

EXAMINING THE ROLE OF CREATIVITY
IN AUTOBIOGRAPHICAL MEMORY

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ABSTRACT

Examining the Role of Creativity in Autobiographical Memory

The dynamic and constructive nature of autobiographical memory has been examined in many studies. Previous research showed that different personality and cognitive characteristics relate to the phenomenological characteristics and narrative coherence of memories. However, no study has directly examined how creativity, as an individual difference, relates to the way people recall and narrate their personal memories. The present study investigated whether individual differences in creativity are associated with autobiographical memory phenomenology and narrative coherence. 136 Boğaziçi University students participated in the study. They recalled their most important life event and rated its phenomenological characteristics. They also completed the Alternative Uses Task (AUT) as a measure of divergent thinking and two self-report creativity scales: the Biographical Inventory of Creative Behaviors (BICB) and the Kaufman Domains of Creativity Scale (K-DOCS). Memories were coded for their coherence with the Narrative Coherence Coding Scheme (NaCCS; Reese et al., 2011). Results showed that creativity, measured by both divergent thinking and self-report scales, was not related to phenomenological characteristics of memory. However, divergent thinking was positively associated with narrative coherence across all dimensions. These findings suggest that while creativity does not influence the subjective richness of autobiographical memories, individuals with higher creative potential may construct more coherent and organized life narratives. The study contributes to understanding of individual differences in remembering and highlights creativity as a cognitive factor related to how people structure their personal experiences.

ÖZET

Yaratıcılığın Otobiyografik Bellekteki Rolünün İncelenmesi

Otobiyografik belleğin dinamik ve yapıcı doğası birçok çalışmada incelenmiştir. Önceki araştırmalar, farklı kişilik ve bilişsel özelliklerin anıların fenomenolojik özellikleri ve anlatı tutarlılığı ile ilişkili olduğunu göstermiştir. Ancak hiçbir çalışma, bireysel bir farklılık olarak yaratıcılığın, insanların kişisel anılarını hatırlama ve anlatma biçimleriyle nasıl ilişkili olduğunu doğrudan incelememiştir. Bu çalışma, yaratıcılıktaki bireysel farklılıkların otobiyografik bellek fenomenolojisi ve anlatı tutarlılığı ile ilişkili olup olmadığını araştırmıştır. Toplam 136 Boğaziçi Üniversitesi öğrencisi yaşamlarındaki en önemli olayı hatırlamış ve fenomenolojik özelliklerini değerlendirmiştir. Ayrıca, ıraksak düşünmenin bir ölçütü olarak Alternatif Kullanımlar Testi (AUT) ve öz bildirim ölçekleri olarak Yaratıcı Davranışların Biyografik Envanteri (BICB) ile Kaufman Yaratıcılık Alanları Ölçeği'ni (K-DOCS) tamamlamışlardır. Anılar, Anlatı Tutarlılığı Kodlama Şeması (NaCCS; Reese vd., 2011) ile tutarlılıkları açısından kodlanmıştır. Sonuçlar, hem ıraksak düşünce hem de öz bildirim ölçekleriyle ölçülen yaratıcılığın, belleğin fenomenolojik özellikleriyle ilişkili olmadığını, ancak ıraksak düşünmenin tüm boyutlarda anlatı tutarlılığı ile pozitif yönde ilişkili olduğunu göstermiştir. Bu bulgular, yaratıcılığın anıların fenomenolojik zenginliğini etkilememekle birlikte, daha yüksek yaratıcı potansiyele sahip bireylerin daha bütünlüklü ve anlamlı biçimde yaşam anlatıları oluşturabileceğini göstermektedir. Bu çalışma, hatırlama konusundaki bireysel farklılıkların anlaşılmasına katkıda bulunmakta ve yaratıcılığı anıları anlatma biçimiyle ilişkili bilişsel bir etken olarak vurgulamaktadır.

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CHAPTER 1

INTRODUCTION

We express ourselves in stories. The way we talk about our experiences, make sense of them, and share them with others is likely in the form of a story. Who we are at that moment, the context in which we tell these stories and the perspective from which we approach events affect the way we recall and express our memories.

It can be said that all the factors that affect the ability to create narratives and the way we experience events might also affect the processes of recalling memories. If memory and identity are built on stories, and if they shape these stories as they interact, it is important to examine and understand the characteristics of the mind that form these processes. Recalling and telling a past event often requires more than accessing stored information. It involves selecting, organizing and enriching details to form a vivid, coherent and meaningful story. For these processes, creativity might be particularly significant.

Creativity involves cognitive processes that may be associated with both the phenomenology of autobiographical memory and the coherence of narrative construction. Furthermore, creative people may experience events differently, make different connections between ideas, and this may manifest itself in the way they experience and narrate their memories.

This thesis explores whether and how creative individuals differ in the phenomenology and narrative structure of autobiographical memory. Specifically, it investigates how creativity relates to the vividness, accessibility, sensory details, visual perspective and narrative coherence of personal memories asking whether the

ability and tendency to generate, imagine, and construct ideas are reflected in the ways people reconstruct their past.

In order to investigate the relationship between creativity and autobiographical memory, the current study examines how individual differences in self-reported creative activity and divergent thinking ability relate to the phenomenology and coherence of autobiographical memory.

1.1 Autobiographical memory

Autobiographical memory (ABM) is a memory system of one's own experiences and the self (Brewer, 1986). It is not a passive storage that saves past experiences as they happened, but rather an active and dynamic system that is constantly reconstructed and reinterpreted each time memories are recalled by individuals. It is central to human experience, as it is a core cognitive process that supports other cognitive processes, influences how one constructs their self-identity, and reflects how one experiences the world. Starting with Bartlett's (1932) study, research showed that people tend to recall their past with distortions resulting from current beliefs, goals, and schemas (Schacter, 2012).

One of the most influential theoretical frames regarding how autobiographical memory is organized and constructed is the Self-Memory System (SMS) model proposed by Conway and Pleydell-Pearce (2000). According to the model, ABM is a dynamic mental process that is shaped by personal goals, beliefs and understanding of the self. Current goals and the sense of self are the main factors playing a role in both encoding and retrieval of ABMs.

The SMS model supports the view that the memory system is constructive and does not function as a record of past events. It argues that there is an

autobiographical knowledge base and the working self, which modulates how memories are remembered, and the main goal of the system is to provide and maintain the coherence between memory and self-identity. Autobiographical knowledge base refers to stored personal knowledge about one's life, and it is organized hierarchically. It provides the content that is used to construct ABMs. This hierarchical structure comprises three levels: life-time periods, general events, and event-specific knowledge. Life-time periods are broad life chapters including general information regarding events, people, places, and goals related to those periods. These periods can be organized thematically and temporally, and a certain time period can include multiple periods with different themes. For instance, studying at university can coincide with the period of living with X. General events refer to more specific and diverse events that happened in a shorter period of time than lifetime periods. They can comprise recurring experiences (such as regular hikes) and one-time events (such as a trip to a city). Similar to lifetime periods, these events can be organized thematically and temporally. Lastly, event-specific knowledge is the detailed information about a particular event that one experienced in a particular time and place. This knowledge refers to elements of the memory which are detailed and vivid in terms of imagery, emotions, sensory-perceptual input and context. Therefore, it can be said that event-specific knowledge provides the person with a sense of reliving when one recalls a memory.

The Self-Memory System model offers a framework for understanding the constructive nature of autobiographical memory. Conway and Pleydell-Pearce (2000) argue that the memory system is hierarchical and when a person recalls a specific memory, a pattern is activated over these three knowledge structures. Therefore, memories are dynamically constructed through interactions between

autobiographical knowledge base and the working self. Working self is a system of current active goals, self-concepts and motivations and organizes memories to support self-identity based on these factors. Remembering occurs through cue elaboration, selective search and evaluative filtering of memory content (Conway & Pleydell-Pearce, 2000). When remembering personal events, therefore, retrieved memories are actively interpreted and shaped by the working self. This suggests that people may differ in how they remember their memories, based on their cognitive and personality traits, because these factors might affect how these construction processes are created, in other words, how retrieval pathways are constructed. In sum, the SMS frames autobiographical remembering as an ongoing play between the self and memory, which is directed by cognitive, social and affective factors.

In addition to the SMS model, there are models that consider ABM as a system involving multiple interacting cognitive subsystems. Rubin's (2006) Basic-System Model posits that several systems (i.e. visual, auditory, olfactory, spatial imagery, language, emotion, narrative, motor output, explicit memory, search and retrieval systems) interact with each other to construct ABMs. Rubin (2006) suggests that each system provides with information and structure to the memory system. Therefore, it can be suggested that differences in these systems and how they interact with each other determine the differences in memory processes of individuals. Moreover, Conway (2009) also proposes that episodic memories are the summaries of the actual events which can be accessed and retrieved coherently when they are integrated within the autobiographical memory system. This also strengthens the idea that ABM has a constructive nature, which is created by selective encoding and repeated reconstruction.

Another complementary approach to ABM is the narrative identity model. Narrative identity is defined as the story one creates for his or her life by integrating their ABMs (Singer, 2004). Thus, it is constantly changing, as new experiences are made. McAdams and McLean (2013) posits that in order to have a coherent self-identity across time, we construct a life story that is made up by the reconstructed past and imagined future. This offers a feeling of continuity of the self and direction in life. McAdams and McLean highlights that we are, by nature, storytellers; and, therefore, we tell our experiences by turning them into a coherent narrative. We interpret and organize our experiences as chapters in our life story and as our life narrative and identity change, we rewrite our memories to keep the coherence of the story (McAdams & McLean, 2013). Specifically, McAdams and McLean (2013) review the research and point out that adults tend to reconstruct their memories to support themes of personal growth, autonomy, or overcoming adversity in their life stories. In sum, narrative identity theory argues that ABMs are reconstructed in light of our current narrative.

These theoretical perspectives emphasize that ABM is multi-layered and unique in its construction. The self-concept, which is one's beliefs, personality, how they see themselves, impacts which experiences are encoded and how they are reconstructed later; and ABM, in turn, shapes the self-identity. This constructive nature opens the door for the investigation of individual differences that affect how these processes occur. Many studies have examined how different individual characteristics relate to ABM. The most investigated areas are how people subjectively experience their memories and how they express them.

1.2 Phenomenology of autobiographical memory

Memory phenomenology refers to the subjective experience that one has when recalling personal past events (Chiorri & Vannucci, 2024). Phenomenological features of ABMs include variables such as vividness and coherence of the memory, emotional intensity of the recalling, reliving level, sensory details, how distant the memory feels, and valence of the memory (Sutin et al., 2021; Sutin & Robins, 2007). These aspects of remembering are significant because they play a role in how individuals experience their memories (Chiorri & Vannucci, 2024). In other words, they shape the richness of ABMs. Tulving (2002) argues that what enables individuals to relive their experiences is these phenomenological properties of memories. The multifaceted nature of ABM has been widely investigated in this area of memory research (Chiorri & Vannucci, 2024).

Research has shown significant individual differences in phenomenological characteristics of ABMs. In other words, individuals differ in how they subjectively experience and relive their memories when recalling as a function of their personality traits and cognitive abilities. In one study, Rubin and Siegler (2004) examined individual differences in personality and their relationships with the phenomenological features of ABMs. Participants provided memories as a response to cue words and rated them on a scale of dimensions such as belief, recollection, sensory imagery and emotional intensity. It was found that openness to feelings positively correlated with belief in the accuracy of the memories, recollection feeling, the richness in sensory details and emotional intensity during recall. Similarly, Rasmussen and Berntsen (2010) also found that openness to experience, which is being open to new experiences, was positively associated with vividness, reliving and coherence of ABMs, which were elicited through giving different cues

asking about unique events. These studies show that people who score high in openness tend to recall their memories with richer phenomenological experiences.

Furthermore, individual differences in visual imagery also play a role in how memories are recalled, especially in the sense of reliving the memories (Rubin et al., 2003). Visual imagery is a significant part of ABM (e.g. Brewer, 1996; Greenberg & Knowlton, 2014). For instance, Rubin, Schrauf and Greenberg (2003) investigated the phenomenological properties related to belief in and recollection of ABMs. Participants were asked to recall memories in response to cue words and gave ratings to their recalling experiences for visual and auditory imagery, emotional intensity and narrative coherence. Researchers found that the subjective sense of reliving the past, i.e. recollection, was positively associated with visual imagery and emotional vividness. The neuropsychological studies of the relationship between visual imagery and ABM support this positive association (for a review, see Greenberg and Rubin, 2003). Case studies showed that individuals with visual imagery impairments had deficits in ABM in that they exhibited significant retrograde amnesia and impaired recollection experiences (Greenberg & Rubin, 2003). For example, Greenberg and Knowlton (2014) found that individuals with a congenital absence of visual imagery reported significantly reduced feelings of reliving when recalling their ABMs.

Moreover, individual psychological attributes such as subjective well-being, distress and sense of purpose in life have been found to be related to the phenomenological experiences during memory recall (Luchetti & Sutin, 2016; Sutin et al., 2021). Luchetti and Sutin (2016) explored that ABMs of people with higher anxiety, depression or loneliness had lower phenomenological quality in that they were less vivid and less coherent. In a similar vein, Sutin et al. (2021) showed that

there was a positive association between the phenomenology quality and sense of purpose in life.

Overall, phenomenological characteristics of ABM vary based on cognitive abilities, personality traits and psychological conditions. This variability highlights the importance of understanding individual differences that play a role in shaping ABM processes.

1.3 Narrative coherence of autobiographical memories

Memories are conveyed through language and “externalized” as narrations (Smorti, 2011). Bruner (1990) states that individuals use narrative thinking in every area of the construction of the self and meaning-making of the external world. Smorti (2011) argues that ABM and autobiographical narrative differ from each other. While ABM is a process that is shaped by cognitive constructs such as working self, autobiographical knowledge base and episodic memories (Conway, 2005), narrative refers to a concrete structure that is created through language by expressing the memory representation formed as a result of these cognitive processes (Smorti, 2011). In addition, whereas phenomenology of ABM refers to the recalling experience of a memory, memory narrative implies the construction and expression of the content of the memory. In other words, we can say that these two phenomena express different features of ABM but form a complementary picture.

Smorti (2011) emphasizes that when memories are told to others, individuals try to make them follow a certain structure which is defined by the social environment, culture and language. Furthermore, to have a sense of identity which is coherent across time, the narrative that we tell needs to be coherent as well. Therefore, one should evaluate past events in such a way that confirms the current self (Smorti,

2011). Each new memory, when narrated, changes and transforms the previous stories. All these processes might be affected by social context, to whom they are told, culture and individual differences.

Coherence is an integral aspect of a narrative and it is defined in terms of the structure and organization of the course of events that one tells (Reese et al., 2011). It is suggested that it is essential for a narrative to be coherent in order to be listenable by the audience (Foldager et al., 2024; Reese et al., 2011). There are different assessment methods of narrative coherence and one of them was developed by Reese et al. (2022). According to Reese et al.'s (2011) narrative coherence model, there are three aspects constituting the coherence of a narrative: context, chronology and theme. Context means the positioning of the narrative in time and space; chronology involves temporally organizing the events; and, theme refers to the topic which is elaborated throughout the narrative.

Constructing a narrative coherently enables individuals to create a life story out of their autobiographical memories and through this act, past experiences are combined with self-knowledge (Habermas & de Silveira, 2008). This ability, creating a coherent narrative, starts to develop during adolescence (Habermas & de Silveira, 2008). As adolescents gain the ability to reflect on themselves, they start to build a narrative of their lives as well as create a life story (Bluck & Habermas, 2001). It is no coincidence that this ability to create a life story coincides with the process of identity construction that begins in adolescence. As many researchers have noted and emphasized, identity and autobiographical memory have a reciprocal relationship. Individual experiences contribute to the formation of identity, and as identity develops, past experiences are reconstructed in light of the present self, shaped and

narrated accordingly. Through this narrative process, a coherent and continuous sense of self emerges.

Habermas (2011) argues that these processes are carried out through autobiographical reasoning. According to him, this cognitive ability establishes a relationship between past, present and future, and constantly updates this relationship with each new information and transformation, in order to have a coherent story. In light of these theoretical and empirical studies in the literature, we can say again that remembering is a process of reconstruction, which can vary from person to person. Therefore, it is important to understand individual differences in the narrative expression of memories in order to see how people make sense of their lives and personalities.

With regard to individual differences in narrative coherence, Waters et al. (2017) conducted a study in which they investigated whether individuals have a certain style of creating coherent narratives by having them telling their memories at different time points. They showed that together with the event content, personal narration style contributes to narrative coherence, which suggests that individuals might differ in their ability to create coherent narratives because of their cognitive and personality traits. As a result, narrative coherence constitutes a field for examining individual differences in memory recall processes.

1.4 Definition and measurement of creativity

Creativity is an important part of human experience. It is difficult to define creativity due to its multifaceted and complex construct. In the literature, creativity lacked a precise definition and operationalization (Batey & Furnham, 2006; Runco, 2004), because the concept of creativity can show itself in many tasks (Benic, 2021).

Plucker, Beghetto and Dow (2004) also assert that there is a “definition problem” of creativity. As a result, it can be suggested that research findings regarding creativity might actually tap into different constructs and refer to creativity as if they mention the same thing (Plucker et al., 2004). Plucker et al. (2004) did a content analysis by analyzing 90 articles to examine how creativity is defined in the literature and found that only 38% of them gave an explicit definition and 21% did not give any definition of creativity at all.

When there is no clear definition of a construct, every person can attribute a different meaning to it, which in turn shapes how it is operationalized and measured. This can lead to referring to different concepts under cognitive processes, personality and previous experiences when explaining creativity (Plucker et al., 2004; Treffinger et al., 2002). Based on the literature, Plucker et al. (2004, p. 90) identified a definition by determining the key common points: “Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within social context.”

Rhodes (1961, 1987) proposed that definitions of creativity are generally based on four categories, which are characteristics of the creative person, environmental conditions for creativity, the creative process and the creative product. In the creative person framework, definitions are associated with traits, personality characteristics, motivation that lead to creative activities (Batey & Furnham, 2006; Said-Metwaly, Kyndt & den Noortgate, 2017). Researchers focusing on environmental conditions in which creative act is realized examine which external factors contribute to creativity (Said-Metwaly et al., 2017). Researchers investigating and describing creativity from the process framework mostly focus on cognitive processes taking part in creativity (e.g. Finke et al. 1992; Guilford, 1950; Mednick,

1962). Lastly, researchers taking a creative products approach describe creativity by focusing on creative achievements of people (e.g. Kaufman & Sternberg, 2007). Although it is highly accepted that creativity is a complex construct with personality, environment, cognitive and achievement aspects (Batey & Furnham, 2006), researchers (Batey, 2012; Said-Metwaly et al., 2017) have made a common definition. Runco and Jaeger (2012) introduce the standard definition of creativity: original and useful. Accordingly, for something to be called creative, it should be both novel and useful. In other words, if something new is not effective in terms of its own context, it cannot be called creative (Runco & Jaeger, 2012).

How creativity is defined and constructed influences how it is measured and studied (Batey, 2012; Batey & Furnham, 2006). If novel and useful aspects are examined from a personality view, trait characteristics are measured (e.g. Guilford, 1950). If researchers take an environmental perspective, they focus on the external conditions (e.g. Dul & Ceylan, 2011). However, research shows that current approaches to creativity generally use both process and product views (Puryear et al., 2017). Plucker et al. (2004)'s definition highlights two key points: a person's potential to be creative and the very product of the individual's idea processes. While past studies have often focused on a single perspective, theoretical and empirical work on how creativity can be measured more comprehensively has recently increased (Batey, 2012; Fürst & Grin, 2018; Runco, 2003; Said-Metwaly et al., 2017). The common premise of all of them is that different tools should be used together to measure creativity, which is a multifaceted concept, to create a complete picture.

Therefore, in the present study, we will focus on both process/potential and product views to measure creativity in order to have a more integrated approach.

Potential creativity will be assessed by a divergent thinking (DT) task, which is objectively scored. Divergent thinking is defined as a cognitive process of producing several and original ideas in response to an open-ended problem (Guilford, 1967). Moreover, Guilford (1950) conceptualizes divergent thinking as an indicator of creative potential; and it has multiple components such as fluency, originality, flexibility and elaboration (Runco & Acar, 2012). Fluency reflects how many ideas an individual produces; originality reflects how infrequent an idea is in a given population; flexibility shows itself in a wide range of ideas belonging to different conceptual categories; and, elaboration refers to how detailed the ideas are (Runco & Acar, 2012; Said-Metwaly et al., 2017).

Although creativity and divergent thinking are not identical (Runco & Acar, 2012), divergent thinking tasks are considered as useful measurements of potential creativity (Fürst & Grin, 2018). They enable us to assess the ability to generate original ideas (Fürst & Grin, 2018), which are fundamental to creative expression. Furthermore, despite the debates about the validity of divergent thinking tasks (for a review, see Said-Metwaly et al., 2017), they are widely used in creativity studies because they are considered to be one of the most effective ways to assess creativity (Barbot et al., 2019; Runco & Acar, 2012; Said-Metwaly et al., 2017). There are controversies regarding whether divergent thinking tests are predictive of creative achievement (for a review, see Said-Metwaly et al., 2017), however, they remain as a widely used and accepted indicator of creative potential in cognitive and psychological research.

In addition to this process-oriented approach, the current study also adopts a product-based view to have a more comprehensive understanding of creativity by measuring how creativity is expressed in everyday life. Creative achievement is the

tangible creative output (Fürst & Grin, 2018) and assessing creativity by focusing on the production and self-perceptions in creativity domains of the individual is a widely accepted method (Hennessey & Amabile, 2010; Fürst & Grin, 2018; Kaufman, 2012; Said-Metwaly et al., 2017). Plucker et al. (2004) also argue that even though it is evident that creativity has latent processes, measuring the creative output, such as products, behaviours, ideas, is necessary to assess creativity, because this domain is where a person's creativity manifests itself.

In this study, both process-based and product-based measures are employed. Our primary focus is on everyday creativity because it is aimed to explore how everyday creative thinking and behaviour may influence the way individuals experience and later recall personal events. In daily life, people can engage in creative acts and thinking that are novel and meaningful and these people are not necessarily artists or inventors, who are conventionally described as creative. Kaufman and Beghetto (2009) distinguish the levels of creativity by proposing the Four-C Model of Creativity: mini-c (small and novel insights and basic combination of mini pieces of information); little-c (everyday creative expression); Pro-C (advanced creative work at professional level, e.g. art and science); and Big-C (eminent creativity, e.g. significant societal-level creativity). By focusing on little-c, or everyday creativity, which can be found in everyday problem solving, hobbies or achievements, the current study is interested in exploring how the extent to which creative thinking is used is associated with autobiographical memory processes and whether there is a significant relationship between these two phenomena.

1.5 Creativity and memory

Research on the relationship between creativity and memory has mostly focused on the memory's contribution to divergent thinking (for a review, see Gerver et al., 2023). Creative ideas have been seen as the production of the combination of information in memory (Mednick, 1962). The episodic memory system has been argued to be constructive (Tulving, 2002). In other words, it not only enables humans to retrieve the past but also reorganize the information. Researchers showed that the same system of network is used when imagining future events (i.e. episodic future thinking) (Schacter, Addis & Buckner, 2008) and when remembering the past. As imagining the future means combining elements that have not occurred and simulating new scenarios, remembering is also suggested to rely on the same constructive system. In line with the general constructive memory idea and the “constructive episodic simulation hypothesis” (Schacter & Addis, 2007), which argues that imagining the future and remembering the past share the same cognitive processes, neuroimaging studies found that these two processes share similar brain region networks (for a review, see Benoit & Schacter, 2015).

As divergent thinking is described as generating creative ideas by combining information in unusual ways (Guilford, 1967), which resembles the constructive processes of episodic memory, several studies examined the relationship between divergent thinking and episodic memory. There are behavioural studies supporting this link. For instance, Addis et al. (2016) found that individuals who showed greater performance in a divergent thinking task produced more episodic details during imagining their future experiences. In another study with amnesic patients with severe impairments of episodic memory, Duff et al. (2013) showed that amnesic individuals exhibited worse performance in a creative assessment of thinking than

healthy adults did. Similarly, Gilhooly et al. (2007) found that healthy adults tend to use their episodic memories when they are asked to create novel and meaningful uses for an object in the Alternate Uses Task. Therefore, these findings suggest that episodic memory plays a role in divergent thinking processes.

Furthermore, as mentioned before, neuroimaging studies show that remembering the past and imagining the future depend on the same default network in the brain (Schacter et al. 2012). Beaty et al. (2020) found that divergent thinking also shares similar functional structures with the episodic memory network, which again emphasizes the interaction between creative cognition and memory.

Previous research, has examined the relationship between memory and creativity focusing on the effect of memory on divergent thinking. To the best of our knowledge, no study has directly investigated the relationship between creativity and autobiographical memory, despite its constructive nature. Due to the established relationship between creativity and episodic memory, as well as empirical findings on creativity that will be discussed below, the relationship between autobiographical memory and creativity remains to be explored.

Other reasons for a possible relationship between creativity and autobiographical memory are related to psychological correlates of creativity, which are narrative ability, narrative coherence, associative processes and visual imagery. In an fMRI study, Shah et al. (2013) examined the brain network activation during a creative writing activity and found that when people engage in creative writing, several brain regions that are involved in memory retrieval and semantic association, together with free association, are activated. Therefore, it can be suggested that the brain regions that are activated when engaged in creative activities share a

commonality with the regions that are activated in the processes of memory recall and organization.

With regard to narrative coherence, Fournier et al. (2018) investigated the relationship between personal coherence and creativity and showed that people who scored high on the divergent thinking, measured by Alternate Uses Task, also showed higher coherence in their autobiographical narratives. Although this study suggests that creative people might be better at creating well-structured personal accounts through combining coherence elements, there are other studies showing the opposite. In order for something to be called creative, it should be new as well as meaningful/useful (Runco & Jaeger, 2012). This necessitates the person to control whether their new ideas are appropriate in the given context. Patel et al., (2024) sought to address whether coherence and creativity are related during a spontaneous speech act. They found that coherence and divergence in the speeches of participants were negatively associated with each other. They argued that people might have avoided coming up with very different and original ideas to create a more coherent and cohesive narrative. Their neural findings are also in line with these behavioural level findings. Although these results are contradictory, they show that there is a relationship between narrative coherence and creativity.

Creativity is also related to associative ability, which is a core aspect of memory construction. Kenett et al. (2014) divided individuals into two groups, namely low- and high-creative individuals, based on creativity assessments. Then they compared the semantic memory networks of the two groups. Findings showed that high-creative individuals had a larger semantic network, meaning that their networks included diverse and distant concepts, while low-creative individuals had a more fixed one.

The potential relationship between creativity and ABM may be, in part, due to their shared reliance on visual imagery processes. Visual imagery is a cognitive mechanism involved in both ABM phenomenology and creative cognition. Both involve processes based on visual stimulation in the mind. Visual imagery has been shown to contribute to the richness of phenomenological experiencing, which increases the vividness and emotional reliving (Greenberg & Knowlton, 2014; Rubin, 2006). Research has shown that visual imagery (Conway, 2009; Rubin & Umanath, 2015). Similarly, people with higher creativity scores on creativity tasks are likely to have higher visual imagery abilities (Campos & González, 1993; Kozhevnikov et al., 2013). However, a meta-analysis study concluded that this relationship is not very high and that imagery explains 3% of the variation in creativity (LeBoutillier & Marks, 2003). Given that visual imagery has an effect on memory recall and creativity processes, it may be an explanatory factor in the relationship between memory phenomenology and creativity. Creative people may experience memories more intensely because they have higher imagination. Therefore, this study also examines the relationships between these three variables.

Overall, these findings suggest that individuals' creativity plays a role not only in generating new ideas but also in other cognitive processes. Creativity may have an impact on the ways in which memories are recalled and organized, both through cognitive skills such as associative ability, visual imagery, and personality traits such as openness. In the absence of any studies in this field, it is important to examine creativity and autobiographical memory phenomenology and narrative coherence.

1.6 The present study

Despite the similarities between processes underlying the two constructs, to date, the question of whether individual differences in creativity would be associated with individual differences in ABM remains relatively unexplored.

Based on previous research, in the present study, it is hypothesized that creativity may be linked to ABM, particularly in how memories are subjectively experienced when remembered and structured when told. In other terms, ABM phenomenology and narrative coherence might be related to individual differences in creativity due to their shared mechanisms. Recent empirical findings showed positive associations between creativity, episodic memory and mental simulation (e.g. Addis et al., 2016; Madore et al., 2016; Thakral et al., 2020). Therefore, it is needed to further investigate these constructs.

There are several reasons why creativity might be associated to the way memories are recalled. First, phenomenological richness of ABMs is positively associated to the ability to mentally simulate perceptual and emotional experiences (Argembau & Linden, 2005). Creative individuals have been shown to have richer mental imagery and enhanced imaginative capacity (Kozhevnikov et al., 2013; LeBoutillier & Marks, 2003). This might support more phenomenological rich recollections. Additionally, creative individuals tend to engage more in reflective thinking (Akpur, 2020; Orhan & Ataman, 2024), which may increase the subjective richness and detail of remembered events. Additionally, previous research showed that openness to experience is positively associated with creativity (e.g. Feist; 1998; Ivcevic & Brackett, 2015), and it also relates to the phenomenological richness of ABMs (e.g. Rasmussen & Berntsen, 2010). Therefore, it is reasonable that creative people's memories can have richer phenomenology.

Other main cognitive mechanism that appears to be common to both ABM and creativity is episodic retrieval. Several studies investigated the role of episodic memory in creative cognition (e.g. Addis et al., 2011; Madore et al., 2015). The rationale behind these studies is based on the findings that imagining future experiences and remembering the past relies on similar neurocognitive processes (for review, see Schacter et al., 2012). Researchers conclude that imagining new scenarios require flexible retrieval and reconstruction of past events. This also provides support to the relation between creative cognition and episodic memory because creativity also requires flexible recombination of information (Orwig et al., 2025).

There is also another line of research which supports the relationship between creativity and narrative coherence. Building coherent personal narratives means to be able to construct the personal past in a thematically, temporally and contextually organized manner. The process of narrative construction requires flexible retrieval and associative thinking, as it means that individuals construct events in a particular structure and turn them into a life story. These cognitive processes are also central to creativity, which involves the ability to flexibly connect diverse ideas and form novel associations, as explained in previous sections. Recent research supports this overlap. Researchers showed that individual differences in divergent thinking were positively associated with three dimensions of narrative coherence, which are contextual, chronological and thematic (Fournier et al., 2018). Participants were asked to tell three personal memories and then their creativity was assessed with a divergent thinking measure, Alternate Uses Task. Individuals with higher divergent thinking scores told more coherent life stories. This may suggest that ability to generate

flexible and original thoughts can be related to one's ability to form coherent life stories.

Although there is emerging behavioural (e.g. Addis et al., 2006; Madore et al., 2016) and neuroimaging (Schacter et al., 2018; Thakral et al., 2017) evidence on the relationship between creativity and memory, the link between creativity and autobiographical memory has rarely been examined. To address this gap is important for understanding how people's creative achievements and thinking abilities are related to the way they recall, experience and organize their personal past.

The current study aims to examine whether individual differences in creativity are associated with individual differences in ABM phenomenology and narrative coherence. Furthermore, given the importance of visual imagery in both creativity and memory phenomenology (Greenberg & Knowlton, 2014; Kozhevnikov et al, 2013; Palmiero et al., 2022), the current research will also statistically control for the role of visual imagery ability. To the best of our knowledge, no prior study has investigated these links.

Specifically, creativity is examined from two distinct yet complementary dimensions:

- i. Divergent Thinking: It captures an individual's ability to generate novel and useful ideas and was measured through Alternate Uses Task (AUT).
- ii. Creative Engagement: It reflects the creative output, such as products, behaviours, ideas across various domains and was assessed through self-reports (i.e. Biographical Inventory of Creative Behaviors [BICB] and Kaufman Domains of Creativity Scale [K-DOCS]).

ABM characteristics are examined by focusing on two primary components:

- i. Phenomenological Richness: This refers to the subjective experience of remembering and includes qualities such as accessibility, sensory details, vividness and visual perspective.
- ii. Narrative Coherence: It refers to the structural and thematic organization of memories, including thematic, contextual and chronological coherence within ABMs.

To investigate these associations, participants completed a set of creativity measures (e.g. AUT, self-report scales), visual imagery questionnaires and an ABM task in which they wrote their most important memory and rated them by a questionnaire measuring the phenomenological characteristics. This methodology allows an integrative examination of how creativity as an ability and pursuit might relate to subjective memory experience and narrative structuring.

Based on theoretical considerations and empirical studies, the hypotheses of the current study are as follows:

- i. After controlling for visual imagery ability, divergent thinking and creative achievement will account for variance in the phenomenological richness of autobiographical memories (i.e. accessibility, sensory details, vividness and visual perspective).
- ii. Divergent thinking and creative achievement will account for variance in the narrative coherence of autobiographical memories.

By addressing these hypotheses, the current research aims to extend our understanding of cognitive underpinnings of ABM and how creativity relate to the ways individuals experience and reconstruct their personal past.

CHAPTER 2

METHOD

2.1 Participants

Using the G*Power 3.1. Program (Faul et al., 2009), an a priori power analysis was conducted to determine the required sample size. To achieve a statistical power of .80 with a medium effect size ($f^2 = .15$), an alpha level of .05, for a hierarchical multiple regression, the required sample size was calculated to be 98 participants. To counteract for potential participant loss data were collected from 136 undergraduate students from Boğaziçi University who were enrolled in psychology courses at Boğaziçi University. They were recruited through the Research Participation System (RPS) of the Psychology Department at Boğaziçi University and were given extra course credit for their psychology course as compensation.

A total of 136 students participated in the study. The mean age was 20.25 years ($SD = 1.09$), ranging from 18 to 25. Regarding gender, 85 participants were female (63%) and 49 male (36%). One participant indicated they were non-binary and one preferred not to disclose.

2.2 Procedure

The study has received ethics approval from the Institutional Review Board in Social Sciences and Humanities (SBINAREK) (see APPENDIX A) at Boğaziçi University (see APPENDIX A). All tasks were administered online using Qualtrics software. Participants received an informed consent form (see APPENDIX B and APPENDIX C). After giving consent, they proceeded with the study.

First, participants were asked to remember and describe in detail their most important memory (see APPENDIX C). The instruction was adapted from the previous research (e.g. Rubin et al., 2009) and it emphasized that they should recall a single, specific event rather than general periods or multiple events. There was no time limit for this task. Then, participants answered questions about the memory that they wrote. After writing their memories, participants were asked to complete several questionnaires and one creativity task. The order of the scales is as follows The Memory Experiences Questionnaire - Short Form (MEQ-SF), Alternate Uses Test (AUT), Biographical Inventory of Creative Behaviors (BICB), Kaufman Domains of Creativity Scale (KDOCS), Vividness of Visual Imagery Questionnaire (VVIQ), Spontaneous Use of Imagery Scale (SUIS) and Demographics.

2.3 Measures

2.3.1 The memory experiences questionnaire

The Memory Experiences Questionnaire - Short Form (MEQ-SF) (Sutin & Robins, 2007) is a self-report scale that measures phenomenological characteristics of autobiographical memories across 10 subscales and consists of 31 items in total (see APPENDIX D). The subscales are: vividness (e.g. “My memory of this event is very vivid”), accessibility (e.g. “It was difficult for me to remember this memory”), sensory details (e.g. “When I remember the event, I can hear their voices in my mind”), visual perspective “When I recall this memory, I see my experience with my own eyes”), emotional intensity, sharing, detachment, emotional value, time perspective, coherence, and have 2-4 items each. Participants indicate their level of agreement with these statements describing their experiences while recalling their memories on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The

internal consistency coefficients (Cronbach's alpha) of the subscales of the MEQ-SF were above .70, and the correlations between the short form and the long form (Sutin & Robins, 2007) were reported to be high ($r \geq .91$).

2.3.2 Alternate Uses Test

The Alternate Uses Test (AUT), a task that was developed and is commonly used to assess divergent thinking, was adapted from the Alternate Uses Test developed by Guilford (1967). It is considered a test of fluency and originality that requires participants to generate as many creative uses for a given object as possible. In this test, participants saw two object names (brick and newspaper) on the screen and were asked to come up with as many original and creative uses for these objects as possible (see APPENDIX E). They had two minutes for each word. Answers were scored under four components: Fluency, flexibility, originality, elaboration. Fluency is the number of uses generated. Each meaningful response has received 1 point. Flexibility is the number of different categories that each response belongs to. Each unique category within the participant's responses has received 1 point. For instance, if there were two responses belonging to the same category, the second response received a score of 0. Originality is how rare a response is compared to the sample. A score of 3 was given if the response was produced by fewer than 5% of the other participants; a score of 2 if it was given by 5–10% of the other participants; a score of 1 if it was generated by 10–15% of the other participants; and, a score of 0 if it was generated by more than 15% of the other participants. Elaboration refers to how detailed the response is. If the answer was not detailed and included only a word, it received 0 points. Whereas, if the response had details, it either had 1 or 2 points depending on the elaboration level. For each object, responses were screened for

appropriateness, and only useful responses were scored. Scores for each dimension were averaged across the two objects to obtain a single fluency, flexibility, originality, and elaboration score per participant. These averaged scores were standardized, and a composite divergent thinking (DT) score was calculated as the mean of the four standardized scores.

2.3.3 Biographical inventory of creative behaviors

The Biographical Inventory of Creative Behaviors (Batey, 2007) is a scale developed to assess everyday creative achievements. It has 34 items and the items cover common areas of creativity such as arts, crafts, creative writing, as well as social creativity, such as leadership and coaching. Participants were asked to indicate whether they have engaged in activities, such as “writing a short story”, “writing a poem”, “acting”, “chosen to lead”, “drawing a cartoon”, etc., in the last 12 months. The scale is not divided into sub-dimensions, and a total score is calculated by summing the items to obtain an overall creative behavior score. The score range varies between 0-34. Since a binary measurement is used, each item is evaluated by answering “yes” or “no”.

The scale has shown good internal consistency (Cronbach's alpha = .86; Silvia et al., 2021). It also showed significant correlations ($r = .30-.50$) with other measures of creative behaviors (e.g., creative achievement)) in the expected direction. Therefore, the BICB is considered a valid and reliable instrument for measuring everyday creative behaviors. The translation of the items was made by the researcher and then, revised by the supervisor of the study (see APPENDIX F).

2.3.4 The kaufman domains creativity scale

The Kaufman Domains Creativity Scale (K-DOCS) (Kaufman, 2012) measures people's creativity in five different domains through self-report: everyday, scholarly, artistic, scientific/mechanical, and performance creativity.. Everyday creativity reflects how individuals incorporate creativity into their daily lives, such as through interpersonal problem-solving, self-expression, and maintaining a creative lifestyle. . Scholarly creativity is related to intellectual and verbal/linguistic creativity. Creativity in performance encompasses kinesthetic activities, music and creative writing. Scientific creativity reflects mathematical and mechanical creativity, such as problem solving in these domains. Artistic creativity includes both artistic production and interest in art. The Turkish adaptation (Şahin, 2016) consists of 41 items and has a 5-point Likert scale (5= I am much more creative than my peers in this regard..... 1= I am much less creative...) (see APPENDIX G). Sample items are as follows: “Writing for a magazine, newspaper or newsletter”, “Writing a computer program”, “Creating a song lyric on the spur of the moment”, “Thinking of new ways to help people”, “Making a piece of pottery or a sculpture”.

The five-factor structure of the scale was confirmed. Internal consistency coefficients were found to be high for all sub-dimensions ($\alpha = .83-.87$) and two-week test-retest reliability was strong ($r = .76-.86$). In the Turkish form, the internal consistency coefficient for the total scale was found to be .82 (Şahin, 2016). It showed that the five-factor structure in the scale was also appropriate in the Turkish sample.

2.3.5 Vividness of visual imagery questionnaire

The Vividness of Visual Imagery Questionnaire (VVIQ) (Marks, 1973) was developed to assess how vivid and detailed individuals' mental images are. Participants were asked to form mental pictures with their eyes closed (e.g., “Visualize a rising sun”) and rate the vividness of their mental picture of the details of the scene (e.g., “The sun is rising from the horizon into a hazy sky”) on a 5-point Likert scale (1=no image at all, you just “know” you are thinking of the object, 5=completely clear and as vivid as real vision). It has 16 items in total. The Turkish adaptation was conducted by Eker and Özer (2021) (see APPENDIX H). The internal consistency coefficient (Cronbach's alpha) of the Turkish form was .899, and a highly significant correlation ($r = .863$) was obtained between the original English form and the Turkish form in terms of language validity. In the factor analysis, the KMO value was .851 and the results of the confirmatory factor analysis showed that the Turkish form is a valid and reliable measurement tool.

2.3.6 Spontaneous use of imagery scale

Spontaneous Use of Imagery Scale (SUIS) is a 12-item self-report scale developed by Kosslyn et al. (1998) to measure the spontaneous use of mental imagery in daily life (Reisberg et al., 2003). Each item is related to daily life situations in which imagery is involved. The scale focuses on the frequency of mental imagery during daily life and people's predisposition to this action. It assesses the intensity of the use of imagery in daily life, not its vividness or level of detail. The use of mental imagery in everyday situations (e.g: “If I catch a glance of a car that is partially hidden behind bushes, I automatically ‘complete it,’ seeing the entire car in my mind’s eye”) was measured on a 5-point Likert scale (1=never appropriate, 5=always

completely appropriate). Higher scores indicate more frequent use of mental imagery in daily life.

SUIS is one of the frequently preferred instruments in the psychology literature for measuring mental imagery tendencies. In a psychometric evaluation study conducted by Nelis et al. (2014), it was shown that the internal consistency of the SUIS was high (Cronbach's $\alpha = .83$) and the two-week test-retest reliability was $r = .76$. The scale is recognized as a valid and reliable tool for assessing mental imagery tendencies. The translation of the items was made by the researcher and then, revised by the supervisor of the study (see APPENDIX I).

2.3.7 Demographics

Demographic information form included questions about age, gender, and education level of the participants (see APPENDIX J).

2.4 Coding of narrative coherence

For coding the narrative coherence of ABMs, NaCCS, developed by Reese et al. (2011), was used. This coding scheme is used to determine the coherence level of a narrative and is based on three dimensions: context, chronology, and theme. For each category, memories are coded on a scale of zero to three. Context refers to the time and place information. Scoring is based on how precise and specific this information is. For instance, a narrative that states “I got cavities” receives 0, whereas someone narrating “I remember when my mom had my brother. I was 2 years and 8 months old when she brought him home” receives a 3 (Reese et al., 2011). Chronology refers to the time order of the narrated events. Scoring is based on whether the events in the narrative are placed in a logical timeline. A list consisting of only actions (e.g., “A

gorilla. A tiger. An elephant.”) gets a score of 0, whereas a narrative in which more than 75% of actions can be temporally placed receives a 3. Theme is the level at which the narrative has a certain plot leading to meaning-making and a resolution. Scoring is based on whether the memory has a single subject and includes a personal evaluation or self-reflection. For instance, a fragmented, off-topic account (e.g., “I got a dress ... we’re gonna buy it”) receives 0, a narrative with little development (e.g., “When I was 5, I threw my hat off a bridge”) receives 1, a more elaborated account with emotions but no resolution (e.g., “I was scared they might put in a trach ... I just cried”) receives 2, and a fully developed narrative with reflection and resolution (e.g., “Getting into med school was thrilling because my hard work paid off”) receives 3 (Reese et al., 2011). Each category can be scored separately to create different coherence type levels (ranging between 0-3). A total score is also generated by adding these three component scores together (maximum 9).

CHAPTER 3

RESULTS

3.1 Descriptive Statistics

Descriptive statistics for all key variables are presented in Table 1. The means, standard deviations, minimum, maximum, skewness and kurtosis values are presented to show the descriptive values of the predictor variables (BICB, K-DOCS, AUT, VVIQ, SUIS); phenomenological characteristics of memories (vividness, sensory details, accessibility, visual perspective); and, the narrative coherence measures (total narrative coherence, context, theme and chronology). Normality was checked by examining skewness and kurtosis values of the variables. All skewness and kurtosis values are between the range of -1.5 and +1.5, meaning that the distributions are approximately normal (Tabachnik & Fidell, 2001). This indicates that the data is suitable for parametric analyses.

3.2. Relations between Creativity and Phenomenological Characteristics of Autobiographical Memories

3.2.1 Correlation Analyses

Table 2 presents Pearson correlation coefficients between the predictor variables and the phenomenological characteristics of ABM. Vividness was positively correlated with KDOCS scores, $r(134) = .19, p = .024$, indicating that participants with higher self-reported creativity in multiple domains tended to report more vivid ABMs.

Sensory details were positively associated with KDOCS, $r(134) = .21, p = .014$, and SUIS scores, $r(134) = .30, p < .001$, suggesting that individuals with greater self-

Table 1. Descriptive Statistics for all Variables

Variables	M	SD	Min.	Max	Skewness	Kurtosis
BICB	11.06	4.65	1	26	.35	.29
KDOCS	125.14	18.62	77	193	.26	.81
DT Total (raw scores)	5.01	2.50	0.33	13.88	.34	1.31
VVIQ	58.77	9.5	20	80	-.57	1.30
SUIS	41.61	7.25	22	57	-.39	-.29
Vividness	11.24	2.67	3	15	-.81	.57
Sensory Details	13.77	3.39	5	20	-.28	-.56
Accessibility	11.85	2.57	4	15	-.79	.16
Visual Perspective	8.79	2.74	3	15	.11	-.38
Coherence Total	5.82	2.74	0	11	-.77	-.42
Context	1.71	.99	0	3	-.06	-1.14
Theme	1.88	1.12	0	3	-.38	-1.31
Chronology	2.15	1.11	0	3	-.92	-.66

Note. BICB = Biographical Inventory of Creative Behaviors, KDOCS = The Kaufman Domains Creativity Scale, DT = Divergent Thinking, VVIQ = Vividness of Visual Imagery Questionnaire, SUIS = Spontaneous Use of Imagery Scale, *M* = Mean, *SD* = Standard Deviation, Min = Minimum, Max = Maximum.

reported creativity and more frequent use of spontaneous imagery reported richer sensory details in their memories. Accessibility was positively correlated with SUIS, $r(134) = .26, p = .002$, while visual perspective was not significantly correlated with any predictor variable. Among the predictors, KDOCS was positively correlated with both BICB, $r(134) = .38, p < .001$, and SUIS, $r(134) = .28, p < .001$. SUIS was also positively associated with VVIQ, $r(134) = .50, p < .001$. Divergent thinking scores were not significantly related to any of the phenomenology measures.

Table 2. Correlations between Creativity, Visual Imagery and Phenomenological Characteristics

Variable	1	2	3	4	5	6	7	8	9	10
1.Gender	1									
2.BICB	.08	1								
3.KDOCS	-.12	.11	1							
4.DT Total	-.08	.14	.10	1						
5.VVIQ	.15	.09	.30 **	.02	1					
6.SUIS	.07	.06	.28**	-.17*	.50**	1				
7.Vividness	-.10	.04	.19*	.03	.16	.16	1			
8.Sensory Details	-.05	.01	-.21*	.01	.15	.30**	.56**	1		
9.Accessibility	.06	.02	-.05	-.07	.10	-.12	.35**	-.26**	1	
10.Visual Perspective	.04	.03	-.01	.11	-.09	-.04	.12	.08	.07	1

Note. * $p < .05$, ** $p < .01$

3.2.2 Creativity as a Predictor of Autobiographical Memory Phenomenology

In this section, four hierarchical regression analyses were conducted to examine the extent to which creativity measures are related to phenomenological characteristics of ABMs. The main focus was on understanding whether creativity contributes to the accessibility, vividness, sensory details, and visual perspective of memories, beyond the effect of gender and visual imagery use and ability. Four separate regression models were conducted. In each model, predictors were entered in three steps: (1) gender, (2) visual imagery measures (VVIQ and SUIIS), and (3) creativity measures (KDOCS, BICB, and DT). This order allowed for the examination of the unique contribution of creativity after controlling for gender and visual imagery factors.

Prior to hierarchical regression analyses, preliminary analyses were conducted to examine whether the data met the assumptions of multiple regression. There were no multicollinearity issues. Variance inflation factor (VIF) values ranged between 1.00-1.48 and tolerance values were above .67. The normal probability plot showed that standardized residuals were approximately normally distributed. The scatterplot of standardized residuals versus standardized predicted values suggested that the assumption of homoscedasticity was satisfied. Finally, Cook's distance values were all below 1, indicating that no influential outliers were present.

3.2.2.1 Accessibility

A three-step hierarchical multiple regression analysis was conducted to investigate whether creativity predicted accessibility of autobiographical memories after controlling for gender and visual imagery. The overall model was not significant, $F(6,127) = 1.07, p = .39$, and none of the predictors explained a significant proportion

of variance in accessibility. The change in explained variance at each step was also non-significant (see Table 3).

Table 3. Hierarchical Regression Results for Accessibility

Variable	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	t	<i>p</i>
		LL	UL						
Step 1						.004	.004		
Constant	12.37	10.81	13.93	.79	—			15.67	<.001
Gender	-.33	-1.25	.58	.46	-.06			-.72	.47
Step 2						.023	.019		
Constant	10.03	6.75	13.32	1.66	—			6.04	<.001
Gender	-.43	-1.36	.49	.43	-.08			-.92	.36
VVIQ	.02	-.03	.08	.03	.08			.83	.40
SUIS	.03	-.04	.10	.04	.08			.76	.45
Step 3						.017	.004		
Constant	11.69	7.70	15.69	2.02	—			5.79	<.001
Gender	-.63	-1.59	.32	.48	-.12			-1.32	.19
VVIQ	.04	-.02	.09	.03	.13			1.26	.21
SUIS	.03	-.05	.10	.04	.08			.75	.46
KDOCS	-.02	-.05	.01	.01	-.15			-1.49	.14
BICB	.04	-.06	.15	.05	.08			.80	.43
DT	-.26	-.83	.32	.29	-.08			-.89	.38

Note. **R*² = R Square, ΔR^2 = R Square Change.

3.2.2.2 Vividness

A three-step hierarchical multiple regression analysis was conducted to examine whether creativity measures predicted vividness of autobiographical memories after controlling for gender and visual imagery. The overall model was not significant at Step 1, Step 2, or Step 3. None of the predictors significantly explained variance in vividness across the three steps of the model. The inclusion of visual imagery measures in Step 2 and creativity measures in Step 3 did not result in a significant change in explained variance (see Table 4).

Table 4. Hierarchical Regression Results for Vividness

Variable	<i>B</i>	95% <i>CI</i> for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	t	<i>p</i>
		LL	UL						
Step 1						.009	.009		
Constant	12.10	10.50	13.71	.81	—			14.87	<.001
Gender	-.54	-1.48	.41	.49	-.10			-1.12	.26
Step 2						.048	.039		
Constant	8.70	5.34	12.05	1.69	—			5.13	<.001
Gender	-.68	-1.63	.26	.48	-.12			-1.43	.15
VVIQ	.04	-.02	.10	.03	.14			1.41	.16
SUIS	.03	-.04	.10	.04	.08			.84	.40
Step 3						.062	.014		
Constant	7.10	3.00	11.20	2.07	—			3.42	<.001
Gender	-.55	-1.52	.43	.49	-.10			-1.11	.27
VVIQ	.03	-.03	.09	.03	.11			1.04	.30
SUIS	.02	-.05	.10	.04	.06			.61	.54
KDOCS	.10	-.01	.05	.01	.13			1.33	.18
BICB	-.02	-.12	.09	.05	-.03			-.29	.77
DT	-.02	-.57	.62	.30	.01			.08	.94

Note. * R^2 = R Square, ΔR^2 = R Square Change.

3.2.2.3. Sensory details

A three-step hierarchical multiple regression analysis was conducted to investigate whether creativity measures (KDOCS, BICB, DT) predicted sensory details of autobiographical memories after controlling for gender and visual imagery. The model was significant in Step 2, $\Delta R^2 = .085$, $p = .003$, with SUIS emerging as a significant positive predictor ($\beta = .287$, $p = .004$). After entering creativity measures in Step 3, the overall model remained significant, $F(6, 127) = 2.58$, $p = .022$, but the change in explained variance was not significant, and SUIS remained the only significant predictor ($\beta = .277$, $p = .008$; see Table 5).

Table 5. Hierarchical Regression Results for Sensory Details

Variable	<i>B</i>	95% <i>CI</i> for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	t	<i>p</i>
		LL	UL						
Step 1						.003	.003		
Constant	14.39	12.34	16.44	1.04	—			13.89	<.001
Gender	-.37	-1.58	.83	.61	-.05			-.61	.54
Step 2						.088	.085		
Constant	8.86	4.71	13.02	2.10	—			4.21	<.001
Gender	-.53	-1.70	.64	.59	-.08			-.90	.37
VVIQ	.00	-.07	.07	.04	.01			.11	.91
SUIS	.13	.04	.22	.05	.29			2.95	<.01
Step 3						.109	.020		
Constant	6.70	1.64	11.77	2.56	—			2.62	.01
Gender	-.28	-1.49	.92	.61	-.04			-.47	.64
VVIQ	-.01	-.08	.06	.04	-.03			-.31	.76
SUIS	.13	.03	.22	.05	.28			2.71	<.01
KDOCS	.03	-.01	.06	.02	.15			1.56	.12
BICB	-.05	-.19	.08	.07	-.07			-.81	.42
DT	.21	-.52	.95	.37	.05			.58	.56

Note. * R^2 = R Square, ΔR^2 = R Square Change.

3.2.2.4 Visual perspective

A three-step hierarchical multiple regression analysis was conducted to investigate whether creativity measures predicted visual perspective of autobiographical memories after controlling for gender and visual imagery. The overall model was not significant, $F(6,127) = .80, p = .57$. None of the predictors significantly explained variance in visual perspective. Adding visual imagery variables in Step 2 and creativity measures in Step 3 did not result in significant changes in explained variance (see Table 6).

Table 6. Hierarchical Regression Results for Visual Perspective

Variable	<i>B</i>	95% <i>CI</i> for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	t	<i>p</i>
		LL	UL						
Step 1						.001	.001		
Constant	8.45	6.78	10.12	.84	—			10.00	<.001
Gender	.22	-.76	1.20	.50	.04			.44	.66
Step 2						.014	.013		
Constant	10.10	6.58	13.63	1.78	—			5.67	<.001
Gender	.31	-.68	1.31	.50	.05			.63	.53
VVIQ	-.04	-.09	.02	.03	-.12			-1.19	.23
SUIS	.01	-.07	.08	.04	.02			.19	.85
Step 3						.037	.023		
Constant	9.65	5.36	13.94	2.17	—			4.45	<.001
Gender	.40	-.62	1.43	.52	.07			.78	.44
VVIQ	-.05	-.11	.02	.03	-.16			-1.48	.14
SUIS	.02	-.06	.10	.04	.06			.55	.58
KDOCS	.00	-.03	.03	.01	.01			.12	.91
BICB	.01	-.10	.12	.06	.01			.13	.89
DT	.52	-.10	1.14	.31	.15			1.65	.10

Note. $*R^2$ = R Square, ΔR^2 = R Square Change.

3.3 Relations between creativity and narrative coherence of autobiographical memories

In this section, the associations between creativity measures and the narrative coherence dimensions of ABMs were examined. Firstly, correlation analyses were conducted to explore bivariate relationships between the creativity variables and three sub-dimensions of narrative coherence (context, theme, and chronology). Subsequently, a series of hierarchical regression analyses were performed to assess the unique contribution of divergent thinking and everyday creative behaviours in predicting each coherence dimension after controlling for gender.

3.3.1 Correlation analyses

Table 7 shows the Pearson correlation coefficients between predictor variables and the narrative coherence measures. Significant positive associations were observed between divergent thinking and the coherence dimensions of context ($r = .23, p = .006$) and chronology ($r = .28, p = .001$). No significant correlations were observed between gender, BICB, or KDOCS and the coherence measures, except for a small negative correlation between gender and coherence context ($r = -.18, p = .032$).

Table 7. Correlations between Creativity, Visual Imagery and Narrative Coherence

Variable	1	2	3	4	5	6	7	8
1.Gender	1							
2.BICB	.08	1						
3.KDOCS	-.12	.11	1					
4.DT Total	-.08	.14	.10	1				
5.Total Coherence	-.14	-.03	.08	.24**	1			
6.Context	-.18*	.03	-.00	.23**	.72**	1		
7.Theme	-.03	-.03	-.04	.20*	.83**	.45**	1	
8.Chronology	-.06	-.06	-.02	.28**	.85**	.55**	.75**	1

Note. * $p < .05$, ** $p < .01$

3.3.2 Creativity as a predictor of narrative coherence

In this section, multiple regression analyses were conducted to examine the relationship between creativity measures and narrative coherence of ABMs. Before the analyses, assumptions of normality, linearity, homoscedasticity, and multicollinearity were examined. Standardized residuals were approximately

normally distributed across all models. Scatterplots of standardized residuals against predicted values suggested homoscedasticity and linearity. There were also no multicollinearity. Variance inflation factor (VIF) values ranged between 1.00-1.20. Finally, Cook's distance values were all below 1, indicating that no influential outliers were present. Therefore, the data was suitable for multiple regression.

3.3.2.1 Contextual coherence

A hierarchical regression was conducted with gender entered in the first step and creativity measures (KDOCS, BICB, DT) entered in the second step as predictors of contextual coherence as shown in the Table 8. In Step 1, gender significantly predicted contextual coherence, $F(1, 132) = 4.50, p = .036$, explaining 3.3% of the variance. In Step 2, the overall model was significant, $F(4, 129) = 2.84, p = .027$, accounting for 8.1% of the variance. Among the predictors, divergent thinking was the only significant positive predictor ($\beta = .21, p = .016$). Gender became non-significant when creativity measures were added, and neither K-DOCS nor BICB predicted contextual coherence.

Table 8. Hierarchical Regression Results for Contextual Coherence

Variable	<i>B</i>	95% <i>CI</i> for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	Δ <i>R</i> ²	t	<i>p</i>
		LL	UL						
Step 1						.033	.033		
Constant	2.31	1.72	2.9	.30	—			7.69	<.001
Gender	-.37	-.72	-.02	.18	-.18			-2.12	.04
Step 2						.081	.048		
Constant	2.54	1.21	3.87	.67	—			3.77	<.001
Gender	-.36	-.71	-.01	.18	-.17			-2.02	.05
KDOCS	-.003	-.01	.01	.01	-.05			-.59	.56
BICB	.01	-.02	.05	.02	.05			.52	.60
DT	.26	.05	.47	.11	.21			2.44	.02

Note. R^2 = R Square, ΔR^2 = R Square Change.

3.3.2.2 Thematic coherence

A second hierarchical regression was conducted with the same predictors for thematic coherence (see Table 9). In Step 1, gender did not predict thematic coherence, $F(1, 132) = 0.09, p = .768$. In Step 2, the overall model was not significant, $F(4, 129) = 1.51, p = .204$, explaining 4.5% of the variance. Within this model, divergent thinking was a significant predictor ($\beta = .21, p = .018$), whereas KDOCS and BICB were not significant.

Table 9. Hierarchical Regression Results for Thematic Coherence

Variable	<i>B</i>	95% <i>CI</i> for <i>B</i>		<i>SE B</i>	β	<i>R</i> ²	Δ <i>R</i> ²	t	<i>p</i>
		LL	UL						
Step 1						.001	.001		
Constant	1.98	1.3	2.66	.34	—			5.77	<.001
Gender	-.06	-.46	.34	.20	.03			-.30	.77
Step 2						.045	.044		
Constant	2.35	.83	3.90	.77	—			3.05	.003
Gender	-.02	-.43	.38	.20	-.01			-.12	.90
KDOCS	-.003	-.01	.01	.01	-.05			-.49	.63
BICB	-.007	-.05	.04	.02	-.03			-.31	.75
DT	.29	.05	.53	.12	.21			2.40	.02

Note. R^2 = R Square, ΔR^2 = R Square Change.

3.3.2.3 Chronological coherence

The third regression examined predictors of chronological coherence, as shown in Table 10. In Step 1, gender did not predict chronological coherence, $F(1, 132) = 0.50, p = .480$. In Step 2, the overall model was significant, $F(4, 129) = 2.85, p = .027$, explaining 8.1% of the variance. Divergent thinking was again a significant predictor ($\beta = .28, p = .002$), while K-DOCS and BICB did not contribute significantly.

Table 10. Hierarchical Regression Results for Chronological Coherence

Variable	<i>B</i>	95% <i>CI for B</i>		<i>SE B</i>	β	<i>R</i> ²	ΔR^2	t	<i>p</i>
		LL	UL						
Step 1						.004	.004		
Constant	2.36	1.69	3.04	.34	—			6.93	<.001
Gender	-.14	-.54	.25	.20	-.06			-.71	.48
Step 2						.081	.077		
Constant	2.65	1.16	4.14	.75	—			3.51	<.001
Gender	-.08	-.47	.32	.20	-.03			-.39	.70
KDOCS	-.001	-.01	.01	.005	-.02			-.21	.83
BICB	-.02	-.06	.02	.022	-.09			-.96	.34
DT	.39	.15	.62	.12	.28			3.23	.002

Note. R^2 = R Square, ΔR^2 = R Square Change.

In sum, across the three models, divergent thinking emerged as the only significant predictor, contributing positively to context, theme, and chronology scores. In contrast, self-reported creative behaviours (BICB) and domain-specific creativity (K-DOCS) did not account for additional variance in coherence. These findings indicate that the generative aspect of creativity, rather than achievements, is more closely related to the structural organization of autobiographical narratives.

CHAPTER 4

DISCUSSION

The current study examined whether individual differences in creativity are related to the phenomenological richness, while controlling for the role of visual imagery, and narrative coherence of ABMs. In other words, this study investigated whether more creative people have richer subjective experiences of remembering and tell their memories with more narrative coherence than other people. Overall, findings showed that creativity, measured in two dimensions (creative achievement and divergent thinking), was not associated with phenomenological qualities. Only mental imagery use was positively related to one phenomenological quality (i.e. sensory details) in that participants who use visual imagery more frequently tended to report higher sensory details ratings. On the other hand, divergent thinking was positively associated with narrative coherence across all three dimensions (i.e. context, chronology, and theme). Individuals with higher divergent thinking ability were more likely to organize their memories with a clear time and place context, logical order, and to create them around a central theme. However, as with the phenomenology ratings, there was no relationship between the amount of creative activity participants engaged in and the structural organization of autobiographical narratives. These findings contribute to the literature on creativity and autobiographical memory by showing that the process component of creativity, measured as divergent thinking ability, may reflect itself in how memories are organized into coherent stories, rather than how they are phenomenologically experienced.

4.1 Creativity and autobiographical memory phenomenology

One of the main aims of this study was to investigate whether creativity is related to how individuals experience their memories when they recall their past. We hypothesized that creative people would recall their memories more vividly, with greater accessibility and sensory details. In order to test this hypothesis, we conducted four hierarchical regression analyses to examine whether creativity measures would predict accessibility, vividness, sensory details, and visual perspective of personal memories when controlled for gender and visual imagery abilities. However, the results did not support this hypothesis in that creativity measures did not significantly account for the phenomenological characteristics of ABMs.

Although the current research did not support the expected association, previous research suggests potential links between creativity and memory phenomenology. For instance, researchers showed that individuals who are high in openness to experience are more likely to report memories that are more vivid and coherent, and have higher reliving ratings (Rasmussen & Berntsen, 2010; Rubin & Siegler, 2004). Furthermore, research also indicated that people who have higher scores on openness tend to engage in a greater amount of creative activities (Tan et al., 2016) and have higher divergent thinking scores (McCrae, 1987). The fact that people who are open to new experiences recall memories with a higher phenomenology may be due not only to differences in the way they remember, but also to the fact that they experience events more intensely when experiencing and recording them. Considering that creativity is often intertwined with openness, and the fact that creative people, such as artists, are also known to experience events

more sensually and emotionally, we suggested that creative people might also recall memories with richer phenomenology.

Moreover, researchers found that visual imagery is related to creativity (Gonzalez et al., 1997; Kozhevnikov et al., 2013; Palmiero et al., 2011). Visual imagery was found to be related to both variables, namely creativity and phenomenology. Therefore, in the present study, visual imagery ability and use were statistically controlled in the analyses to control for possible effects of them.

Specifically, neither self-reported creative achievement nor divergent thinking explained vividness or sensory detail once visual imagery ability and use were controlled. While K-DOCS, a domain-specific creative achievement measure, showed small positive correlations with vividness and sensory detail richness, these effects disappeared in regression analyses. However, spontaneous use of imagery emerged as a significant predictor of sensory detail ratings of ABMs. This is in a similar line to previous research. Rubin et al. (2003) and Greenberg and Knowlton (2014) suggested that visual imagery ability was one of the predictors of how well participants recollected their past (i.e. relived). In the current study, however, the tendency to use mental imagery (SUIS), instead of the ability to simulate vivid visual imagery (VVIQ), significantly associated with reported sensory details of memories. In other words, people's disposition to have mental imagery during daily life was related to how detailed their memories were in terms of sensory information. This may be because people who engage in more mental imagery are more mentally exposed to the details of the events and the sensory experiences they evoke. In other words, frequent use of imagery may strengthen the encoding and retrieval of perceptual detail by repeatedly exposing people to sensory details.

Creativity measures, on the other hand, were not significant predictors of any phenomenological qualities once imagery was controlled. The fact that creativity was not associated with vividness and sensory details of the memories might suggest that these phenomenological qualities are less dependent on creativity and more related to basic imagery processes. One possible explanation might be that creativity measures assess cognitive flexibility and idea generation. This aspect might not directly relate to the subjective sensory experience of memories.

Creativity and imagery measures were also not associated with accessibility and visual perspective of autobiographical memories. Both models were non-significant. These findings suggest that the extent to which a memory is accessed easily and the perspective it is recalled may be related to other cognitive processes rather than creativity and visual imagery. For instance, accessibility might be related to more rehearsal frequency (e.g. Rubin & Wenzel, 1996) or retrieval fluency (e.g. Berntsen, 1996). Similarly, visual perspective during recall might be more related to processes related to self-concept (e.g. Lukaschewski et al., 2023). Creative people's flexible way of thinking might not necessarily enable individuals to access their memories more easily, and, similarly, their expected unusual way of thinking might not lead them to take a certain visual perspective during memory recall.

Taken together, the findings showed that the way people generally experience their personal memories was not related to the extent of their creative engagement or creative potential (as measured as divergent thinking). In other words, it is suggested that being creative is not associated with how people experience their past during recall. One possible explanation might be that creativity is usually associated with flexible and novel thinking, and, therefore, it does not share similar cognitive mechanisms with the memory phenomenology, the subjective experience of memory.

The richness of the remembering experience might be related to other sensory, emotional and personal characteristics of individuals.

4.2 Creativity and narrative coherence of autobiographical memory

In the current study, it was found that divergent thinking was positively related to all three dimensions of narrative coherence. On the other hand, self-reported creative behaviours were not associated with narrative coherence. The results suggest that the process component of creativity, measured by a divergent thinking task and reflects the ability to produce unusual and original ideas, rather than everyday creative activities, plays a role in how individuals construct their autobiographical narratives. Individuals who scored higher on divergent thinking were more likely to tell their memories with clear time and place information, logical temporal sequence, and to create the narrative around a theme with a meaning-making aspect. In other words, they told life stories that orient the listener in a certain time and place, provide them with a logical flow of actions, and have elaborations, evaluations, conflicts, and resolutions, which make a story rich and good to listen to.

These findings are consistent with prior research. Fournier et al. (2018) found that creativity, measured by the Alternate Uses Task, predicted narrative coherence in all three dimensions. They asked participants to write three important memories (high point, low point, and turning point) and coded them with the Narrative Coherence Coding System (Reese et al., 2011). They conclude that building a life story requires an imaginative and original perspective on the past. The processes involved in both divergent thinking and narrative construction might explain this relationship. Divergent thinking requires flexible retrieval, associative ability and recombination of diverse information (Guilford, 1967; Runco & Acar, 2012).

Similarly, building a coherent narrative requires combining diverse episodic information in a particular structured way (Habermas & de Silveira, 2008; McAdams & McLean, 2013; Reese et al., 2011). Therefore, it can be suggested that individuals who are better at divergent thinking may also be better at creating more coherent autobiographical narratives. The findings of the present study support this relationship.

However, there are also some studies showing a negative relationship between creativity and narrative coherence. For instance, in a recent study, Patel et al. (2025) found that in spontaneous speech, divergence of the ideas was negatively associated with the coherence of the speech. This may suggest that because creativity is about generating original ideas by linking diverse information, more creative people might construct less organized narratives. Although the general frame, which is creativity and narration, is similar, Patel et al.'s study (2025) used different paradigms to measure coherence of the speeches. In addition, they did not assess individuals' divergent thinking ability; rather, they assessed the extent to which speeches included diverse information. These methodological differences might have led to different results in the literature. In addition, the context in which narratives were produced was also different. Spontaneous speech requires rapid idea generation, whereas autobiographical recall in written form allows participants to elaborate and organize their memories with more intention, during which they benefit from their divergent thinking abilities.

Self-reported creative engagement, measured by BICB and K-DOCS, was not related to narrative coherence. This may be because behavioural acts and achievements, such as artistic hobbies, problem solving, or performance, are more context-dependent and may not provide individuals with cognitive abilities used in

autobiographical narration. For instance, someone who engages in crafts as a hobby might not necessarily have a flexible and associative thinking style and better narration construction skills. In fact, creative behaviour and creative process measures were not significantly correlated with each other, indicating no relationship between them. On the other hand, divergent thinking shows itself in organizing and integrating information in new and useful ways. The current study shows that this flexible and original combination skill shares similar mechanisms with narrative coherence.

In sum, the results support the second hypothesis of the current study. The rationale behind it was that creativity might enable individuals to tell better stories of their lives: Remembering and telling the personal past is an act of construction, and how people do it might depend on individual differences in creativity because creative acts and processes can also be considered as construction processes. Because coherent life stories are important to have a continuous sense of self, the current findings have a particular importance in this process.

4.3 Implications and contributions

The present study has particular importance in the literature because it contributes to the limited body of research examining the link between creativity and autobiographical memory. To our knowledge, no prior study has examined whether individual differences in creativity are associated with differences in autobiographical memory phenomenology and narrative coherence.

The results also have potential applied implications. Coherent narratives are known to support a stable and continuous sense of self (Habermas & de Silveira, 2008; McAdams & McLean, 2013). In clinical contexts, where people have

difficulties building coherent life stories, interventions aimed at enhancing divergent thinking may indirectly help increase coherence of life stories by supporting related cognitive mechanisms. Linking creativity to the integration of past experiences into a life story might be a new perspective to look at how people engage in meaning-making of their lives.

Moreover, in the present study, creativity was assessed with both self-report measures of everyday creative engagement (BICB, K-DOCS) and an objective divergent thinking task (AUT). This multi-method approach considers the multifaceted nature of creativity (Plucker et al., 2004; Runco & Jaeger, 2012) and provides a more comprehensive assessment. Demonstrating that different aspects of creativity do not uniformly predict autobiographical memory outcomes contributes to ongoing discussions on how best to conceptualize and measure creativity.

4.4 Limitations and future research

The study has some limitations that should be acknowledged. Firstly, creativity was assessed through self-report scales and a divergent thinking task. These measures are widely used and validated. However, self-reports are always subject to biases. Furthermore, divergent thinking does not encompass all aspects of creative potential. Therefore, incorporating performance-based assessments such as creative writing or drawing tasks would help us to better understand how creativity reflects itself in autobiographical memory processes.

Another limitation is that narrative coherence was measured through a single important memory. Although this method is a common and validated approach, different memory types, such as positive, negative, and turning points, can be examined in future research to investigate whether creativity plays a role in these

types of memories as well. Furthermore, emotional valence and the importance of memories might influence how individuals construct them. These factors can also be considered in future studies.

4.5 Conclusion

The present study aimed to explore how individual differences in creativity relate to the phenomenology and narrative coherence of autobiographical memory. By integrating both process-based and product-based measures of creativity, this research sought to provide a comprehensive view of how creative potential and engagement may play a role in the ways people experience and organize their personal memories. The results demonstrated that while creativity was not related to the phenomenological qualities of memories (e.g. vividness, accessibility, and sensory details), divergent thinking, as a marker of creative potential, was positively associated with narrative coherence across contextual, chronological, and thematic dimensions.

These findings suggest that the generative aspect of creativity, reflected in the capacity to flexibly connect ideas and construct novel associations, may facilitate the cognitive processes involved in structuring life narratives. Rather than relating to how memories are subjectively experienced, creativity appears to be associated to how they are expressed and organized into coherent stories. This distinction between phenomenological richness and narrative organization underscores the multifaceted role of creativity in memory construction and self-understanding.

The study contributes to bridging two lines of research that have rarely intersected: creativity and autobiographical memory. It highlights creativity not only as a capacity for innovation but also as a cognitive mechanism that supports

meaning-making and narrative integration. These results invite future research to examine this relationship in broader samples and through different modalities, such as spoken or visual narratives, and to explore how emotional, cultural, and developmental factors moderate this link. Ultimately, understanding how creativity contributes to the ways individuals reconstruct and communicate their past can enrich our understanding of the creative mind and the narrative self alike.



APPENDIX A

ETHICAL APPROVAL



T.C.
BOĞAZİÇİ ÜNİVERSİTESİ REKTÖRLÜĞÜ
Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu (Sbınarek)



Sayı : E-84391427-050.04-232603
Konu : 2025-31T Kayıt Numaralı Başvurunuzla İlişkin
Etik Kurul Onay Kararı (2025-04)

20.05.2025

Sayın Doç. Dr. İnci AYHAN

Tez danışmanlığını yürütmekte olduğunuz öğrenciniz Melike Bellas Örs'ün "Yaratıcılığın Otobiyografik Bellekteki Rolünün İncelenmesi " başlıklı projesi ile Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu'na (SBİNAREK) yapmış olduğunuz, 2025-31T kayıt numaralı başvurunuz, 05.05.2025 tarih ve 2025/04 sayılı kurul toplantısında incelenmiş olup projenize etik onay verilmesi uygun bulunmuştur.

Bu karar, tüm kurul üyelerinin çevrim içi katılımıyla gerçekleştirilen toplantıda oy birliği ile alınmıştır. Onay mektubu, tüm üyeler adına Kurul Başkanı tarafından e-imzalanmıştır.

Bilgilerinizi rica ederiz.

Saygılarımızla,

Dr. Öğr. Üyesi İşıl ERDUYAN
Kurul Başkanı

Bu belge, güvenli elektronik imza ile imzalanmıştır.

Belge Doğrulama Kodu : 09AI-V5AE-0L02

Belge Doğrulama Adresi : <https://www.turkiye.gov.tr/bogazici-universitesi-ebys>

APPENDIX B

INFORMED CONSENT FORM (ENGLISH TRANSLATION)

The Institution: Boğaziçi University

Research Title: Examining the Role of Creativity in Autobiographical Memory

Researcher: Melike Belkıs ÖRS E-mail:

Thesis Supervisor: İnci Ayhan E-mail:

Phone:

Dear Participant,

This study aims to obtain more detailed information about the qualities of autobiographical memories. In addition, other possible characteristics of these memories will also be examined. The study has been approved by the Boğaziçi University Social and Human Sciences Research Ethics Committee and is designed to be completed online.

By agreeing to participate, you will be asked to write about a memory you have experienced and consider most important to you, and then evaluate certain features of that memory (Memory Experiences Questionnaire). You will also be asked to complete questionnaires assessing creative thinking (Alternative Uses Task), creative behaviors (Biographical Inventory of Creative Behaviors and Kaufman Domains of Creativity Scale), and visual imagery (Vividness of Visual Imagery Questionnaire and Spontaneous Use of Imagery Scale). Finally, you will be asked to provide demographic information (age, gender, education level). In total, you will complete one writing task and seven questionnaires. All your responses will be collected

completely anonymously and used solely for scientific purposes; they will not be shared with any third party or institution.

Your participation in the study will provide several academic and personal benefits. First, you will receive 1 bonus point added to your PSY course grade upon participation. Moreover, by taking part in the research process, you will gain hands-on experience with experimental methods and measurement tools frequently used in psychology. Reflecting on your own autobiographical memory, creativity, and visual imagery abilities may also help you develop personal insight in these areas. Finally, by contributing to this scientific study, you will help advance knowledge about key psychological processes such as memory and creativity.

At the beginning of the study, you will be asked to provide your student ID number and the PSY course for which you would like to receive the bonus point. This information will be visible only to the course instructor and will be deleted after the points are recorded. This process is completely independent of the research data.

During the recollection of your memory, some participants may rarely experience mild negative emotions. Aside from this, the study involves no psychological or physical risk. Participation is entirely voluntary. You have the right to withdraw from the study at any time without providing a reason. If you choose to withdraw, you will not lose your right to the bonus point, and any data collected from you will be deleted.

The study will take approximately 45 minutes. It is recommended that you complete it in a quiet environment where you can focus and finish it in one sitting.

If you feel the need for psychological support after participating in the study, you may contact the Boğaziçi University Guidance and Psychological Counseling Center (BÜREM). BÜREM provides free psychological counseling services to students.

If you have any questions before signing this form, please feel free to ask. If you have questions later, you may contact the researcher. You may also reach out to the Boğaziçi University Social and Human Sciences Research Ethics Committee regarding your rights as a participant.

I have read and understood the information provided above.

- ☐ I agree to participate in the study.
- ☐ I do not agree to participate in the study.

APPENDIX C

INFORMED CONSENT FORM (ORIGINAL TURKISH)

Araştırmayı destekleyen kurum: Boğaziçi Üniversitesi

Araştırmanın adı: Yaratıcılığın Otobiyografik Bellekteki Rolünün İncelenmesi

Araştırmacının adı: Melike Belkıs ÖRS E-mail adresi:

Tez Danışmanı: İnci Ayhan E-mail adresi:

Telefonu:

Değerli Katılımcı,

Bu çalışma, otobiyografik anıların hatırlanma niteliklerine dair daha ayrıntılı bilgi edinebilmek amacıyla yapılmaktadır. Ayrıca, bu anıların olası diğer özellikleri de incelenecektir. Çalışma, Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu onayı ile internet üzerinden tamamlanacak şekilde tasarlanmıştır.

Araştırmaya katılmayı kabul ettiğinizde sizden yaşamış olduğunuz ve sizin için en önemli olduğunu düşündüğünüz bir anıyı yazmanız ve sonrasında bu anıya dair bazı özellikleri değerlendirmeniz (Bellek Deneyimleri Ölçeği) istenecektir. Bunun yanı sıra, yaratıcı düşünme (Alternatif Kullanım Testi), yaratıcı faaliyetlerde bulunma (Yaratıcı Davranışların Biyografik Envanteri ve Kaufman Alanları Yaratıcılık Ölçeği) ve görsel imgelem düzeylerinizi (Görsel İmgelemin Canlılığı Ölçeği ve Spontane İmgeleme Kullanımı Ölçeği) ölçen anketleri doldurmanız istenecektir. Son olarak, demografik bilgilerinizi (yaş, cinsiyet, eğitim durumu) paylaşmanız istenecektir. Toplamda 7 veri toplama aracı ile birlikte bir yazılı görev

tamamlanacaktır. Tüm yanıtlarınız tamamen anonim olarak toplanacak ve yalnızca bilimsel amaçlarla kullanılacaktır, başka kişi ya da kurumlarla paylaşılmayacaktır.

Araştırmaya katılımınız, hem akademik hem de kişisel gelişim açısından çeşitli faydalar sağlayacaktır. Öncelikle, çalışmaya katıldığınız takdirde almakta olduğunuz bir PSY kodlu dersinize 1 puan ek katkı sağlanacaktır. Bunun yanı sıra, araştırma sürecine dahil olarak psikoloji alanında sıkça kullanılan deneysel yöntemler ve ölçüm araçları hakkında doğrudan uygulamalı deneyim kazanma fırsatı elde edeceksiniz. Ayrıca, kendi otobiyografik belleğiniz, yaratıcılık düzeyiniz ve görsel imgeleme becerileriniz üzerine düşünerek bu alanlarda kişisel farkındalık geliştirmeniz mümkün olacaktır. Son olarak, bilimsel bir araştırmaya katkıda bulunarak, bellek ve yaratıcılık gibi önemli psikolojik süreçlere dair bilgi birikiminin artmasına destek olacaksınız.

Ek puan verilebilmesi amacıyla, çalışmanın başında, yalnızca öğrenci numaranız ve puan almak istediğiniz PSY kodlu dersi belirtmeniz istenecektir. Bu bilgiler yalnızca ders sorumlusu tarafından görülecek ve puan aktarımı sonrasında silinecektir. Bu işlem, araştırma verilerinden tamamen bağımsızdır.

Yukarıda belirtilen anının hatırlanması sürecinde çok nadiren de olsa bazı katılımcılar olumsuz duygu deneyimleri yaşayabilir; bunun dışında çalışma herhangi bir psikolojik ya da fiziki risk içermemektedir. Katılımınız tamamen gönüllülük esasına dayanmaktadır. Araştırmanın herhangi bir aşamasında sebep göstermeksizin devam etmeme hakkına sahipsiniz. Bu durumda ders notunuza puan eklenmesi hakkınızı kaybetmeyeceksiniz. Çalışmadan ayrıldığınız takdirde sizden alınan veriler silinecektir.

Bu araştırmanın süresi yaklaşık 45 dakikadır. Çalışmayı, dikkatinizin dağılmayacağı ve tek seferde tamamlayabileceğiniz bir ortamda gerçekleştirmeniz tavsiye edilir.

Araştırmaya katılımınız sonrasında psikolojik destek alma ihtiyacı hissederseniz, Boğaziçi Üniversitesi Rehberlik ve Psikolojik Danışmanlık Merkezi (BÜREM) ile iletişime geçebilirsiniz. BÜREM, öğrencilere ücretsiz psikolojik danışmanlık hizmeti sunmaktadır.

Bu formu imzalamadan önce, çalışmayla ilgili sorularınız varsa lütfen sorun. Daha sonra sorunuz olursa, araştırmacıyla iletişime geçebilirsiniz. Araştırmayla ilgili haklarınız konusunda Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler İnsan Araştırmaları Etik Kurulu'na da danışabilirsiniz.

Bana anlatılanları ve yukarıda yazılanları anladım.

- ☐ Çalışmaya katılmayı kabul ediyorum.
- ☐ Çalışmaya katılmayı kabul etmiyorum.

APPENDIX D

“MOST IMPORTANT” CUED MEMORY RECALL QUESTION

Bu bölümde sizden, yaşadığınız ve sizin için en önemli olduğunu düşündüğünüz bir anıyı hatırlamanızı rica ediyoruz. Lütfen bu anının tek ve belirli bir olay içermesine dikkat edin. Hatırladığınız anı birkaç farklı olay içermemelidir ya da hayatınızdaki geniş bir dönemi kapsamamalıdır_(örneğin; lise yılları). Anınızı yazmak için süre sınırlamanız olmayacaktır, bu sebepten anlatımınıza hatırladığınız tüm detayları dâhil etmeye ve mümkün olduğunca ayrıntılı bir anlatım oluşturmaya çalışın. *(In this section, we ask you to recall a memory that you have experienced and consider to be the most important to you. Please make sure that this memory involves a single, specific event. The memory should not include several different events or cover an extended period of your life (for example, your high school years). There is no time limit for writing your memory, so try to include all the details you can remember and describe the event as vividly as possible.)*

Bu olayı yaşadığınızda kaç yaşındaydınız? *(How old were you when this event took place?)* _____ *(Lütfen bir sayı belirtiniz) (Please specify a number)*

Bu olay sizin için ne kadar önemli bir olaydır? (*How important is this event to you?*)

Hiç önemli değil (<i>Not important at all</i>) 1	2	3	4	5	6	Çok önemli (<i>Very important</i>) 7
☐	☐	☐	☐	☐	☐	☐

Bu olayın sizde uyandırdığı duygu aşağıdakilerden hangisi olur? (*Which of the following best describes the emotion this event evokes in you?*)

Çok olumsuz (<i>Very negative</i>) -3	-2	-1	Ne olumlu ne olumsuz (<i>Neither positive nor negative</i>) 0	1	2	Çok olumlu (<i>Very positive</i>) 3
☐	☐	☐	☐	☐	☐	☐

APPENDIX E

THE MEMORY EXPERIENCES QUESTIONNAIRE

Şimdi yukarıda aktardığınız anı ile ilgili size bazı sorular soracağız. Lütfen her bir ifadeyi bu anınızı düşünerek okuyun ve her bir ifadenin sizi ne ölçüde tanımladığını aşağıdaki 5 aralıklı ölçek üzerinde değerlendiriniz. *(We will now ask you some questions about the memory you just described. Please read each statement while thinking about this memory and rate the extent to which each statement describes you on the 5-point scale below.)*

1	2	3	4	5
Hiç Katılmıyorum <i>(Do not agree at all)</i>				Tamamen Katılıyorum <i>(Toatally agree)</i>

1. Bu anının aklıma gelmesi benim için zordu. *(It was difficult for me to think of this memory.)*
2. Olayı hatırladığımda, zihnimde seslerini duyabiliyorum. *(As I remember the event, I can hear it in my mind.)*
3. Bu anının genel havası olumlu. *(The overall tone of the memory is positive.)*
4. Bu olayla ilgili anım flu. *(My memory for this event is dim.)*
5. Bu anıdaki olay sırası net. *(The order of events in the memory is clear.)*
6. Bu anıyı nadiren başkalarına anlatırım. *(I rarely tell others about this memory.)*

7. Bu olayla ilgili hislerim çok yoğun. (*My emotions are very intense concerning this event.*)
8. Bu anıyı sanki deneyimime dışarıdan bakan bir gözlemciymişim gibi görebiliyorum. (*I view this memory as if I was an observer to the experience.*)
9. Bu anının yaşandığı yılla ilgili anım flu. (*My memory for the year when the event took place is vague.*)
10. Bu olayla ilgili anım çok canlı. (*My memory for this event is very vivid.*)
11. Bu anı benim için hatırlanması kolay bir anıydı. (*This memory was easy for me to recall.*)
12. Yaşandığından beri, bu olayla ilgili birçok kez konuştum. (*Since it happened, I have talked about this event many times.*)
13. Bu anıdaki kişinin bugün olduğumdan farklı bir kişi olduğunu hissediyorum. (*I feel like the person in this memory is a different person than who I am today.*)
14. Bu anının yaşandığı günle ilgili anım net. (*My memory for the day when the event took place is clear.*)
15. Bu anının genel havası olumsuz. (*The overall tone of the memory is negative.*)
16. Bu anıyı tutarlı ve mantıklı bir hikaye olarak değil, parçalar halinde hatırlıyorum. (*This memory comes back to me in bits and pieces, not as a logical, coherent story.*)
17. Bu anıyı hatırlayabilmem için öncesinde bir süre düşünmem gerekti. (*I had to think for a while before I could recall this event.*)

18. Sık sık bu anı hakkında düşünür ya da başkalarıyla konuşurum. (*I frequently think about or talk about this event with others.*)
19. Bu anıyı hatırladığımda, “ben artık bu değilim” diye düşünüyorum. (*When I recall this memory, I think, “that’s not me anymore.”*)
20. Bu olayın anısı güçlü duygular uyandırıyor. (*The memory of this event evokes powerful emotions.*)
21. Bu olayı hatırladığımda, kendimi olayı izleyen bir gözlemci gibi görüyorum. (*As I remember this event, I feel like an observer watching myself.*)
22. Bu anı bir kez belirli bir yerde ve zamanda olan tek bir olayla ilgilidir, birçok benzer ya da ilişkili olayın bir özeti ya da birleşimi değildir. (*This memory is of an event that occurred once at a particular time and place, not a summary or merging of many similar or related events.*)
23. Bu anıdaki kişinin bugün olduğum aynı kişi olduğunu hissediyorum. (*I feel like I am the same person in the memory as I am today.*)
24. Bu olayı hatırladığımda, olay olduğu anda düşündüğüm aynı şeyleri düşünüyorum. (*When I recall this event, I think the same things I thought when the event originally happened.*)
25. Bu anıyı hatırladığımda, deneyimimi kendi gözlerimle görüyorum. (*In my memory, I see this experience through my own eyes.*)
26. Bu anının yaşandığı saatle ilgili anım net. (*My memory for the hour when the event took place is clear.*)
27. Bu olayla ilgili anım çok ayrıntılı. (*My memory for this event is very detailed.*)

28. Bu anı belirli bir olayla ilgili bir anı deęil, birok benzer ve iliřkili olayın bir karıřımı. (*This memory is a blending of many similar, related events rather than a specific memory about a particular event.*)

29. Bu anı bende gl duygular uyandırmıyor. (*This memory does not evoke strong emotions in me.*)

30. Bu olayla ilgili anım ok fazla duyusal bilgi iermiyor (sesler, kokular, tatlar, vs.). (*My memory for this event does not involve a lot of sensory information (sounds, smells, tastes, etc.).*)

31. Bu olayı hatırladıęımda, bu deneyimim sırasındaki belirli fiziksel tepki ve duyumlarımı hatırlamakta zorlanıyorum. (*As I remember the event, I have a difficult time recalling the particular physical reactions and sensations I had during the experience.*)

APPENDIX F

ALTERNATE USES TEST

Bu çalışmada sizden, ekranda ismini göreceğiniz nesne için olabildiğince çok sayıda orijinal ve yaratıcı kullanım bulmanız istenmektedir. Amaç, insanların zekice, alışılmadık, ilginç, nadir, mizahi, yenilikçi veya farklı olarak nitelendireceği yaratıcı fikirler bulmanızdır. Fikirlerinizin pratik veya gerçekçi olması gerekmez; sıradan kullanımlar yerine yaratıcı kullanımlar oldukları sürece garip bile olabilirler. Her nesne için olabildiğince çok yaratıcı kullanım yazmak için 2 dakikanız olacak.

Sadece nesnenin özelliklerini, asıl kullanım amacını veya nesneyle ilişkili kelimeleri değil, gerçekten kullanım oluşturacak yaratıcı kullanımlar yazın. Her kullanım amacının diğerlerinden ve asıl kullanım amacından farklı olması gerekmektedir. *(In this task, you are asked to come up with as many original and creative uses as possible for the object whose name you will see on the screen. The goal is to generate ideas that people would consider clever, unusual, interesting, rare, humorous, innovative, or different. Your ideas do not have to be practical or realistic; they can even be strange as long as they represent creative rather than ordinary uses. You will have 2 minutes to write as many creative uses as you can for each object. Focus on generating genuinely creative uses rather than simply listing the object's features, typical functions, or related words. Each use should be distinct from the others and from the object's conventional purpose.)*

TUĞLA (*BRICK*)

.....

.....

.....

+++

GAZETE (*NEWSPAPER*)

.....

.....

.....



APPENDIX G

BIOGRAPHICAL INVENTORY OF CREATIVE BEHAVIORS

Lütfen soruları dürüst bir şekilde yanıtlayın. Son 12 ay içinde aktif olarak yer aldığınız etkinlikleri işaretleyin. *(Please answer as truthfully as you can. Place a cross (X) in the box next to the activities you have been actively involved in.)*

Son 12 ay içinde aşağıdakileri yaptınız mı? *(In the past 12 months have you...)*

- ☐ Kısa bir hikâye yazdınız. *(Written a short story)*
- ☐ Bir roman yazdınız. *(Written a novel)*
- ☐ Bir etkinlik, gösteri, performans veya aktivite düzenlediniz. *(Organized an event, show, performance or activity)*
- ☐ Bir TV/dizi veya tiyatro senaryosu yazdınız. *(Produced a TV/Play script)*
- ☐ Bir tekstil ürünü tasarlayıp ürettiniz (örneğin, bir kıyafet veya ev eşyası yaptınız).
(Designed and produced a textile product (e.g. made an item of clothing or household object))
- ☐ Bir yatak odası, mutfak veya kişisel alanınızı yeniden tasarlayıp dekore ettiniz.
(Redesigned and redecorated a bedroom, kitchen, personal space, etc.)
- ☐ Kullanılabilir bir ürün icat edip ürettiniz. *(Invented and made a product that can be used)*
- ☐ Bir karikatür çizdiniz. *(Drawn a cartoon)*

- ☐ Bir kulüp, dernek veya grup kurdunuz. (*Started a club, association or group*)
- ☐ Karalama olmayan bir resim yaptınız (boya, kurşun kalem, kömür, akrilik vb. kullanarak). (*Produced a picture, (using paint, pencils, charcoal, acrylic, etc.)*)
- ☐ Bir makale yayımladınız. (*Had an article published*)
- ☐ Uygun malzemeler kullanarak bir heykel yaptınız. (*Formed a sculpture using any suitable materials*)
- ☐ Kabul görmüş bir bilimsel teori/yaklaşımın eksik veya yetersiz olduğunu fark ettiniz. (*Recognised where an accepted scientific theory/approach does not explain what it purports to*)
- ☐ Kendi yemek tariflerinizi oluşturduunuz. (*Produced your own food recipes*)
- ☐ Kısa bir film çektiniz. (*Produced a short film*)
- ☐ Kendi web sitenizi oluşturduunuz. (*Produced your own website*)
- ☐ Bir olguyu açıklamak için yeni bir teori geliştirdiniz. (*Produced a theory to explain a phenomenon*)
- ☐ Bir oyun veya eğlence türü icat ettiniz. (*Invented a game or other form of entertainment*)
- ☐ Bir grup veya ekibi yönetmek/öncülük etmek üzere seçildiniz. (*Selected to lead/manage others*)
- ☐ Birine hediye yaptınız. (*Made someone a present*)

- ☐ Bir şiir yazdınız. (*Composed a poem*)
- ☐ Bir nesneyi özgün bir şekilde uyarlayarak, tasarlandığı amacın dışında ve yaratıcı bir biçimde kullandınız. (*Adapted an item and used it in a way that it was not designed to be, in what you consider to be an ingenious way*)
- ☐ Akademik bir araştırma yayımladınız. (*Published research*)
- ☐ Bir dans koreografisi yaptınız. (*Choreographed a dance*)
- ☐ Bir bahçe tasarlayıp bitkiler ektiniz. (*Designed and planted a garden*)
- ☐ Profesyonel bir fotoğraf portföyü oluşturdunuz (tatil, parti gibi gündelik fotoğraflar hariç). (*Produced a portfolio of photographs (NOT photographs of a holiday, party, etc.)*)
- ☐ Bir tiyatro veya sahne performansında yer aldınız. (*Acted in a dramatic production*)
- ☐ Bir konuşma yaptınız. (*Delivered a speech*)
- ☐ Birine mentorluk veya koçluk yaparak performansını geliştirmesine yardımcı oldunuz. (*Mentored/Coached someone else to improve their performance*)
- ☐ Bir konuyu daha iyi anlamak için bir deney tasarladınız. (*Devised an experiment to help understand something*)
- ☐ Yeni bir şaka ürettiniz. (*Made up a joke*)

- ☐ Bir takım veya grubun lideri/kaptanı olarak seçildiniz (örneğin, münazara kulübü başkanı, hokey takımı kaptanı vb.). (*Been made a leader/captain of a team/group (e.g. Debating society chairperson, Captain of the Hockey team, etc.)*)
- ☐ Bir müzik parçası bestelediniz. (*Composed a piece of music*)
- ☐ Bir kolaj yaptınız. (*Made a collage*)



APPENDIX H

THE KAUFMAN DOMAINS CREATIVITY SCALE

Yaşıtlarınızla ve benzer yaşam deneyimlerine sahip insanlarla kendinizi karşılaştırmak yoluyla aşağıda yer alan soruları yanıtlayınız. Doğru veya yanlış cevap yoktur. *(Please answer the following questions by comparing yourself with people of your own age and with similar life experiences. There are no right or wrong answers.)*

Akranlarımdan bu konuda *(Compared to my peers in this area);*

5= Çok daha fazla yaratıcıyım.....1= Çok daha az yaratıcıyım *(5 = Much more creative 1 = Much less creative)*

1. Makale veya araştırmaları özgün/ güncel bir bakış açısını desteklemek üzere en iyi olasılıklar dahilinde sentezleme *(Synthesizing articles or research to support a novel or current perspective as effectively as possible)*

2. Bir dergi, gazete veya haber bülteni için yazı yazma *(Writing an article for a magazine, newspaper, or newsletter)*

3. Bir çalışma revize edilirken eleştiri ve önerilerin nasıl bir araya getireceğini ortaya koyma *(Integrating criticism and suggestions when revising a paper or project)*

4. Kitapta yer alan temaları/ konuları analiz etme *(Analyzing themes or topics presented in a book)*

5. Editöre bir mektup yazma *(Writing a letter to the editor)*

6. Bir konuya uygun yanıt oluşturma *(Formulating an appropriate response to a topic or question)*

7. Okuduđu metine dayalı olarak yapıcı geri bildirim verme (*Providing constructive feedback based on a text you have read*)
8. Tartışmalı bir konuyu kendi bakış açısına göre tartışma (*Discussing a controversial topic from your own perspective*)
9. Kolayca ulaşılamayacak farklı kaynak türlerini kullanarak bir konuyu araştırma (*Researching a topic using sources that are not easily accessible*)
10. Güncel olmayan bir tartışma ile ilgili yenilikçi bir yöntem sunma (*Presenting an innovative approach to an outdated discussion*)
11. Bir tartışmada kişisel olarak kabul etmediğı tarafı/ boyutu tartışma (*Arguing for a side of a debate that you personally disagree with*)
12. Robot gibi mekanik bir şeyler yapma (*Building something mechanical, like a robot*)
13. Virüslü veya standart uygulama dışında işlemlere izin vermeyen bir program yüklenmiş (*frozen program*) bilgisayarı çalışabilir hale getirme (*Fixing a computer that has been frozen or infected with a virus*)
14. Bir bilgisayar programı yazma (*Writing a computer program*)
15. Makineleri sökme/ takma/ parçalara ayırma ve onların nasıl çalıştığını ortaya çıkarma (*Taking apart and reassembling machines to see how they work*)
16. Bilimsel bir deneyin tasarımına veya yapılmasına yardımcı olma (*Helping design or conduct a scientific experiment*)
17. Aritmetik veya geometrik bir problemi çözme veya ispat etme (*Solving or proving an arithmetic or geometric problem*)

18. Matematik bulmacalarını çözmek (*Solving mathematical puzzles*)
19. Orijinal bir şarkı bestelemek (*Composing an original song*)
20. İçinden geldiği anda bir şarkı sözü oluşturma (*Making up song lyrics on the spot*)
21. Bir müzik aletini nasıl çalacağını öğrenme (*Learning how to play a musical instrument*)
22. Topluluk önünde müzik aleti çalma (*Performing a musical instrument in public*)
23. Kafiye oluşturmak (*Creating rhymes*)
24. Uyum içinde şarkı söylemek (*Singing in harmony*)
25. Komik bir şarkı sözü yazmak (*Writing humorous song lyrics*)
26. Bir şiir yazmak (*Writing a poem*)
27. Bir oyunda oyunculuk yapmak (*Acting in a play*)
28. İki arkadaş arasında bir sorun veya tartışma yaşandığında aracılık etmek (*Mediating a conflict between two friends*)
29. İnsanlarda rahatlama ve gevşeme duygusu oluşturma (*Creating a sense of calm or relaxation in others*)
30. İnsanlara yardımcı olmak için yeni yollar düşünmek (*Thinking of new ways to help others*)
31. Arkadaşlarıyla herkesin ihtiyaçlarını karşılayabilecek bir olay veya gezi planlamak (*Planning an event or trip that meets everyone's needs*)

32. Güç/ zor bir durumla karşılaşan insanlara yardımcı olma (*Helping people who are facing difficult situations*)
33. Kişisel problemlerini sağlıklı yollardan çözümleme (*Resolving personal problems in healthy ways*)
34. Bir problem için en iyi çözümü seçme (*Choosing the best solution to a problem*)
35. İş ve özel yaşamı dengeli biçimde sürdürme (*Maintaining a healthy balance between work and personal life*)
36. Birisine bir şeyi nasıl yapacağını öğretme (*Teaching someone how to do something*)
37. Düzensiz veya geometrik tasarımların resmini çizme/ karalamasını yapma (*Drawing or sketching irregular or geometric designs*)
38. Bir kişi veya objenin taslağını çıkarma (*Sketching a person or an object*)
39. Bir çömlek parçası veya bir heykel yapma (*Creating a pottery piece or sculpture*)
40. İlginç bir yaklaşım veya bakış açısı kullanarak güzel bir tema oluşturacak bir fotoğrafı çekme (*Taking a photograph that captures an interesting theme or perspective*)
41. Kendi fotoğrafları dışında gazete resimlerinden bir defter sayfası oluşturma (*Creating a scrapbook page using magazine or newspaper images other than your own photographs*)

APPENDIX I

VIVIDNESS OF VISUAL IMAGERY QUESTIONNAIRE

Görsel imgeleme, zihinde görüntüler oluşturma veya “zihnin gözünde görme” yeteneğini ifade eder. Bu testin amacı, görsel imgelerinizin ne kadar canlı olduğunu belirlemektir. Testteki maddeler, zihninizde belirli görüntüleri canlandırmanıza yardımcı olacaktır. Her bir görüntünün canlılığını aşağıdaki 5 dereceli ölçeğe göre değerlendirmeniz istenmektedir. Devam etmeden önce, ölçek kategorilerini inceleyin ve her maddeyi değerlendirirken ölçeğe başvurun. Testi tamamlarken gözlerinizi açık ya da kapalı tutabilirsiniz; hangi şekilde rahat hissediyorsanız o şekilde ilerleyebilirsiniz. (*Visual imagery refers to the ability to visualise, that is, the ability to form mental pictures, or to 'see in the mind's eye'. The aim of this test is to determine the vividness of your visual imagery. The items of the test will possibly bring certain images to your mind. You are asked to rate the vividness of each image by reference to the 5-point scale given below. Before you continue, familiarise yourself with the different categories on the rating scale. Throughout the test, refer to the rating scale when judging the vividness of each image. When completing the questionnaire, you may keep your eyes open or closed, whichever you prefer.*)

Derecelendirme Ölçeği (*Rating Scale*):

Okuduğunuz maddede oluşan zihinsel görüntü (*The image aroused by an item might be*):

Hiç oluşmuyor, sadece düşündüğünüzü "biliyorsunuz" – 5 puan (*No image at all, you only "know" that you are thinking of an object - Rating 5*)

Belirsiz ve soluk – 4 puan (*Vague and dim - Rating 4*)

Orta derecede net ve canlı – 3 puan (*Moderately clear and vivid - Rating 3*)

Net ve oldukça canlı – 2 puan (*Clear and reasonably vivid - Rating 2*)

Tamamen net ve gerçek görüş kadar canlı – 1 puan (*Perfectly clear and as vivid as normal vision - Rating 1*)

1) Sıklıkla gördüğünüz bir akrabanızı ya da arkadaşınızı düşünün (şu an yanınızda olmayan). Zihninizde canlanan görüntüyü dikkatlice inceleyin. (*Think of some relative or friend whom you frequently see (but who is not with you at present) and consider carefully the picture that comes before your mind's eye.*)

a. Yüzünün, başının, omuzlarının ve vücudunun tam hatları (*The exact contours of face, head, shoulders and body*)

b. Başının tipik duruşu, beden hareketleri vb (*Characteristic poses of head, attitudes of body etc.*)

c. Yürüyüş tarzı, adım uzunluğu, vücut duruşu (*The precise carriage, length of step etc., in walking*)

d. Üzerinde sıkça gördüğünüz kıyafetlerin renkleri (*The different colors worn in some familiar clothes*)

2) Doğan güneşi gözünüzde canlandırın. Zihninizde oluşan görüntüyü dikkatlice inceleyin. (*Visualise the rising sun. Consider carefully the picture that comes before your mind's eye.*)

a. Güneşin, puslu bir gökyüzü üzerinde ufuktan yükselmesi (*The sun rising above the horizon into a hazy sky*)

b. Gökyüzünün açılması ve güneşi mavilikle çevrelemesi (*The sky clears and surrounds the sun with blueness*)

c. Bulutlar, şimşek çakmalarıyla birlikte gelen bir fırtına (*Clouds. A storm blows up*)

with flashes of lightning)

d. Gökkuşağının belirmesi (*A rainbow appears*)

3) Sıkça gittiğiniz bir dükkânın önünü düşünün. Zihninizde oluşan görüntüyü dikkatlice inceleyin. (*Think of the front of a shop which you often go to. Consider the picture that comes before your mind's eye.*)

a. Karşı kaldırımdan dükkânın genel görünümü (*The overall appearance of the shop from the opposite side of the road*)

b. Vitrindeki sergileme; renkler, şekiller ve satılan ürünlerin detayları (*A window display including colours, shapes and details of individual items for sale*)

c. Girişin yanındasınız. Giriş kapısının rengi, şekli ve ayrıntıları (*You are near the entrance. The colour, shape and details of the door*)

d. Dükkâna girip tezgahlara yaklaşıyorsunuz. Kasada ödeme yapıyorsunuz (*You enter the shop and go to the counter. The counter Assistant serves you. Money changes hands*)

4) Son olarak, ağaçlar, dağlar ve bir göl içeren bir doğa manzarasını hayal edin. Zihninizde oluşan görüntüyü dikkatlice inceleyin. (*Finally think of a country scene which involves trees, mountains and a lake. Consider the picture that comes before your mind's eye.*)

a. Manzaranın genel hatları (*The contours of the landscape*)

b. Gölün rengi ve şekli (*The colour and shape of the lake*)

c. Ağaçların rengi ve biçimi (*The colour and shape of the trees*)

d. Güçlü bir rüzgârın ağaçları ve gölü hareketlendirmesi; sudaki yansımalar (*A strong wind blows on the trees and on the lake causing reflections in the water*)

APPENDIX J

SPONTANEOUS USE OF IMAGERY SCALE

Lütfen aşağıdaki açıklamaların her birini okuyun ve sizin için ne derece uygun olduğunu belirtin. Her biri üzerinde fazla düşünmeden, bu etkinlikleri yapıp yapmadığınıza dair düşüncelerinize dayalı olarak yanıt verin. Eğer bir açıklama her zaman tamamen size uygunsa "5", hiç uygun değilse "1", yaklaşık yarı yarıya uygun ise "3" puan verin ve diğer puanları da buna göre kullanın. *(Please read each of the following descriptions and indicate the degree to which each is appropriate for you. Do not spend a lot of time thinking about each one, but respond based on your thoughts about how you do or do not perform each activity. If a description is always completely appropriate, please write "5"; if it is never appropriate, write "1"; if it is appropriate about half of the time, write "3"; and use the other numbers accordingly.)*

- ☐ Yeni bir yere gittiğimde, o yerin isminin yanı sıra, oraya ait özelliklerin (örneğin, bir benzin istasyonunun boyutu, şekli ve rengi gibi) ayrıntılı açıklamalarını içeren yönlendirmeleri tercih ederim. *(When going to a new place, I prefer directions that include detailed descriptions of landmarks (such as the size, shape and color of a gas station) in addition to their names.)*
- ☐ Çalıların arkasında kısmen gizlenmiş bir araca gözüm ilerse, zihnimde otomatik olarak "tamamlar" ve tüm aracın görüntüsünü oluştururum. *(If I catch a glance of a car that is partially hidden behind bushes, I automatically "complete it," seeing the entire car in my mind's eye.)*

- Bir mağazada yeni mobilyalara bakarken, onların evimde belirli bir yerde nasıl görüneceğini her zaman gözümde canlandırıyorum. (*If I am looking for new furniture in a store, I always visualize what the furniture would look like in particular places in my home.*)
- Karakterlerin nerede olduklarını ve ne yaptıklarını zihnimde kolayca canlandırmamı sağlayan romanları, zihnimde canlandırması zor olanlara göre daha çok tercih ederim. (*I prefer to read novels that lead me easily to visualize where the characters are and what they are doing instead of novels that are difficult to visualize.*)
- Bir akrabamı ziyaret etmeyi düşündüğümde, onun zihnimde net bir görüntüsü belirir. (*When I think about visiting a relative, I almost always have a clear mental picture of him or her.*)
- Kolayca anlaşılabilen teknik bir konu yazılı olarak açıklandığında, bu metne eklenen görselleri rahatsız edici bulurum, çünkü kendi zihnimde görüntü oluşturma yeteneğimi engeller. (*When relatively easy technical material is described clearly in a text, I find illustrations distracting because they interfere with my ability to visualize the material.*)
- Birisi bana iki basamaklı sayılar söyleyip toplamamı istese (örneğin, 24 ve 31), onları zihnimde canlandırarak/görselleştirerek toplarım. (*If someone were to tell me two-digit numbers to add (e.g., 24 and 31), I would visualize them in order to add them.*)
- Dışarı çıkmadan önce, farklı kıyafet kombinasyonlarını giydiğimde nasıl görüneceğimi zihnimde canlandırıyorum. (*Before I get dressed to go out, I first visualize what I will look like if I wear different combinations of clothes.*)

- ☐ Yapmam gereken bir dizi işi düşündüğümde, ziyaret edeceğim dükkanları gözümde canlandırım. (*When I think about a series of errands I must do, I visualize the stores I will visit.*)
- ☐ Bir arkadaşımın sesini ilk kez duyduğumda, zihnimde onun görüntüsü hemen belirir. (*When I first hear a friend's voice, a visual image of him or her almost always springs to mind.*)
- ☐ Daha önce hiç görmediğim bir radyo sunucusunu veya DJ'i dinlediğimde, genellikle onların nasıl görüldüğünü gözümde canlandırım. (When I hear a radio announcer or DJ I've never actually seen, I usually find myself picturing what they might look like.)
- ☐ Eğer bir trafik kazasına tanık olsaydım, daha sonra detayları hatırlamaya çalışırken olanları zihnimde canlandırırdım. (*If I saw a car accident, I would visualize what had happened when later trying to recall the details.*)

APPENDIX K
DEMOGRAPHICS

Lütfen aşağıdaki sorulara cevap veriniz. *(Please answer the questions below)*

Kaç yaşındasınız? *(How old are you?)*

Cinsiyetiniz *(Your gender)*

- ☐ Erkek *(Male)*
- ☐ Kadın *(Female)*
- ☐ Diğer _____ *(Other)*
- ☐ Belirtmek istemiyorum *(Do not want to indicate)*

Eğitim durumunuz nedir (şu anda bulunduğunuz sınıf)? *(What is your current level of education (your current year of study)?)*

- ☐ 1. Sınıf *(Freshman)*
- ☐ 2. Sınıf *(Sophomore)*
- ☐ 3. Sınıf *(Junior)*
- ☐ 4. Sınıf *(Senior)*
- ☐

Okuduğunuz bölüm: _____ *(Department)*

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