

THE RELATION BETWEEN VISUAL IMPAIRMENT AND THE EARLIEST
AUTOBIOGRAPHICAL MEMORIES IN YOUNG ADULTS

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DECLARATION OF ORIGINALITY

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ABSTRACT

The Relation Between Visual Impairment and The Earliest Autobiographical Memories in Young Adults

Autobiographical memory is a memory system that consists of personal experiences and personal information about an individual's life. Therefore, it performs the function of self-representation and is directly related to self-understanding. The purpose of this study is to address the effects of a condition that affects identity: blindness. Blindness, as a chronic disease, integrates with the self and can affect different aspects of memories. For example, blindness is associated with reduced visual imagery, one of the main components of autobiographical memory. Therefore, this study focuses on the relationship between visual impairment in adults and features of autobiographical memories. This study investigates the onset of childhood amnesia and the phenomenological features of these autobiographical memories. In this context, the participants were asked about their earliest childhood memories. In addition, the participants were asked about their most important memories and used as a control event. On the other hand, the formation of the cognitive self was found to be associated with two achievements: self-recognition in the mirror and the use of personal pronouns. Visual impairment limits or blocks visual input and modulates language development. Due to this low/lack of experience, so participants' visual or verbal style of processing dominance was measured. When we consider these three interrelated concepts

(blindness, self, and autobiographical memory) together, it can be argued that low visual experience affects memories through deferred personal development.

ÖZET

Genç Yetişkinlerde Görme Bozukluğu ve Otobiyografik Anıların Özellikleri Arasındaki İlişki

Otobiyografik bellek, bir bireyin yaşamına ilişkin kişisel deneyimlerden ve kişisel bilgilerden oluşan bir bellek sistemidir. Bu nedenle, kendini temsil etme işlevini yerine getirir ve doğrudan kendini anlama ile ilgilidir. Bu çalışmanın amacı, kimliği etkileyen bir durumun etkilerini ele almaktır: körlük. Körlük kronik bir hastalık olarak benlikle bütünleşir ve anıların farklı özelliklerini etkileyebilir. Örneğin, körlük, otobiyografik hafızaya erişimin ana bileşenlerinden biri olan görsel imgelemenin azalmasıyla ilişkilidir. Bu nedenle, bu çalışma yetişkinlerde görme bozukluğu ile otobiyografik anıların özellikleri arasındaki ilişkiye odaklanmaktadır. Bu çalışma çocukluk amnezisinin başlangıcını ve otobiyografik anıların fenomenolojik özelliklerini araştırmaktadır. Bu bağlamda katılımcılara en eski çocukluk anıları sorulmuştur. Ayrıca katılımcılara en önemli anıları sorulmuş ve kontrol olayı olarak kullanılmıştır. Öte yandan, bilişsel benliğin oluşmasının iki başarı ile ilişkili olduğu bulunmuştur: aynada kendini tanıma ve şahıs zamirlerinin kullanımı. Görme bozukluğu görsel girdiyi sınırlar veya engeller ve bu düşük deneyim/deneyim eksikliği nedeniyle dil gelişimini modüle eder. Bu nedenle, katılımcıların görsel veya sözel işleme tarzı baskınlığı ölçülmüştür. Birbiriyle ilişkili bu üç kavramı (körlük, benlik ve otobiyografik bellek) birlikte ele

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CHAPTER 1

INTRODUCTION

Autobiographical memory (ABM) is a memory system that consists of personal experiences and personal knowledge of an individual. Therefore, it performs the function of self-representation and is directly connected to self-understanding. The purpose of this study is to focus on the impact of a condition that affects identity: blindness. Blindness integrates with the self as a chronic disease and affects personal experiences and therefore can affect different aspects of memories. This study focused on the intersection of blindness, self, and autobiographical memory and explored whether and how diminished (or absence of) visual experience affects autobiographical memories. In this context, both the earliest childhood memories and the most important memories were investigated.

1.1 Autobiographical memory

Autobiographical memory is a type of memory that consists of previous experiences and personal awareness of an individual. It is a system in which the memory evolves during childhood and adolescence, and the development of this memory depends on a sense of subjective self as a continuous in time (Fivush, 2011). It is formed gradually through

social experiences and cognitive changes. The process of developing an autobiographical memory involves elemental memory abilities, temporal understanding, adult memory talk, language and narrative, and self-other distinction (Nelson & Fivush, 2004).

Autobiographical memories have different classifications: biographical vs. personal, field vs. observer perspective, remember vs. know, specific vs. generic. They can be categorized according to their content as emotional memories (happiest, saddest, proudest memories), most important memories, earliest childhood memories, or categorized by whether they are cue-evoked or not.

Also, there are several different patterns in the temporal distribution of autobiographical memories. The first feature of the temporal distribution of memories is childhood amnesia, which is characterized as adults forgetting 2-4 years of their life (Berntsen & Rubin, 2002). Maturation changes occur within the first 2 years but are not sufficient to account for the offset of childhood amnesia. What is missing is not only memory capacity or language ability, but a personal frame of reference that makes memories autobiographical (Howe & Courage, 1993). Another feature of memory distribution is the recency effect, which is specified as the ability to recall newer memories more than old ones. The sooner an event occurs, the more likely it is to be recalled. Finally, adults over the age of 40 tend to recall significantly more experiences from the adolescence and early adult years than at any other phase of their life; this is known as the reminiscence bump.

1.1.1 Childhood memories

Childhood memories are temporally specific memories that depend on the experiences in the early periods of life. Infantile amnesia is a phenomenon that is widely investigated. Early research and papers had evaluated this concept concerning personality and repression of sexual urges. Freud mentioned infantile amnesia almost 100 years ago and defined it as an inability to remember events before the age of one (Pillemer, 1998). The experimental view instead of the psychoanalytic approach (Dudycha & Dudycha, 1941) has become spread. Freud was believing that childhood memories were repressed because of their sexual content whereas recent theory, social interaction theory, emphasizes that this ability has resulted from developmental advancement and parental interaction (Pillemer, 1998). Developmental perspective does not remove motivational forgetting but emphasizes low quality and amount of parent-child interaction in early ages (Pillemer, 1998). The hypothesis about the link between the lack of childhood memories and being neurotic or unstable personality characteristics was refuted by empirical data, but the findings cannot be used to refute any psychoanalytic hypotheses at all (Child, 1940). On the other hand, early memories change over time while staying stable because the personality carries the same quality and affect the characteristics of memories, but the essence is always there (Josselson, 2000).

There are several methods for data collection in childhood memory studies: questionnaire, direct-question, brief questionnaires presented to assembled groups, reminiscence, biographical reports, check-list method (Dudycha & Dudycha, 1941). Rubin (2000) evaluated the distribution of childhood memories and found that

childhood amnesia is a robust phenomenon that is approximately identical in different methodologies (word cued, interview, focused, or exhaustive search) and population (different age groups, gender comparison). Wang (2003) supported this robustness but emphasized the cultural differences of these basic mechanisms and factors exhibited in different cultures.

The earliest memories date back to the age of 3-4 but rarely some people may recall memories from earlier ages, which is a susceptible situation whether they are true memories or not (Dudycha & Dudycha, 1941). When Pillemer (1998) has looked at the temporal distribution of the memories, he found few events were retrieved before age three. Howe et al (1993) used a verifier to measure the accuracy of memories and eliminated the assumption of the distortion of infantile recalling. These early memories might be affected by several factors, such as language, intelligence, and a child's health, which define the extent of experience and range of memories (Dudycha & Dudycha, 1933). Adults retain only a few autobiographical memories from before they were five years old, and almost none from when they were three (e.g., Waldfogel, 1948). CA is a highly consistent and stable phenomena. CA is thought to begin at the age of 3.5 years, according to certain studies (e.g., Jack & Hayne, 2007; Jack, MacDonald, Reese, & Hayne, 2009; Mullen, 1994; Waldfogel, 1948). Several theories exist to explain why CA occurs, including neurological maturation (e.g., Bauer, 2007), emergence of language (Simcock & Hayne, 2002), emergence of the cognitive self (e.g., Povinelli, Landry, Theall, Clark, & Castille, 1999), and emergence of theory of mind (e.g., Welch-Ross, 2001). Some of the CA findings may be explained by each of these paradigms. The notion that autobiographical memory formation follows a similar path across the world

is a common thread in these theories. The individualistic–collectivistic (e.g., Hofstede, 1991) or independent–interdependent self-concept dualities (e.g., Markus & Kitayama, 1991) have been used to describe cultural differences in CA.

Howe et al. (2003) claims that two possible development determines the beginning of the autobiographical self, first one is the development of cognitive self and the other one is language, but he finally proposes that cognitive self precedes language, especially self-referent language. Early memories vary depends on intelligence, language acquisition, subject's age at the recalling time, personality traits (Dudycha & Dudycha, 1933;1941). A variety of interactive social and cognitive factors shape autobiographical memory development. This collective effect has stimulated discussion and greater analysis of the factors that affect memory accessibility, content, precision, and phenomenological characteristics of early childhood memories (Wang & Gülgöz, 2019). For example, Tustin and Hayne (2019) and Wang et al. (2019) mentioned a phenomenon for childhood amnesia, named “telescoping error” which means that adults systematically postdate their memories by 6-12 months, thus the temporal distribution of the memories is prone to the retrospective methods. Another example comes from the effect of parental activities on narratives; securely attached infants recall more coherent memories, guidance by parents forms a scaffolding (Pillemer, 1998).

The concepts of earliest memories may vary from person to person. One of the earliest studies (Dudycha & Dudycha, 1933) found that the earliest memories were related to the death of relatives, the birth of siblings, moving from one place to another, trips, holidays, specific celebrations, school entrances, exceptional events such as fires. Generally, emotions accompany early experiences (Dudycha & Dudycha, 1941). Howes

et al. (1993) and Dudycha and Dudycha (1933, 1941) reported negative memories were reported more frequently whereas Waldfogel (1948) reported that positive affect was more common in the memories. Yet, emotion to emotion (fear, joy, and anger), the mean age of earliest memories did not differ, but the frequency of the emotion-related memories differs by gender (Dudycha & Dudycha, 1933). Waldfogel (1948) aimed to investigate childhood memories more deeply and found that mostly joy-related memories were recalled, followed by fear-related ones. Also, the pleasant memories were more than unpleasant and neutral tones in this longitudinal study (Waldfogel, 1948). As a more recent study, Göz, Çeven, and Tekcan (2017) found that children from rural regions had their earliest memories a year later than those from urban areas. The memories of the former group were more likely to involve social interactions and were less detailed. However, the groups did not differ in specificity, autonomous orientation, or emotion.

1.1.2 Most important memories

It stands to reason that emotionally provoking situations are recalled well. Unpleasant events (such as a car accident, an assault, or a loved one's death) are remembered more vividly than everyday events just like plausible events (such as birthdays, holidays, and weddings) (McGaugh, 2013). Also, we already know that the experiences from the adolescence and early adult years are recalled more (i.e., reminiscence bump) and this phenomenon is related to the importance of the events which generally occurring at that specific period of life.

1.2 Self

The concept of “self” is difficult to define, but somehow, we instinctively comprehend what it stands for. It can be described as the essence of the individual that distinguishes him or her from others. Mirror self-recognition is the earliest self-recognition indicator to emerge, followed by personal pronouns and photo identification. Mirror recognition improves one's self-awareness, this recognition is not a single time event but a gradual process (Courage, Edison & Howe, 2004). Dixon (1957) examined the development of self-image based upon the mirror. Children first get to know the mother and then themselves, and between 6-7 months they begin to react to the mirror image as if they are trying to associate the image with themselves. After this early recognition comes the actual experience, the reality test; to test whether the mirror image is real, the mirror must be pinched, scratched, poked, or even harmed. At about one year old, their behavior begins to show true self-recognition. Children 12-18 months relate their behavior with the movement of reflection and make the connection. Self-recognition is not an additional process, but a developmental transformation, and as one gets older, the self-concept becomes more abstract (Montemayor & Eisen, 1977).

Around the age of 3.5, children have a consistent and stable self-concept, but there are individual differences (Eder, 1990), and structural and functional growth of the brain is essential for the development of self-understanding (Pfeifer & Peake, 2012). Particularly, children define themselves through where they live, what they do, how they look. Their ideas about themselves do not seem quite simple and different, both from other people and from their surroundings. On the other hand, young people define themselves by their beliefs, personality traits, and more important and inherent qualities

that create a strong and specific self-image (Montemayor & Eisen, 1977). Therefore, self-perception and self-definitions are not fixed; they change with age.

1.3 Blindness

The term "visual impairment" refers to some degree of vision deprivation, while "blindness" refers to the inability to see with more than light perception in both eyes and not seeing with corrective lenses (WHO, 2007). Blind or visually impaired individuals are all special. Such conditions as the severity of the disorder, the person's appearance, intelligence, experience, and the presence of other disorders all have different consequences. Visual impairment has three common consequences that can also affect cognitive development: variety and diversity of experiences, ability to get somewhere, and control of the environment and self in relation to the environment (Maćešić-Petrović, Vučinić, & Eškirović, 2010). Zimler and Keenan (1983) argued that congenital blinds have a great capacity to deal with certain parts of the environment that viewers usually accept as visual. Visual impairment has been associated with impaired cognitive performance, dementia, and Alzheimer's disease in the elderly (Spierer, Fischer, Barak, & Belkin, 2016).

On the other hand, visually impaired people are more advantageous in some cognitive tasks than their sighted peers; remembering the order of items, taped or braille words, pitch, comprehension of prose, personal semantic memory (Pring, 2008). Visual input can be supported by other senses (Koca-Atabey & Öz, 2017). For example, the blind can create visuospatial images based on haptic inputs, produce visuospatial images, and detail information from sensory modalities other than visual perception

thanks to visuospatial working memory (Vecchi, 1998). In addition, the blind mostly have an interest and success in music (Pring & Ockelford, 2006). So, blindness has costs and benefits. The observed abilities of congenitally blind children and adults testify to the complexity of human cognition. To understand the limits, this study will focus on the relationship between visual impairment, self, and ABM.

1.4 Autobiographical memory and self

Self and autobiographical memory are closely related. The Self-Memory System (Conway, 2005) is a framework that emphasizes the link between the self and memory. This relationship is correlative, so the self remains a reference point for memory formation, and memory helps to have a consistent sense of self. One feature of this relationship is that the emergence of a sense of self plays a compelling role in the development of autobiographical memory in young children. In adults, the self is accepted as a reference point for organizing information, conveys mnemonic advantages, this self-reference effect occurs around the age of 5-6 (Pfeifer & Peake, 2012). Specifically, it was found that representations of oneself and other individuals initially consisted of general memories, but became more specific as age progressed (Eder, 1989). Howe and Courage (1993) suggested that the self serves as a basis for organizing personal experiences. In other words, autobiographical memory emerges with the cognitive self which organizes experiences that happened to "me" and not "others". This cognitive self emerges around the age of two, so the limit of autobiography begins from the second year of life (Howe & Courage, 1997), and people cannot remember events that occurred before the age of two, which is called childhood

amnesia. Two key achievements reflect this cognitive self-improvement: mirror recognition and the use of personal pronouns (Fivush & Haden, 2003). This cognitive-self promotes the distinction between episodic and semantic subsystems in early declarative memory at the end of the second year (Prudhomme, 2005).

1.5 Blindness and self

The limitations of visual stimulation of visually impaired children construct their behavior. Their view of the world, their interpretation of cause and effect, and the interactions between individuals and/or objects change as a result. Visually impaired children cannot see themselves visually at all or see poorly, and this can affect their cognitive self-development. Although blindness is a perceptual deficiency, it has important implications for the child's early development of self (Bigelow, 1995). Some researchers found that students with visual impairments acquired higher (stronger) self-concepts than students with vision, while others found the opposite (Datta, 2014). Self-recognition and maternal recall style successfully predicted reciprocal memory records for children, including the initial childish language and nonverbal memory. Self-recognition competencies predicted the later independent memory of adolescents (Harley & Reese, 1999). Halder and Datta (2012) found that Indian sighted adolescents had higher scores than blind adolescents in certain dimensions of self-concept. On the contrary, Martinez and Sewell (1996) suggested that visually impaired individuals may have a positive understanding of themselves due to two potentials. The first is the assumed similarity between the individual and the group in which he lives. The second

is whether the individual has any place where he or she can demonstrate his competence (i.e., one's position in a limited field such as sports and music).

1.6 Blindness and autobiographical memory

This study focuses on the development of autobiographical memory in blind individuals: more specifically, it will look at the effects of the absence of visual input on childhood memories. There are several ways that blindness can affect autobiographical memory. Vision is the dominant sense and visual imagery is the more dominant feature of memories, and blindness is associated with a decrease in visual imagery at retrieval (Aydın, 2018; Ogden & Barker, 2001). Compared with sighted participants, the blind retrieved fewer memories (Eardley & Pring, 2006; Tekcan et al., 2015); reported higher importance, and recollection ratings to their memories, had higher auditory imagery, and low visual imagery scores (Tekcan et al., 2015). They have more accurate recollections of personal semantic memory (Pring & Goddard, 2003). In addition, a positive relationship was found between accepting disability and self-concept and self-esteem (Li & Moore, 1998). When comparing the most important, happiest, and saddest memories, the most significant events were remembered from an earlier age range; however, in the comparison of the age distribution of the memories of sighted and blind participants, it was seen that only the happiest memories were recalled in the earlier age range (Sofuoğlu, 2019).

1.7 Autobiographical memory, self, blindness, and language

Autobiographical memory requires clear memories of an event that occurred at a particular time and place in the past. If a child and an adult go along with the experience, the parent has a verbal "scaffold" to which the child applies and correlates the experience in a coherent way (Fivush & Nelson, 2004). Therefore, the development of ABM is mostly linked to language. Language is not only necessary for the expression of memories but also useful in providing a personal experience in an organizational structure. It allows children to talk about their experiences with other people, and these dialogues facilitate children in terms of improving their ability to create organized representations (Fivush & Nelson, 2004). Reese and Newcombe (2007) demonstrated that maternal education in elaborative reminiscing enabled children to have richer memories than children of uneducated mothers.

The most recent research in people with severe congenital blindness has shown that speech processing is faster than sighted people (Röder, Rösler, & Neville, 2000), therefore visually impaired children compensate with better verbal abilities, but in some cases their verbal scores are still lower than normally sighted children, meaning that visual impairment can have an effect on the other aspects of cognitive performance. (Roizen et al., 2006).

Visual impairment regulates language development (Andersen, Dunlea & Kekelis, 1984). The expressive language of severely visually impaired children seems to develop more slowly than sighted children (McConachie & Moore, 1994). Correct use of the demonstrative I—You distinction develops later in blind children, the vocabulary of visually impaired children is more self-centered and word meanings are generally

more limited than sighted children (Andersen, Dunlea & Kekelis, 1984). Therefore, blind children use different strategies, such as route-learning or Gestalt style: imitation of certain expressions., to advance their language acquisition (Pérez-Pereira, 2006). Also, the blind are more dependent on the inputs provided by the language to access external information. This dependency affects language fluency. For instance, compared with blind and sighted children, there was a difference in favor of the visually impaired children, although there was no significant difference in semantic fluency scores on the phonemic fluency task. This difference is most likely due to strategic differences, sighted children utilized visualization to advance their performance, which did not contribute to the phonemic fluency performance (Pérez-Pereira, 2006). However, we must always consider the limited data on language performance and individual differences between blinds. On the other hand, language provides a framework for narratives, and social interaction theory (Fivush & Haden, 2003) suggests that blind children's memory takes a new form. Blind people can transform their memories from visual to non-visual, this is possible through the description. They can verbally reconstruct memories (Bates, 2002), which is associated with better verbal recall (Pring & Goddard, 2003). Much of the debate about the early life of the self and autobiographical memory relies on how we define ourselves and how we can evaluate autobiographical memory before generative language begins (Howe, 2004). Blind people somehow manage to cope with language delay, but we still do not know the effects of language on the formation and retrieval of autobiographical memories.

1.8 The present study

There are very limited studies on autobiographical memory processes in visually impaired individuals. This is surprising given the close connection between identity/self and autobiographical memory, and the fact that blindness is a condition that has a compelling influence on identity as an individual. In this study, I address the intersection of blindness, self, and autobiographical memory and particularly suggest that low visual experience influences memories through delayed self-development. Therefore, I will research the onset and phenomenological features of autobiographical memories related to visual impairment. In this context, both the oldest childhood memories and the most important memories will be asked from the participants. I hope that this work will promote the understanding of the self-functions of both the earliest and most important autobiographical memories and clarify how these memories make a difference without visual input. This study is important in terms of understanding both the autobiographical memory process and its relationship with identity development. It will contribute to how blindness is related to the sense of self and how autobiographies change the relationship between visual impairment and identity. In addition, a better understanding of the relationship between self, blindness, and autobiographical memory can help to understand other cognitive-social processes regarding the self.

1.9 Hypotheses

H1: *Compared to the sighted group, the blind group will have a later onset of the earliest childhood memories in only the earliest memories, not in the most important memories.*

Blind people have low visual input, which reduces visual imagery and alters the way memory is formed (Bates, 2002). In addition, blindness poses a challenge to the process of development of the self (Bigelow, 1995), and delayed self-development can result in the delayed onset of autobiographical memories. It is also strongly influenced by parents' responsiveness, patience, and effort (Fivush, 2011). Thus, the beginning of the earliest childhood memories will be carried over to an earlier age. However, the distribution of the most important memories will not vary between groups, as found before (Sofuoğlu, 2019).

H2: *Characteristics of the earliest childhood memories will differ between groups.*

Visual impairment relates to low visual imagery and high auditory imagery (Eardley & Pring, 2006; Tekcan et al., 2015; Aydın, 2018). In addition, blindness may alter the significance, specificity, integration, and value of memories. I expected that kind of difference because of low/lack of visual input (Bates, 2002), change in narrative/storytelling (Fivush & Nelson, 2004; Reese & Newcombe, 2007), and variance in self-understanding (Bigelow, 1995; Datta, 2014).

H3: *Content of the memories will change depending on memory type.*

The study of Sofuoğlu (2019) showed that while the blind group recalled success-related memories, sighted participants reported relationship-related events more frequently when they are asked for the happiest memories. The content of the memories might change between the earliest and most important memories.

H4: *Narrative length will change between groups.*

Language gives a framework for narratives and the groups might differ in verbal processing so the narrative length might change. However, Sofuoğlu (2019) could not find any difference in the happiest, saddest, and most important memories. I still expect that there may be a difference because the earliest memories might be more prone to language development and verbal processing.

H5: *Centrality of disability will affect the characteristics of blind participants' memories.*

I wondered about the individual differences among the blind participants so the centrality of disability might reflect one side of these differences.

CHAPTER 2

METHOD

2.1 Participants

Two groups of participants were involved in this study: blind and sighted adults. Blind participants were recruited through organizations that worked with visually impaired individuals, as well as through PI's connections from previous studies with blind individuals. Based on previous studies (Sofuoğlu, 2019) and the limited number of participants in the target group, I aimed to have at least 30 participants in each group. I also conducted a prior power analysis with $\alpha = .05$ for t-tests (matched pairs) with effect size $\eta^2 = .12$ (Tekcan et al., 2015; $\eta^2 = .12$, converted to d_z as .74) the minimum sample size was calculated as 26 (G*Power, Version 3.1, Foul, Erdfelder, Bucher, &Lang, 2009). In the study, participation was voluntary, and each participant was given 150 Turkish Liras for participation. This information was openly explained in the informed consent form. I matched the gender, age, and education level of the blind and sighted participants, so I also used the snowball method to recruit the sighted participants. However, one of the sighted participants was dropped out of the study, I found a replacement, leaving 31 blind (16 men, 15 women) and 31 sighted (16 men, 15 women) participants. Therefore, the sample size was 62 in total. The age range of the participants was between 18-50 ($M = 32.55$). Most of the participants were university (45.2%) or high school (43.5%) graduates, while the rest were secondary school (4.8%) or graduate (6.5%). Participants mostly ($n = 46$) lived in metropolitan areas in Turkey.

The official degree of the blindness of the blind participants ranged from 56% to 100%, 23 of them has $\geq 90\%$ disability. 26 participants were congenitally blind, and the remainder ($n = 5$) lost their sight after a critical event (at the age of 3, 6, 10, 12, 21). 27 participants connected through computer whereas 35 ones participated through phone; they completed the study within 2 hours.

2.2 Materials

2.2.1 Memory recall task

The participants were asked about two different memories: the earliest childhood memories they could remember and the memories they found the most important. In the memory recall form, the instruction was written as follows: "Now, we ask you to describe your first childhood memory you could remember (or moment that you find the most important). Memories should be as detailed and specific as possible, not a single image or sound". Participants also indicated the age at each event. For detailed instruction, look at Appendix B.

2.2.2 Autobiographical Memory Questionnaire (AMQ)

In this study, AMQ (Rubin, Schrauf & Greenberg, 2003) was developed to measure the phenomenological features of autobiographical memories. The questionnaire involved statements about phenomenological characteristics: imagery, re-experiencing, vividness, significance, emotional valence, rehearsal, belief. Two image questions (tactile and emotional) were incorporated into the original survey. Items were rated on a 3 or 7-point

Likert scale. After remembering each memory, participants were asked to rate these statements. The whole questionnaire is in (Appendix C).

2.2.3 The Centrality of Event Scale (CES)

CES (Berntsen & Rubin, 2006) evaluates the extent to which events are believed central to life history and identity. In this study, the short version of the original scale (7 items) was used. After remembering each memory, participants were asked to rate seven sentences such as “I feel this event has become a central part of my life story”, “This event has become a reference point for my understanding of new experiences”. Each item is rated out of 5 points (5: Strongly agree, 1: Strongly disagree). The scale is presented in Appendix D.

2.2.4 Vision Loss Question

Blind participants were asked a 4-point Likert-type question about the degree of vision loss for both the present and each memory period. 1: I did not see, 2: I had only one light perception, 3: I could only see the main details such as size and color, 4: I could see many details such as shape, color, movement. A vision loss question for each memory was added to the end of the AMQ scale, and the current vision quality was asked separately, see Appendix E.

2.2.5 The Centrality of Disability Scale (CDS)

The items in CES (Berntsen & Rubin, 2006) were restated and the word “event” was restored with the word “disability” in all statements to assess the significance of the disability for the participants. However, only three questions were used to keep the procedure shorter and eliminate the fatigue effect, see Appendix F.

2.2.6 Visual Versus Verbal Style Of Processing Scale

The Visual Versus Verbal Style Of Processing Scale is a form developed by Richardson (1977) that evaluates individual differences on a verbalizer–visualizer component of cognitive style. The Turkish version of this scale, which was developed in different versions, was used in this study by Akgün et al. (2014). There are 8 items in each of the verbal and visual subscales, and the scale consists of 16 items in total. In the survey, participants rated each statement through 4 options (always true for me, usually true, usually false, always false). To calculate the scale score, the given answers were coded as 4 points for “always true for me”, 3 points for “usually true for me”, 2 points for “usually false for me”, and 1 point for “always false for me”. After that, the scores given to the items in the verbal subscale and the visual subscale were added separately. In this way, the verbal and visual scores of the person completing the scale were determined separately. The dominant style was determined depending on which subscale got a higher score. In the case of equal points, the dominant style could not be determined. It is necessary to analyze these two scores separately for each individual. In other words, a

single total score cannot be obtained from the scale. Which items are related to which subscale was indicated in Appendix G.

2.2.7 Demographic Form

Demographic information such as age, education, and gender level will be collected from all participants. Visually impaired participants were also asked additional questions about their disability history and when they began to describe themselves as disabled, which is indicated in Appendix H.

2.3 Procedure

In this study, a group of consecutive scales was used, and all procedures were in Turkish. All data collection procedures were carried out online; participants completed questionnaires in Qualtrics, individual online interviews (optional audio/video links) were used to provide instructions, and each participant was individually tested. At the beginning of each session, each participant has explained the nature of the task and provided an informed consent form.

Each participant was asked to recall and write in detail their earliest childhood memories and most important memories (one of each). The memory retrieval order was the same for each participant. After each memory retrieval, an Autobiographical Memory Questionnaire (AMQ; Rubin, Schrauf & Greenberg, 2003) was given to assess the phenomenological features of the memories. Participants were then asked to rate

how central the events in memory are to them using the Centrality of Events Scale (CES; Berntsen & Rubin, 2006). Next, only blind participants received consecutive scales that measure the severity of their disability (Visual loss question) and the importance of disability to participants (Centrality of Disability Scale; adapted from Berntsen & Rubin, 2006).

Afterward, all participants continued with the Visual Versus Verbal Style Of Processing Scale (Akgün et al., 2014). Finally, they filled out the demographic form and the post-participation information form was given to them after participation.

Table 1

Flowchart of Procedure

1-Informed-Consent Form
2-Recall the earliest memory
Autobiographical Memory Questionnaire
The centrality of Events Scale
3-Recall the most important memory
Autobiographical Memory Questionnaire
The centrality of Events Scale
4-Vision Loss Question (only Blind participants)
5-The Centrality of Disability Scale (only Blind participants)
6- Visual Versus Verbal Style Of Processing Scale
7-Demographic Form

2.4 Coding

Two blind-raters, who are psychology students at Bogazici University, coded all memories in terms of their specificity, integrity, and event type, and the final category was determined by discussion between them. The events in the memories of visually impaired participants were also classified to determine whether they were directly related to impairment or not.

2.4.1 Specificity

Singer and Blagov's (2000-2001) categorization System and Scoring Manual for Self-Defining Autobiographical Memories was utilized to code the specificity of each memory. As a result, specificity is handled through three distinct categories: specific, episodic, and generic in the case of non-specific memories.

Specific memories comprise one or two linked single events that occurred on the same day or two successive days. Episodic memories comprise a general occurrence event that spreads across time or occurs for an unknown length of time, whereas generic memories are similar or repeating events that contain the same people, locations, incidents, and feelings and continue to reoccur over time.

2.4.2 Integration

The coding integrity of the memories was divided into two categories: integrative and non-integrative, as described in the manual by (Singer & Blagov, 2000-2001).

Integrative memories contain an expression of a personal significance or meaning produced as a result of experiencing the experience, but non-integrative recollections in participants' life stories do not contain such significance or meaning.

2.4.3 Event type

To determine the core event of the memories, the contents of the memories were coded according to the Manual for Coding Events in Self-Defining Memories by (Thorne & McLean, 2001). The guide is divided into seven categories, each of which focuses on a different aspect of the primary memory event. Life-threatening event (death or injury), exploration/recreation (trips, fun activities), relationship (interpersonal relationships), achievement/mastery (goal attainment or failure), guilt/shame (doing right versus wrong), drug/alcohol/tobacco use (memories focusing on such use), an event not classifiable are the categories.

CHAPTER 3

RESULTS

The purpose of this research was to answer two questions: The first was the development of disability identity will impact life-span retrieval of the earliest and the most important ABMs. The second issue was whether and how phenomenological features (e.g., specificity, integration) and narrative characteristics (e.g., importance, imagery) were impacted by blindness.

3.1 Temporal distributions of ABMs

One sighted participant did not report the age at earliest childhood memory. When I compared the mean ages of the earliest and most important memories between blind and sighted participants, two groups did not differ for the earliest ($t(60) = -1.75, p = .24, \eta^2 = .05$) and most important memories ($t(59) = 1.55, p = .13, \eta^2 = .04$). Descriptive values can be examined in Table 2. On the other hand, within groups examination showed that there was a difference for both blind ($t(30) = -8.99, p < .01, \eta^2 = .73$) and sighted group ($t(29) = -8.54, p < .01, \eta^2 = .71$). As expected, the results showed that the childhood memories were recalled from earlier ages than the most important memories. Also, this finding was the same for both blind and sighted participants.

When I excluded the later blinds and compare only congenital blinds with sighted participants, the results did not change. Age at earliest memories did not differ between blinds ($M = 6.71, SD = 2.27$) and sighted ($M = 6.25, SD = 2.20$) participants, $t(54) = .77, p = .44, \eta^2 = .01$. Also, age at the most important memories did not differ between blinds ($M = 16.61, SD = 6.00$) and sighted ($M = 19.50, SD = 8.50$) participants, $t(55) = -1.45, p = .15, \eta^2 = .04$.

Table 2

The Mean and Standard Deviation for Age at The Event

Memory Type	Group	Mean	Standard Deviation
The Earliest Memory	Blind	7.26	.51
	Sighted	6.25	.40
The Most Important Memory	Blind	17.26	1.44
	Sighted	19.50	1.53

When I examined the distribution of the memories; parallel to the reminiscence bump the majority of the most important memories were recalled around the age of twenty whereas the earliest memories have ranged between the age of two to fifteen. Please find the distributions in Figure 1 and Figure 2.

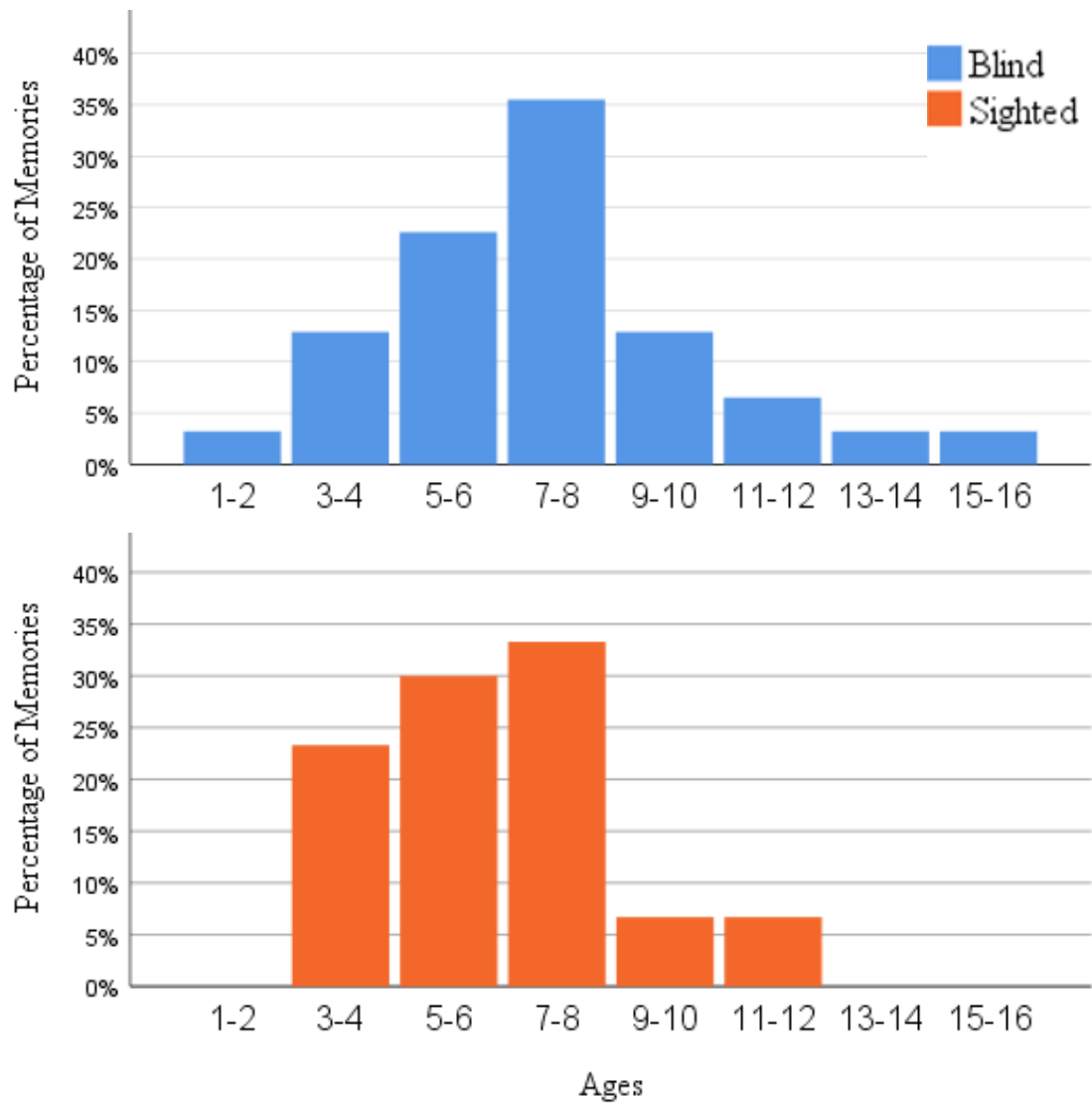


Fig. 1 Temporal distribution of the earliest childhood memories

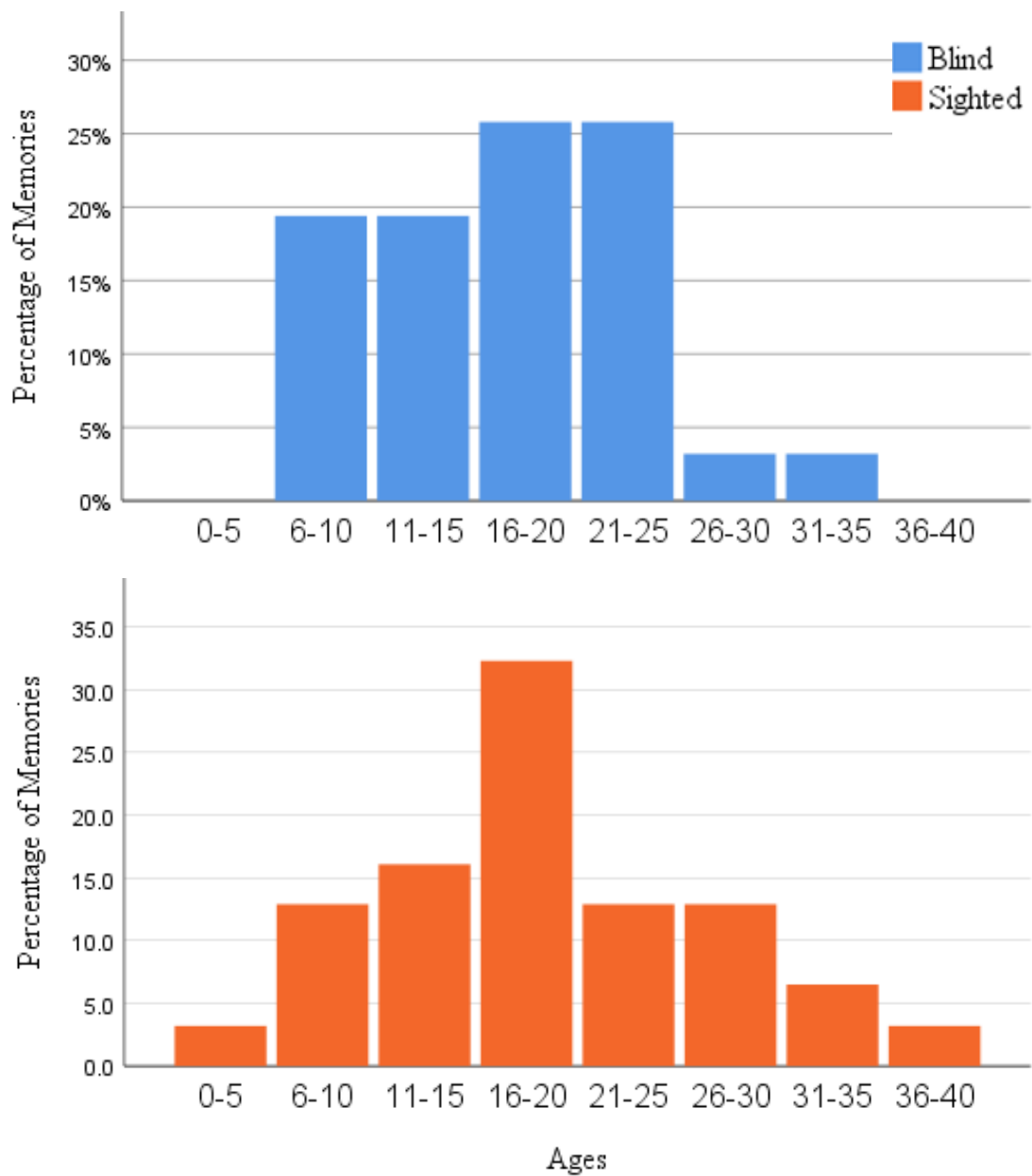


Fig. 2 Temporal distribution of the most important memories

Two separate one-way ANCOVA were conducted to compare the age at event differences while controlling for the age of participants. Levene's test ($F(1,59) = 1.12, p$

= .29) was carried out and the homogeneity assumption met. The normality assumption was met for age at most important memory ($p = .41$) but not for age at earliest memory, but assumed that this assumption was met because it comes from the nature of the earliest memories. Also, the age of participants was correlated with age at the most important event ($r = .40, p < .01$) but not with age at earliest memory ($r = .19, p = .14$). According to ANCOVA results, there was no significant difference in either age at earliest memory ($F(1,58) = 2.29, p = .13$) or age at the most important memory ($F(1,59) = 1.71, p = .20$) after controlling for age of participants.

3.2 Characteristics of ABMs

3.2.1 Specificity and integration

The majority of all the memories were specific; 46/62 of earliest memories and 48/62 of most important memories were specific. To compare blind and sighted groups, the Fisher's Exact Test was used when the number of the observations in one cell was less than 5 for some cells, you can check crosstabulation in Tables 3 and 4.

For the earliest memories, there was not a significant difference between the two groups in terms of integrity, $p = .25$. However, there was a significant difference between the two groups in terms of specificity, $\chi^2 (2) = 6.05, p = .04$. For the most important memories, there was not a significant difference between the two groups in terms of integrity ($\chi^2 (1) = .06, p = .50$) and specificity ($\chi^2 (2) = 1.16, p = .56$).

Table 3

The Crosstabulation of Groups with Memory Integration for Memories

Memory Type	Groups	Integral	Nonintegral
Earliest Memories	Blind	6 (19.35%)	25 (80.65%)
	Sighted	2 (6.45%)	29 (93.45%)
Most Important Memories	Blind	12 (38.71%)	19 (61.29%)
	Sighted	11 (35.48%)	20 (64.52%)

Table 4

The Crosstabulation of Groups with Memory Specificity for Memories

Memory Type	Groups	Specific	Episodic	Generic
Earliest Memories	Blind	19 (61.29%)	9 (29.03%)	3 (9.68%)
	Sighted	27 (87.10%)	2 (6.45%)	2 (6.45%)
Most Important Memories	Blind	25 (80.65%)	6 (19.35%)	0
	Sighted	23 (74.19%)	7 (22.58%)	1 (3.23%)

As the same with the previous analysis, when I reclassified the memory specificity coding as specific and nonspecific, for the earliest memories there was a significant difference ($\chi^2 (1) = 5.39, p = .04$). However, for the most important memories there was not a significant difference ($\chi^2 (1) = .37, p = .72$). You can check crosstabulation in Table 5.

Table 5

The Crosstabulation of Groups with Memory Specificity (reclassified data)

Groups	The Earliest Memories		The Most Important Memories	
	Specific	Nonspecific	Specific	Nonspecific
Blind	19 (61.29%)	12 (38.71%)	25 (80.65%)	6 (19.35%)
Sighted	27 (87.10%)	4 (12.90%)	23 (74.19%)	8 (25.81%)

3.2.2 Content of memories

The content analysis was made on seven event categories which are life-threatening event (LTE), exploration/recreation, relationship, achievement/mastery, guilt/shame, drug/alcohol/ tobacco use, and not classifiable. See the distribution of the memories (N = 124) in Figure 3, Table 6, and Table 7. No participant recalled from the drug/alcohol/Tobacco-related memory. Independent from the memory type, sighted participants recalled mostly exploration-related events whereas blinds shared mostly their achievement-related memories.

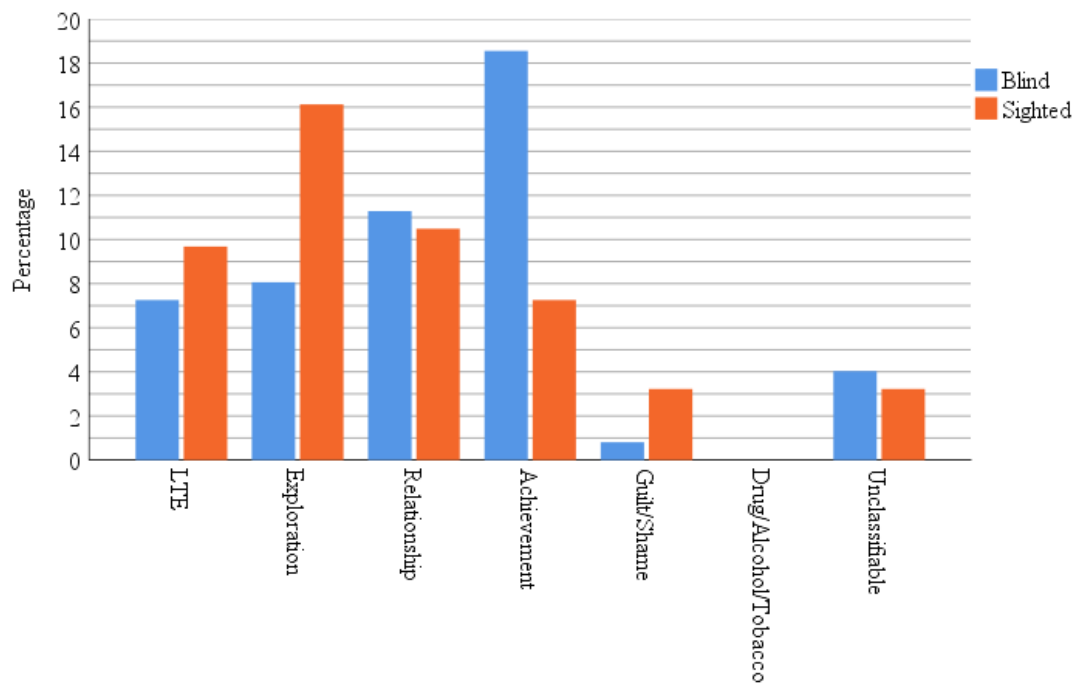


Fig. 3 Distribution of memory content

When we look at each memory type separately, the earliest memory of blind participants was mostly related to exploration and achievement, while sighted participants recalled more about exploration. When we look at the most important

memories, almost half of the blind participants' memories were achievement-related.

While one-third of sighted participants shared mostly exploration-related memories. I

remind you these are only frequency distributions, not statistical test results.

Table 6

The Frequency and Percentage of Content Classification of The Earliest Memories

Content	Blind		Sighted	
	Frequency	Percentage	Frequency	Percentage
LTE	7	22.6	6	19.4
Exploration/recreation	8	25.8	9	29.0
Relationship	6	19.4	7	22.6
Achievement/Mastery	8	25.8	3	9.7
Guilt/Shame	0	0	3	9.7
Drug/Alcohol/Tobacco	0	0	0	0
Unclassified	2	6.5	3	9.7

Table 7.

The Frequency and Percentage of Content Classification of The Most Important Memories

Content	Blind		Sighted	
	Frequency	Percentage	Frequency	Percentage
LTE	2	6.5	6	19.4
Exploration/recreation	2	6.5	11	35.5
Relationship	8	25.8	6	19.4
Achievement/Mastery	15	48.4	6	19.4
Guilt/Shame	1	3.2	1	3.2
Drug/Alcohol/Tobacco	0	0	0	0
Unclassified	3	9.7	1	3.2

Disability content was examined only for the blind group; 14/31 earliest childhood memories and 25/31 of the most important memories were related to the participants' disability. Also, as additional information, most of these childhood memories were related to the entrance to the boarding school for the visually impaired.

3.2.3 Narrative length

There was no difference in narrative length, which is measured by word count, between groups both for childhood memories ($t(60) = -.55, p = .58$) and the most important memories ($t(60) = .38, p = .70$). Please see Table 8.

Table 8

The Mean and Standard Deviation for Narrative Word Count

Memory Type	Group	Mean	Std. Deviation
The Earliest Memory	Blind	108.13	127.57
	Sighted	125.19	117.04
The Most Important Memory	Blind	174.19	250.46
	Sighted	154.87	125.37

Also, I controlled a possible effect of centrality and verbalizer scores on the word count of the narratives. For earliest memories, neither the mean CES scores ($r = .10, p = .44$) nor the VVQ-verbal scores ($r = -.05, p = .69$) correlated with word count. Similarly, for the most important memories, neither mean CES scores ($r = .06, p = .63$) nor the VVQ-verbal scores ($r = -.077, p = .59$) correlated with word count.

Interestingly, there was a correlation between the mean centrality of event scores of the most important memories and VVQ verbal score, $r = .30, p = .02$.

3.3 Phenomenological qualities of ABMs

Phenomenological qualities of the memories were investigated for each memory separately, blind and sighted groups were compared in all AMQ items with the Independent Sample T-test. The groups differed in terms of visual and auditory imagery and CES mean for the earliest memories whereas they differed in terms of only reliving and visual imagery for most important memories, statistics were presented in Table 8.

Table 9
Statistics for group comparisons in AMQ

	The Earliest Memory						The Most Important Memory				
	Group	N	Mean	Std. Dev.	t-value	p-value	N	Mean	Std. Dev.	t-value	p-value
Reliving	Blind	28	5.07	2.32	-1.53	0.13	30	5.83	1.93	-2.12	0.04
	Sighted	31	5.84	1.49			31	6.61	0.67		
Visual imagery	Blind	30	4.50	2.50	-4.15	0.00	30	4.70	2.53	-4.15	0.00
	Sighted	31	6.48	0.89			31	6.65	0.61		
Auditory imagery	Blind	29	4.83	2.27	2.36	0.02	30	5.43	2.22	0.82	0.41
	Sighted	31	3.42	2.35			30	4.97	2.17		
Olfactory imagery	Blind	30	1.80	1.63	-0.43	0.67	30	2.70	2.47	-0.44	0.66
	Sighted	30	2.00	1.93			31	2.97	2.32		
Taste imagery	Blind	30	2.13	2.06	0.20	0.84	30	2.50	2.42	0.53	0.60
	Sighted	31	2.03	1.83			31	2.19	2.07		
Tactile imagery	Blind	30	3.37	2.59	-0.72	0.47	29	4.00	2.66	-0.69	0.49
	Sighted	31	3.84	2.52			28	4.46	2.41		
Emotional imagery	Blind	30	5.27	2.02	-0.43	0.67	30	6.27	1.39	-0.67	0.50
	Sighted	31	5.48	1.93			31	6.48	1.12		
Locational imagery	Blind	30	6.13	1.93	-1.84	0.07	30	6.63	1.30	-0.75	0.46
	Sighted	31	6.81	0.65			29	6.83	0.54		
Spatial imagery	Blind	30	5.30	2.02	-1.65	0.10	30	5.80	1.92	-1.21	0.23
	Sighted	31	6.06	1.57			31	6.29	1.16		
Vividness	Blind	30	5.97	1.73	-1.07	0.29	30	6.77	1.28	0.57	0.57

	Sighted	31	6.35	1.02			31	6.61	0.76		
Valence	Blind	31	4.93	2.29	-1.83	0.07	31	5.20	2.60	-.93	.36
	Sighted	31	5.90	1.83			31	5.77	2.22		
Emotional intensity	Blind	30	4.83	2.21	-1.45	0.15	30	6.17	1.64	-0.40	0.69
	Sighted	31	5.58	1.80			31	6.32	1.42		
Story	Blind	30	5.03	2.09	0.06	0.95	30	6.07	1.53	0.57	0.57
	Sighted	31	5.00	2.11			31	5.84	1.57		
Importance	Blind	29	5.34	2.02	0.57	0.57	30	6.30	1.42	-0.64	0.52
	Sighted	31	5.03	2.21			31	6.52	1.21		
Meaningful	Blind	30	5.23	2.16	2.03	0.05	30	6.03	1.87	-0.63	0.53
	Sighted	31	4.03	2.46			31	6.29	1.27		
Rehearsal	Blind	29	3.83	2.09	1.27	0.21	30	5.13	2.05	0.42	0.68
	Sighted	30	3.17	1.91			31	4.90	2.27		
Talk	Blind	30	4.53	1.94	2.44	0.02	29	5.10	2.32	1.88	0.06
	Sighted	31	3.26	2.13			31	4.06	1.95		
Real/imagine	Blind	30	6.30	1.74	-0.52	0.61	30	6.57	1.28	-0.81	0.42
	Sighted	31	6.48	0.93			31	6.77	0.62		
Hard to remember	Blind	30	1.53	1.25	-0.62	0.54	29	1.69	1.71	1.55	0.13
	Sighted	31	1.74	1.37			31	1.19	0.48		
Representing the self	Blind	30	5.30	2.02	0.91	0.37	30	5.80	1.88	-0.23	0.82
	Sighted	31	4.81	2.21			31	5.90	1.56		
Involuntary remembering	Blind	30	4.23	2.50	0.56	0.58	29	4.72	2.10	0.03	0.98
	Sighted	29	3.90	2.13			31	4.71	2.18		
Hard to remember 2nd item	Blind	30	1.27	0.58	-2.72	0.01	30	1.47	1.20	0.17	0.87
	Sighted	29	2.03	1.43			31	1.42	0.99		
Mean CES	Blind	31	2.79	1.17	2.22	0.03	31	3.72	1.21	-0.10	0.92
	Sighted	31	2.14	1.15			31	3.75	1.19		

3.4 Self and ABMs

Participants were asked when they started to perceive themselves as an individual and specified ages were compared between groups, blind participants reported earlier age ($M = 13.77$, $SD = 5.08$) than sighted participants ($M = 16.21$, $SD = 5.08$) but this was not a significant difference $t(59) = -1.88$, $p = .06$, $\eta^2 = .06$. Also, there was any significant

correlation between perceived blindness age with age at earliest memories ($r = .13, p = .33$) and most important memories ($r = .16, p = .21$).

Moreover, blind participants were asked when they started to perceive themselves as a disabled individual and specify the age. This reported age ($M = 12.20, SD = 5.18$) was not correlated with the age at the earliest memory ($r = .14, p = .46$), the age at the most important memory ($r = -.06, p = .75$), and the mean of centrality of disability scores ($r = .32, p = .08$). On the other hand, the age at earliest event was negatively correlated with first item ($r = -.59, p < .01$), second item ($r = -.35, p = .05$) and the mean of centrality of disability scores ($r = -.36, p = .048$) but not correlated with the third item ($r = .00, p = .98$). Moreover, blind participants' reported age for perceived individuality ($M = 13.77, SD = 5.08$) and disability ($M = 12.20, SD = 5.18$) did not differ, $t(29) = 1.51, p = .14$.

Finally, I checked the mean ages for each category of memory specificity. The statistical comparison was not meaningful because of the low frequency in episodic and generic memories but the crosstabulation (Table 10) showed that blind participants recalled specific memories from earlier ages, and they perceived themselves as disabled earlier than perceiving themselves as an individual.

Table 10

The Crosstabulation of Perceived Ages with Memory Type and Specificity

Blind	Earliest Memory			Most Important Memory		
	Specific	Episodic	Generic	Specific	Episodic	Generic
Mean age for perceived themselves as an individual	14.3 (n = 19)	13.0 (n = 9)	13.0 (n = 3)	14.0 (n = 25)	12.7 (n = 6)	0
Mean age for perceived themselves as a disabled	12 (n = 19)	14 (n = 9)	8 (n = 3)	12 (n = 25)	14 (n = 6)	0
Sighted	Earliest Memory			Most Important Memory		
	Specific	Episodic	Generic	Specific	Episodic	Generic
Mean age for perceived themselves as an individual	16.5 (n = 27)	15.3 (n = 2)	12.8 (n = 2)	16.4 (n = 23)	15.3 (n = 7)	19.0 (n = 1)

CHAPTER 4

DISCUSSION

The primary goal of this study was to investigate the impact of visual disability on the temporal distribution of ABMs, as well as whether and how phenomenological features (e.g., specificity, integration) and narrative characteristics (e.g., importance, imagery) were impacted by blindness. To my knowledge, this is the first study to examine the intersection of blindness, self, and autobiographical memory.

4.1 Temporal distribution of memories

The study showed that the blind and sighted groups did not differ in age at the event for both the earliest and the most important memory, in other words, the memories of the two groups were similar regardless of the age at which they recalled the memories. Similarly, Sofuoğlu (2019) had found that both groups had similar age at event distributions for their most important and saddest memories. Parallel to the reminiscence bump (e.g., Conway, 2005; Habermas & Bluck, 2000), the majority of the most important memories were recalled around the age of twenty and because of the childhood amnesia, the earliest memories have ranged between the age of two to fifteen. Also, Sofuoğlu (2019) found that visually disabled participants reported most of their happiest memories from an earlier decade (20-29) whereas sighted participants recalled from the age 30-39.

Disability identity development can be regarded as a transitional event recognized as a marker by impaired persons to remember events that occurred at the time of disability identity formation, according to the findings of (Uzer & Brown, 2015). Furthermore, based on the findings (Rathbone, Moulin, & Conway; 2008), it can be concluded that times of identity formation are critical for the formation of reminiscence bumps for the most important memories, and that the majority of important memories are recalled years after disability identity formation rather than before.

4.2 Characteristics of memories

In this study, I investigated several characteristics of childhood memories and the most important memories. Firstly, I compared specificity and integration of the memories. The majority of all the memories were specific (75.8%); 46/62 of earliest memories and 48/62 of most important memories were specific. Also, the majority of all the memories were non-integrative (75%). The frequency of specific and non-integrative memories is parallel with the previous studies (e.g. Singer & Blagov, 2000, Sofuoğlu, 2019). Additionally, this study showed that only earliest memories of sighted participants is more specific than those of blinds and there is no significant group difference in integration.

One might argue that the non-significant results in specificity contradicted the conclusions of Eardley and Pring's study (2006). They demonstrated that sighted people remembered more specific autobiographical memories than blind people by using the cue-word method. However, rare study has been done on the specificity of personally significant memories of the blinds. When blind persons are asked to recall their most

important experiences, they tend to report more specific experiences. In this study, most important memories (80.65%) were more specific than the earliest memories (61.29%) of the blind participants. For detailed comparison see Table 4.

A key finding was that the recall of autobiographical memories by visually impaired participants was accompanied by increased auditory imagery when it is compared to sighted participants. This finding is also consistent with previous studies (e.g., Tekcan et al., 2015; Sofuoğlu 2019). However, in this study there was no significant group difference in auditory imagery for the most important memories. Why I could not detect this well-known difference might be because of the sample characteristics, such as education.

In terms of phenomenology, there was also compensatory evidence in which blind individuals reported higher narrative and auditory imagery scores during retrieval. Although there is distinct evidence at the behavioral and neurological levels of the recruitment of compensatory processes and brain reorganization in response to congenital/early blindness, (e.g., Sadato, Okada, Honda, & Yonekura, 2002), current findings indicate that such compensation may not be fully helpful regarding autobiographical memory processes. It is essential to note that the lack of visual input may be a supporting factor to the observed impact on one of several memory processes (e.g., encoding, retrieval). However, asking participants for their earliest or most important memories relies on the retrieval process and we could not differentiate whether any difference comes from the encoding process or not; maybe the whole difference or compensation is found in the encoding process.

Also, we can question how early blind individuals form a representation of the initial experience in their minds. This claim does not mean that visual images necessarily represent pictorial images. Indeed, the difference between sighted and blind participants may not be the final product (i.e., the subjective experience of seeing) but the bottom process. One possible answer is that mental imagery in visually impaired individuals is analogical (e.g., Zimler & Keenan, 1983).

The content of each memory type was another key feature that was examined between the visually impaired and the sighted groups. Independent from the memory type, sighted participants recalled mostly exploration-related events whereas blinds shared mostly their achievement-related memories. When we looked at each memory type independently, we found that blind individuals' earliest memories were primarily about exploration and achievement, whereas sighted people remembered more about exploration. When we looked at the most important memories, we found that over half of the blind individuals' memories were related to their achievements. While the memories of one-third of the sighted individuals were primarily about exploration. In Sofuoğlu's study (2019), the visually disabled participants had a strong tendency to recall achievement related events, whereas the sighted group were more likely to report relationship related events.

One of the most difficult difficulties experienced by handicapped individuals is feeling lonely and socially isolated, particularly among non-disabled peers (Mpofu, 2003; Zambo, 2010). Most handicapped individuals of all ages must rely on accomplishment-related methods such as academic or professional achievement, talents of any sort, or blind-related ability to feel more accepted by others, particularly their

peers (Yılmaz, 2015). For blinds, achievement-related events may be easier to recall because achievement appears to be one of the most effective ways for individuals to feel accepted. Additionally, disability content was reviewed only for the blind group; 14/31 of the earliest childhood memories and 25/31 of the most significant memories were connected to the participants' disability. In the memories of the blind, there were some references to disability, such as a school for the blind, first day in boarding school, positive or negative effects of being disabled. In line with the findings of Uzer & Brown (2015) and Rathbone, Moulin & Conway (2008), it can be deduced that disability is a fundamental element of the identity and life history of individuals with disabilities.

4.3 Limitations

There are two potential limitations. Sample size and restricted sample are not completely sufficient to examine the effect data that were collected from only visually disabled individuals. Furthermore, more inclusive results could have been achieved if participants from other types of disabilities were also provided. These results should be evaluated by considering the demographic information of the participants (e.g., education, mostly lived city, age).

4.4 Conclusions

For autobiographical memory literature, the current study provides a fresh viewpoint on disability in terms of individual differences. This is the research to recognize disability, which is seen as a disadvantageous feature by most people, is as an

individual difference rather than a common unpleasant experience. In conclusion, this study showed some differences between the sighted and visually impaired participants in terms of the retrieval and phenomenology of autobiographical memories and a noteworthy similarity in how these variables are affected by blindness. For future directions, the disability perception of the participants can be measured more comprehensively, and an early-late blind comparison can be made. For late blinds, memories can be asked before and after the disability, and the temporal distribution characteristics of these memories may be explored.

APPENDIX A

CONSENT FORM

Arařtırmayı destekleyen kurum: Boğaziçi Üniversitesi Psikoloji Bölümü (*Institution supporting the research: Boğaziçi University Department of Psychology*)

Arařtırmanın adı: Yetiřkinlerde Görme Bozukluęu ve Otobiyografik Anıların Özellikleri Arasındaki İliřki (*Name of the Study: The Relationship Between Visual Impairment and Characteristics of Autobiographical Memories in Young Adults*)

Proje Yürütücüsü (Project Coordinator): Ali İ. Tekcan

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Arařtırmacı (Researcher): Rabia Koç Demircan

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Deęerli katılımcı (*Dear participant*),

Bu çalıřma, online yürütülecek olup, kiřilerin kendi hayatlarıyla alakalı bazı olaylara olan yaklařımlarını incelemektedir. Çalıřma kapsamında, geçmiřte yařadığınız bazı olayları hatırlamanızı ve bu olaylarla ilgili çeřitli soruları cevaplandırmanızı isteyeceęiz. Çalıřmanın bir sonraki adımında, sizlerden kiřisel ve demografik bazı soruları yanıtlamanız beklenecektir. Çalıřmanın amacına ulařabilmesi için, soruların mümkün olduęunca dikkatli bir řekilde cevaplanması önem tařımaktadır. Çalıřma, yaklařık 120

dakika sürecektir. *(This study will be conducted online and examines people's approaches to some events related to their own lives. Within the scope of the study, we will ask you to remember some events you have experienced in the past and to answer various questions about these events. In the next step of the study, you will be expected to answer some personal and demographic questions. To achieve the purpose of the study, it is important to answer the questions as carefully as possible. The study will take approximately 120 minutes.)*

Bu çalışma süresince toplanan veriler, bir bütün olarak değerlendirilecektir. Sonuçlar, kişisel bilgileriniz ile eşleştirilmeyecek ve hiçbir kişisel değerlendirme yapılmayacaktır. Araştırmanın herhangi bir aşamasında bir sebep göstermeksizin devam etmeme hakkında sahipsiniz; ancak böyle bir durumda lütfen araştırmacıyı bilgilendiriniz. Çalışmadan ayrılmak istemeniz durumunda, araştırmacıda bulunan bilgileriniz imha edilecektir. *(The data collected during this study will be evaluated as a whole. The results will not be matched with your personal information and no personal evaluation will be made. You have the right to withdraw at any stage of the research without giving a reason; however, in such a case, please inform the researcher. If you want to leave the study, your information at the researcher will be destroyed.)*

Bu çalışmaya katılımınız sebebiyle tarafınıza 150 TL ödeme yapılacaktır. *(You will be paid 150 TL for your participation in this study.)*

Herhangi bir sorunuz olduđunda arařtırmacıyla (rabia.koc@boun.edu.tr) iletiřime geebilirsiniz. Ayrıca, bu alıřma ile ilgili olası Őikayetlerinizi Bođazii Üniversitesi Sosyal ve Beřeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na (sbe-ethics@boun.edu.tr) yönlendirebilirsiniz. *If you have any questions, you can contact the researcher (rabia.koc@boun.edu.tr). In addition, you can direct your possible complaints about this study to The Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (sbe-ethics@boun.edu.tr)*

Eđer bu deneyde yer almayı kabul ediyorsanız lütfen ařađıdaki bölüme adınızı ve soyadınızı yazın ve ilgili alanı iřaretleyin. *(If you agree to take part in this research, please write your name and surname in the section below and tick the relevant field.)*

Bana anlatılanları ve yukarıda yazılanları anladım. alıřmaya katılmayı kabul ediyorum. *(I understood what was told to me and what was written above. I agree to participate in the study.)*

Katılımcının Adı-Soyadı: *(Name&Surname of the Participant)*

İmzası/ elektronik onayı *(Signature/electronic confirmation):*

Tarih *(Date):*

APPENDIX B

MEMORY RECALL FORM

Değerli katılımcı, bu çalışma otobiyografik anıların hatırlanma süreçlerine ilişkindir. İleriki sayfalarda sizden, iki anınızı hatırlamanız istenecektir. Lütfen ilgili yönergeleri dikkatlice okuyunuz, yazdığınız anıların belirgin olmasına dikkat ediniz. Bir anının belirgin nitelikte olması demek, anlatılan olayın belli bir yerde ve zamanda gerçekleşmiş ve süresinin bir tam günü (24 saati) aşmamış/aşmayacak bir olay olması anlamına gelmektedir. Lütfen her bir anınızı mümkün olduğunca detaylı olarak yazınız. Her bir anınızı yazmayı bitirdikten sonra, bu anıyla ilgili bazı soruları yanıtlamanız istenecek ve sonrasında ikinci anınızı yazmanız istenecektir. Tüm cevaplarınız gizli tutulacaktır. Dikkatiniz ve zaman ayırdığınız için teşekkür ederiz.

(Dear participant, this study is about the recall processes of autobiographical memories. On the following pages, you will be asked to recall two memories. Please read the relevant instructions carefully, make sure that the memories you write are clear. The distinctive nature of a memory means that the narrated event is an event that took place in a certain place and time, and its duration did not/will not exceed one full day (24 hours). Please write down each of your moments in as much detail as possible. After you have finished writing each of your memories, you will be asked to answer some questions about that memory, and then you will be asked to write your second memory. All your answers will be kept confidential. Thank you for your attention and time.)

Şimdi sizlerden, **hatırlayabildiğiniz ilk çocukluk anınızı** detaylı bir şekilde anlatmanızı istiyoruz. Anılar olabildiğince çok detaylı ve spesifik olmalıdır, tek bir görüntü ya da ses sayılmayacaktır.

Bu anıyı yaşadığınızda yaşıınız: __

(Now we would like you to describe in detail your first childhood memory that you can remember. Memories should be as detailed and specific as possible, not a single image or sound.

Your age when you had this memory: __)

Şimdi sizlerden, **en önemli** olduğunu düşündüğünüz anınızı detaylı bir şekilde anlatmanızı istiyoruz. Burada, anınızı mümkün olduğunca ayrıntılı yazmanız araştırmamız için çok önemlidir.

Bu anıyı yaşadığınızda yaşıınız: __

(Now we ask you to describe in detail the memory you consider as most important.

Here, it is crucial for our research that you write about your memory in as much detail as possible.

Your age when you had this memory: __)

APPENDIX C

AUTOBIOGRAPHICAL MEMORY QUESTIONNAIRE

Sizlerden hayatınızın en eski (en önemli) olayı olarak değerlendirdiğiniz bir anıyı ayrıntılı bir şekilde yazmanızı istemiştik. Bu anı net bir biçimde hatırladığınız, belli bir zaman içerisinde gerçekleşmiş, başı ve sonu belli olan olaylara dair olmalıdır. Şimdi bu anı için aşağıdaki soruları yanıtlayınız.

(We asked you to write down a memory that you consider the oldest (most important) event of your life in detail. This moment should be about events that you remember clearly, that took place in a certain time, and that have a clear beginning and end. Now answer the following questions for this moment.)

1. Olayı hatırladığımda, olayı yeniden yaşıyormuş gibi hissediyorum. *(When I remember the event, I feel like I'm reliving the event.)*

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

(Never 1 2 3 4 5 6 7 As if the event is happening right now)

2. Olayı hatırladığımda zihnimde görüntüler canlanıyor. *(When I remember the event, images comes in my mind.)*

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

(Never 1 2 3 4 5 6 7 As if the event is happening right now)

3. Olayı hatırladığımda zihnimde sesler canlanıyor. (*When I remember the event, voices comes in my mind.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

(*Never 1 2 3 4 5 6 7 As if the event is happening right now*)

4. Olayı hatırladığımda zihnimde kokular canlanıyor. (*When I remember the event, the smells comes in my mind.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

(*Never 1 2 3 4 5 6 7 As if the event is happening right now*)

5. Olayı hatırladığımda zihnimde tatlar canlanıyor. (*When I remember the event, the flavors comes in my mind.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

(*Never 1 2 3 4 5 6 7 As if the event is happening right now*)

6. Olayı hatırladığımda zihnimde dokunma hissi canlanıyor. (*When I remember the event, the feeling of touch comes in my mind.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

Never 1 2 3 4 5 6 7 As if the event is happening right now

7. Olayı hatırladığımda o zaman hissettiğim duyguları şimdi de hissedebiliyorum. (*When I remember the event, I can still feel the emotions I felt then.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

Never 1 2 3 4 5 6 7 As if the event is happening right now

8. Olayı hatırladığımda olayın geçtiği mekanın neresi olduğunu hatırlayabiliyorum.
(*When I remember the event, I can remember where the event took place.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

Never 1 2 3 4 5 6 7 As if the event is happening right now

9. Olayı hatırladığımda olayın geçtiği mekanda kimin/neyin nerede durduğunu hatırlayabiliyorum. (*When I remember the event, I can remember who/what stood where in the place where the event took place.*)

Hiç 1 2 3 4 5 6 7 Olay şu anda oluyormuş gibi

Never 1 2 3 4 5 6 7 As if the event is happening right now

10. Bu anı, canlı bir anıdır. (*This is a vivid memory.*)

Hiç 1 2 3 4 5 6 7 Son derece canlı

Not at all 1 2 3 4 5 6 7 Extremely lively

11. Bu olayı hatırladığımda hissettiğim duygular (*Emotions I feel when I remember this event*)

Son derece olumsuz -3 -2 -1 0 +1 +2 +3 Son derece olumlu

Extremely negative -3 -2 -1 0 +1 +2 +3 Extremely positive

12. Bu anıyı hatırladığımda yoğun duygular hissediyorum. (*I feel intense emotions when I recall this memory.*)

Hiç 1 2 3 4 5 6 7 Son derece yoğun

Not at all 1 2 3 4 5 6 7 Extremely intense

13. Bazı anılarımızı hatırladığımızda olayı doğrudan kendi perspektifimizden zihnimize canlandırırken, bazı anılarımızı kendimizi de dışarıdan görebilecek şekilde gözlemci perspektifinden canlandırırız. Bu olaya dair anınız zihninizde hangi perspektiften canlanıyor?

1 Kendi perspektifimden 2 Gözlemci gibi 3 Her ikisi de

13. When we remember some of our memories, we visualize the event directly from our own perspective, while we visualize some of our memories from the perspective of the observer so that we can see ourselves from the outside. From what perspective does your memory of this event come to life in your mind?

1 From my own perspective 2 As an observer 3 Both

14. Olayı yalnızca bir durum, gözlem ya da sahne olarak değil, kelimeler veya resimler halinde akan bütün bir hikaye şeklinde hatırlıyorum.

Hiç 1 2 3 4 5 6 7 Tamamen

14. I remember the event not just as a situation, observation, or scene, but as a whole story flowing in words or pictures.

Not at all 1 2 3 4 5 6 7 Totally

15. Bu anı, hayatımda önemli bir yere sahiptir.

Hiç 1 2 3 4 5 6 7 Son derece önemli

15. This memory has an important place in my life.

Not at all 1 2 3 4 5 6 7 Extremely important

16. Bu anı önemli bir mesaj içermesi, hayatımda kritik bir dönüm noktasını temsil etmesi nedeniyle benim için anlamlıdır.

Hiç 1 2 3 4 5 6 7 Tamamen

16. This moment is meaningful to me as it contains an important message and represents a critical turning point in my life.

Not at all 1 2 3 4 5 6 7 Totally

17. Bu olay gerçekleştiğinden beri olay hakkında düşündüm.

Hiç 1 2 3 4 5 6 7 Çok sık

17. I've been thinking about this event ever since it happened.

Never 1 2 3 4 5 6 7 Very often

18. Bu olay gerçekleştiğinden beri, olay hakkında konuştum.

Hiç 1 2 3 4 5 6 7 Çok sık

18. *Ever since this event happened, I've talked about it.*

Never 1 2 3 4 5 6 7 Very often

19. Bu olayın gerçekten hatırladığım şekliyle gerçekleştiğine inanıyorum.

Hiç 1 2 3 4 5 6 7 Tamamen

19. *I believe this event actually happened as I remember it.*

Not at all 1 2 3 4 5 6 7 Totally

20. Hatırladığımız anı belli bir yer ve zamanda bir kez gerçekleşmiş bir olaya mı, birçok defa yaşanmış benzer olayların bir özeti veya birleşmiş haline mi, yoksa bir günden fazla bir süreye yayılmış, aralarında bir süreklilik bulunan olaylara mı aittir?

1 Tek olay 2 Birleşmiş 3 Yayılmış

20. *Does the memory you remember belong to an event that happened once in a certain place and time, a summary or combination of similar events that have happened many times, or events that spanned more than one day and have a continuity between them?*

1 Single event 2 Combined 3 Spread

21. Bu anıyı hatırlayabilmeniz sizin için ne kadar zor oldu?

Hiç zor olmadı 1 2 3 4 5 6 7 Son derece zor oldu

21. *How difficult was it for you to recall this memory?*

It was not difficult at all 1 2 3 4 5 6 7 It was extremely difficult

22. *Bu anı sizi ne ölçüde temsil ediyor?*

Hiç 1 2 3 4 5 6 7 Tamamen

22. *To what extent does this moment represent you?*

Not at all 1 2 3 4 5 6 7 Totally

23. *Bu olay, siz onu hatırlamaya çalışmadığınız halde, aniden ve istemsizce zihninizde belirdi mi?*

Hiç 1 2 3 4 5 6 7 Çok sık

23. *Did this event suddenly and involuntarily appear in your mind even though you were not trying to remember it?*

Never 1 2 3 4 5 6 7 Very often

24. *Bu anıyı hatırlamak...*

Çok kolaydı 1 2 3 4 5 6 7 Çok zordu

24. *Remembering this memory...*

It was very easy 1 2 3 4 5 6 7 It was very difficult

25. Lütfen hatırladığınız anıyı yaşadığınız zamanki görme düzeyinize en çok uyan ifadeyi seçiniz. (*Please choose the expression that best fits your level of vision when you experienced the memory you remember.*)

1. Hiç görmüyordum. (*I never saw it.*)

2. Sadece ışığı ve cisimlerin karartısını görebiliyordum. (*I could only see the light and the darkness of things.*)

3. Cisimlerin çok genel detaylarını (renk, büyüklük küçüklük) ayırt edebilecek kadar görebiliyordum. (*I could see enough to distinguish very general details (color, size, smallness) of objects.*)

4. Renklerle birlikte cisimlerdeki birçok detayı da ayırt edebilecek kadar görebiliyordum. (*I could see enough to distinguish many details in objects along with colors.*)

APPENDIX D

CENTRALITY OF EVENT SCALE

Aşağıdaki 7 soruyu, 1 ile 5 arasında size en uygun gelen rakamı işaretleyerek cevaplayınız. (*Please answer the following 7 questions by circling a number which is suitable for you from 1 to 5.*)

1. Bu olayın kimliğimin bir parçası haline geldiğini hissediyorum. (*I feel that this event has become part of my identity.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

2. Bu olay, kendimi ve dünyayı anlamamda bir referans noktası haline geldi. (*This event has become a reference point for the way I understand myself and the world.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

3. Bu olayın hayat hikayemin merkezi bir parçası haline geldiğini hissediyorum. (*I feel that this event has become a central part of my life story.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

4. Bu olay, diđer deneyimlerimle ilgili duygu ve dűşüncelerimi etkiledi. (*This event has colored the way I think and feel about other experiences.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

5. Bu olay, hayatımı kalıcı bir biçimde deđiřtirdi. (*This event permanently changed my life.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

6. Sık sık bu olayın geleceđim üzerindeki etkileri hakkında dűřünürüm. (*I often think about the effects this event will have on my future.*)

(*Totally disagree*) katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

7. Bu olay, hayatımda bir dönüm noktası oldu. (*This event was a turning point in my life.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

APPENDIX E

VISION LOSS QUESTION

Lütfen **şuandaki** görme düzeyinize en çok uyan ifadeyi seçiniz. (*Please select the expression that best fits your current level of vision.*)

1. Hiç görmüyorum. (*I never see it*)
2. Sadece ışığı ve cisimlerin karartısını görebiliyorum. (*I can only see the light and the darkness of objects.*)
3. Cisimlerin çok genel detaylarını (renk, büyüklük küçüklük) ayırt edebilecek kadar görebiliyorum. (*I can see enough to distinguish very general details (color, size, smallness) of objects.*)
4. Renklerle birlikte cisimlerdeki birçok detayı da ayırt edebilecek kadar görebiliyorum. (*I can see enough to distinguish many details in objects along with colors.*)

APPENDIX F

CENTRALITY OF DISABILITY SCALE

Aşağıdaki soruları, 1 ile 5 arasında size en uygun gelen rakamı işaretleyerek cevaplayınız.

1. Engelli bir birey oluşumun kimliğimin bir parçası haline geldiğini hissediyorum. (*I feel that my disability has become a part of my identity.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

2. Engelli oluşumun hayat hikayemin merkezi bir parçası haline geldiğini hissediyorum. (*I feel that my disability has become a central part of my life story.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

3. Engelli oluşum, hayatımı kalıcı bir biçimde değiştirdi. (*My disability permanently changed my life.*)

(*Totally disagree*) Hiç katılmıyorum 1 2 3 4 5 Tamamen katılıyorum (*Totally agree*)

APPENDIX G

VISUAL VERSUS VERBAL STYLE OF PROCESSING SCALE

(SÖZEL VEYA GÖRSEL BASKIN ÖĞRENME STİLİNİ BELİRLEME ÖLÇEĞİ)

Lütfen size en uygun olan seçeneği işaretleyiniz. (*Please tick the option that best suits you.*)

	Benim için her zaman doğru (<i>Always true for me</i>)	Benim için genellikle doğru (<i>Generally true for me</i>)	Benim için genellikle yanlış (<i>Generally false for me</i>)	Benim için her zaman yanlış (<i>Always false for me</i>)
1. Sözcükleri kullanmamı gerektiren işleri yapmaktan zevk alırım. (Sözel) <i>(I enjoy doing tasks that require to use words.</i> <i>(Verbal)</i>				
2. Yaşantımdaki bazı özel anlarımda gördüklerimi zihnimde resmederek rahatlamaktan keyif alırım. (Görsel) <i>(I enjoy relaxing by picturing what I see in my mind at some special moments in my life.</i> <i>(Visual)</i>				
3. Çok okuyan birisiyim. (Sözel)				

<i>(I am someone who reads a lot. (Verbal)</i>				
4. Yeni bir şey öğrenmeye çalışırken görsel bir anlatımı izlemeyi, nasıl yapacağımı anlatan yazıyı okumaya tercih ederim. (Görsel) <i>(While trying to learn something new, I prefer watching a visual explanation or reading an article about how to do it. (Visual)</i>				
5. Sözcükleri çoğunlukla yanlış bir şekilde kullandığımı düşünüyorum. (Sözel) <i>(I think I often use words incorrectly.) (Verbal)</i>				
6. Yeni kelimeler öğrenmekten zevk alırım. (Sözel) <i>(I enjoy learning new words.) (Verbal)</i>				
7. Odama ya da evime yeni bir şey alacak olsaydım, bunları nereye koyacağımı kafamda canlandırmaktan hoşlanırdım. (Görsel) <i>If I were to buy something new for my room or home, I would like to picture where to put them. (Visual)</i>				
8. Çoğunlukla kendime yazılı notlar hazırlarım. (Sözel)				

<p><i>Mostly I prepare written notes to myself.</i></p> <p>(Verbal)</p>				
<p>9. Hayal kurmayı severim. (Görsel)</p> <p><i>I like to dream. (Visual)</i></p>				
<p>10. Genellikle yazılı bir yönerge yerine görsel bir diyagramı kullanmayı tercih ederim. (Görsel)</p> <p><i>I usually prefer to use a visual diagram rather than a written instruction. (Visual)</i></p>				
<p>11. Birçok şeyi yaparken zihnimde resimler oluşturarak düşünmek bana yardımcı olur. (Görsel)</p> <p><i>While doing many things, it helps me to think by creating pictures in my mind. (Visual)</i></p>				
<p>12. Kelimelerin eş anlamlılarını düşünmeyi severim. (sözel)</p> <p><i>I like to think of synonyms for words. (verbal)</i></p>				
<p>13. Bir şeyi unuttuğumda onu hatırlamak için zihnimde bir resmini oluşturmaya çalışırım. (Görsel)</p> <p><i>When I forget something, I try to create a picture of it in my mind to remember it. (Visual)</i></p>				
<p>14. Yeni kelimeler öğrenmeyi seviyorum. (sözel)</p>				

<i>I like learning new words. (verbal)</i>				
15. Kelime bilgimi (dağarcığı) arttırmak için çok az zaman harcarım. (Sözel) <i>I spend very little time increasing my vocabulary. (Verbal)</i>				
16. Düşünürken çoğunlukla aklıma resimler veya görüntüler gelir. (Görsel) <i>When I think, I often think of pictures and images. (Visual)</i>				

APPENDIX H

DEMOGRAPHIC FORM

Aşağıda, sizinle alakalı bazı sorular soruyoruz. Lütfen bu soruları eksiksiz cevaplandırınız. (*Below we ask some questions about you. Please answer these questions completely.*)

1. Cinsiyetini (*Gender*):

2. Yaşınız (*Age*):

3. En son mezun olduğunuz okul: (*Last school you graduated from*)

* Hiç okula gitmedim (*I have never gone to school*)

*Okur/yazarım (*I am literate*)

*İlkokul (*Primary school*)

*Ortaokul (*Secondary school*)

*Lise (*High school*)

*Üniversite (*University*)

*Master/doktora (*Graduate school*)

4. Bugüne kadar gittiğiniz okullar (*Schools you have attended*)

Okul adı (*school name*) yatılı/yatılı değil (*boarding or not*) başlama yaşınız (*age at entrance*)

1-

2-

3-

4-

4b. Bir önceki soruyu düzgün görüntüleyemediniz ise lütfen bu soruyu yanıtlayınız.

Bugüne kadar gittiğiniz okulları okul adı- okul türü (yatılı/yatılı değil)- bu okula başma yaşınız şeklinde belirtiniz.

(If you could not view the previous question properly, please answer this question.

Indicate the schools you have attended so far as the name of the school - the type of school (boarding / not boarding) - the age at which you started this school.)

5. Yaşamınızın büyük çoğunluğu aşağıdakilerden hangisinde geçti? *(Which of the following have you spent most of your life in?)*

*Metropol/büyükşehir.... (Metropolis city)

*Küçük şehir (small city)

*Kasaba (town)

*Köy (village)

6. Kiminle yaşıyorsunuz? *(Who do you live with?)*

*Ebeveynlerim ve (varsa) kardeşlerim (parents and/or siblings)

*Eşim ve (varsa) çocuklarım (husband/wife and or kids)

*Arkadaşlarım (friends)

*Yalnız (alone)

7. Çalışıyor musunuz? Çalışıyorsanız kaç senedir çalışıyorsunuz? (*Do you work? If yes, for how many years?*)

8. Göz, kulak gibi duyu organlarınızda ya da kol, bacak gibi fiziksel uzuvlarınızda herhangi bir duyu ya da fonksiyon kaybı var mı? Varsa oluşum sürecini ve şu anki durumunuzu kısaca anlatınız. (*Do you have any loss of sensation or function in your sense organs such as eyes and ears, or physical limbs such as arms and legs? If yes, briefly describe the formation process and your current situation.*)

9. Bu duyu ya da fiziksel durumunuzla alakalı herhangi bir sağlık raporunuz var mı? Varsa kaybınız yüzde kaç olarak belirtiliyor? (*Do you have any health reports regarding this sense or physical condition? If yes, what percentage of your loss is stated?*)

10. Aile bireylerinizin herhangi birinde göz, kulak gibi duyu organlarında ya da kol, bacak gibi fiziksel uzuvlarında herhangi bir duyu ya da fonksiyon kaybı var mı? Birden fazla kişide varsa lütfen her biriyle yakınlığınızı ve engelini belirtiniz (örn. Anne-sağır/işitme engeli var). (*Do any of your family members have any loss of sense or function in sensory organs such as eyes and ears or in physical limbs such as arms and legs? If there is more than one person, please indicate your affinity and disability with each of them (eg mother-deaf/hearing-impaired).*)

11. Kendinizi ne zaman bir birey olarak görmeye başladınız, yaş belirtiniz: _____ (*When did you start to perceive yourself as an individual, please specify age*)

12. Kendinizi ne zaman engelli kimliğine sahip bir birey olarak görmeye başladınız, yaş belirtiniz: _____ (*When did you start to perceive yourself as a disabled person, please indicate your age.*)

APPENDIX I

POST-PARTICIPATION INFORMATION FORM

Değerli Katılımcı (*Dear Participant*),

Boğaziçi Üniversitesi Psikoloji Bölümü'nde gerçekleştirilen bu araştırmaya katıldığınız için teşekkür ederiz. Bu çalışma erişkinlerde görme bozukluğu ile otobiyografik anıların özellikleri arasındaki ilişkiye odaklanmaktadır. Çalışmadaki temel amacımız görme yetisi ve kimlik oluşumunun anılar üzerinde nasıl bir etkisi olduğunu ölçmektir. (*Thank you for participating in this research conducted at Boğaziçi University, Department of Psychology. This study focuses on the relationship between visual impairment and features of autobiographical memories in adults. Our main purpose in the study is to measure the effect of vision and identity formation on memories.*)

Otobiyografik hafıza, kişisel deneyimlerden ve bireyin yaşamıyla ilgili kişisel bilgilerinden oluşur. Bu yüzden, anılar kimlik oluşturma ve doğrudan kendini anlama ile ilişkili bulunur. Görme düzeyindeki değişim benliğin yapısını ve anıların özelliklerini etkiler. Görme bozukluğu görsel girdiyi kısıtlar ve bu deneyim eksikliği nedeniyle dil gelişimini değiştirir. Karşılıklı olarak ilişkili bu üç kavramı (körlük, benlik ve otobiyografik bellek) bir arada düşündüğümüzde, düşük görsel deneyiminin kimlik oluşumu/gelişimi üzerinden anıları etkilemesini bekliyoruz. (*Autobiographical memory consists of personal experiences and personal information about an individual's life. Thus, memories are associated with identity formation and self-understanding. Changes*

in vision affect the structure of the self and the properties of memories. Visual impairment restricts visual input, and this lack of experience alters language development. When we consider these three mutually related concepts (blindness, self and autobiographical memory) together, we expect low visual experience to affect memories through identity formation/development.)

Araştırma hakkında daha ayrıntılı bilgi almak isterseniz rabia.koc@boun.edu.tr adresinden bizlere ulaşabilirsiniz. Ayrıca, bu çalışma ile ilgili olası şikayetlerinizi Boğaziçi Üniversitesi Sosyal ve Beşeri Bilimler Yüksek Lisans ve Doktora Tezleri Etik İnceleme Komisyonu'na (sbe-ethics@boun.edu.tr) yönlendirebilirsiniz. *(If you want to get more detailed information about the research, you can contact us at rabia.koc@boun.edu.tr. In addition, you can direct your possible complaints about this study to The Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (sbe-ethics@boun.edu.tr).*

Araştırmamıza katılım sonrası ihtiyacınız olduğunu düşündüğünüz takdirde, psikolojik destek almak için Boğaziçi Üniversitesi öğrencisi iseniz Boğaziçi Üniversitesi Öğrenci Rehberlik ve Psikolojik Danışmanlık Merkezi'ne (BÜREM) ulaşabilirsiniz. Üniversitemiz dışından araştırmamıza katılım sağladıysanız, kaydınızın bulunduğu aile sağlığı merkezi ile irtibata geçebilir ya da varsa şehrinizde sunulan ücretsiz psikolojik danışmanlık hizmetlerinden (Örneğin, belediyelerin destek hatlarından) faydalanabilirsiniz. *(If you think you need psychological support after participating in our research, if you are a Boğaziçi University student, you can contact Boğaziçi*

University Student Guidance and Psychological Counseling Center (BÜREM). If you have participated in our research from outside of our university, you can contact the family health center where you are registered or you can benefit from the free psychological counseling services (for example, the support lines of the municipalities) offered in your city.)

Adres: Güney Kampus, Revir üst katı 34342 Bebek, İstanbul

Telefon: + 90 212 359 71 39 / + 90 212 287 29 58 E-mail: burem@boun.edu.tr

İstanbul belediyesi bünyesinde hizmet veren psikolojik danışmanlık merkezlerine aşağıdaki linkten bakabilirsiniz (*You can check the psychological counseling centers serving within the municipality of Istanbul from the link below*):

<https://saglik.ibb.istanbul/psikolojik-danismanlik-merkezleri-pdm/>

Katılımınız için teşekkür ederiz. (*Thank you for your participation.*)

APPENDIX J

ETHICS COMMITTEE APPROVAL

T.C.
BOĞAZIÇI ÜNİVERSİTESİ
SOSYAL VE BEŞERİ BİLİMLER YÜKSEK LİSANS VE DOKTORA TEZLERİ ETİK İNCELEME
KOMİSYONU
TOPLANTI TUTANAĞI

Toplantı Sayısı : 12
Toplantı Tarihi : 21.01.2021
Toplantı Saati : 13:00
Toplantı Yeri : Zoom Sanal Toplantı
Bulunanlar : Prof. Ebru Kaya, Prof. Dr. Fatma Nevra Seggie, Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen
Bulunmayanlar : Prof. Dr. Özlem Hesapçı Karaca

Rabia Koç Demircan
Psikoloji

Sayın Araştırmacı,

"The Relation Between Visual Impairment and Characteristics of Earliest Autobiographical Memories in Young Adults" başlıklı projeniz ile ilgili olarak yaptığınız SBB-EAK 2020/59 sayılı başvuru komisyonumuz tarafından 21 Ocak 2021 tarihli toplantıda incelenmiş ve uygun bulunmuştur.

Bu karar tüm üyelerin toplantıya çevrimiçi olarak katılımı ve oybirliği ile alınmıştır. COVID-19 önlemleri kapsamında kurul üyelerinden ıslak imza alınamadığı için bu onam mektubu üye ve raportör olarak Yasemin Sohtorik İlkmen tarafından bütün üyeler adına e-imzalanmıştır.

Saygılarımızla, bilgilerinizi rica ederiz.

Dr. Öğr. Üyesi Yasemin
SOHTORİK İLKMEN
ÜYE

e-imzalıdır
Dr. Öğr. Üyesi Yasemin Sohtorik
İlkmen
Öğretim Üyesi
Raportör

SOBETİK 12 21.01.2021

Bu belge 5070 sayılı Elektronik İmza Kanununun 5. Maddesi gereğince güvenli elektronik imza ile imzalanmıştır.

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