

# Remembering in the Digital World: Autobiographical Memory in Social Media

## *Dijital Dünyada Hatırlamak: Sosyal Medyada Otobiyografik Bellek*

✉ Aylin Özdeş<sup>1</sup>, ✉ Ferhat Karaman<sup>2</sup>

<sup>1</sup>Tekirdağ Namık Kemal University, Tekirdağ

<sup>1</sup>Uşak University, Uşak

### ABSTRACT

The use of social media continues to increase in modern cultures in recent years. This new context leads to creating a virtual self, which somewhat differs from the real self. Further, social relations are set and maintained predominantly in this new context. There is no doubt that social media does not only affect individuals' social relations but also their cognitive skills by pulling them into new situations that they are unfamiliar with. In this new context, content coded in social media can be remembered in real life, and content coded in real life can be remembered in social media. This new context, where mostly real-life stories are shared, is likely to strongly affect the autobiographical memory processes of individuals. Past research suggests that social media affects autobiographical memory processes both directly (phenomenological characteristics, functions) and indirectly through cognitive processes (eg, attention, working memory, transitive memory). Studies about its indirect effects indicate that people with limited attention and working memory capacity have difficulty processing the high number of stimuli offered by social media. Given that the long-term memory capacity is not limited, it is plausible to expect that some of the contents are encoded into the memory; however, problems may occur in the storage and retrieval processes. Studies about the direct effect of social media show that the phenomenological characteristics (number of details, accuracy, emotional content) and functions (self, social, directing, therapeutic) of events experienced or shared on social media differ from real-life events. This theoretical review discusses the effects of social media use on cognitive processes related to memory processes and more specifically on the phenomenological and functional characteristics of autobiographical memory. To recognize and prevent potential psychological issues that may emerge in relation to this new setting, it appears essential to comprehend how social media affects autobiographical memory, which is essential for self-perception.

**Keywords:** Autobiographical memory, social media, self

### ÖZ

Son yıllarda sosyal medya kullanımı modern kültürlerde artarak devam etmektedir. Bu durum kullanıcıların gerçek benliklerinden ayrılan sanal bir benlik yaratmasına sebep olmaktadır. Ayrıca sosyal ilişkiler ağırlıklı olarak bu yeni bağlamda kurulmaya ve sürdürülmeye başlanmıştır. Kuşkusuz, sosyal medya kullanımı yalnızca sosyal ilişkileri etkilememekte; bireyleri alışkın olmadıkları yeni koşullara sürükleyerek bilişsel becerileri de etkilemektedir. Bu yeni bağlamda sosyal medyada kodlanan içerikler gerçek yaşamda, gerçek yaşamda kodlanan içerikler ise sosyal medyada hatırlanabilmektedir. Çoğunlukla gerçek yaşam hikayelerinin paylaşıldığı bu yeni bağlamın, bireylerin yaşam öyküsünü kapsayan otobiyografik bellek süreçlerini güçlü bir biçimde etkilemesi olasıdır. Son yıllarda yapılan çalışmalar bu etkinin çok yönlü olduğunu göstermektedir. Sosyal medyanın otobiyografik bellek süreçlerini hem dolaylı olarak diğer bilişsel süreçler (dikkat, çalışma belleği, geçişken bellek) aracılığı ile hem de doğrudan (niteliksel özellikler ve işlevler) etkilediği öne sürülmektedir. Dolaylı etkisi konusundaki bulgular, kısıtlı dikkat ve çalışma belleği kapasitesine sahip insanın, sosyal medyanın sunduğu yüksek sayıda uyararı işlemekte zorlandığını göstermektedir. Uzun süreli bellek kapasitesinin sınırlı olmadığı düşünüldüğünde, çalışmalar içeriklerin bir kısmı belleğe kodlanmış olsa dahi depolama ve geri çağırma süreçlerinde sorunlar yaşanabildiğine işaret etmektedir. Sosyal medyanın otobiyografik bellek üzerindeki doğrudan etkisini test eden çalışmalar ise sosyal medyada deneyimlenmiş veya paylaşılmış otobiyografik anıların niteliksel özellikleri (detay miktarı, doğruluk, duygusal içerik) ve işlevlerinin (benlik, sosyal, yönlendirici, iyileştirici) gerçek yaşam anılarından farklılaştığını göstermektedir. Bu derlemede sosyal medya kullanımının otobiyografik bellek üzerindeki karmaşık etkileri mevcut literatür ışığında tartışılmıştır. Kişinin benlik algısı için oldukça kritik olan otobiyografik belleğin sosyal medyadan nasıl etkilendiğinin anlaşılması bu yeni bağlamla ilişkili olarak ortaya çıkabilecek olası psikolojik sorunların tespit edilerek önlenmesi için önemli görünmektedir.

**Anahtar sözcükler:** Otobiyografik bellek, sosyal medya, benlik

## Introduction

---

As a result of the digital evolution of social interactions, social media has become an important part of daily life. Social media has been increasingly used to record and share personal experiences (Pew Research Center 2018). According to the statistics, 1 billion Facebook posts, 400 million Instagram stories are shared, and 500 million tweets are posted daily (Chaffey 2022). Over one billion videos are watched on video platforms such as YouTube and TikTok (Chaffey 2022). This rapid change in people's interaction with technology has led cognitive psychology researchers to focus on the effects of social media on high-level cognitive processes such as memory, attention, and executive functions (Ophir et al. 2009, Alloway and Alloway 2012, Alloway and Alloway 2015, Barr et al. 2015). However, social media use seems to affect cognitive processes differently. Social media platforms, where individual shares their feelings, thoughts, and life stories and also are exposed to the feelings, thoughts, and life stories of other people, likely affect the autobiographical memory processes more strongly.

Autobiographical memory is defined as a type of memory that includes episodic (personal life events that took place in a specific time and place) and semantic (information about the world) memory (Conway and Pleydell-Pearce 2000, Sayar 2012). Unlike other types of memory, autobiographical memory enables individuals to build self-coherence, make plans for future, and establish social relationships (Conway and Pleydell-Pearce 2000, Conway 2005, Bluck and Alea 2008). In addition, autobiographical memory is strongly influenced by the context in which the content is encoded and remembered (Eliseev and Marsh, 2021). Increasingly, real-life events are shared on social media, or events that are experienced on social media are shared or remembered in social media and real life. For example, replying to the comment under a photo shared on social media may initiate a conversation in real life. On the other hand, a person can share an interesting life event that occurred in real life on social media. Thus, social media creates a new context for the encoding and retrieval processes.

In recent years, the impact of social media as a new context on autobiographical memory processes has attracted the attention of researchers (Stone and Wang 2019, Wang 2021). These studies examined the relationship between social media and autobiographical memory in terms of various variables. However, to the best of our knowledge, no article in the literature summarizes and discusses the findings of these studies. In this review article, we aimed to critically compile the studies in this emerging literature examining the potential effects of social media on autobiographical memory. First, we discussed the indirect effects of social media on autobiographical memory. In this section, we focused on how the context of social media can influence working memory and attention, which are closely tied to autobiographical memory. Furthermore, we mentioned possible problems that may occur during the storage and recall of the contents. Second, we discussed the findings on the direct effects of social media on autobiographical memory. Specifically, we summarized the findings of the previous studies on the content (qualitative features) of autobiographical memories and the main purpose (functions) of sharing these memories on social media.

## Indirect Effects of Social Media Context on Autobiographical Memory

---

To better understand the effects of social media on autobiographical memory, the effects on each of the memory processes such as encoding, storage, and recollection should be understood. First, we must address how attention and memory, which are critical in the coding phase, are influenced by social media. Studies testing the effect of social media on these two cognitive functions mostly show that social media use has negative effects on working memory and attention processes (Ophir et al. 2009, Gibbons et al. 2017). In addition, studies show that social media, which can be used as an external storage tool, is also effective in the storage phase (Sparrow et al. 2011, Ward 2013).

## The Effects of Social Media on Working Memory and Attention

Working memory and attention are important cognitive resources that are inextricably linked with all other cognitive functions (Scott 2011). Attention can be defined as an organism's ability to be aware of and react to changes in its environment (Scott 2011). Working memory, on the other hand, is a limited-capacity memory system that includes functions such as short-term storage of information, fulfillment of target cognitive tasks, shifting attention between various tasks, and manipulating temporary information in short-term memory and permanent information in long-term memory. (Baddeley 1996, Engle et al. 1999, Cowan 2006). These two cognitive skills, which are important parts of cognitive functioning in daily life, directly affect autobiographical memory. Attention and working memory processes are influenced by social media use in several ways. First, during social media use, we are exposed to dozens of status updates, photos, and videos in a short period. Given that our working memory system has limited capacity, exposure to too much information at once increases the

cognitive load. Such that this situation has revealed a new phenomenon called social media overload (Lee and Atance 2016). This phenomenon, which makes it difficult to understand, interpret and remember information, also impairs various cognitive tasks. For example, a recent study showed that increased cognitive overload impairs comprehension in reading tasks, which are closely related to working memory capacity (Jiang et al. 2016).

Another reason for the negative impact of social media on attention and working memory processes is that it requires multitasking. Early studies examining the effects of multitasking on cognitive control ( Craik 1948, Brodbent 1958, Welford 1952) emphasized that the mind has a limited capacity (Imren 2021). Many subsequent studies have shown that multimedia tasks impair sustained attention and working memory functions (Fried 2008, Sana et al. 2013, Dietz and Henrich 2014, Gaudreau et al. 2014). In addition to the multitasking required by social media use, using multiple social media platforms simultaneously or by switching between them also requires multitasking. Using multiple social media platforms can also increase the negative effects of multitasking on working memory and sustained attention (Imren and Tekman 2018). For example, Uncapher et al. (2016) showed that heavy multimedia taskers cannot distinguish relevant, important information from irrelevant, distracting information and these individuals usually show reduced working memory performance.

The behavioral data were also supported by findings from brain imaging studies. Some studies showed that heavy media multitaskers have lower gray matter volumes in the anterior cingulate cortex, requiring intensive switching between information sources depending on the neural networks used in sustained attention (Kühn and Gallinat 2015, Loh and Kanai 2016). In other words, these individuals had reduced neuron density in the brain regions associated with attention. Similarly, heavy media multitasking was found to be characterized by increased activation in brain regions associated with working memory and attention (eg, various prefrontal regions: lateral superior/middle frontal gyrus and medial part of superior frontal gyrus) (Moisala et al. 2016). Since activation in the prefrontal regions varies based on the attentional demands (eg, maintenance and inhibition of attention), this finding was interpreted as heavy media multitasking is associated with distraction (Moisala et al. 2016). Taken together, these findings suggest that heavy media multitasking negatively impacts brain functions (Uncapher and Wagner 2018).

Some studies failed to find a correlation between social media use, multimedia tasks and cognitive functions. For example, a group of studies did not find a direct relationship between social media use, multimedia tasks and working memory (Minear et al. 2013, Baumgartner et al. 2014, Edwards and Shin 2017, Wiradhany and Nieuwenstein 2017). Another group of studies has shown that this relationship is not always negative under various conditions. In particular, educational programs (e.g. social media training) and social media use (e.g. number of posts on Facebook) improved cognitive functions in adolescents and older adults (Alloway and Alloway 2015, Mayshak et al. 2016, Myhre et al. 2017). For example, a study by Alloway et al. (2015) that examined the effects of social media use on working memory in adolescents showed that participants who used Facebook for more than a year scored higher on working memory tasks than those who used Facebook for the first time. Another study also found that social media training and socializing in social media have a positive impact on cognitive processing speed, which is an important indicator of executive functions in healthy older adults (Myhre et al. 2017). However, in this study, it is not possible to distinguish whether 8-week social media training or social media use itself is responsible for the increased cognitive functioning. These results can be interpreted as individuals with higher cognitive functionality are more likely to use social media.

In summary, studies examining the effects of social media on working memory and attention, which are very important for autobiographical memory processes, reveal mixed findings. These studies mostly show that the perceptual and cognitive load created by social media makes it difficult to maintain attention and negatively affects working memory functions. However, some other studies reported opposite findings. This inconsistency in the literature is likely due to the fact that different aspects of social media are addressed in studies and different tests are used to measure cognitive functions.

### **Using Social Media as a Transactive Memory System**

The effect of social media on autobiographical memory can occur not only at the encoding and retrieval phases, but also at the storage phase. The internet and social media provide unlimited storage for information, in some ways making it unnecessary for individuals to encode and store content internally. First, the transactive memory system (Wegner 1987, Brandon and Hollingshead 2004), which is defined as a group-level knowledge sharing and memory system in which group members share responsibility for encoding, storing, and retrieving of information from different knowledge areas, has been transformed with the development of digital technologies. Sparrow and colleagues (2011) tested how participants' beliefs about accessing information later

on a computer or an external storage impacts their memories for that information. After this study, the internet and social media started to be considered as new transactive memory partners. Indeed, social media has been theorized to be used as a transactive memory source that helps transfer memory trace to an external source to maintain cognitive efficiency. Furthermore, social media has been defined as a source for cognitive offloading, which is the act of reducing the mental processing requirements of a task through physical actions like directing information to various sources (e.g., saving information on a smartphone or computer for later recall). (Morrison and Richmond 2020).

Offloading some memories onto social media can be considered as a cognitive strategy that is used to overcome the cognitive load created by social media on working memory. Memories stored in the brain such as the knowledge and experiences acquired, the time of a birthday or a meeting, can be transferred to social media. Thus, individuals with lower working memory capacity may prefer to offload more content on social media. A recent study examining participants in conditions in which they had (or did not have) the cognitive offloading option provides support of this assumption. Indeed, participants with higher working memory capacity relied less on cognitive offloading, when given the option (Risko and Dunn 2015).

The advantage of reducing cognitive load via offloading mechanism, might turn into a disadvantage in some cases. Recent studies have shown that memories transferred to social media fade quickly due to using social media as a mnemonic tool instead of preserving our own memories (Sparrow et al. 2011, Ward 2013). Similar findings were also obtained when participants' memory performances for visual items such as photographs were examined under various conditions (Henkel 2014, Soares and Storm 2018, Tamir et al. 2018). For example, Henkel (2014) found that participants who had taken photographs of objects showed less accurate and incomplete memories of those objects than participants who only observed the objects. This photo-taking impairment effect phenomenon which is widely observed in the literature can be explained by the belief of participants in the photo-taking condition that they do not need to remember the photos already recorded on the camera. Interestingly, this effect was also observed when participants knew that they would never be able to access the photos later (Soares and Storm 2018). As a result, it has been observed that cognitive offloading generally supports working memory, but it can also lead to impairments in long-term memory when the offloaded information is not available when needed. In this respect, virtual storage of memories (Sparrow et al. 2011) and cognitive overload (Tamir et al. 2018) seem to make it difficult to remember those memories later.

In summary, it is likely that social media affects autobiographical memory through working memory and attention. Experiencing multiple events simultaneously on social media puts more strain on working memory than in real life. Working memory performance decreases when its capacity is exceeded, and therefore contents cannot be transferred to the memory. On the other hand, the influence of social media is also evident in the storage phase. Social media is becoming an alternative memory partner where autobiographical memories can be recorded. While the feedback (comments, likes, etc.) received through this new partner ensures the permanence of the content (Eliseev and Marsh, 2021), it can also cause the loss of the information recorded in the memory (Tamir et al. 2018).

## **Direct Effects of Social Media Context on Autobiographical Memory**

---

The direct effect of social media on autobiographical memory is well-documented. Some studies examined the features of events recorded or shared (Comblain et al. 2000, D'argembeau and van der Linden 2006, Gibbons et al. 2022) while others tested the motivations (or functions) for sharing personal events on social media (Bluck and Alea 2002, Blagow and Singer 2004, Alea et al. 2019). Social media posts are not independent of the sharer's self. Autobiographical memory, which is strongly linked to the self is more likely to be influenced by social media compared to other cognitive processes. In this part of the review, studies examining the effect of social media on the phenomenological characteristics and functions of autobiographical memory are discussed.

## **The Effects of Social Media Posts on The Phenomenological Characteristics of Autobiographical Memory**

The characteristics of autobiographical memories including events encoded or retrieved on social media are shown to differ from memories about events that are encoded and retrieved in real life (Sparrow et al. 2011, Tamir et al. 2018, Eliseev and Marsh, 2021). Past research suggests differences mainly in the number of details (Sparrow et al. 2011; Tamir et al. 2018), accuracy (Sparrow et al. 2011, Jiang et al. 2016, Finley et al. 2018; Jiang et al. 2018), and emotional content of memories (Wang et al. 2015, Gibbons et al. 2017, 2022) of social media

and real-life events. To comprehend the effects of social media on autobiographical memory, the literature about each of these characteristics is reviewed.

### ***The Number of Details and Accuracy of Memories Shared on Social Media***

A very few studies examined the effect of social media on the number of details of memories. In fact, these studies showed mixed findings about this effect. The first set of studies have charted that social media memories include fewer details (Sparrow et al. 2011, Tamir et al. 2018) and in some cases, recalled details are not consistent with the details of the original event (Sparrow et al. 2011, Jiang et al. 2016, Finley et al. 2018). Although, these studies tested not the effect of social media but web blogging. Yet, they contain inferences about memories shared on social media. For example, Sparrow et al. (2011) showed that individuals recalled fewer details of events in subsequent recalls when it is recorded on the internet compared to events that are not recorded on any external device. This effect may be due to the transactive memory system, which was discussed in detail in the previous section.

There are two main features of transactional memory (Ward 2013); (1) memory partners' sense of responsibility for the remembered content, (2) its availability by other partners. In cases where the memory partners are other people, these two conditions are not always met. The partner who took responsibility to remember the event may forget the details. In other cases, the memory partner cannot be reached when the details are needed. Lastly, the memory partner may die, and the details of the memory could be lost forever. Because of the rise in internet use; social media, where people constantly share personal experiences, has inevitably evolved into a transactive memory partner (Stone et al. 2013, Ward 2013, Kahn and Martinez 2020). Unlike other memory partners, memories can be shared with an enormous number of people on social media and can be easily accessed from multiple devices at any time. Therefore, social media seems to be more reliable than human memory partners in terms of responsibility and accessibility. On the other hand, all these situations may lead the owner of the memory to feel less responsible to remember the details shared on social media. Therefore, fewer details of social media events are recalled and these details tend to be less accurate compared to real-life events (Sparrow et al. 2011, Jiang et al. 2016, Finley et al. 2018). This potential effect was supported by a recent comprehensive experimental study (Tamir et al. 2018). In this study, participants were asked to watch a speech on screen. While watching the speech, the participants were assigned to one of the six conditions: The first group was asked to only watch the speech, the second group was asked to think about their experience while watching the speech, and the last four groups were asked to write their thoughts about the speech on a blank window on the screen while watching it. While the first group of the rest was told that what they wrote would not be recorded, the second group was told that their thoughts would be recorded but would not be shared with other people. The fourth group was told that their thoughts would be recorded and shared with others as soon as the study was over. The last group was asked to observe their surroundings during the speech and write about the objects around. After the speech was completed, the participants were asked various questions about the content of the speech. The results showed that the group who wrote their thoughts about the speech and was told that their thoughts would be shared with others showed significantly lower memory performance than other groups. These findings indicate that the content shared on social media may lower the accuracy of the encoded memories.

On the other hand, it seems highly probable that remembering events through social media posts has a positive effect on details due to several reasons (Wang et al. 2017). While these possible triggers increase the number of details, they can damage the accuracy of the content (Stone and Wang 2019). First, all posts on social media must have a theme consistent with the virtual self (Eliseev and Marsh 2021). According to Belk (2013), a new self is built with the use of digital devices. The self, created in the digital world is structured and built on the real self. It is usually similar but not exactly the same as the real self. It is closer to the idealized self because the person has a chance to manipulate their look with avatars and profile pictures. To express the digital self, new memories consistent with this self are shared with others. These memories usually include a great number of details (Wang et al. 2015). This tendency gets stronger as the number of people interacting on social media increases (Holloway and Green 2017).

Secondly, sharing personal events on social media creates a new opportunity for the person to rehearse their memories very often (Wang and Blenis 2013). These events are reviewed again and again with feedback from others (etc., likes and comments) (Eliseev and Marsh 2021). That is the details of the shared events are likely to be recalled successfully in the long run (Koutstaal et al. 1998, Zimmerman and Brown-Schmidt 2020). On the downside, the details of the events may be distorted to align with the digital self. Accordingly, while the details of the original event fade over time, the manipulated version of the event and the feedback from others (etc., likes, comments, interactions) remain vivid (Stone and Wang 2019). In summary, while sharing personal events on social media increases the number of details, it may cause memory errors in the content.

The main reason to share personal events might be their importance to the person firsthand. In concrete terms, events shared on social media may be remembered in more detail because these events may be chosen from personally meaningful events. These events may be remembered in more detail even if they are not shared on social media. To exclude this possibility, Hou et al. (2022) asked young adults to write down some life events in their diaries and share some of these events on social media. While there was no difference between the details of the memories written in the diary and the memories shared on social media, the memories shared on social media contained higher number of false details than the memories written in the diary. Researchers interpreted this finding as that social media affect the accuracy of memories rather than the number of details. This seems important in terms of showing that the content of autobiographical memory is negatively affected by the context of social media. Yet, this effect may not be the same for all memories (Comblain et al. 2005, D'Argembeau and van der Linden 2006). Therefore, when evaluating the effect of social media on details, its content should also be considered.

### ***The Emotional Content of Memories Shared on Social Media***

Memories shared on social media differ from the nonshared ones. Previous studies consistently show that social media memories differ from non-shared memories in terms of emotional valence (Wang et al. 2015, Gibbons et al. 2017, 2022). Memories shared on social media are usually more positive than nonshared ones (Choi and Toma 2014, Wang et al. 2015, Barasch et al. 2018). Furthermore, the tendency to share positive memories is likely to increase when a high number of people are interacted with (Lin et al. 2014). Negative events or details, on the other hand, are shared on social media less often (Gibbons et al. 2022). Previous studies consistently show that the emotions related to shared positive memories remain vivid in the long term (Lambert et al. 2013, Choi and Toma 2014, Wang et al. 2015). Findings on the effect of sharing negative memories are more complex. A group of studies showed that negative emotions about shared events are less likely to fade over time (Gibbons et al. 2017, 2022). Another set of studies, on the other hand, suggested that sharing negative events lead emotions to fade more quickly than emotion about nonshared events (Skowronski et al. 2004). In sum, although the findings are mixed, it is possible to say that the effects of social media on events differ depending on the emotional valence of the memory.

Positive events are suggested to be shared more frequently than negative and neutral ones on social media. That is, positive emotions are felt for the events and the details of these events remain vivid for a long period (Lambert et al. 2013, Wang et al. 2015). For example, Wang et al. (2015) asked college students to write their recent personal events in a diary or to a web blog. The researchers found that events written in a web blog were more positive than the events written for oneself in a diary. This finding can be explained in several ways. First, regardless of the context, rehearsed positive events tend to contain a high number of details in subsequent recalls, and positive affect fade more slowly in time (Walker and Skowronski 2007). However, this effect is not observed when positive memories are remembered without sharing. Second, this tendency could be related to the virtual self created on social media platforms. As mentioned earlier, the virtual self tends to be more positive than the real self. To express the positive sides of this new self, positive events could be shared more often than negative and neutral events (Chen 2010, Barasch et al. 2018). Eventually, the sharer is perceived as positive (Alea et al. 2019). Therefore, positive events and/or positive details could be shared on social media very often.

Although it is not as often as positive events, negative events and/or negative details are also shared on social media. An increasing number of studies show that negative details of events and emotions related to these events fade faster and stronger than positive memories (Gibbons et al. 2011). This phenomenon is known as fading affect bias in the literature (Walker et al. 2003, Öner 2021). According to the fading affect bias, details about negative events begin to fade approximately 12 hours after the event and continue to fade for about three months (Gibbons et al. 2011). The loss of details of negative events contributes to the maintenance of a positive view of one's self (Walker and Skowronski 2007). Quite surprisingly, when negative events are shared with other people, the details of these events fade much more rapidly (Skowronski et al. 2004). In addition, the response of the listeners influences the fading affect bias. When the listener is active, the fading affect bias increases (Muir et al. 2015).

The effect of the fading affect bias of social sharing on negative events and details may also apply to events shared on social media platforms. Because the number of people interacting on social media is higher, the effect of the fading affect bias is expected to be faster and stronger than personally shared events (Eliseev and Marsh 2021). Interestingly, Gibbons et al. (2022) found that fading effect bias is less pronounced in events shared on social media. In other words, a high rate of negative details of events recalled if the event is shared on social media (Choi and Toma 2014, Gibbons et al. 2017). Yet these details tend to be lost if the event is shared with

others in person. Therefore, unlike memories shared in real life, the vividness of negative memories shared on social media is less likely to be lost. This situation may eventually influence the functionality of those memories.

### **The Effects of Social Media Posts on Autobiographical Memory Functions**

Autobiographical memory literature does not only focus on the content but also on the functions of the memory. While some researchers specifically ask what events with what details are remembered, others are interested in what these events or details are remembered for. This second group of researchers examines the purpose of recalling memories recorded in autobiographical memory. According to this perspective, events are remembered differently depending on the context and the time of the recall. The main reason for this is the change in the purpose of the memory. According to Pillemer's (1992) classification, autobiographical memories have three basic functions (Bluck and Alea 2002); self (i.e., continuity of self), social (i.e., establishing or maintaining a social relationship), and directing (i.e., planning of behavior). Memories serve only one of these purposes. Yet, later, Bluck and Alea (2002) suggested that events encoded in autobiographical memory may serve more than one function and that these functions may change depending on the context in which they are recalled.

Social media can be defined as a new context that reconstructs the relationship between autobiographical memory and the self. It seems critical to comprehend the specific functions of events shared in this new context. The functions of shared events could be similar to the events shared in real life. Given that the classification offered by Pillemer (1992) could be extended to these events. Yet, a very limited number of study has tested Pillemer's (1992) functions in events shared on social media. Recently, Wang (2020) suggested a new set of functions for events shared on social media and developed a scale named Purposes of Online Memory Sharing Scale. The functions this scale measures partly overlap with the functions suggested by Pillemer (1992) for real-life events. The scale measures four basic functions: self, social, directive, and therapeutic. According to Wang (2020), these functions increase the frequency of sharing personal memories on social media. However, the effects and the frequency of use are not the same for all functions. Thus, each function should be discussed separately.

#### ***Self Function***

This function refers to the use of memories encoded in autobiographical memory to ensure self-continuity. The self function enables the person to know that the person he/she remembers in the past is the same person, despite the differences between the past and the present self (Alea et al. 2019). In other words, autobiographical memory is critical for self-continuity. With the help of events encoded into autobiographical memory, individuals collect information about themselves. These events are also used to reach the goals of the current self and maintain well-being (Bluck and Alea 2008). However, this effect is not unidirectional. The current self also influences the content of the recalled events (Stone and Wang 2019).

According to Wang (2020), one of the main purposes of sharing autobiographical events on social media is the self function. Yet, there are inter-individual differences in the frequency of use for this function. For example, extroverts have a high motivation for self-disclosure in any context and they are willing to communicate with other people very frequently. Given that, they share autobiographical events on social media for self-function more frequently than introverts (Stone et al. 2022). Although, as previously mentioned, the self and so the personality of individuals in real life may not wholly overlap with the digital self (Stone and Wang 2019). Therefore, researchers should be cautious about making cause-and-effect inferences between real-life personalities and their effect on sharing autobiographical memories on social media. The behavior of sharing memories on social media may be affected by the personality on social media rather than the personality in real life. For example, a person may be shy in real life. The self they create on social media may not be as shy as their real self. In this case, it will be unclear how much this characteristic influences the tendency to share autobiographical events on social media.

#### ***Social Function***

Another function of autobiographical memories suggested by Wang (2020) is the social function. In some cases, autobiographical memories are used to establish new social relationships and maintain or improve existing relationships (Pillemer 1992, Buck and Alea 2002). Autobiographical memories expressed by status updates, photos, videos, etc. provide a lot of information about the sharer. This information facilitates and enriches social interactions (Bluck et al. 2010). First, shared events may allow people to inform others about their life. Second, these events may guide others to overcome life problems. Yet, the social function might be succeeded by different types of events depending on the specific motivation. For example, Pasupathi et al. (2002) showed that married couples often recall positive events to remember and enjoy their past together whereas their motivation for

recalling negative events may be more diverse. Therefore, the social function of recalling an event is affected by the context of the retrieval.

The main function of social media memories is not only to remember the event but to share it with others (Eliseev and Marsh 2021). Unlike real-life events, the social function of events shared on social media platforms is more pronounced because there is a chance to interact with hundreds of people at the same time on these platforms (Bluck and Alea, 2008). It is possible that sharing on social media and being exposed to shared memories enable the establishment of new social relations and strengthen existing ones (Lin et al. 2014).

In a study conducted by Stone et al. (2022), young and old adults stated that the main reason for sharing on social media is to establish social relationships. Surprisingly, some studies show that the social function of events shared on social media is not as effective as real-life events. For example, in a recent study, listening to the life story in different conditions was examined (Alea and Bluck, 2019). In this study, participants were assigned to one of the two conditions. The first group was asked to listen to a woman they did not know before. The woman talked about her life story in person. The second group listened to the same life story via text messages from a woman they did not know before. After the first session, all participants were asked to rate how much they liked the woman and how much empathy and closeness they felt towards her. Participants in the first group reported that they liked and felt empathy toward the stranger much more than the second group. This finding implies that although autobiographical memories shared on social media provide a new opportunity to build and maintain social relationships, they are not as effective as autobiographical memories shared in real life (Eliseev and Marsh 2021). Indeed, these finding varies across people, so individual differences should be accounted for. While the social function of autobiographical memories in social media is more prominent for some individuals, a similar effect may not be observed in other individuals. Stone et al. (2022), for example, found that individuals who feel lonely and have lower self-esteem are more likely to prefer social media for social functions than other people.

### ***Directive Function***

This function enables the person to recall memories to guide their current or future behaviors and thoughts (Pillemer 1992, Bluck et al. 2010). When faced with a problem, past events can be recalled for the cues to solve the problem (Bluck and Alea 2002). However, according to Bluck et al. (2005), the directive function is more abstract than the self and social functions and usually includes both of these two functions. For example, self-defining memories provide information for the self, and the self directs current behavior (Blagov and Singer 2004). Because of the overlap, it is difficult to separate the self and the directive functions. Another caveat is that the directive function is only effective when the context that the event encoded and retrieved are similar. Otherwise, establishing the link between the past and present may not be possible (Pillemer 1992).

Because the events shared on social media are usually encoded in real life, directive functions usually are not used effectively. Given that sharing autobiographical events on social media has a disruptive effect on the directive function of those events. Consistent with this notion, the reliability of the directive function in the scale developed by Wang (2020) to measure the directive function of events shared on social media was found to be quite low. Wang (2020) suggests that researchers should be cautious in using questions measuring the directive function in the scale. Apart from that, studies about the effect of sharing autobiographical events found that the functions of these events are similar to events recalled in real-life (Baker and Moore 2011, Stone et al. 2022). Therefore, this function should not be completely ignored as examining the events shared on social media.

### ***Therapeutic Function***

Different than the first three functions, this function is not defined by Pillemer (1992). It is first established by Wang (2020) for events shared on social media. According to Wang (2020), some of the main motivations to share autobiographical events on social media are to collect information about personal problems, and to reduce the distress felt. In other words, in some cases, personal memories are shared on social media for emotion regulation and coping with negative emotions (Baker and Moore 2011: cited in Stone et al. 2022). Additionally, events shared by others provide information about similar experiences, and so individuals could overcome these issues. Wang (2020) combined all of these functions under the therapeutic function. Stone et al. (2022) showed that this function is used in social media memories very often. The researchers discussed that individuals benefit from the sympathy of others to regulate their emotions through sharing on social media (Pillemer 1992, Wang and Blenis 2013). However, as in other functions, inter-individual differences were observed for this function as well. Individuals with low self-esteem and feeling lonely share their memories more frequently for the therapeutic function (Stone et al. 2022).



## Conclusion

---

The spread of smartphones and social media use has increased the number of autobiographical memories encoded or retrieved (i.e., shared) online. Social media use has not only influenced the nature of social relationships but also cognitive processes. Since personal experiences are mostly shared on social media it has a larger effect on autobiographical memories compared to other cognitive processes. Yet, its effect is far from being simple and direct but rather complex and multidirectional. In this review, the indirect and direct effects of social media on autobiographical memory are discussed.

Social media affects autobiographical memory processes through attention and working memory at the coding stage, and through the transactive memory system at the storage stage. Social media users are exposed to more than one stimulus and so are required processing more than one stimulus at the same time. This situation creates a burden on particular cognitive functions with limited capacities such as attention and working memory. Given that, social media affects the coding process. In addition, social media is used as a transactive memory system. It enables individuals to reduce the mental processing needs through cognitive transfer. The transfer of responsibility to recall the content to social media decreases the memory performance in the storing and retrieving processes. Like other memory types this tendency affects autobiographical memory. Social media also has direct effects on autobiographical memory. Previous studies have shown that this new context affects the quality (i.e., amount of detail, accuracy, and emotional content) and functions (i.e., self, social, directive, therapeutic) of memories recorded in autobiographical memory. When evaluated in terms of qualitative characteristics, it seems that social media memories contain high number of details but these details are less accurate than real-life memories. It was also found that the emotional content of events shared on social media differed from other events. However, studies provide contradictory findings about the direction of this difference. When evaluated in terms of functions, it appears that social media memories are used to understand one's own self, establish and maintain social relationships, direct their behaviors and cope with their problems very similar to real life memories.

This review fills an important gap in the literature in comprehending the effects of social media on autobiographical memory which includes the self and other cognitive processes. Almost all studies discussed in this article have examined the effect of social media on autobiographical memory via visual posts (eg, photographs, videos). In this respect, examining not only visual but also other modalities (e.g., auditory) will enable us to better understand how autobiographical memory is affected by this new context. In addition, understanding the effects of social media on autobiographical memory seems critical in terms of preventing possible psychological problems that may arise in relation to social media. In this respect, in addition to the psychosocial functions of social media, its effect on cognitive functionality should be tested in future studies. The ongoing rapid change in digital technologies is creating new virtual memory tools (e.g. metaverse) that allow us to record our memories. For example, the metaverse, which has higher ecological validity compared to social media platforms and has the potential to better simulate the real world, creates a new field of research for autobiographical memory researchers. It is an important avenue for future research to address how memories shared in this relatively new technology differ qualitatively and functionally from memories we record or share on social media. Investigating the tendency to externalize autobiographical memories will improve our understanding of how people adapt to the rapid changes in the digital age.

## References

---

- Alea N, Bluck S, Mroz EL, Edwards Z (2019) The social function of autobiographical stories in the personal and virtual world: an initial investigation. *Top Cogn Sci*, 11:794–810.
- Alloway RG, Alloway, TP (2015) The working memory benefits of proprioceptively demanding training: a pilot study. *Percept Mot Skills*, 120:766–775.
- Alloway TP, Alloway RG (2012) The impact of engagement with social networking sites (SNSs) on cognitive skills. *Comput Human Behav*, 28:1748–1754.
- Baddeley A (1996) Exploring the central executive. *Q J Exp Psychol*, 49A:5–28.
- Barasch A, Zauberger G, Diehl K (2018) How the intention to share can undermine enjoyment: photo-taking goals and evaluation of experiences. *J Consum Res*, 44:1220–1237.
- Barr N, Pennycook G, Stolz JA, Fugelsang JA (2015) The brain in your pocket: evidence that smartphones are used to supplant thinking. *Comput Human Behav*, 48:473–480.
- Baumgartner SE, Weeda WD, van der Heijden LL, Huizinga M (2014) The relationship between media multitasking and executive function in early adolescents. *J Early Adolesc*, 34:1120–1144.
- Belk RW (2013) Extended self in a digital world. *J Consum Res*, 40:477–500.

- Blagov PS, Singer JA (2004) Four dimensions of self-defining memories (specificity, meaning, content, and affect) and their relationships to self-restraint, distress, and repressive defensiveness. *J Pers*, 72:481–511.
- Bluck S, Alea N (2002) Exploring the functions of autobiographical memory: why do I remember the autumn? In *Critical Advances in Reminiscence Work: From Theory to Application* (Eds JD Webster, BK Haight):61–75. New York, Springer Publishing Company.
- Bluck S, Alea N (2008) Remembering being me: The self-continuity function of autobiographical memory in younger and older adults. In *Self Continuity: Individual and Collective Perspectives*. (Ed F Sani):55–70. London, Psychology Press.
- Bluck S, Alea N, Demiray B (2010) You get what you need: The psychosocial functions of remembering. In *The Act of Remembering: Toward an Understanding of How We Recall the Past*. (Ed JH Maze): 284–307. New York, Wiley-Blackwell.
- Brandon DP, Hollingshead AB (2004) Transactive memory systems in organizations: matching tasks, expertise, and people. *Organ Sci (Linthicum)*, 15:633–644.
- Broadbent DE (1958) *Perception and Communication*. Oxford, Pergamon Press.
- Chaffey S (2022) Global social media statistics research summary. SmartInsight Blog. <https://www.smartinsights.com/social-media-marketing/social-media-strategy/new-global-social-media-research/> (Accessed 21.05.2022).
- Chen YK (2010) Examining the presentation of self in popular blogs: a cultural perspective. *Chinese Journal of Communication*, 3:28–41.
- Choi M, Toma CL (2014) Social sharing through interpersonal media: patterns and effects on emotional well-being. *Comput Human Behav*, 36:530–541.
- Comblain C, D'Argembeau A, van der Linden M (2005) Phenomenal characteristics of autobiographical memories for emotional and neutral events in older and younger adults. *Exp Aging Res*, 31:173–189.
- Conway MA (2005) Memory and the self. *J Mem Lang*, 53,594-628.
- Conway MA, Pleydell-Pearce CW (2000) The construction of autobiographical memories in the self-memory system. *Psychol Rev*, 107:261-288.
- Cowan N (2006) Within fluid cognition: Fluid processing and fluid storage? *Behav Brain Sci*, 29:129–130.
- Craik KJ (1948) Theory of the human operator in control systems. II. Man as an element in a control system. *Br J Psychol*, 38:142-147.
- D'Argembeau A, van der Linden M (2006) Individual differences in the phenomenology of mental time travel: the effect of vivid visual imagery and emotion regulation strategies. *Conscious Cogn*, 15:342–350.
- Dietz S, Henrich C (2014) Texting as a distraction to learning in college students. *Comput Human Behav*, 36:163–167.
- Edwards KS, Shin M (2017) Media multitasking and implicit learning. *Atten Percept Psychophys*, 79:1535–1549.
- Eliseev ED, Marsh EJ (2021) Externalizing autobiographical memories in the digital age. In *Trends Cogn Sci*, 25:1072–1081.
- Engle RW, Laughlin JE, Tuholski SW, Conway ARA (1999) Working memory, short-term memory, and general fluid intelligence: a latent-variable approach. *J Exp Psychol Gen*, 128:309–331.
- Finley JR, Naaz F, Goh FW (2018) *Memory And Technology: How We Use Information in the Brain and the World* (1st ed.). Cham, Springer Nature.
- Fried CB (2008) In-class laptop use and its effects on student learning. *Comput Educ*, 50:906–914.
- Gaudreau P, Miranda D, Gareau A (2014) Canadian university students in wireless classrooms: what do they do on their laptops and does it really matter? *Comput Educ*, 70:245–255.
- Gibbons JA, Dunlap S, Friedmann E, Dayton C, Rocha G (2022) The fading affect bias is disrupted by false memories in two diary studies of social media events. *Appl Cogn Psychol*, 36:346–362.
- Gibbons JA, Horowitz KA, Dunlap SM (2017) The fading affect bias shows positive outcomes at the general but not the individual level of analysis in the context of social media. *Conscious Cogn*, 53:47–60.
- Gibbons JA, Lee SA, Walker, WR (2011) The fading affect bias begins within 12 hours and persists for 3 months. *Appl Cogn Psychol*, 25:663–672.
- Henkel LA (2014) Point-and-shoot memories: the influence of taking photos on memory for a museum tour. *Psychol Sci*, 25:396–402.
- Holloway D, Green, L (2017) Mediated memory making: the virtual family photograph album. *Communications*, 42:351–368.
- Hou Y, Pan X, Cao X, Wang Q (2022) Remembering online and offline: the effects of retrieval contexts, cues, and intervals on autobiographical memory. *Memory*, 30:1–9.
- İmren M (2021) Çoklu medya görevlerinin bilişsel kontrol yetisi üzerine etkileri [Doktora tezi]. Bursa, Uludağ Üniversitesi.
- İmren M, Tekman HG (2018) The relationship between media multitasking, working memory and sustained attention. *Uludağ University Faculty of Arts and Sciences Journal of Social Sciences*, 20:1075–1100.
- Jiang T, Hou Y, Wang Q (2016) Does micro-blogging make us “shallow”? sharing information online interferes with information comprehension. *Comput Human Behav*, 59:210–214.
- Kahn AS, Martinez TM (2020) Text and you might miss it? snap and you might remember? exploring “Google effects on memory” and cognitive self-esteem in the context of Snapchat and text messaging. *Comput Human Behav*, 104:1-10.

- Koutstaal W, Schacter DL, Johnson MK, Angell KE, Gross MS (1998) Post-event review in older and younger adults: improving memory accessibility of complex everyday events. *Psychol Aging*, 13:277–296.
- Kühn S, Gallinat J (2015) Brains online: structural and functional correlates of habitual internet use. *Addict Biol*, 20:415–422.
- Lambert NM, Gwinn AM, Baumeister RF, Strachman A, Washburn IJ, Gable SL et al. (2013) A boost of positive affect: the perks of sharing positive experiences. *J Soc Pers Relat*, 30:24–43.
- Lee WSC, Atance CM (2016) The effect of psychological distance on children's reasoning about future preferences. *PLoS One*, 11:e0164382.
- Lin H, Tov W, Qiu L (2014) Emotional disclosure on social networking sites: The role of network structure and psychological needs. *Comput Human Behav*, 41:342–350.
- Loh KK, Kanai R (2016) How has the internet reshaped human cognition? *Neuroscientist*, 22:506–520.
- Mayshak R, Sharman SJ, Zinkiewicz L (2016) The impact of negative online social network content on expressed sentiment, executive function, and working memory. *Comput Human Behav*, 65:402–408.
- Minear M, Brasher F, McCurdy M, Lewis J, Younggren A (2013). Working memory, fluid intelligence, and impulsiveness in heavy media multitaskers. *Psychon Bull Rev*, 20:1274–1281.
- Moisala M, Salmela V, Hietajärvi L, Salo E, Carlson S, Salonen O et al. (2016). Media multitasking is associated with distractibility and increased prefrontal activity in adolescents and young adults. *NeuroImage*, 134:113-121.
- Morrison, AB, Richmond, LL (2020) Offloading items from memory: individual differences in cognitive offloading in a short-term memory task. *Cogn Research*, 5:1-13
- Muir K, Brown C, Madill A (2015) The fading affect bias: effects of social disclosure to an interactive versus non-responsive listener. *Memory*, 23:829–847.
- Myhre JW, Mehl MR, Glisky EL (2017) Cognitive benefits of online social networking for healthy older adults. *J Gerontol B Psychol Sci Soc Sci*, 72:752–760.
- Ophir E, Nass C, Wagner AD (2009) Cognitive control in media multitaskers. *Proc Natl Acad Sci U S A*, 106:15583–15587.
- Öner S (2021) Otobiyografik Hatırlamada duygu yoğunluğu ve duygu değeri. *Psikiyatride Güncel Yaklaşımlar*, 13:605-618.
- Pasupathi M, Lucas S, Coombs A (2002) Conversational functions of autobiographical remembering: long-married couples talk about conflicts and pleasant topics. *Discourse Process*, 34:163–192.
- Pew Research Center (2018) Social media fact sheet. Internet and Technology. <http://www.pewinternet.org/fact-sheet/social-media/#> (Accessed 21.05.2022).
- Pillemer DB (1992) Remembering personal circumstances: a functional analysis. In *Affect and Accuracy in Recall: Studies of "Flashbulb" Memories* (Eds E Winograd, U Neisser):236–264. New York, Cambridge University Press..
- Risko EF, Dunn TL (2015) Storing information in-the-world: metacognition and cognitive offloading in a short-term memory task. *Conscious Cogn*, 36:61–74.
- Sana F, Weston T, Cepeda NJ (2013) Laptop multitasking hinders classroom learning for both users and nearby peers. *Comput Educ*, 62:24–31.
- Sayar F (2011) Otobiyografik bellek ve otobiyografik belleği etkileyen değişkenler. *Sosyal Bilimler Dergisi*, 35:19-33.
- Scott JG (2011) Attention/concentration: the distractible patient. In *The Little Black Book of Neuropsychology* (Eds MR Schoenberg, JG Scott):149–158. New York, Springer
- Skowronski J, Gibbons J, Vogl R, Walker WR (2004) The effect of social disclosure on the intensity of affect provoked by autobiographical memories. *Self Identity*, 3:285–309.
- Soares JS, ve Storm BC (2018) Forget in a flash: A further investigation of the photo-taking-impairment effect. *J Appl Res Mem Cogn*, 7:154–160.
- Sparrow B, Liu J, Wegner DM (2011) Google effects on memory: cognitive consequences of having information at our fingertips. *Science*, 333:773–776.
- Stone CB, Barnier AJ, Sutton J, Hirst W (2013) Forgetting our personal past: socially shared retrieval-induced forgetting of autobiographical memories. *J Exp Psychol Gen*, 142:1084–1099.
- Stone CB, Guan L, LaBarbera G, Ceren M, Garcia B, Huie K et al. (2022) Why do people share memories online? an examination of the motives and characteristics of social media users. *Memory*, 30:450-464.
- Stone CB, Wang Q (2019) From conversations to digital communication: the mnemonic consequences of consuming and producing information via social media. *Top Cogn Sci*, 11:774–793.
- Tamir D I, Templeton EM, Ward AF, Zaki J (2018) Media usage diminishes memory for experiences. *J Exp Soc Psychol*, 76:161–168.
- Uncapher MR, Thieu MK, Wagner AD (2016) Media multitasking and memory: differences in working memory and long-term memory. *Psychon Bull Rev*, 23:483–490.
- Uncapher MR, Wagner AD (2018) Minds and brains of media multitaskers: current findings and future directions. *Proc Natl Acad Sci U S A*, 115:9889–9896.
- Walker WR, Skowronski JJ (2007) The fading affect bias: but what the hell is it for? *Appl Cogn Psychol*, 22: 877–895.
- Walker WR, Skowronski JJ, Thompson CP (2003) Life is pleasant-and memory helps to keep it that way! *Rev Gen Psychol*, 7:203-210.

- Wang Q (2020) Creation of the purposes of online memory sharing scale. PsyArXiv, doi: 10.31234/osf.io/jh5sx
- Wang Q, Blenis C (2013) The autobiographical self online. <https://www.researchgate.net/publication/303540765> . (Accessed 21.05.2022).
- Wang Q, Blenis C, Gonzalez P, University C (2015) Going public: the impact of social media on autobiographical memory. 27th APS Annual Convention, June 2015.
- Wang Q, Lee D, Hou Y (2017) Externalising the autobiographical self: sharing personal memories online facilitated memory retention. *Memory*, 25:772–776.
- Ward AF (2013) Supernormal: How the internet is changing our memories and our minds. *Psychol Inq*, 24:341–348.
- Welford AT (1952) The psychological refractory period and the timing of high-speed performance-a review and a theory. *Br J Psychol*, 43:2-19.
- Wegner, DM (1987) Transactive memory: A contemporary analysis of the group mind. In *Theories of Group Behavior* (Ed B Mullen, GR Goethals):185–208. New York, Springer Verlag.
- Wiradhany W, Nieuwenstein MR (2017) Cognitive control in media multitaskers: two replication studies and a meta-analysis. *Atten Percept Psychophys*, 79:2620–2641.
- Zimmerman J, Brown-Schmidt S (2020) #foodie: Implications of interacting with social media for memory. *Cogn Res Princ Implic*, 5:16.

**Authors Contributions:** The author(s) have declared that they have made a significant scientific contribution to the study and have assisted in the preparation or revision of the manuscript

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** No conflict of interest was declared.

**Financial Disclosure:** No financial support was declared for this study.