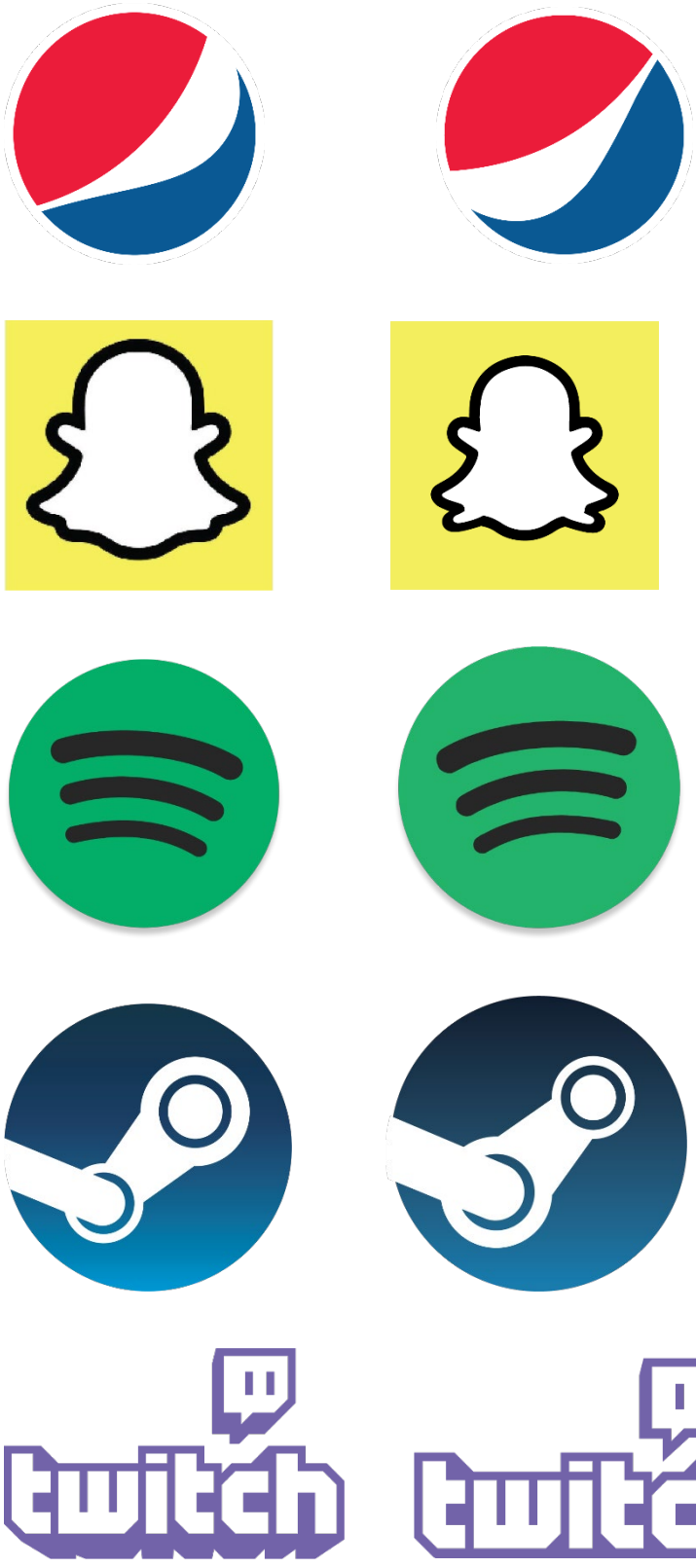


HYUNDAI

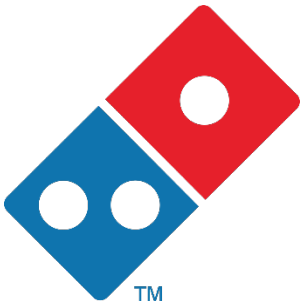
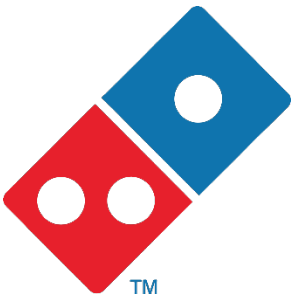
HYUNDAI

mastercard

mastercard



CARTOON NETWORK

CARTOON NETWORK

TM

TM

TikTok

TikTok

APPENDIX 8, SURENESS RATING QUESTION

Araştırmanın ikinci kısmında size popüler görseller gösterilecektir. Gösterilecek olan görsellerin orijinal ve üzerinde oynanmış hali olmak üzere iki tane versiyonu bulunmaktadır. Bu görsellerden hangisinin original olduğunu bulmanız beklenmektedir. Görseller içinden, orijinal görseli bulacağınıza dair ne kadar emin olduğunuzu aşağıdaki numaralara göre değerlendiriniz.

1 2 3 4 5

Hiç emin değilim Son derece eminim

APPENDIX 9, CONFIDENCE RATING QUESTION

Verdiğiniz cevaptan ne kadar emin olduğunuzu aşağıdaki numaralara göre değerlendiriniz.

1 2 3 4 5

Hiç emin değilim Son derece eminim

APPENDIX 10, DEBRIEFING FORM

Çalışmaya katıldığınız için teşekkür ederiz. Benlik kurgusunun görsel algıya olan etkisi baz alınarak, Görsel Mandela Etkisinin olası sebeplerinden birinin benlik kurgusu olma durumu araştırılmıştır.

Görsel Mandela Etkisi popüler görsellerin kolektif bir şekilde yanlış hatırlanması anlamına gelmektedir. Benlik kurgusu ise kişinin kendine dair algısını, kendisiyle ilgili farkındalığını sosyal etkileşimler sonucu oluşturduğu bir yapıdır.

Deneyin başında bir şehir gezisi hakkında olan iki tür yazı ve bu yazının hiç çıkmadığı kontrol aşamaları mevcuttur. Birinci tekil kişi ile yazılan yazı (örn. ben) bağımsız benlik kurgusu, birinci çoğul kişi ile yazılan yazı (örn. biz) ilişkisel benlik kurgusunu canlandırmak için kullanılmıştır. Kontrol koşulundaki katılımcılar herhangi bir yazı olmadan görsellerin olduğu bölüme geçmiştir.

Katılımcılardan orjinal ve oynanmış olmak üzere iki farklı görsel arasından orjinal olanı seçmeleri istenmiştir. Toplamda 45 görsel kullanılmıştır.

Deneye dair herhangi bir sorunuz olmanız halinde Psk. İlkyaz Özer
ile iletişime geçebilirsiniz.

APPENDIX 11, ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 07.04.2023-222494

1993
BAŞKENT ÜNİVERSİTESİ
Akademik Değerlendirme Koordinatörlüğü

Sayı : E-62310886-605.99-222494
Konu : İlkyaz Özer'in Etik Onay Başvuru Hk. 07.04.2023

SOSYAL BİLİMLER ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 27.03.2023 tarih ve 217764 sayılı yazınız.

Enstitünüz Psikoloji Ana Bilim Dalı Sosyal Psikoloji Tezli Yüksek Lisans Programı öğrencisi İlkyaz Özer'in, Doç. Dr. Elvin Doğutepe danışmanlığında yürüteceği, "The Effect of Self Construal on Visual Mandela Effect with a Metacognitive Perspective" başlıklı çalışması değerlendirilmiş ve bilgilerinize ekte sunulmuştur.

Prof. Dr. M. Abdülkadir VAROĞLU
Kurul Başkanı

Ek: Değerlendirme Formu

Sayı : 17162298.600-94
Konu : Bilimsel Çalışma

4 NİSAN 2023

İlgili Makama

Üniversitemiz Sosyal Bilimler Enstitüsü Psikoloji Ana Bilim Dalı Sosyal Psikoloji Tezli Yüksek Lisans Programı öğrencisi İlkyaz Özer'in, Doç. Dr. Elvin Doğutepe danışmanlığında yürüteceği, "The Effect of Self Construal on Visual Mandela Effect with a Metacognitive Perspective" başlıklı çalışması değerlendirilmiş ve yapılmasında bir sakınca olmadığı tespit edilmiştir.
Bilgilerinize saygılarımızla sunarız.

Başkent Üniversitesi Sosyal ve Beşeri Bilimler ve Sanat Araştırma Kurulu

Ad, Soyad	Değerlendirme	İmza
Prof. Dr. M. Abdülkadir Varoğlu	Olumlu/~~Olumsuz~~	
Prof. Dr. Gözen Güner Aktaş	Olumlu/Olumsuz	
Prof. Dr. Sadegül Akbaba Altun	Olumlu/~~Olumsuz~~	
Prof. Dr. Hasan Tahsin Fendoğlu	Olumlu/Olumsuz	
Prof. Dr. Filiz Kalelioğlu	Olumlu/~~Olumsuz~~	
Prof. Dr. Hidayet Hale Künüçen	Olumlu/~~Olumsuz~~	
Prof. Dr. Özcan Yağcı	Olumlu/~~Olumsuz~~	

Prof. Dr. Gözen Güner Aktaş'ın çalışmaya ilişkin görüşleri:

Anket için 30 dakika süre belirtilmiş. Ön uygulama yapıldı mı? Firmalara ait logoların kullanılması uygun mu?