EPISODIC FEATURES OF COLLECTIVE AND VICARIOUS MEMORIES

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EPISODIC FEATURES OF COLLECTIVE AND VICARIOUS MEMORIES

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DECLARATION OF ORIGINALITY

I, Doruk Tunaoğlu, certify that

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ABSTRACT

Episodic Features of Collective and Vicarious Memories

The classical episodic-semantic memory distinction states that a memory should be directly experienced to be considered as episodic memory. However, a number of researchers claim that the episodic-semantic distinction is insufficient to classify indirectly experienced vivid events but there were not many empirical studies testing their claims. To fill that gap, in two experiments I analyzed indirectly experienced events and their phenomenological features such as vividness, sense of reliving, intensity of emotions and their possibility of causing physical reactions. I hypothesized that indirectly experienced events with strong phenomenological qualities exist and that these qualities could be predicted with personal functions such as preserving self continuity and with political functions, such as understanding the world. The first study (N = 440 events) was focused on collective memories and the second study was focused on (N = 332 events) vicarious memories. In both studies, participants wrote five memories which could be directly or indirectly experienced and evaluated the most and the least important memories among those five memories. Our data revealed that people reported indirectly experienced memories with high phenomenological features and that these features are positively predicted by the personal and political functions of the memories. I argue that my results show that the dichotomous episodic-semantic memory distinction is insufficient and that we need a multi-dimensional continuous model to better classify and understand memories.

ÖZET

Kolektif ve Vekil Anıların Epizodik Özellikleri

Klasik epizodik-semantik bellek ayrımı, bir anının epizodik bellek olarak kabul edilebilmesi için doğrudan deneyimlenmesi gerektiğini belirtir. Bir dizi araştırmacı ise epizodik-semantik ayrımının dolaylı olarak deneyimlenen berrak olayları sınıflandırmak için yetersiz olduğunu iddia etmektedir. Ancak, bu iddiaları destekleyen yeterli ampirik çalışma bulunmamaktadır. Bu boşluğu doldurmak için, dolaylı olarak yaşanmış olayları ve bu olayların canlılık, yeniden yaşama hissi, duyguların yoğunluğu ve muhtemelen fiziksel tepkilere neden olma gibi fenomenolojik özelliklerini iki deneyde inceledim. Dolaylı olarak deneyimlenen ve güçlü fenomenolojik niteliklere sahip olayların var olduğunu ve bu niteliklerin öz-sürekliliği koruma gibi kişisel işlevlerle ve dünyayı anlama gibi politik işlevlerle tahmin edilebileceğini varsaydım. İlk çalışma (N = 440 olay) toplumsal hafızaya, ikinci çalışma ise (N = 332 olay) vekil anılara odaklandı. Her iki çalışmada da katılımcılar doğrudan veya dolaylı olarak deneyimledikleri beş anı yazdılar ve bu beş anıdan en önemli ve en önemsiz olanı değerlendirdiler. Veriler, insanların yüksek fenomenolojik özelliklere sahip dolaylı olarak yaşanmış anıları rapor ettiklerini ve bu özelliklerin anıların kişisel ve politik işlevleri tarafından pozitif bir şekilde tahmin edilebileceğini ortaya koymuştur. Bu tezdeki bulgular, ikili epizodik-semantik bellek ayrımının yetersiz olduğunu ve anıları daha iyi sınıflandırmak ve anlamak için ikili ayrımlardan ziyade kesintisiz ve çoklu boyutları olan bir modele ihtiyacımız olduğunu gösterdiğini iddia ediyorum.

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I would also like to thank all my friends whom I met in Boğaziçi resistance. We did our best to defend the idea of democratic universities. Our struggle has helped us to grow. I learned a lot both from our achievements and our mistakes. It was an enthusiastic ride for me and I am happy that we enjoyed the ride together.

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To Boğaziçi Resistance,

To the dream of a democratic university

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CHAPTER 1

INTRODUCTION

Can memories of indirectly experienced events, such as public events that are part of broader collective narratives or events we learn about from others' stories, have key features of episodic memories such as visual imagery, conscious re-experience and sequentiality of events? Or should such events be categorized as semantic memories because they are not personally and directly experienced? I argue that these seemingly simple questions have something to offer to the broader memory literature by highlighting how the classic episodic-semantic memory dichotomy may be restrictive and conceptually insufficient.

In this thesis, my main goal is to identify features and properties of non-autobiographical memories that might make them similar to episodic memories rather than semantic memories. In other words, I want to determine whether some indirectly experienced events can turn into vivid memories associated with a high sense of reliving and high emotional intensity. In this regard, my focus is not on the episodic features about the event of when we learned about a particular event (e.g. the time an elder member of our family told us about a public event important to our social identity, but from before our times). Rather, my focus is on the episodic qualities associated with events that we have learned about. Specifically, I want to find out which, if any, features of such memories or events make them more episodic. Personal functions such as directing future behavior and building social connections, political functions such as understanding a country and the world, number of sources which the memory is learned

from, number of iconic images about the memory are some of the many possible candidates that may increase the episodic features of an indirectly experienced memory.

In this regard, I focus on two specific kinds of memories: one, memories of public events that some have made a mark in collective memory but were indirectly experienced, and two, vicarious memories.. I try to avoid discussing whether genuine collective memories can exist at all (see Arango-Muñoz & Michaelian, 2020 for such a discussion). Instead, when I mention collective memories, I refer to the collectively shared individual memories. Note that while some public events that subsequently become part of collective memories are directly experienced, people learn about other public events that are already part of collective memory from narrations and discussions of others and written sources. I consider any memory passed on from a person to another one as a vicarious memory. I want to emphasize that in a vicarious memory there is a clear difference between the person who experiences the event and the person who indirectly learns about it (Pillemer, Steiner, Kuwabara, Thomsen, & Svob, 2015). Also, note that vicarious memories are different from "disputed memories" where two people disagree on what happened.

1.1 Episodic-semantic memory distinction

Tulving (1972) proposed the episodic-semantic memory distinction half a century ago and in time he reformulated some of his ideas. In his initial formulation, Tulving framed episodic memories as "personally experienced events" and semantic memories as "general facts". His later formulations also included the what-where-when criterion which stated that episodic memories are about events that have a particular time-stamp and space (Tulving, 2002); semantic memories on the other hand, only have the what

component. In line with this criterion, his later formulations referred to the remember-know distinction: Episodic memories can be remembered whereas semantic memories can be known.

Since the initial proposition of the episodic-semantic distinction in the 1970s, there has been ongoing debate about what constitutes an episodic memory, challenging a simplistic dichotomy: McKoon and Ratcliff (1979) argued that their experiments show that semantic information primes episodic recognition and episodic information primes a semantic decision task which invalidates Tulving's distinction (see McKoon, Ratcliff, & Dell, 1986, for an analysis of similar experiments that refutes the episodic-semantic distinction). Larsen (1988) argued that Tulving's distinction does not include memories for reported events where people vividly remember events that they heard from other sources. Similarly, Hassabis and Maguire (2007) argued that episodic-semantic distinction does not encapsulate events where people can replay a scene from a movie/play/book in their head without explicitly remembering when and where they have seen the scene, opposing Tulving's criteria for episodic memory that necessitates such memories to be about an event happening to one's self at a particular time and place. Habermas and Diel (2013) claimed that the defining features of episodic memories are the event's narrative structure and sequentiality of the sub-events. In other words, sub-events that follow each other in time and that are connected with cause-effect relations define episodic memories, even when there is not any direct experience. Renoult, Irish, Moscovitch and Rugg (2019) analyzes neuro-imaging studies and concludes that there is a significant neural activation overlap between episodic and semantic memory retrieval. Recently, Rubin (2021) also argued that the current episodic-semantic distinction is insufficient for explaining some of the common memory

phenomena. Finally, De Brigard, Umanath and Irish (2022) highlighted the interplay between episodic and semantic memory and they stated that "much of what we have accepted about the organization of declarative memory warrants revision" (p. 460).

In this research, I focus on one particular aspect of experiences that puts the episodic-semantic distinction into question: direct vs. indirect experience. Direct experience necessitates a person to be present in the event: people remember the event because they were either an agent in the unfolding of the event or the event is something that happened to them. Indirectly experienced events are different in that they include all kinds of reported events where a person learns the event from various other sources such as other people, (social) media, books and movies. I argue that indirectly experienced events can lead to vivid memory representations of the events themselves and that the classical episodic-semantic distinction may be insufficient in explaining them.

1.2 Challenging the emphasis on direct experience for episodic memories

In episodic memory definitions, a strong emphasis is placed on notions of self: It is one of the three core components of episodic memory in Tulving (2002). Also, in their historical summary of Tulving's episodic-semantic distinction, Renoult and Rugg (2020) states that "The autobiographical reference of episodic memory is uncontroversial, and episodic memories are still typically defined as referring to personally experienced events" (p. 2) . This emphasis dates back to William James where he claims that "[Memory] must be dated in my past. [...] I must think that I directly experienced its occurrence" (James, 1890, p. 650). Conway (2009) defines nine essential properties of episodic memory where the eighth item is "They make autobiographical remembering specific." (Table 1, p. 2306). Then he proposes a detailed episodic memory model which

is built on top of autobiographical knowledge and memories. Note that, in these definitions every episodic memory must be an autobiographical memory but the reverse is not true: For instance, knowledge about the self (autobiographical facts such as name, age, address, etc.) rests in autobiographical memory but not in episodic memory (see Figure 2 in Conway, 2009).

Alternative formulations exist. For instance, taking a purely non-empirical theoretical approach, Trakas (2019) identified five distinct criteria for distinguishing episodic memories from semantic memories: "(1) the vehicle of representation; (2) the grammar of the verb 'to remember'; (3) the cause of the memory; (4) the memory content; and (5) the phenomenology of memory representations." (p. 55). Her insistence on the self component, that there must be a direct experience, led her to reject each of the five criteria. In other words, Trakas insisted that episodic memories must be directly experienced and such a requirement invalidated each criteria. Instead of these five criteria, Trakas suggested an affective criterion for distinguishing episodic memories from semantic ones: A memory is an episodic memory if the person has been affected by it where affect is defined as "how an individual is moved and influenced in terms of harms, benefits, morality or self-image by the dynamic and continuous environmental change" (p. 80). Ironically, the affective criterion can also be rejected if one insists on the presence of a direct experience for a memory to be qualified as episodic. There are affective non-autobiographical memories in which people are influenced/harmed by a memory that they were not present at all. Vicarious trauma is just one example of such memories where people get traumatized by listening to traumatic experiences of others (Pillemer et al., 2015). For instance, a transcriber reports that she is bothered by the image of physical violence towards a pregnant woman: "the image of her partner

assaulting her while she was pregnant, that bothered me a lot… I had a picture of her being a very helpless person [in my mind]... I don't think I'll forget it, I don't feel I'll ever forget ... because it's so graphic. It's like watching a particularly horrifying film that you weren't prepared for, and the thing staying with you afterwards" (Etherington, 2007, p.88). Mahr and Csibra (2018) claims that episodic memory serves as a tool for justification of the truth: Through episodic memory, a person claims that a memory is true because it happened to them and thus they take responsibility for the truth of it. This approach also implicitly assumes that episodic memory can only be autobiographical.

I am not the first to argue that the episodic-semantic distinction is restrictive and there have been others who have proposed alternatives to replace the emphasis on the self as a defining feature for episodic memories. Larsen (1992) defines narrative memories which are memories of indirectly learned events. He makes a distinction between the core and the context of events: The core is defined by what happened in the event (i.e. a coup attempt, getting attacked by a thief) whereas the context is defined by where the person has learned about this event and what it means to them.[1] In narrative memories the core is impersonal and the person has no direct experience of the event. Yet, the context may be vivid and tied to important autobiographical concepts such as political stance, personal fears and identity. Larsen counts narrative memories as a subcategory of episodic memory where the core is non-personal and the context is personal. If both core and context memories are personal then he defines these as autobiographical memories which are also episodic memories. The other two components of his distinction are autobiographical facts and world knowledge (see Table

[1] The concept of context (Larsen, 1992) is similar to noncriterial recollection in a metamemory task (Brewer, Marsh, Clark-Foos, & Meeks, 2010).

1 in Larsen, 1992). Hassabis and Maguire (2007) also challenge the notion that memories can be distinctly separated as either episodic or semantic. In what they refer to as viewer replay, an "episodic-like" memory is lucidly remembered without any specific time or a reference to a self. A person's favorite scene from a movie can be a good example for viewer replay, especially when that person does not remember the specific context they watched it. Such a memory cannot be categorized either as episodic or semantic memory, at least by classical means. Reading or watching something about a public event that has made its mark in collective memory may have the same effect, especially when it fills a person with emotions and brings about visual imagery associated with the event. Habermas and Diel (2013) focussed on the vividness and the narrative qualities of episodic memory and they suggest that even the memories of fictional stories should be included in episodic memory. In line with their narrative focus, they suggested that the specific details of an event, such as the people, place and time, does not matter much for episodic memory. Instead, the sequential nature of the memory, motivation of the person and the meaning of the memory better defines an episodic memory. Rubin (2021) also stated that a person can have a sense of reliving for indirectly experienced events. In short, all these researchers (Habermas & Diel, 2013; Hassabis & Maguire, 2007; Larsen, 1992; Rubin, 2021) emphasize that a direct experience may not be necessary for a memory to be classified as episodic.

These alternative, broader perspectives of what entails episodic memory becomes even more important with more recent shifts in the literature, emphasizing the social and collaborative nature of memory. This line of research also reminds us that remembering is often not a solo process, but with memory representations open to various influences from others (Hirst & Echterhoff, 2012; Maswood & Rajaram, 2019).

For instance, individuals have been known to not only embellish their own memory with details (collaborative facilitation) during collaboration, but also they have been known to integrate falsehoods (social contagion of memory) and even report moderately high levels of remembering for these falsehoods subsequently integrated into memory, despite not initially reporting them. In a similar vein, retrieval of some event details are known to lead to their subsequent inhibition (retrieval induced forgetting), showing how representations of directly and indirectly experienced events are open to critical changes. In addition, media portrayal and collective rehearsal increases the recall and vividness of public events even when they are not directly experienced (Öner & Gülgöz, 2020.

1.3 Following a continuist and constructivist approach

Another line of discussion that can broaden our understanding about episodic-semantic distinction is the continuism vs discontinuism debate (see Perrin & Michaelian, 2017 for a review of arguments and evidence for both sides). Continuists claim that remembering the past and imaging the future are similar processes while acknowledging that future mental time travel is more effortful (Suddendorf & Corballis, 2007). This claim leads them to take a constructivist approach where pieces of past experiences are linked together either for remembering the past or imagining the future (Atance & O'Neill, 2001; D'Argembeau & Mathy, 2011; Schacter, Benoit, & Szpunar, 2017). Discontinuists, on the other hand, claim that these are different kinds of processes mostly governed by different systems arguing that "[episodic memories] of past events and [episodic imaginations] of future events are ultimately mental occurrences of two different kinds" (Debus, 2014 as cited in Perrin & Michaelian, 2017, p.228). Perrin and Michaelian (2017) argue that discontinuists emphasize the role of a causal link to the

past as the most prominent difference between remembering the past and imagining the future. According to discontinuists, such a causal link "is sustained by the preservation of traces of the subject's original experience of the event" (Perrin & Michaelian, 2017, p.228). As a result, the continuism-discontinuism debate reduces to the necessity of a direct experience. If episodic memory has a constructive and simulational character, then continuism seems plausible. However, if episodic memory requires a causal link to a person's experience, then discontinuism may win the debate against continuism.

A review of the psychological literature on episodic memory reveals that there is greater empirical evidence accumulating in favor of the continuist view, highlighting how memory is constructive. For instance, the seminal work by Bartlett (1932) has shown us how we construct memories by converting vague information into sensible bits; similarly, Elizabeth Loftus' research has shown that false memories can be implemented and implicit suggestions can distort past information (Loftus & Palmer, 1974; Loftus & Pickrell, 1995). Similar studies have shown that almost half the people falsely remember a fabricated political event when a fabricated image is provided (Frenda, Knowles, Saletan, & Loftus, 2013), that fabricated images affect how people remember political events (Sacchi, Agnoli, & Loftus, 2007) and that similar results are obtained for childhood memories (Wade, Garry, Don Read, & Lindsay, 2002). Neuroimaging evidence shows great overlap in brain regions while remembering the past, imagining the future (Addis, Wong, & Schacter, 2007; Schacter & Addis, 2007) and even when imagining the perspective of others (theory of mind, Buckner & Carroll, 2007). The neural overlap is attributed to a core network of neural structures that constructs event representations using past experiences as a starting point. All these

studies show that we construct our memories while we are remembering them and I argue that a direct experience is not necessary for such construction.

In light of all the research summarized above, I claim that episodic-semantic distinction may be too restrictive particularly because of the distinction's emphasis on the self. First, it is not clear how this distinction classifies vivid, but indirectly experienced collective or vicarious memories. These types of memories fit into the category of episodic memory much better than semantic memory for several reasons: They can be mentally reconstructed, they may have a sense of reliving the experience, they are not merely cold facts about the world, they evoke emotions, they satisfy the what-where-when criterion and they have a sequential narrative structure. Yet, most definitions of episodic memory require an autobiographical component. In other words, most definitions do not count a memory as episodic memory if the person has not directly experienced it. For instance, how should a researcher classify a public event likely to enter collective narratives (eg. forest fires of the Summer of 2021 in Turkey that people learned about via social media)? Such an event might affect a person's character, and makes them angry every time they think about it. I am hesitant to call these types of memories semantic memory just because there is no direct experience. Second, if episodic and semantic memory are memory systems and if memory tasks are "multiply determined" as Tulving (2002) suggests, then there should be memory systems which support vivid imagery and cause emotional arousal for non-personal events. Third, if episodic memories serve a social bonding function then people should be able to experience each other's memories (Hirst & Echterhoff, 2018). In other words, if the context of an event that happened to others affects a person then they can form episodic memories about that event. I think vicarious memories serve this function in smaller

circles (friends, family, coworkers) whereas collective memories serve this function for larger groups (political party supporters, citizens of a nation and even humanity as a whole). Fourth, if the continuist/constructivist approach to episodic memory is true then people should be able to construct memories even when there is not any direct experience. In a sense, the past is not remembered but constructed from fragments of information and these fragments do not necessarily have to include a direct personal experience. In other words, self-experience may not be necessary. Finally, vicarious memory research shows that vicarious memories have similar but less intense phenomenological qualities than autobiographical memories (Pillemer et al., 2015) and that vicarious life stories can shape personal life stories (Lind & Thomsen, 2018).

1.4 A three-dimensional model for memories

Rubin (2021) forms an important theoretical basis for alleviating the restrictions of the episodic-semantic dichotomy. After echoing Larsen's (1988) observation that "Tulving's definition left [reported events] in no-man's land, outside the taxonomy that came to guide memory research" (p. 331), Rubin argued that "People often have a sense of reliving for characters in an event with whom they identify or empathize. People can even remember another person's autobiographical memory as their own." (p. 8). Based on this and similar observations, he proposed a three-dimensional continuous memory model: The implicit-explicit dimension defines the distinction between conscious and unconscious recollection. Consciously stated memories such as "I went to the cinema yesterday" lie on the explicit side whereas implicit skills such as playing the piano or unconscious thoughts lie on the implicit side. Scene construction dimension is concerned with mental imagery. Memories with vivid scenes lie on one side and memories without

any scenes such as world knowledge lie on the other side. Finally, the self-referential dimension defines whether the event in the memory is directly experienced by the person or by other people. Similar to the other dimensions, this dimension is also continuous: “Myself” lies on one end and “people that I do not care about” lies on the other extreme where “my partner”, “my family”, “my friends”, “my acquaintances” and “my fellow citizens” lies in the continuum between them. This three-dimensional model opens up space for new memory research and it enables us to categorize many memories which were disregarded because of the restrictiveness of episodic-semantic dichotomy. In this model episodic memories are explicit, scene memories with self-ference. Similarly, semantic memories are explicit, non-scene memories which may or may not have self-reference. In addition, this model allows for indirectly experienced vivid memories and considers them as explicit, scene memories without self-reference. Some categories in this model such as implicit, scene memories may be hard to grasp at first but remembering a route without being able to explicitly imagine it or feeling deja-vu can be considered in this category.

Rubin’s (2021) continuous dimensional model provides an important theoretical basis for evaluating different types of memories. For instance, we can visualize the change in collective memories in his three-dimensional model: While forming a connection with a socio-political group, a person usually listens to the collective memories related to the group. For that person these memories are merely semantic knowledge in the beginning. As that person connects more with the group, these memories probably become more vivid and self-defining for that person. In other words, these memories may move away from being explicit memories without a scene and without much self-reference to being explicit, scene memories with more self-reference.

In other words, they may become more episodic in classical terminology. In a similar vein, other memories may possibly lose their importance and they may become explicit memories without scenes and without much self-reference. Here, I do not suggest that memories are replaced with other memories. Instead, I want to emphasize that the location of a memory in the dimensional model may shift in time. Vicarious memories can be imagined in a similar way. As they are shared between people, some of the memories will become more vivid and more related to one's self. Possibly, some other memories shared with other people will lose their meaning and vividness. Visualizing the process of memories moving around within Rubin's proposed dimensional space, may help us to understand the functions of sharing memories as people are forming close relations.

1.5 Reanalysis of a recent study

The empirical and theoretical work I have so far reviewed suggests that the sharp dichotomy between episodic-semantic memory is insufficient in capturing different types of memory. To illustrate this point more directly, I reanalyzed the data from a recent study to demonstrate that some indirectly experienced public events may actually carry episodic features much like personal memories. Abel and Berntsen (2021) studied how people voluntarily or involuntarily remember personal and public events. Study 3 in their article was highly relevant for my thesis. In that study, Abel and Berntsen asked one group to record involuntary personal memories in a diary while limiting the number of entries to two per day. After a participant wrote an involuntary personal event, they were cued with different words to record a voluntary personal memory. Then, the participant evaluated the phenomenological characteristics (vividness, intensity, sense of

reliving) and functional characteristics of both the involuntary and the voluntary memory (directing current life, forming identity, sharing with others). Another group of participants did the same procedure for public events and they recorded whether they directly experienced this event or whether they learned about it from another source. Results showed that public event memories had similar characteristics to personal event memories only when the public events were directly experienced. In addition, indirectly experienced public events had lower scores in phenomenological and functional characteristics except for the social function.

Abel and Berntsen's (2021) results may seem to invalidate my claims at first glance. However, I don't claim that all or most public event memories have episodic features. I claim that some public event memories have such episodic features. To test this idea further, I re-analyzed their data. First, I observed that there were indirectly experienced public events which had high scores on vividness, sense of reliving, intensity and physical reactions, even though the overall percentage of such public memories were low (9-33% of all memories, see Table 1 for distributions of all variables with respect to experience type). Then, I discretized the functional variables into three levels (low, mid, high) and compared their effect on phenomenological variables for directly experienced public events and indirectly experienced public events (Figure 1). Results showed that (1) being high on any of the functional variables also increases the ratings on phenomenological ones for indirectly experienced events, (2) the same effect was not observed for directly experienced events, (3) this effect was highest for intensity and lowest for vividness ratings for indirectly experienced events, (4) directly experienced events that were high in functional values were still more vivid and had a

more sense of reliving compared to indirectly experienced events with such high values and (5) they have similar levels of intensity.

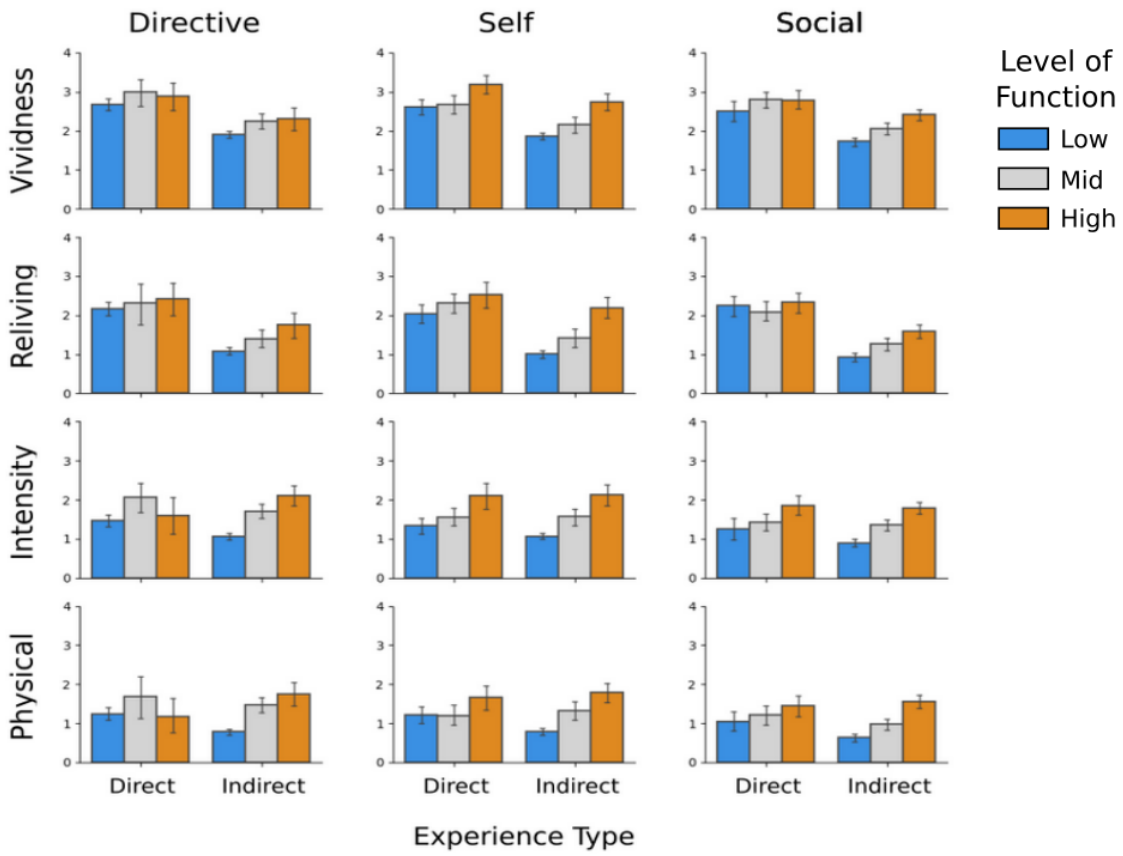

Figure 1. Phenomenological features of memories with respect to functional variables in Abel and Berntsen's study 3

Note. Each row corresponds to a phenomenological feature and each column corresponds to a functional variable. Bar heights show the mean scores and error bars show the 95% confidence intervals. Abel and Berntsen used a 5 point Likert scale where 0 marked "Not at all" and 4 marked "Absolutely". Directive functions represent functions that help one to direct their life in terms of goals; self functions represent functions that help one to build their identity and social functions correspond to sharing the memories. Note the increase in phenomenological features of indirectly experienced events with respect to the increase in function. Also note how memories with high functions have similar phenomenological features both for directly and indirectly experienced events.

Table 1. Percentages of Scores of Phenomenological Features and Functional Variables with respect to Experience Type for Study 3 in Abel and Berntsen (2021)

Experience Type	Vividness Score					
	0	1	2	3	4	*M (SD)*
Indirect	6%	27%	34%	28%	5%	1.99 (1.00)
Direct	1%	7%	30%	43%	19%	2.72 (.88)
			Reliving Score			
Indirect	33%	31%	23%	12%	1%	1.19 (1.06)
Direct	8%	15%	32%	39%	6%	2.21 (1.03)
			Intensity Score			
Indirect	26%	36%	26%	11%	1%	1.25 (.99)
Direct	16%	30%	38%	15%	1%	1.54 (.95)
			Physical Score			
Indirect	40%	34%	16%	9%	1%	1.00 (1.01)
Direct	24%	39%	24%	12%	1%	1.28 (.99)
			Directive Function			
Indirect	53%	24%	14%	8%	1%	.80 (1.01)
Direct	47%	34%	9%	9%	1%	.84 (1.00)
			Self Function			
Indirect	43%	33%	13%	10%	1%	.93 (1.03)
Direct	23%	27%	35%	13%	2%	1.44 (1.04)
			Social Function			
Indirect	12%	34%	29%	19%	6%	1.71 (1.08)
Direct	6%	18%	40%	24%	12%	2.17 (1.06)

Note. Percentages are calculated for each experience type separately. Thus, each row sums to 100%.

I also built separate regression models for phenomenological features of the memories where I evaluated the same effects for indirectly and directly experienced events (Table 2). Increases in functional variables corresponded to increases in vividness, reliving, intensity and physical reaction for indirectly experienced events. I did not not see similar results for directly experienced events when I run the same regressions for them. Thus, it is possible that such functional roles may increase the episodic characteristics of public event memories when they are not directly experienced.

Table 2. Regression of Phenomenological Features onto Functional Variables in Abel and Berntsen's Study 3

Outcome	Directive	Self	Social	R^2 for model
		Indirectly Experienced Events		
Vividness	.03	.17***	.22***	.12***
Reliving	.06	.28***	.16***	.16***
Intensity	.25***	.17***	.24***	.28***
Physical	.22***	.13**	.25***	.24***
		Directly Experienced Events		
Vividness	.13	.07	.06	.05*
Reliving	.09	.12	.01	.03
Intensity	.06	.19*	.21*	.12***
Physical	.11	.04	.17*	.06*

Note. A separate regression model is run for each of the phenomenological variables.
* $p < .05$, ** $p < .01$, *** $p < .001$.

1.6 Present study

In light of the review of the literature and the reanalysis of a recent empirical work, in the present study I further investigated the extent of phenomenological features of memories of indirectly experienced events. The present study had two main goals: (1) To determine whether indirectly experienced memories that have high phenomenological features exist and more critically, (2) to identify the factors that are correlated with phenomenological features of indirectly experienced memories. I focused on two types of indirectly experienced events in two separate studies: Study 1 focused on collective memories and Study 2 focused on vicarious memories. For both types of memories, I focused on the personal and political functions these memories may serve for the individual. I also expected that the relation between phenomenological and personal/political functions for directly experienced events to be weaker compared to indirectly experienced events. Backed up by my analysis of Abel and Berntsen's (2021) data, I claimed that direct experience probably gives a person enough material for vivid remembering. Thus, personal and political functions have smaller effects on directly experienced events' phenomenological features. On the other hand, for indirectly experienced events personal and political functions (and other probable variables) may possibly compensate for the lack of direct experience and help increase the phenomenological features of these memories.

In addition to focusing on function, I explored other possible variables that might impact the phenomenological qualities of indirectly experienced events. I suspected that not grasping what really happened in an event or not understanding what the event meant might cause people to re-think about the event from time to time. This in turn might increase the phenomenological qualities of an event since it is repeatedly

rehearsed. I also suspected that the availability of iconic/popular images associated with a public event in collective memory may impact the phenomenological qualities of the memory of the event, especially increasing vividness. Finally, I suspected there might be a correlation between the number of sources that the event had been learned from and the phenomenological features because more sources probably correspond to more material about the event. To ensure that the ratings were not about the moment participants learned about the event–akin to a flashbulb memory, but the indirectly learned event itself, I also asked additional questions regarding when and how they had learned about this particular event in collective memory.

In line with my claims, I have three hypotheses: (1) I would be able to identify a subset of indirectly experienced events that have high phenomenological features, specifically high ratings of vividness, sense of reliving, intensity and physical reaction. (2) I expected that the personal and political functions would positively predict phenomenological features of indirectly experienced events. (3) The relationship between phenomenology and function would be weaker for directly experienced compared to indirectly experienced events. It is hard to test the first hypothesis with clear cut results: I can not say the hypothesis is supported even when I see one indirectly experienced event with high phenomenological features. On the other hand, I also can not set a certain percentage threshold and say that it is supported if the percentage of such events is higher than the threshold. But, at least I can take Abel and Berntsen's results as reference and also I can comfortably say that the first hypothesis is supported if the percentages are high. However, if they are around a small value (such as 5%) I will refrain from making any conclusion about the first hypothesis.

I also explored the possible relationships between phenomenological features and other factors stated above. I expected phenomenological features to positively correlate with the number of sources that the event is learned from, number of iconic images about the event and the confusion caused by the event in one's mind. Note that valence is also an exploratory outcome variable since I do not have any specific hypothesis for valence. Research shows that public event memories are characterized more by negativity and personal memories more by positivity (Shrikanth & Szpunar, 2021) but this result does not say much about the phenomenological features of indirectly experienced events.

CHAPTER 2

STUDY 1

Study 1 examined the phenomenological features of collective memories and their relationship with personal and political functions of the memory. I controlled for whether participants evaluated how they learned about the event (akin to the flashbulb associated with the learning of the event) instead of evaluating the public event itself. Also, I explored the effects of the number of sources that the event has been learned from, the number of iconic images remembered about the event and the confusion the event causes in one's mind (unsettled memory).

2.1 Method

2.1.1 Sample size estimation

I estimated the required sample size by considering two types of tests: t-tests and regressions. I planned to use multiple regressions whenever all/most of the variables in the analysis were continuous and t-tests only when questions involve mostly discrete independent variables. I aimed for a medium effect, which corresponded to an effect size of 0.5 for t-tests and 0.15 for regressions. I set alpha to .05 and the power to 0.8. I used the WebPower packages of R for sample size calculations.

As a starting point, I expected some of the indirectly experienced events to have high scores, 4 or 5 in a 5-point Likert scale, for each phenomenological feature. In my analysis of Abel and Berntsen's (2021) data, percentages of such events for each variable varied between 10% and 15% (except for vividness where the value was 33%). Thus, I expected 10% to 15% of each phenomenological variable to have high scores.

This meant that I had to multiply the required number of events in sample size calculations with 2.67 to 4, which corresponded to multiplying the numbers with 1.34 and 2 to obtain the number of participants since each participant provides 2 events. To clarify where these numbers come from, let's take 10% as an example: If everything was uniformly distributed we should expect 40% of the events to have high scores (i.e., 4 or 5 in a 5-point Likert scale) since there are 5 scores. But if 10% of them have high scores then we need 4 times the number of events to reach the same number for the high events. Applying a similar logic to 15% gives us the coefficient of 2.67.

The planned tests and corresponding sample sizes are provided in Table 3. To test the relation between phenomenology and function, phenomenological features would be regressed on personal and political function scales. The scales consisted of three factors each; therefore, there would be 6 predictors in the main regression. Including the three exploratory predictors, there would be 9 predictors in the exploratory regression. To examine the interaction effect of experience type and functional variables on phenomenology, a separate regression is planned for each phenomenology-function pair. This analysis requires 3 predictors: experience type, effect of function and their interaction. The highest number of participants for obtaining a medium effect was 228; thus, I aimed for 228 participants. In addition, I provided a stopping rule for events with high phenomenology ratings (4 or 5) since it was possible that we would obtain a different percentage of such events compared to Abel and Berntsen (2021). I also provided the numbers necessary to detect a small effect for interested readers.

Table 3. Sample Size Calculations

Test	Test Type	Number of events for a small effect	Stopping rule for high scoring events	Number of events for a medium effect	Stopping rule for high scoring events
Most vs least important events	Paired t-test	156 (210-312)	63	27 (37-54)	11
Regression for functional variables	Regression (6 predictors)	688 (922-1376)	276	98 (132-196)	40
Effect of exploratory variables	Regression (9 predictors)	790 (1059-1580)	316	114 (153-228)	46
Interaction between functional variables and experience type (direct vs indirect)	Regression with interactions (3 predictors)	550 (737-1100)	220	77 (103-154)	31

Note. DV is a phenomenological variable in all tests. Alpha is set to .05, power is set to .8. Small and medium effect sizes correspond to .2 and .5 for t-tests and to .02 and .15 for f2-tests (regressions). Values in parentheses show the estimated number of required participants.

2.1.2 Participants

The study was implemented on Qualtrics and data was collected online from three different sources. First, I collected data from Boğaziçi University students in December 2021 (N = 139) using the research participation system of the university. After the first round of data collection, I added the flashbulb questions in line with the suggestions of my thesis committee. In the Spring of 2022, I collected a second round of data from both Boğaziçi University students (N = 152) and Bilgi University students (N = 45). In total,

336 participants completed the survey in Study 1. All students were given course credit for their participation in the study.

The sample's age was between 18 and 40 (M = 21.1, SD = 2.7). 64% identified themselves as woman, 33.3% as man and 1.2% as non binary. 71.3% of the sample identified themselves as Turkish. 50% of the participants identified their religion as Islam and the number of atheists (20.8%) and agnostics (8.3%) were fairly high. Details for all demographic variables can be found in Appendix A.

2.1.3 Materials

The survey was conducted in Turkish. Scales that did not have a Turkish translation were translated by the research team.

2.1.3.1 Public event prompts

There were two groups in the experiment. Participants in the "before" group were asked to provide five public events that happened in Turkey between 1960 and their year of birth. I took 1960 as a starting point in order to exclude the Turkish War of Independence, Atatürk's death and the first years of the Turkish Republic, which are topics excessively taught in primary education in Turkey. Participants in the "after" group were asked to provide five public events that happened in Turkey after their age of ten. I set the age to ten so that I could obtain more vivid public events compared to the "before" group.

Participants rated the importance of the five events that they provided using a slider from 0 (Not at all important) to 100 (Very important). I did not specifically explain what I meant by importance. Based on participant's response to the importance question,

the most important and the least important events out of the five provided events were selected for detailed evaluation. I followed such an approach to obtain events with a wide spectrum of phenomenological features along with a wide range of personal and political functions.

Before the detailed evaluation phase, I wanted to ensure that participants wrote events that had a clear beginning and an end rather than referring to historical periods, so I asked participants to think and write about a specific event. This question was slightly different in the first and second rounds of data gathering. In the first round, it was an open-ended question that asked participants to select and write about a specific event from the time period.

> "When making your assessment, you need to focus on a specific event. If you have described an event or period with an uncertain beginning (eg. student riots, terrorism, peace process, etc.), please select a specific event from that period. Write your chosen event below. If you have chosen an event with a clear beginning and end, you can leave this question blank."

In the second round, to clarify what I meant by "specific event" and to restrict the participants' responses, first I asked whether the event is a specific one:

> "The event you are evaluating should not cover a wide period. When conducting your assessment, we want you to focus on a specific event that has a certain beginning, that started and ended within 24 hours, and that took place in a certain place. Does the identified event meet these requirements?"

Participants could either select "Yes", "No but I can find such a specific event" or "No and I cannot find such a specific event". If they chose the second option, then they were

prompted to write that specific event in an open-ended question. Details and translations of all the prompting questions can be found in Appendix B.

2.1.3.2 Phenomenological features of the events

Questions to assess phenomenological characteristics were adapted from Abel and Berntsen (2021). I introduced slight changes to the questions so that participants could rate indirectly and directly experienced events with the same questions (Appendix C). Participants evaluated the vividness, the sense of reliving, the intensity (of feelings) and the physical reaction of the event using a 5-point Likert scale ranging from 1 (Not at all) to 5 (Completely). In addition, participants rated the valence of the event using a 7-point Likert scale ranging from -3 (very negative) to 3 (very positive).

2.1.3.3 Personal functions

Personal function items were adapted from Bluck and Alea (2011). The scale consisted of three factors: Self-continuity (e.g., "Thinking about this event helps me understand how I changed in relation to the person I used to be"), directing-behavior (e.g., "I think about this event when I believe that thinking about the past can guide my future") and social-bonding (e.g., "I think about this event to develop more intimacy in a relationship"). Bluck and Alea (2011) used five items for each of the factors. However, considering participant fatigue, I reduced the number of items in each factor to three by taking the three questions with the highest factor loadings in their study. Also, I slightly changed the wording of the questions to target a specific event (in line with Bluck and Alea (2011)'s suggestion, Appendix D). The participants provided their answers using a 5-point Likert scale ranging from 1 (Not at all) to 5 (completely).

2.1.3.4 Political functions

I wrote the political function questions based on the personal function questions. I was interested in three factors: Group-identity (e.g., "As I think about this event, I feel satisfaction from belonging to the group that I mentioned"), group-continuity (e.g., "Thinking about this event allows me to connect the past, present and future of the group that I mentioned") and understanding the world (e.g.,"Thinking about this event helps me understand how my country and the world work"). The participants provided their answers using a 5-point Likert scale ranging from 1 (Not at all) to 5 (completely).

By nature, group-identity and group-continuity factors are only valid if the participant feels that they belong to a group or a stance associated with the event (such as being conservative, liberal, rebellious, opposed to the system, etc.). Thus, before answering the political questions, participants stated whether such a group/stance (related to the event) existed for them. If it did, participants were asked to state that group and answer group-identity and group-continuity items. If such a group did not exist, participants did not answer the group-identity and group-continuity questions. Items can be found in Appendix E.

2.1.3.5 Unsettled memory

I wrote two questions to measure whether the event was a puzzling/unsettled one: "This event still confuses me." and "There are details about this event that I cannot decipher.". Answers were provided on a 5 point Likert scale ranging from 1(Absolutely Not) to 5 (Absolutely).

2.1.3.6 Source of learning

Participants stated all the sources from which they learned about the event by clicking on the following options: close family members, distant family members, close friends, distant friends, books, movie/series, theater plays, TV news, radio news, social media and "I experienced it". An open-ended option was also provided for participants who wished to specify other sources.

Number of sources of learning were counted for each participant. In addition, the "I experienced it" choice was used to identify directly experienced events.

2.1.3.7 Iconic images

For iconic images, participants saw the following prompt with seven answer boxes: "Think of images that come to your mind about this event that have been shared frequently in the media or on social media. In short sentences, describe these images. Do not write more than one answer in one box. If you do not have an answer, you can leave the question blank.".

Some participants wrote some concepts and emotions (fear, anger, democracy, joy of winning, desperation, future of our country, etc.) as iconic images. Therefore, I counted the number of iconic images manually for each participant. I considered the answer as an iconic image as long as it referred to something that was concrete and that could be visualized. This decision caused me to include some unspecific answers (such as tanks, money, soldiers, crying children) even though they do not clearly refer to a specific iconic image.

2.1.3.8 Flashbulb characteristics

Questions assessing the flashbulb qualities of an event were adapted from Kaya Kızılöz and Tekcan (2013). Participants first answered whether they remembered the moment that they learned about the event. If they answered yes, then they were prompted to write about that moment ("Try to remember in as much detail as possible the moment you first learned about the event. Please write what you remember."). Then, they reported whether they focused on the public event or flashbulb memory while evaluating previous questions on a Likert scale ranging from 1 ("I completely focused on the moment that I have learned about the event") to 6 ("I completely focused on the event itself"). Details of all the exploratory variables (unsettled memory, source of learning, iconic images, flashbulb characteristics) can be found in Appendix F.

2.1.3.9 Demographics

Participants provided their age, gender, voting preference, ethnic identity and religious belief. In addition, participants stated whether they have recently taken a history or humanities course. I added these two items in the second round of data gathering, considering that such courses may have effects on the selection of events. Other than voting preference, all demographics items were open ended. Items can be found in Appendix G.

2.1.4 Procedure

Ethics approval for Study 1 and Study 2 was obtained from Boğaziçi University Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (Appendix

H). The corresponding committee in Bilgi University has stated that the ethics approval from Boğaziçi University is sufficient for data collection from Bilgi University students.

After consenting to participate, participants were randomly assigned to one of the two groups. The before group was prompted to write 5 public events dating from 1960 to their birth and the after group was prompted to write 5 public events that happened after their tenth birthday. Then, both groups rated the importance of the five events they had written. Based on their scores, the most important and the least important events were identified for each participant.

To ensure we had sufficient variability to test our main questions of interest, participants evaluated the most and the least important event they provided in detail. The evaluation order of most and least important events were counterbalanced. Participants first rated the phenomenological features (i.e., vividness, sense of reliving, emotional intensity, physical reaction, and valence) of the event. Then, they rated the personal functions of the memory. For political functions, they first stated whether there existed a stance or a group they associated with the event that they reported. If such a stance/group existed, they answered political functions of the memory, which were group identity, group continuity and understanding the world. If such a stance/group did not exist then they only answered questions about understanding the world.

In addition, participants rated whether the specified event continued to puzzle them and whether there were some details about the events which they still could not grasp. They named the sources that they have learned about the event leading to this memory, and described any iconic images they associated with the event.

To make sure that participants' evaluations of these public event memories indeed were about the events themselves, and were not reflecting personal memories

regarding the context in which people learned about a particular event, I asked participants whether they remember the moment that they learned about the event. If they answered affirmatively, I asked them to provide a brief description of how they learned about the event. Finally, I asked them whether their earlier ratings on phenomenology and function items were based on the personal context memory or the public event itself.

I also wanted to explore the motivations of participants for choosing a specific event. Therefore, following the ratings, participants were asked why they chose to report that particular event. Lastly, participants provided demographic information. The flow of the experiment is summarized in Figure 2. Both Study 1 and Study 2 were pre registered before any data collection.[2]

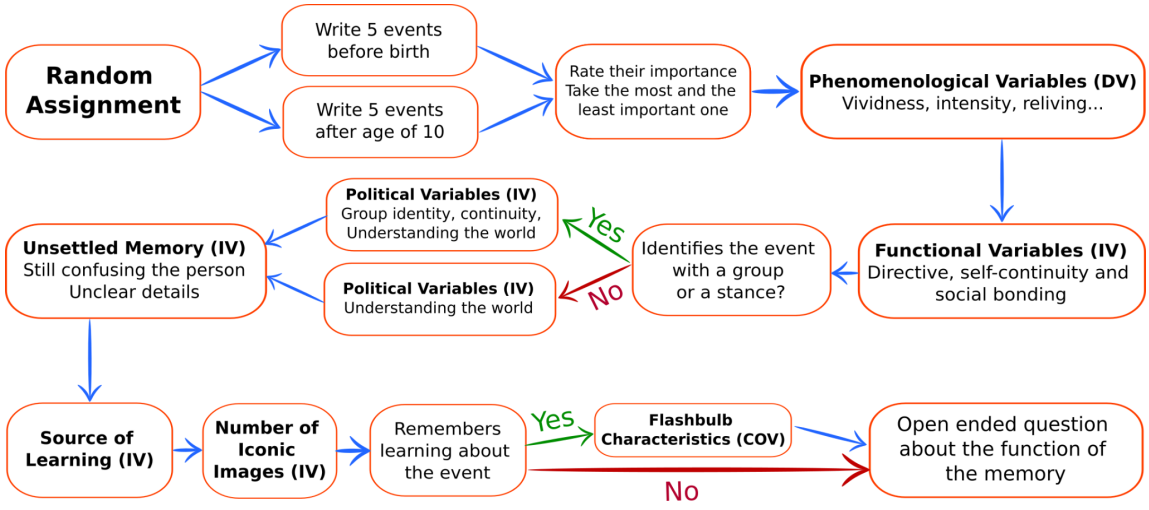

Figure 2. Experiment flow for study 1

Note. After the evaluation of both the most and the least important events, the experiment ended with demographic questions.

[2] https://aspredicted.org/blind.php?x=J81_P2K. Registration number is 84687.

2.2 Results

I used Jamovi (The Jamovi Project, 2022) for analyses other than regressions. I used numpy, pandas and scikit-learn packages of Python for calculating bootstrapped regression coefficients and plots.

Initial data consisted of 336 participants (672 events). 75 participants (150 events) were excluded because they wrote events that did not match with their assigned experimental group (e.g., they wrote about events that took place after their birth although they were in the "before" group). 39 participants (78 events) were excluded because they reported the same level of importance to all of the 5 events they had chosen, which led the survey to show the same event as the most and the least important event. 104 events were excluded because they were flashbulb events (i.e., scored lower than 4 on the flashbulb item). Descriptives for flashbulb events are provided in Appendix I. No one was excluded due to attention checks since all participants answered 4 or 5 the attention checks out of 5 correctly. The remaining sample consisted of 316 indirectly experienced events and 124 directly experienced events. Participants reported identification with a group or a stance for 89 (28%) of the indirectly experienced events. Thus, the group identity and group continuity scores were present for only 89 of the indirectly experienced events. Initially, I did not plan to compare directly and indirectly experienced events in Study 1. However, because the number of directly experienced events in this study was fairly high, I included them in my analyses.

My plan for my analyses was as follows: First, I had to show that indirectly experienced events with strong phenomenological features existed and that the existence of such features was not due to random answers. Then, I had to explore the factor structure of personal and political functions before using them. After that, I could regress

phenomenological features onto functional variables to analyze the relation between them. These regressions would result in many coefficients where some of them would turn out to be significant. Thus, I had to devise a theoretical and an empirical approach to decide whether obtaining a certain number of significant coefficients out of many coefficients was statistically meaningful. As for the regressions, first, I planned to run separate regressions for directly and indirectly experienced events. Then, I planned to run a combined regression with interaction effects to assess whether the relation between phenomenological features and functional variables are different for directly and indirectly experienced events.

2.2.1 Indirectly experienced events with high phenomenological features

Firstly, I hypothesized that there would be indirectly experienced events that have high phenomenological features. Table 4 shows the percentage of each score of each phenomenological variable for each experience type. Consistent with our expectations, the results showed that there was a subset of indirectly experienced events with high phenomenological qualities (i.e., a score over 4). Even for events that took place before the participant's birth, there were numerous memories that received high scores (21%, 26%, 29% and 11% for vividness, reliving, intensity and physical features, respectively). These numbers were 50%, 30%, 36% and 17% for indirectly experienced events that took place after the participant's tenth birthday. Note that even for directly experienced events, ratings for physical experiences were at floor.

Table 4. Percentages of Scores of Phenomenological Functions with respect to Experience Type for Study 1.

Experience Type	Vividness Score					
	1	2	3	4	5	*M (SD)*
Before	28%	26%	24%	12%	9%	2.44 (1.24)
After	6%	18%	25%	30%	20%	3.33 (1.14)
Direct	2%	6%	21%	27%	44%	4.02 (1.03)
	Reliving Score					
	1	2	3	4	5	*M (SD)*
Before	33%	23%	18%	17%	9%	2.43 (1.31)
After	25%	24%	20%	20%	10%	2.60 (1.31)
Direct	13%	18%	18%	26%	25%	3.27 (1.38)
	Intensity Score					
	1	2	3	4	5	*M (SD)*
Before	31%	21%	20%	21%	8%	2.51 (1.30)
After	17%	21%	26%	24%	12%	2.95 (1.25)
Direct	14%	13%	25%	26%	23%	3.29 (1.33)
	Physical Score					
	1	2	3	4	5	*M (SD)*
Before	58%	22%	9%	8%	3%	1.77 (1.10)
After	50%	23%	9%	13%	4%	1.93 (1.15)
Direct	44%	22%	18%	8%	9%	2.10 (1.31)

Note. Percentages are calculated for each experience type separately. Thus, each row sums to 100%.

2.2.2 Most vs. least important events

As an initial step in examining the phenomenological features of indirectly experienced events, I conducted repeated measures t-tests on each of the phenomenological features comparing the most and the least important indirectly experienced events. Most important events ($M = 3.33$, $SD = 1.23$) were more vivid than least important events ($M = 2.91$, $SD = 1.20$), $t(94) = 2.65$, $p = .009$, $d = .27$. Most important events ($M = 3.03$, $SD = 1.39$) had a higher sense of reliving than least important events ($M = 2.25$, $SD = 1.19$), $t(94) = 4.12$, $p < .001$, $d = .43$. Most important events ($M = 3.37$, $SD = 1.25$) were more intense than least important events ($M = 2.13$, $SD = 1.10$), $t(94) = 8.27$, $p < .001$, $d = .85$. Finally, most important events ($M = 2.25$, $SD = 1.37$) caused more physical reactions than least important events ($M = 1.62$, $SD = 0.97$), $t(94) = 4.60$, $p < .001$, $d = .47$.

This analysis showed that phenomenological features of indirectly experienced events are not randomly distributed since there is a variable that changes with them. This result serves as a sanity check and shows that there could be other more meaningful variables that can explain the variance in phenomenological features of indirectly experienced events.

2.2.3 Exploratory factor analysis of functional variables

I performed an exploratory factor analysis on personal and political functions of memory. I used minimal residual extraction method with oblimin rotation. The number of factors were extracted by the analysis automatically by comparing the eigenvalue of new factors with the eigenvalues of random simulations (parallel analysis).

For personal functions the analysis revealed three factors which explained 60% of the variance in total. The factor structure corresponded to the expected factors: self

continuity (α = .86), directing behavior (α = .74), and social bonding (α = .80). There were no cross loadings and the loadings ranged between .52 and .92. For political functions the analysis revealed two factors which explained 57% of the variance in total. Group identity and group continuity questions emerged as a single factor. Therefore, I combined group identity and group continuity items to create a "political group" variable (α = .84). Understanding the world items emerged as a second factor (α = .85). The loadings ranged between .39 and .92. The political group factor existed at 89 (28%) of the indirectly experienced events since it includes the group identity and group continuity factors.

2.2.4 The correlations between phenomenological features and predictors for indirectly experienced events

I computed the correlations between phenomenological features and personal functions (self-continuity, directing behavior, social bonding), political functions (political group, understanding the world) and the exploratory variables (unsettled, number of sources, number of iconic images). Figure 3 displays the correlation coefficients as a heat map. The analysis showed that there was a significant and positive relationship between each functional variable and each phenomenological feature.

Turning to exploratory features and predictors, the correlation between valence (an exploratory outcome) and functional variables were weak and often nonsignificant. The relationships between the exploratory predictor variables and phenomenological features were either weak or nonsignificant, except for the relationship between the number of iconic images and vividness, which was positive and significant. Interestingly, the relationship between directing behavior and valence, and the

relationship between unsettled and valence was negative and significant. This suggests that as a memory becomes more negative, it helps more to a person in directing behavior; and that unsettled memories are associated with more negativity compared to settled ones.

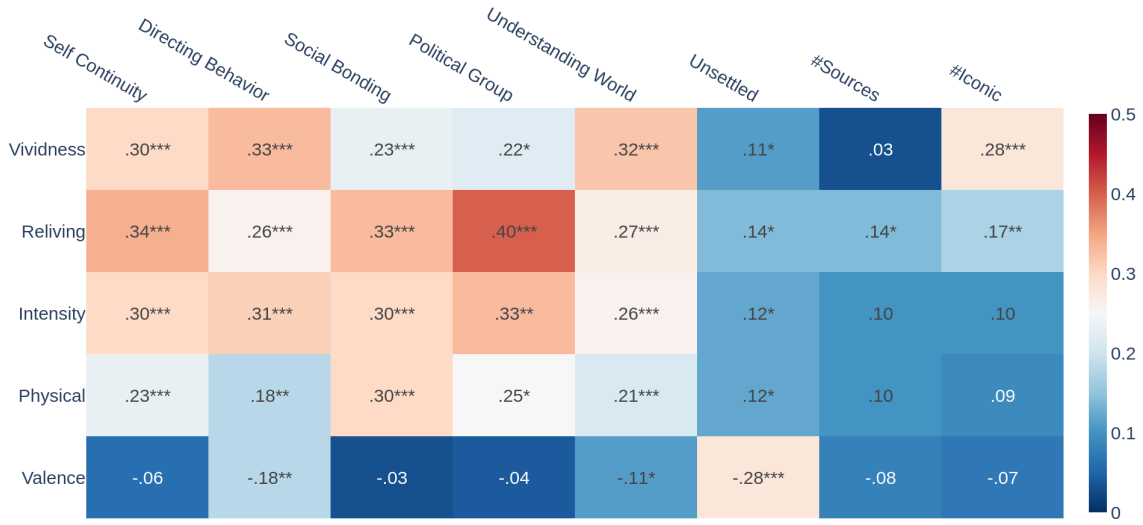

Figure 3. Correlations between phenomenological features and predictors for indirectly experienced events for study 1

Note. The middle point for the heat map (.25) marks the start of the transition from a small correlation to a moderate correlation.
* $p < .05$, ** $p < .01$, *** $p < .001$.

2.2.5 Analytical approach to regression analyses

I performed multiple regression analyses for each phenomenological feature of indirectly experienced events, bootstrapped for 1000 samples. I preferred a bootstrap analysis because almost none of the variables were normally distributed.

Overall, vividness, reliving, intensity, physical (and valence as an exploratory outcome) were regressed on personal functions (self-continuity, directing behavior,

social bonding), political functions (understanding the world), and exploratory predictors. The resulting regressions gave 16 coefficients (excluding the exploratory analyses). To control for error rate, instead of using a Bonferroni correction, I devised an alternative approach. I preferred not to use Bonferroni correction because dividing the α threshold with 16 would be infeasible. Furthermore, in that case, I would not be comfortable by stating that my hypothesis was supported just by obtaining a single significant coefficient. Instead, I theoretically and empirically calculated the probability of obtaining at least S number of coefficients whose 95% confidence interval did not include zero out of 16 coefficients in the multiple regression analysis. To be conservative, I calculated the probability of obtaining at least S such coefficients instead of calculating the probability of obtaining exactly S such coefficients. This approach gives higher probabilities which makes it harder to obtain significant results.

For the theoretical calculations, I used a simple probability formula. Assuming that there was no relationship between the predictor and outcome variables, the probability of obtaining a coefficient whose 95% confidence interval includes zero is 5%. Similarly, the probability of not obtaining such a coefficient is 95%. Using these values, I calculated the probability of obtaining at least S such coefficients out of 16. Details of this calculation and the values are provided in Appendix I.

For the empirical calculations, I simulated new predictors and regressed my obtained dependent variables onto the simulated predictors. This allowed me to see how many coefficients would have a 95% confidence interval that did not include zero, when the predictors were randomly generated numbers. Specifically, the code I wrote created four variables (predictors) and generated scores that range between 1 and 5 for each event in the dataset for each new predictor. The code then performed multiple regression

analyses for each phenomenological feature (vividness, reliving, intensity, physical) with the simulated predictors, bootstrapped for 1000 samples as would be in the actual analysis. The number of coefficients whose 95% confidence interval did not include zero were counted. This process was repeated 1000 times to obtain probability estimates with a precision of 0.1%. After 1000 simulations, the code counted the times where exactly S number of such coefficients were observed and from that it calculated an estimate for obtaining at least S number of such coefficients. All simulation results are provided in Appendix I.

I considered a result significant if both the theoretical and the empirical calculations resulted in a probability that is less than 5%. I used the same approach for all of the regression analyses in both Study 1 and Study 2.

2.2.6 The multiple regressions for phenomenological features for indirectly experienced events

I hypothesized that personal and political functions would positively predict phenomenological features of indirectly experienced events. Vividness, reliving, intensity, and physical experiences were regressed on personal functions (self-continuity, directing behavior, social bonding), political functions (understanding the world) and the exploratory variables (unsettled, number of sources, number of iconic images). The political group function was omitted because it existed only for 28% of the data and including it would cause a reduction in power. To explore the role of valance, I performed the same analysis on valance, as well.

Figure 4 shows the unstandardized regression coefficients for the predictors for indirectly experienced events.[3] Each row represents one multiple regression analysis. The results showed that personal and political functions positively and significantly predicted phenomenological features. Eight out of 16 coefficients of functional variables had a 95% confidence interval that did not include zero. Probability analysis (< 0.1%) and simulations (0.1%) show that obtaining at least eight such coefficients out of 16 by chance is highly improbable.

Consistent with the correlation analyses, directing behavior and unsettled memories negatively predicted valence and the number of iconic images positively predicted vividness.

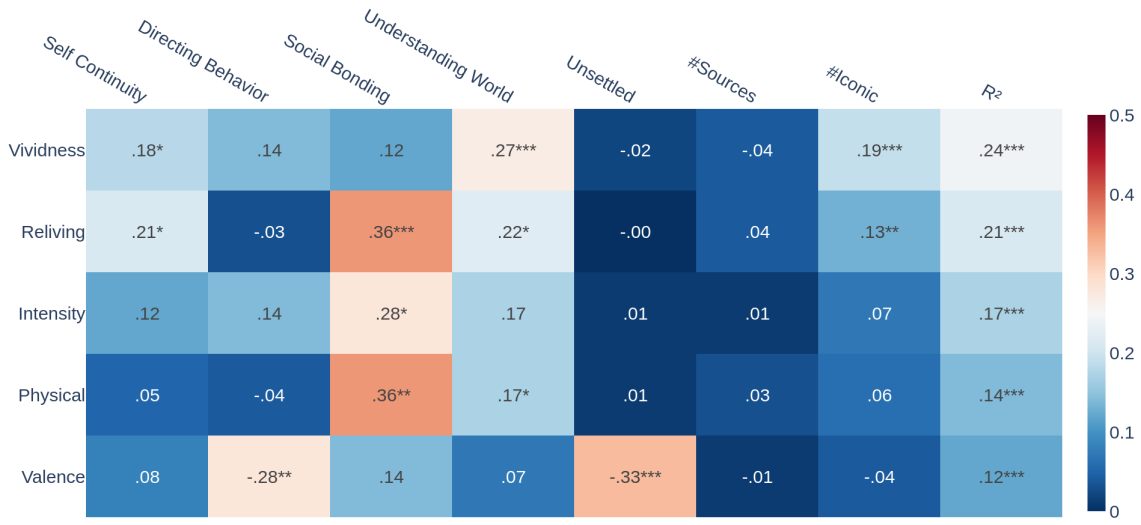

Figure 4. Regressions of predictors onto each phenomenological feature for indirectly experienced events for study 1

Note. Values show the unstandardized coefficient estimates. Each row represents a separate regression where outcome is a phenomenological feature. R^2 value of each regression is shown in the last column.
* 95% CI does not include zero, ** 99% CI does not include zero, *** 99.9% CI does not include zero.

[3] Note that all variables except the number of sources and number of iconic images were assessed with scales ranging from 1 to 5.

2.2.7 The multiple regressions for phenomenological features for directly experienced events

I performed the same multiple regression analyses for each phenomenological feature (bootstrapped for 1000 samples), but this time for directly experienced events. Vividness, reliving, intensity, and physical were regressed on personal functions (self-continuity, directing behavior, social bonding), political functions (understanding the world) and the exploratory variables (unsettled, number of sources, number of iconic images). To explore the role of valence, I performed the same regression analysis on valence, as well.

Figure 5 shows the unstandardized regression coefficients for the predictors for directly experienced events. Each row represents one multiple regression analysis. Three out of 16 coefficients of functional variables had a 95% confidence interval that did not include zero (self continuity predicted reliving and directing behavior predicted intensity and physical). Probability analysis (4.3%) and simulations (7.9%) show that obtaining at least three such coefficients out of 16 coefficients by chance is marginally likely. Thus, functional variables did not strongly/reliably predict the phenomenological features for the directly experienced events.

Comparing the multiple regression results of indirectly and directly experienced events provide initial evidence for the third hypothesis, that the relationship between functional variables and phenomenological features are different for indirectly and directly experienced events. In addition, the effects of number of iconic images on vividness, unsettled memory on valence and directing behavior on valence that was observed in indirectly experienced events vanishes for directly experienced events.

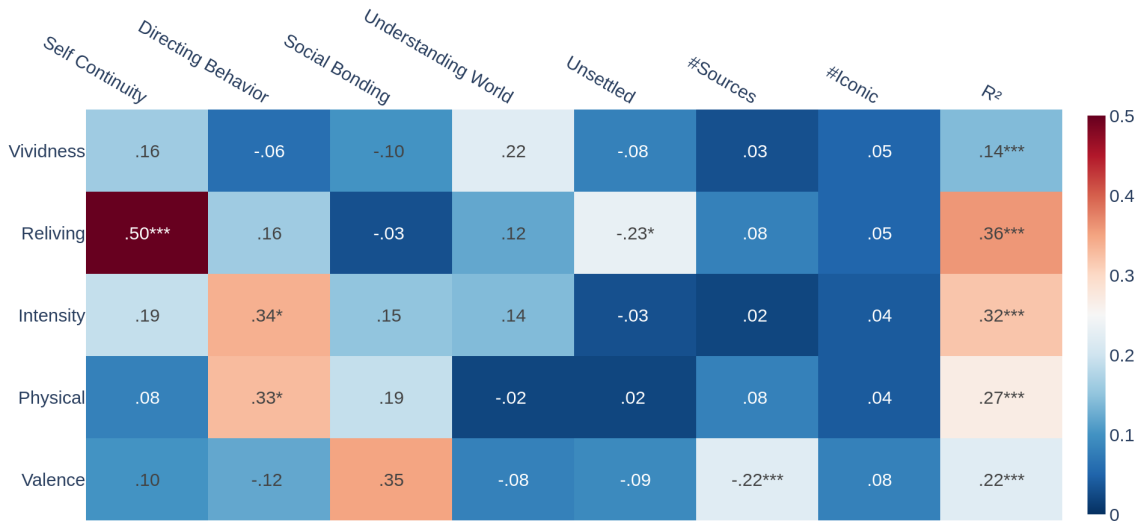

Figure 5. Regressions of predictors onto each phenomenological feature for directly experienced events for study 1

Note. Values show the unstandardized coefficient estimates. Each row represents a separate regression where outcome is a phenomenological feature. R^2 value of each regression is shown in the last column.
* 95% CI does not include zero, ** 99% CI does not include zero, *** 99.9% CI does not include zero.

2.2.8 The simple regression plots of phenomenological features with directly and indirectly experienced events

To visually examine whether the relationship between phenomenological features and functional variables changes according to the experience type, I performed simple regression analyses and regressed each phenomenological variable onto each functional variable for different event types (before, after, direct) separately. I compiled the regression plots for before, after, and direct groups into Figure 6. Unlike the previous analyses, each line in Figure 6 corresponds to a separate regression. In total there were 4 (outcomes) * 5 (predictors) * 3 (event types) which amounted to 60 regressions. In line with my expectations, the relationship between functional variables and vividness was greater for indirectly experienced events than directly experienced events. However, this

may be due to the ceiling effect for directly experienced events for vividness. In addition, contrary to expectations, for reliving, intensity and physical phenomenological features, the same pattern was not observed.

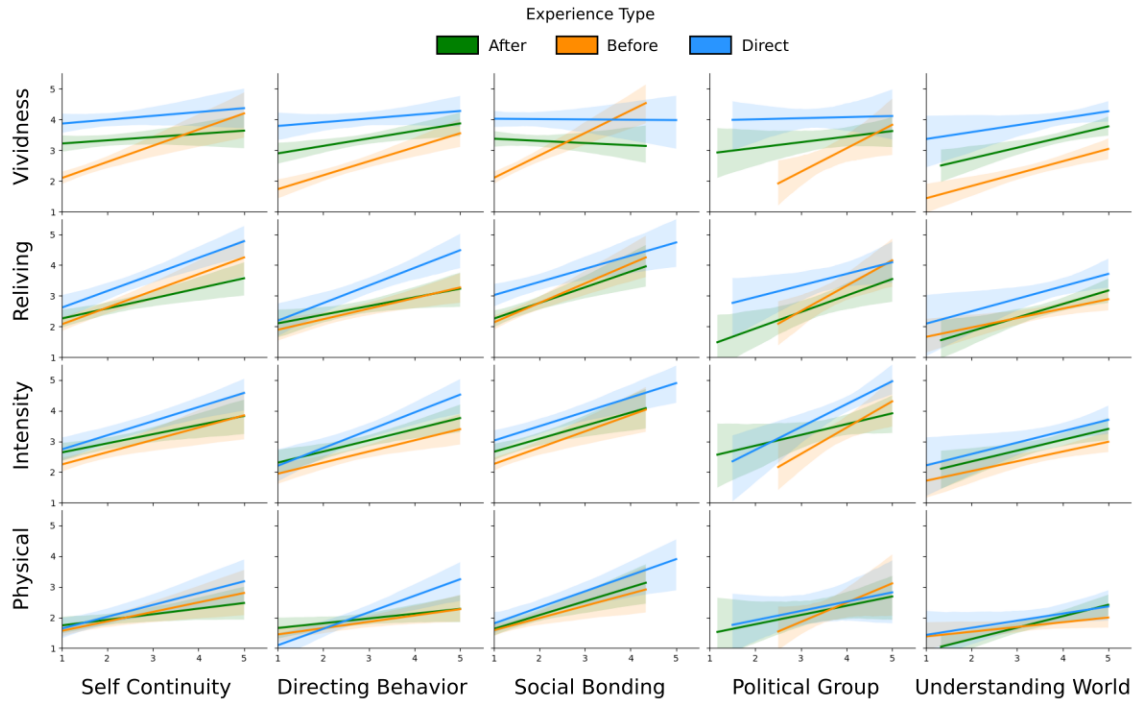

Figure 6. Regressions of each functional variable onto each phenomenological feature with respect to event type for study 1

Note. Shaded areas show 95% confidence intervals. Each functional variable is regressed onto each phenomenological feature separately for each event type.

2.2.9 The multiple regressions for phenomenological features with interaction effects

In order to statistically test the interaction between experience type and function on phenomenology, I conducted hierarchical regressions for each pair of functional and phenomenological variables bootstrapped for 1000 times. First, I created a dummy coded experience type variable that compared directly experienced events (marked as zero) and indirectly experienced events (before and after combined, marked as one).

Then I regressed each phenomenological feature onto each functional variable separately which resulted in 16 (4 phenomenological features, 4 functional variables) hierarchical regression. In each regression first I regressed the phenomenological variable onto experience type and function. Then, I added their interaction effect in the second step. Thus, I was able to identify the contribution of the interaction for explaining the phenomenological variables.

I omitted exploratory variables in order not to overburden the analysis. To explore the role of valence, I performed the same regression analysis on valence.

Figure 7 shows the interaction coefficient of each regression and the corresponding R^2 values. I am mainly interested in interaction coefficients and coefficients of the experience type and the functional variable are omitted. There are three interaction coefficients whose 95% CI does not include zero (directing behavior on vividness and physical, social bonding on vividness). Probability analysis (4.3%) and simulations (8.1%) show that obtaining at least three significant coefficients out of 16 coefficients was marginally likely. Furthermore, the effect of the interaction between directing behavior and physical reaction was not in the expected direction. Thus, my hypothesis that relation between phenomenological features and functional variables would be different for directly and indirectly experienced events was not supported.

2.3 Study 1 discussion

In this study, I first showed that indirectly experienced events with high phenomenological features exist and that such high features were not due to random answers from participants. Through correlation and regression analyses, I showed that personal and political functional variables positively predicted phenomenological

features for indirectly experienced events. The same pattern of relationship did not exist for directly experienced events. This was an initial support for the idea that the relation between phenomenological features and functional variables would be different for directly and indirectly experienced events. However, the visual analysis of simple regression plots weakly supported this hypothesis and the interactions of experience type with functional variables did not support it. In short, support for this hypothesis was mixed.

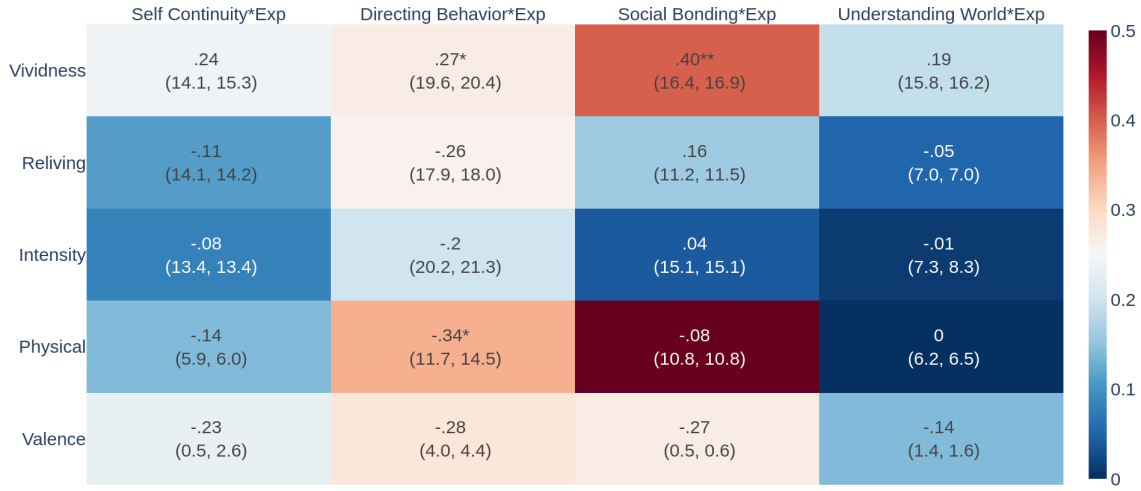

Figure 7. Interaction coefficients of hierarchical regressions for study 1

Note. Values show the unstandardized coefficient estimates. Each cell represents a separate regression where outcome is a phenomenological feature and the predictors are experience type, function and their interaction. Experience type is dummy coded where directly experienced events are marked as zero and indirectly experienced as one. "*Exp" denotes a variable's interaction with experience type. Values in parentheses show the R^2 of the reduced and full model respectively as percentages. Differences between the values denote the variance explained by the interaction effect. Coefficients of experience type and function are omitted.
* 95% CI does not include zero, ** 99% CI does not include zero

As for exploratory variables, unsettled memory predicted valence and number of iconic images predicted vividness and reliving. The former result hints that unsettled

memories are associated with more negative emotions compared to settled ones. The latter result was expected. Number of sources that the event has been learned from did not have any significant effect in regressions.

CHAPTER 3

STUDY 2

Study 2 examined the phenomenological features of vicarious memories and their relationship with personal and political functions of the memory. Methodologically, Study 2 was almost the same as Study 1. In this study, I focused on memories that people tell to their close friends/family as directly experienced events, and memories that people learn from close friends/family as indirectly experienced events. This approach enabled me to make a better comparison of directly and indirectly experienced events.

3.1 Method

3.1.1 Sample size estimation

This study closely follows the analysis plan of Study 1, and it requires the same number of participants (228 participants, see Table 3).

3.1.2 Participants

The study was implemented on Qualtrics and data was collected online from two different sources. First, I collected data from Boğaziçi University students in April and May of 2021 ($N = 132$) using the research participation system of the university. All students were given course credit for their participation in the study. Second, in parallel, I collected data through social media ($N = 83$). Participants from social media were given a chance to participate in a lottery and four of them were provided with gift cards worth 150 TLs. In total there were 215 participants.

The sample's age was between 18 and 67 (M = 26.0, SD = 12.4). 61.9% identified themselves as woman, 36.6% as man and 1.0% as non binary. 73.8% of the sample identified themselves as Turkish. 43.6% of the participants identified their religion as Islam and the number of atheists (30.2%) and agnostics (6.4%) were fairly high. Details for all demographic variables can be found in Appendix A.

3.1.3 Materials

The survey was conducted in Turkish. Scales that did not have a Turkish translation were translated by the research team.

3.1.3.1 Vicarious memory prompts

There were two groups in the experiment. Participants in the direct group were asked to provide five personal memories that they have told to their family or friends. Participants in the indirect group were asked to provide five memories that their family or friends have told to them.

As in Study 1, participants rated the importance of the events and these ratings are used to select two events for further evaluation. Before detailed evaluation, to ensure that participants wrote memories that have a clear beginning and an end, rather than lifetime periods, I asked participants if they wrote a specific memory or if they can provide one. This memory check was the same as the second version of event check in Study 1. Details and translations of all the prompting questions can be found in Appendix B.

3.1.3.2 Phenomenological features of the events

I used the same items from Study 1 (Appendix C).

3.1.3.3 Personal functions

I used the same questions from Study 1 (Appendix D), but I changed the wording of the items to account for memories. For instance, "Thinking about this event helps me to learn from the past mistakes of society" was changed to "Thinking about this memory allows me to learn from my own past mistakes." for the direct group and to "Thinking about this memory allows me to learn from the past mistakes of my close circle." for the indirect group.

3.1.3.4 Political functions

I used the same items from Study 1 (Appendix E). I retained the questions regarding group identity and group continuity considering that some of the vicarious memories could also be related to a group/stance. Note that participants answered these group questions only if they stated that there was a group/stance that was related to the memory and that they felt they belonged to that particular group.

3.1.3.5 Unsettled memory

I used the same questions from Study 1 (Appendix F).

3.1.3.6 Source of learning

I asked the participants about their relationships with the person whom they told their personal memory to (direct group) or the person who told them their personal memory

(indirect group). If participants did not remember whom they shared the memory with or that there was more than one person they shared the memory with, they should have an option to leave this question blank. Thus, the question specifically stated that "If you have not written the memory with such a person in mind, you can leave it blank".

3.1.3.7 Flashbulb characteristics

I used the same items from Study 1 (Appendix F).

3.1.3.8 Demographics

Participants provided their age, gender, voting preference, ethnic identity and religious belief as in Study 1. Other than voting preference, all demographics items were open ended. Items can be found in Appendix G.

3.1.4 Procedure

As stated before, ethics committee permission for both studies was obtained from Boğaziçi University Ethics Committee for Master and PhD Theses in Social Sciences and Humanities (Appendix H).

After consenting to participate, participants were randomly assigned to one of the two groups. The direct group was prompted to write five memories of events that happened to them and that they had told to their family or friends. The indirect group was prompted to write five memories that happened to their family or friends (which they were not part of).

Rest of the procedure was the same as Study 1 with some minor differences. Participants rated the importance of the five events they had written. Based on their

scores, they evaluated the most and the least important memory they provided in detail. Then they rated the phenomenological features, personal functions and political functions in that order.

In addition, they rated whether the specified memory continued to puzzle them. They also specified their relation with the person whom they told the memory or who told a memory to the participant, if such a person existed. As in Study 1, I was concerned that participants (in the indirect group) may focus on the moment that they hade learned about a vicarious memory instead of the memory itself. Thus, I used the same flashbulb characteristic questions as in Study 1.

As in Study 1, I wanted to explore the motivations of participants for choosing a specific memory. Therefore, following the ratings, participants were asked why they chose to report that particular memory. Lastly, participants provided demographic information. The flow of the experiment is summarized in Figure 8.

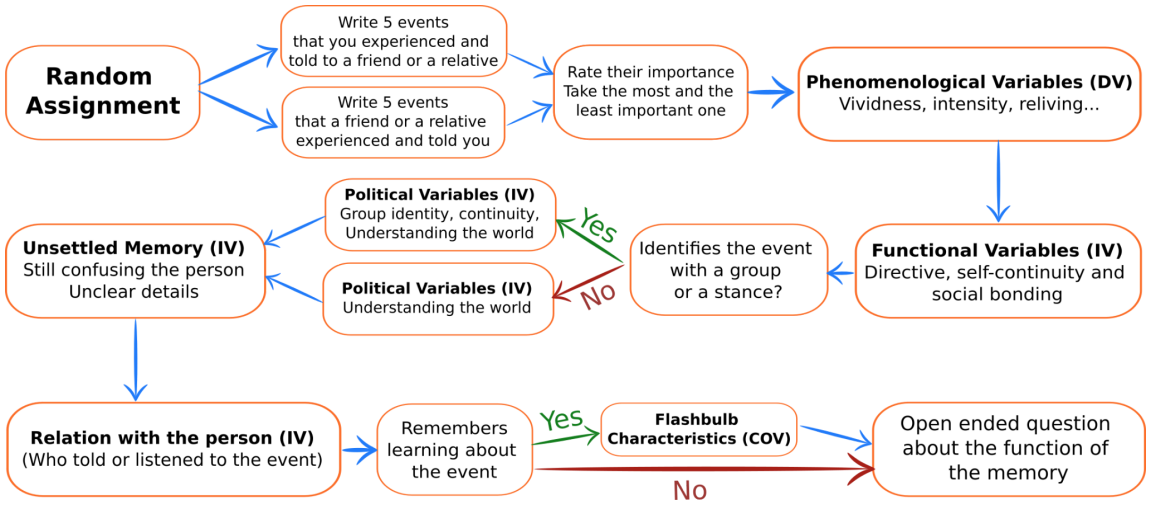

Figure 8. Experiment flow for study 2

Note. After the evaluation of both the most and the least important events, the experiment ended with demographic questions.

3.2 Results

As in Study 1, I used Jamovi (The Jamovi Project, 2022) for analyses other than regressions. I used numpy, pandas and scikit-learn packages of Python for calculating bootstrapped regression coefficients and plots.

Initial data consisted of 215 participants (430 events). 2 participants (4 events) were excluded because they wrote memories that did not match with their experimental group. 8 participants (16 events) were excluded because they reported the same level of importance to all of the 5 events they had chosen, which led the survey to show the same memory as the most and the least important event. 6 participants (12 events) were excluded because they scored less than 4 in attention checks. 80 events were excluded because they were flashbulb events (i.e., scored lower than 4 in the flashbulb question). Descriptives for flashbulb events are provided in Appendix I. The remaining sample consisted of 332 memories (216 direct, 116 indirect).

Participants identified a group/stance for 48 directly experienced and 28 indirectly experienced events. Overall, 23% of the events had group identity and group continuity ratings.

As a side analysis, for each public event I counted the number of participants who wrote that event. Furthermore, I counted the same numbers for iconic images. Top results are provided in Appendix I. Although this is not directly related to my hypotheses these results show the important public events of Turkey and the popular iconic images related to them.

3.2.1 Indirectly experienced events with high phenomenological features

Table 5 shows the percentage of each score of each phenomenological variable for each experience type. Our results showed that there were a subset of indirectly experienced events with high phenomenological qualities (with a score of 4 or 5). Percentages of high scores were 51%, 47%, 38% and 28% for vividness, reliving, intensity and physical respectively. Note that there was a strong floor effect for the physical variable even for direct experiences, mimicking the pattern observed for directly experienced collective memories.

Table 5. Percentages of Scores of Phenomenological Functions With Respect to Experience Type for Study 2.

Experience Type	Vividness Score					
	1	2	3	4	5	*M (SD)*
Direct	2%	4%	11%	25%	58%	4.33 (0.96)
Indirect	10%	18%	20%	29%	22%	3.35 (1.29)
	Reliving Score					
	1	2	3	4	5	*M (SD)*
Direct	6%	15%	17%	28%	34%	3.69 (1.25)
Indirect	19%	17%	16%	28%	19%	3.05 (1.41)
	Intensity Score					
	1	2	3	4	5	*M (SD)*
Direct	12%	18%	18%	18%	34%	3.44 (1.42)
Indirect	23%	13%	26%	20%	18%	2.85 (1.40)
	Physical Score					
	1	2	3	4	5	*M (SD)*
Direct	39%	10%	20%	16%	14%	2.56 (1.49)
Indirect	41%	19%	12%	14%	14%	2.27 (1.44)

Note. Percentages are calculated for each experience type separately. Thus, each row sums to 100%.

3.2.2 Most vs. least important events

As an initial step, I conducted repeated measures t-tests on each of the phenomenological features comparing the most and the least important events for indirectly experienced events. Most important events (M = 3.43, SD = 1.28) did not differ in terms of vividness from least important events (M = 3.23, SD = 1.31), $t(39)$ =

1.05, $p = .30$, $d = .17$. Most important events ($M = 3.38$, $SD = 1.35$) had a higher sense of reliving than least important events ($M = 2.68$, $SD = 1.37$), $t(39) = 3.12$, $p = .003$, $d = .49$. Most important events ($M = 3.58$, $SD = 1.34$) were more intense than least important events ($M = 2.10$, $SD = 1.24$), $t(39) = 6.01$, $p < .001$, $d = .95$. Finally, most important events ($M = 2.60$, $SD = 1.55$) caused more physical reactions than least important events ($M = 2.05$, $SD = 1.41$), $t(39) = 2.00$, $p = .045$, $d = .32$. Repeating the analysis for directly experienced events gave the same pattern of results. There was not any significant difference between most and least important events in terms of vividness for directly experienced events. Effect sizes for directly experienced events were .05, .44, .95 and .43 for vividness, sense of reliving, intensity and physical reaction, respectively.

Similar to Study 1, this analysis showed that phenomenological features of indirectly experienced events were not randomly distributed since there was a variable -importance- that changed with them.

3.2.3 Exploratory factor analysis for functional variables

I performed an exploratory factor analysis on personal and political functions of memory. I used minimal residual extraction method with oblimin rotation. The number of factors were extracted by the analysis automatically by comparing the eigenvalue of new factors with the eigenvalues of random simulations (parallel analysis).

For personal functions, the analysis revealed three factors which explained 59% of the variance in total. The factor structure was similar to what was expected. One deviation was that the second question of the scale (“I think about this event/memory when I worry about whether my beliefs have changed over time”) loaded onto the directing behavior factor instead of the self continuity factor. Thus, I created self

continuity subscale with items 1 and 3 (α = .83), directing behavior subscale with items 2, 4, 5 and 6 (α = .78) and social bonding with items 7,8, and 9 (α = .81). The loadings ranged between .47 and .92.

For political functions, the analysis revealed two factors which explained 55% of the variance in total. Similar to Study 1, group identity and group continuity questions emerged as a single factor and understanding the world questions emerged as a second factor. However, the sixth question ("I think about this event/memory to understand whether the group that I mentioned is the same stance/group compared to the past.") loaded onto the understanding the world factor even though it belonged to group continuity. I choose not to include this item into understanding the world factor in order not to reduce the number of events which have an understanding the world score. Therefore, this item was dropped.

In line with the results, I combined group identity and group continuity items to calculate a "political group" variable (α = .84).The political group factor existed at 75 (23%) of the indirectly experienced events since it includes the group identity and group continuity factors. I calculated understanding the world variable the same way as in Study 1 (α = .90). The loadings ranged between .37 and .85.

3.2.4 The correlations between phenomenological features and predictors

I observed the correlations between phenomenological features and personal functions (self-continuity, directing behavior, social bonding), political functions (political group, understanding the world) and the exploratory variable (unsettled), separately for indirectly and directly experienced events.

Figure 9 displays the correlation coefficients as a heat map for indirectly experienced events. The analysis showed that there was a significant and positive relationship for 13 of the 20 relations between phenomenology and function. Political group did not have any significant correlations with any of the phenomenological features and this may be due to the lesser number of events with political group score. The correlations between unsettled memory and phenomenological features (except for vividness) were significantly positive and the correlation between unsettled memory and valence was significantly negative. As in study 1, this suggested that unsettled memories were associated with greater negativity compared to settled ones. Finally, the correlations between valence and functional variables were weak and mostly nonsignificant.

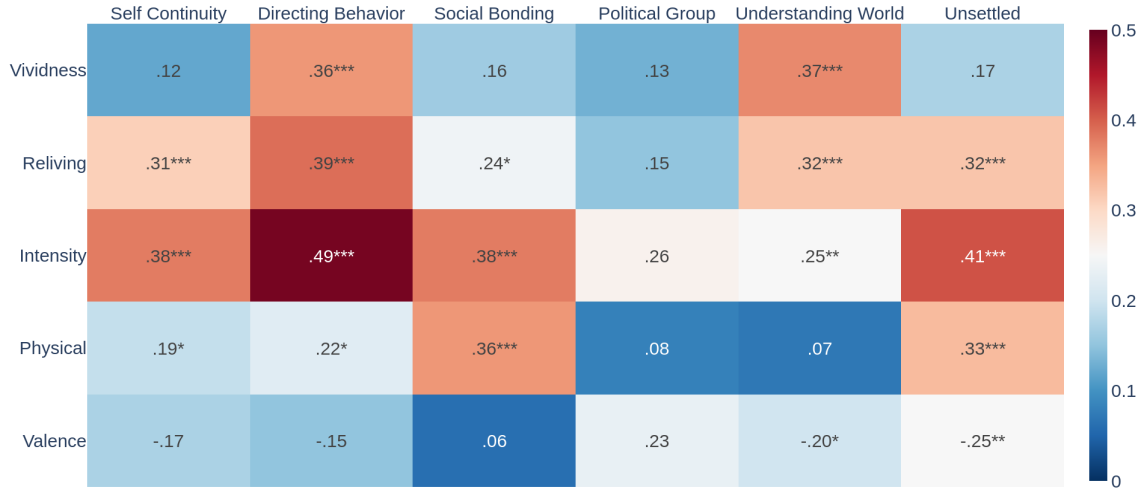

Figure 9. Correlations between phenomenological features and predictors for indirectly experienced events for study 2

Note. The middle point for the heat map (.25) marks the start of the transition from a small correlation to a moderate correlation.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Figure 10 displays the correlation coefficients as a heat map for directly experienced events. 11 of 20 coefficients were significantly positive. Vividness did not correlate with any of the variables which may be due to the ceiling effect observed for vividness in direct experiences. Turning to the exploratory analyses, the correlation of unsettled memory with phenomenological features were weak except for valence. In line with all previous results, unsettled memory correlated negatively with valence. Besides unsettled memory, valence negatively correlated with directing behavior.

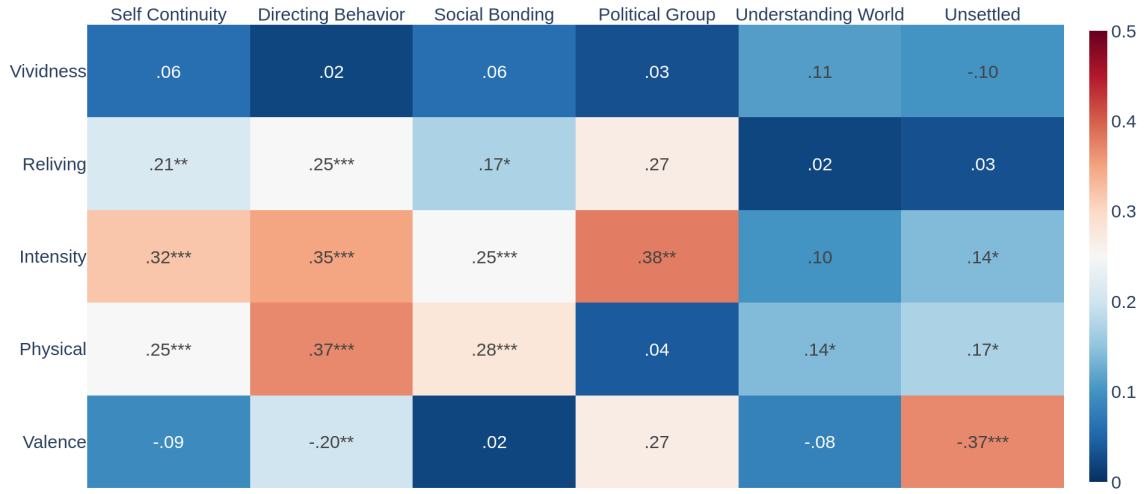

Figure 10. Correlations between phenomenological features and predictors for directly experienced events for study 2

Note. The middle point for the heat map (.25) marks the start of the transition from a small correlation to a moderate correlation.
* $p < .05$, ** $p < .01$, *** $p < .001$.

3.2.6 The multiple regressions for phenomenological features for indirectly experienced events

As in Study 1, I regressed vividness, reliving, intensity, and physical on personal functions (self-continuity, directing behavior, social bonding), political functions

(understanding the world) and the exploratory variable (unsettled). The political group function was omitted because it existed only at 23% of the data and including it would cause a reduction in power. To explore the role of valence, I performed the same analysis on valance, as well. I performed multiple regression analyses for each phenomenological feature of indirectly experienced events, bootstrapped for 1000 samples. I preferred a bootstrap analysis because almost none of the variables were normally distributed.

Figure 11 shows the unstandardized regression coefficients for the predictors for indirectly experienced events. Each row represents one multiple regression analysis. Consistent with my expectations, the results showed that personal and political functions positively and significantly predicted phenomenological features. Six out of 16 coefficients of functional variables had a 95% confidence interval that did not include zero. Probability analysis (< 0.1%) and simulations (0.1%) showed that obtaining at least six such coefficients out of 16 by chance was highly improbable.

The unsettled memory variable, whether the memory still confuses a person and that person can not make a whole sense out of it, positively predicted intensity and physical reaction, and it negatively predicted valence. This variable was the only significant predictor for valence.

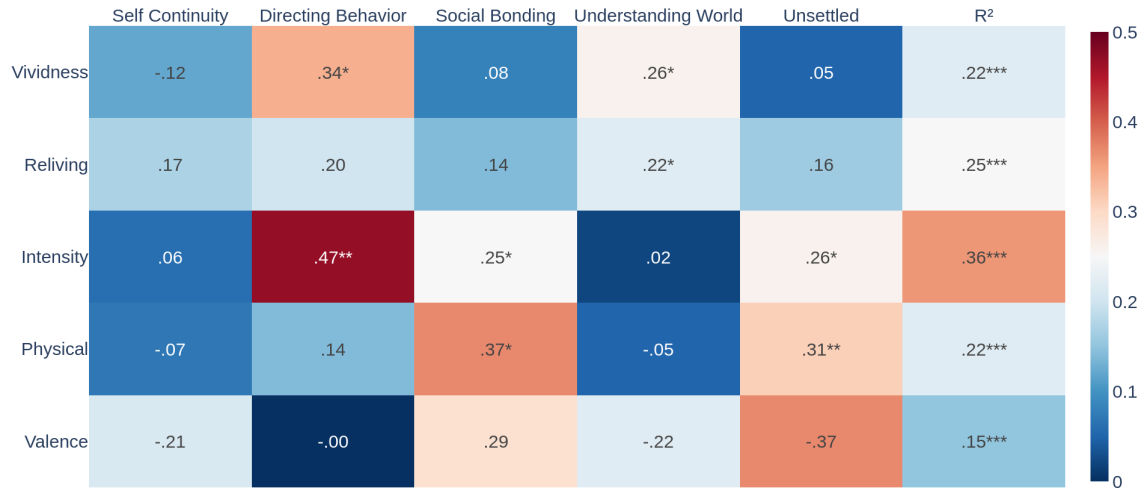

Figure 11. Regression of predictors onto each phenomenological feature for indirectly experienced events for study 2

Note. Values show the unstandardized coefficient estimates. Each row represents a separate regression where outcome is a phenomenological feature. R^2 value of each regression is shown in the last column.
* 95% CI does not include zero, ** 99% CI does not include zero

3.2.7 The multiple regressions for phenomenological features for directly experienced events

I performed the same multiple regression analyses for directly experienced events. Figure 12 shows the unstandardized regression coefficients for the predictors for directly experienced events. Each row represents one multiple regression analysis. Three out of 16 coefficients of functional variables had a 95% confidence interval that did not include zero (directing behavior predicted reliving, intensity and physical reaction). Probability analysis (4.3%) and simulations (6.9%) show that obtaining at least three such coefficients out of 16 by chance is marginally likely.

Directing behavior positively predicted reliving, intensity and physical. Interestingly, none of the other functional variables significantly predicted any

phenomenological features. In addition, contrary to Study 1, unsettled significantly predicted valence for directly experienced events.

Comparing the multiple regression results of indirectly and directly experienced events provided evidence that the relation between phenomenology and function is different for directly and indirectly experienced events.

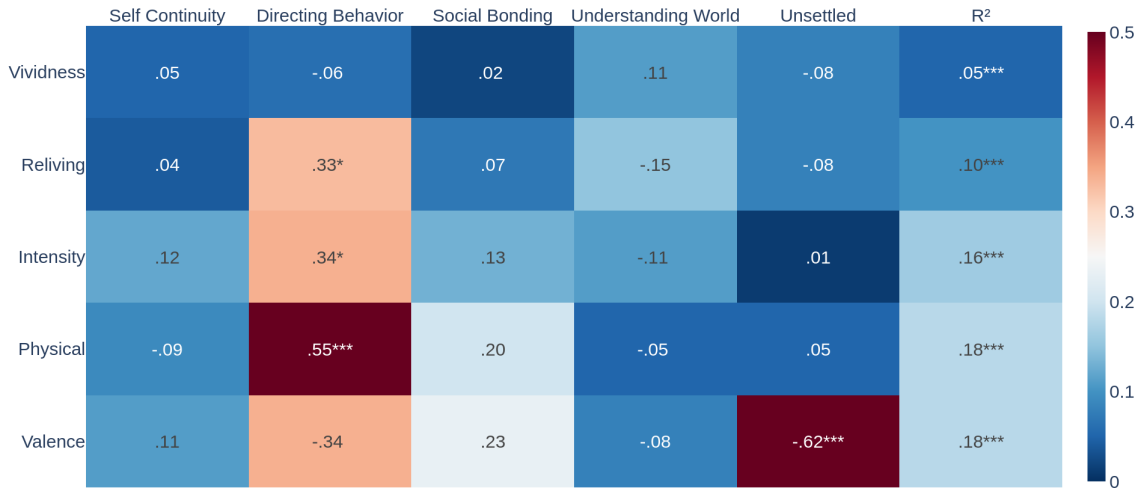

Figure 12. Regression of predictors onto each phenomenological feature for directly experienced events for study 2

Note. Values show the unstandardized coefficient estimates. Each row represents a separate regression where outcome is a phenomenological feature. R^2 value of each regression is shown in the last column.
* 95% CI does not include zero, ** 99% CI does not include zero, *** 99% CI does not include zero.

3.2.8 The simple regression plots of phenomenological features with directly and indirectly experienced events

To visually examine the interaction effect of experience type and functional factors on phenomenology, I performed simple regression analyses and regressed each phenomenological variable onto each functional variable for different event types

(direct, indirect) separately. Figure 13 shows the regression plots. In total, there were 60 regressions. The relationship between functional variables and vividness was greater for indirectly experienced events than directly experienced events but this effect can be attributed to a ceiling effect of vividness for directly experienced events. Also, the same pattern was observed for some of the pairs such as self continuity and reliving, directing behavior and intensity and understanding the world and reliving.

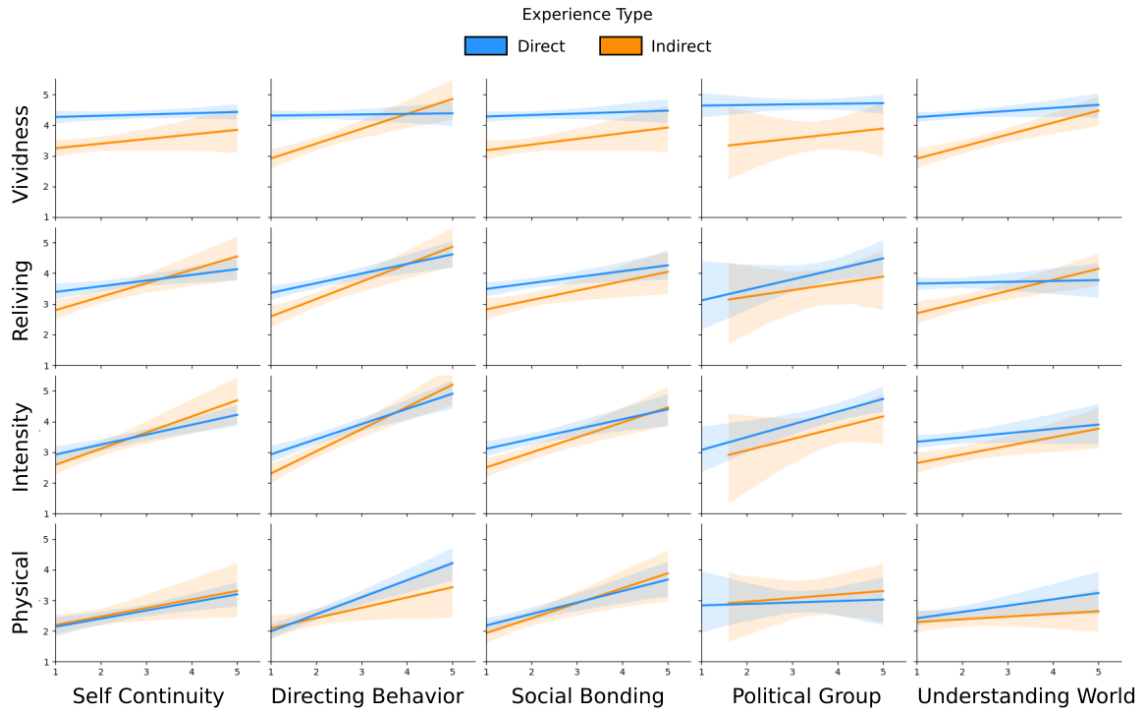

Figure 13. Regression of each functional variable onto each phenomenological feature with respect to event type for study 2

Note. Shaded areas show 95% confidence intervals. Each functional variable is regressed onto each phenomenological feature separately for each event type.

3.2.9 The multiple regressions for phenomenological features with interaction effects

As in study 1, I conducted hierarchical regressions for each pair of functional and phenomenological variables bootstrapped for 1000 times. First, each phenomenological

variable is regressed onto experience type and the functional variable. Then their interaction effect was added in the second step.

I omitted exploratory variables in order not to overburden the analysis. To explore the role of valence, I performed the same regression analysis on valence.

Figure 14 shows the interaction coefficient of each regression and the corresponding R^2 values. I am mainly interested in interaction coefficients and coefficients of the experience type and the functional variable are omitted. There are four interaction coefficients whose 95% CI does not include zero (self continuity on reliving, directing behavior on vividness, understanding the world on vividness and reliving). Probability analysis (0.7%) and simulations (3.1%) show that obtaining at least three significant coefficients out of 16 coefficients by chance was not likely. Furthermore, these four interaction effects were in the expected direction. Thus, unlike Study 1, my hypothesis that relation between phenomenological features and functional variables would be different for directly and indirectly experienced events was supported.

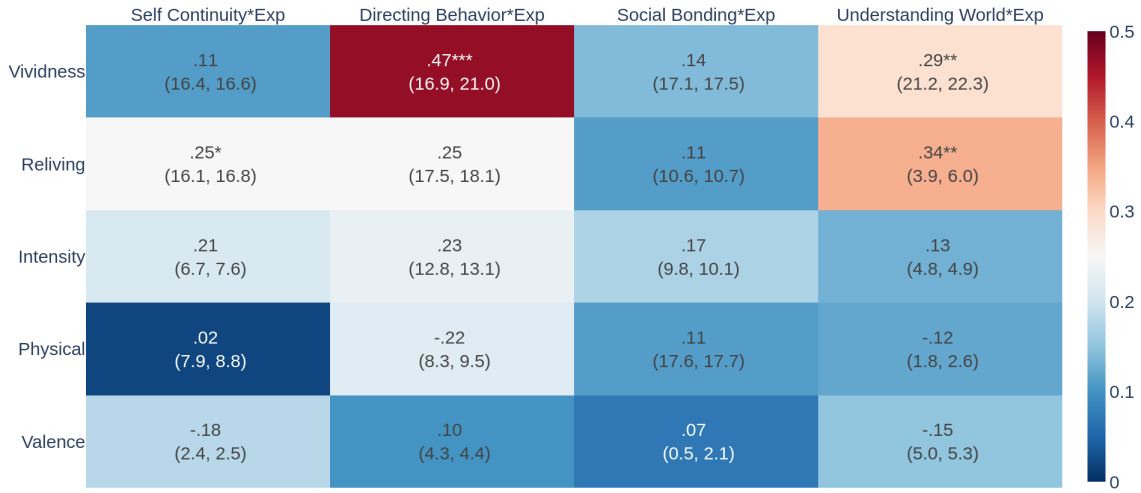

Figure 14. Interaction coefficients of hierarchical regressions for study 2

Note. Values show the unstandardized coefficient estimates. Each cell represents a separate regression where outcome is a phenomenological feature and the predictors are experience type, function and their interaction. Experience type is dummy coded where directly experienced events are marked as zero and indirectly experienced as one. "*Exp" denotes a variable's interaction with experience type. Values in parentheses show the R^2 of the reduced and full model respectively as percentages. Differences between the values denote the variance explained by the interaction effect. Coefficients of experience type and function are omitted.
* 95% CI does not include zero, ** 99% CI does not include zero

3.3 Study 2 discussion

Results of this study closely followed the results of Study 1. First, results showed that indirectly experienced events with high phenomenological features exist and that these high features are not due to some random answers. Correlation and regression analyses showed that functional variables positively predicted phenomenological features for indirectly experienced events. Furthermore, the same relation was marginal for directly experienced events and this result supported that the relation between phenomenology and function is different for directly and indirectly experienced events. In addition, unlike Study 1, the visual analysis of simple regression plots and the interactions of event type with functional variables also supported this hypothesis.

As for the effects of unsettled memory, there were some differences compared to Study 1. In this study, unsettled memory not only predicted valence but also intensity and having a physical reaction for indirectly experienced events. Furthermore, it predicted valence for directly experienced events, an effect that was absent in the first study. Overall, unsettled memory seemed as a promising variable, especially for valence.

CHAPTER 4

DISCUSSION

In two studies, I analyzed the phenomenological features of indirectly experienced events and compared them to directly experienced events. These two studies were carried out with the overarching goal of identifying a factor other than direct/self-experience to support episodic phenomenology and of countering the strict episodic-semantic dichotomy in memory. Across these two studies, our results revealed that direct experience is not a necessity for a memory to have the characteristics of episodic memories. Our findings are in line with a number of researchers who claim that episodic-semantic memory distinction is insufficient to classify indirectly experienced vivid memories (Habermas & Diel, 2013; Hassabis & Maguire, 2007; Larsen, 1988, 1992; Rubin, 2021).

In this work, I specifically focused on public events and collective memory. Based on the literature and my analysis of a recent work (Abel & Berntsen, 2021), I expected that there would be indirectly experienced events that have high phenomenological features, specifically high ratings of vividness, sense of reliving, intensity and physical reaction. I also expected personal and political functions of indirectly experienced events to predict phenomenological features. Finally, I expected the relationship between phenomenology and function to be weaker for directly experienced compared to indirectly experienced events. I also analyzed possible effects of some exploratory variables such as whether the memory is an unsettled one, the number of sources that the memory is learned from and the number of iconic images that are remembered about the event. I also eliminated flashbulb memories which could have

been a confound while analyzing indirectly experienced events. In sample size estimations, I targeted moderate effects because I was not interested in small effects and I did not think such small effects would say much about my hypotheses. Furthermore, if I targeted small effects then the study would have been infeasible due to the number of required participants.

My results showed that indirectly experienced events with high phenomenological features exist. As I mentioned in the introduction, it is hard to define a percentage threshold to test this hypothesis and I have stated that I would not be comfortable to say that the hypothesis is stated if there were only few events with such characteristics. Yet, results clearly showed a support for this hypothesis since the percentage values were fairly high: Between 11% and 29% for Study 1 and between 28% and 51% for Study 2. These values were similar to the values in the Abel and Berntsen's (2021) study which were between 10% and 33%. There was a floor effect for physical reaction for both directly and indirectly experienced events in both of the studies. I think that this is due to the strong requirement for the physical variable. It is probably not that common to have a physical reaction while remembering an event. Abel and Berntsen (2021) also obtained similar results for the physical variable.

In my analyses, I had to interpret the meaning of obtaining a certain amount of significant coefficients among all coefficients. I devised two approaches to assess the statistical significance of obtaining such a result. First, I followed a theoretical approach and calculated the probability of obtaining at least that amount of significant coefficients if there was no relationship between variables. Second, I followed an empirical approach and ran simulations with random predictors to count the occurrences of obtaining such results and to calculate corresponding probabilities. If these analyses resulted in a likely

situation then I concluded that results were not significant. My approach can be used in other studies that need to assess the meaning of obtaining a certain amount of significant coefficients out of many coefficients.

Correlation analyses, regression analyses and regression plots of each phenomenological feature-functional factor pair in both studies showed that political and personal functions positively predicted the phenomenological features of indirectly experienced events. Social bonding was clearly the strongest predictor in Study 1 and it predicted reliving, intensity and physical reaction, but not vividness. Social bonding predicted intensity and physical reaction in Study 2. These are in line with Hirst and Echterhoff's (2018) claims that the main function of episodic memory could be helping one to relive others' memories in order to form bonds with them. In addition, the function associated with understanding the world predicted vividness, reliving and intensity in Study 1, and vividness and reliving in Study 2. This demonstrates that there is a relation between the political function of a memory and its phenomenological features. Self continuity predicted vividness and reliving in Study 1 but it did not predict anything in Study 2. Finally, directing behavior predicted intensity in both studies and vividness in Study 2. This shows that an indirectly experienced memory can lead to intense emotions if it is helping someone to direct their behavior in the world.

There was some support for my prediction that the relation between phenomenology and function would be different for directly and indirectly experienced events. The regressions in both studies showed that functional variables predict phenomenological features for memories of indirectly experienced events but not for directly experienced ones. This is a clear support for the hypothesis. However, regression plots for each functional variable-phenomenological feature pair in Study 1

did not support the hypothesis because the relation for directly and indirectly experienced events were similar and the same plots in Study 2 gave weak support for the hypothesis. The only exception was vividness in both studies but that result can be attributed to a ceiling effect. In addition, analyzing the interaction coefficients in Study 1 did not give significant results. However, the same analysis for Study 2 resulted in significant results. In short, it seems that there is a possible relation which needs further investigation. I suspect two reasons for not finding a strong support for the hypothesis: First, the sample size might not have been enough to obtain significant results. However, I do not think this is the case because most interaction coefficients were small (instead of being large and nonsignificant) and some of them were even negative (not in the expected direction). Second, the theoretical basis for the hypothesis may be weak or I might have formed it in a problematic way. I suspected that functional variables would compensate for the lack of a direct experience while increasing phenomenological features but my analyses support this idea only for vividness. Thus, it might have been bold for me to claim that the relation between functional variables and phenomenological features to be different between indirectly and directly experienced events. Even if this prediction on the possible compensatory role played by functional variables on phenomenology was not supported, this did not invalidate the support for the main prediction on the link between function and phenomenology for indirectly experienced events.

As for the exploratory variables, the number of iconic images predicted vividness and sense of reliving in Study 1. This is an expected result since being exposed to such iconic images aids a person in constructing a memory about the event. In addition, the unsettled memory variable, whether the person is still confused about the meaning of the

memory, negatively predicted valence in almost all analyses in both studies both for indirectly and directly experienced events. This suggests that people have a hard time making sense of negative memories compared to positive memories. Number of sources that a person has learned about an event (Study 1) was not an important predictor.

Almost none of the variables were normally distributed in both studies. In other words, almost all of them are either positively or negatively skewed. However, the variables in Study 2 were much better distributed than the variables in Study 1 (results not shown). Moreover, it was easier to obtain similar numbers of indirectly and directly experienced using vicarious memories compared to collective memories. It is not straightforward to ask participants for directly experienced collective memories since the number of public events that a person directly experiences would be small. Thus, using vicarious memories instead of collective memories could be a better choice while evaluating the features of indirectly experienced events.

There were some shortcomings in my research, which can point to future works. Number of significant correlations were much higher than the number of significant regression coefficients in both studies. This shows that the predictor variables were not orthogonal to each other. Finding predictor variables that do not correlate with each other but that still correlate with phenomenological features can give us a better insight. Furthermore, there was not any manipulation in my study and this retained me from making any causal claims. Finding a way to manipulate the phenomenological features of indirectly experienced events without causing any demand characteristics can further support my hypotheses.

Despite its limitations, this research has provided empirical evidence that the dichotomic episodic-semantic distinction is insufficient for classifying indirectly

experienced events. The requirement of a direct experience in classical taxonomy disables us from classifying indirectly experienced events as episodic memories; however, my findings demonstrate that indirectly experienced events contain phenomenological features that are similar to episodic memories. This insufficiency can be overcome in two possible ways. First, we can extend the episodic-semantic dichotomy into a continuum, which would enable us to talk about a spectrum of events that are in between episodic and semantic memories. Yet better, we can use Rubin's (2021) three dimensional model to visualize and classify different kinds of memories in a higher dimensional continuous space. In the present research, I only focused on the differences between indirectly and directly experienced events. This corresponds to the self-other dimension of Rubin's (2021) model.

There are ample possibilities for future work. First, my hypotheses can be tested by focusing on different types of indirectly experienced events such as fictional stories that have capturing narratives. For instance, can someone vividly imagine a scene from a book that has affected them? Can someone have a sense of reliving for it? Following the 'viewer replay' concept of Hassabis and Maguire (2007), movies and series may provide another source for investigation. In addition, other variables that might affect the phenomenological features of memories should be examined since the variables I used had some shortcomings. I defended the constructive approach to memory but I did not examine how memories for indirectly experienced events are constructed and how their construction evolves in time. Future work can focus on construction processes to better understand why/how some indirectly experienced events can have high phenomenological features. Finally, Rubin's (2021) model provides a whole new way of thinking about memories by proposing a three dimensional continuous memory model.

His model should be examined and tested in order to better understand the features of memories, both directly and indirectly experienced ones. It may be time for us to leave behind the dichotomies of the past in order to investigate the potentials of multi dimensional continuous memory spaces.

APPENDIX A

DEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS

Table A.1 Demographic Characteristics of Participants in Study 1

	n	*%*	*M (SD)*
Age	334		21.1 (2.7)
Gender			
Woman	215	64.0	
Man	112	33.3	
Non-binary	4	1.2	
Other/No answer	5	1.5	
Ethnic Identity			
Turkish	238	71.3	
Kurdish	7	2.1	
Half Turkish - Half Kurdish	3	0.9	
Other	39	11.7	
Does not identify with an ethnic identity	24	7.1	
No answer	23	6.9	
Voting Preference			
AKP	11	3.3	
CHP	171	51.8	
DEVA	10	3.0	
HDP	10	3.0	
İyi Parti	13	3.9	
MHP	0	0	
TİP	21	6.4	
Other	20	6.1	
Undecided	5	1.5	
Prefers not to vote	66	20.0	
No answer	3	0.9	
Religion			
Muslim	168	50.0	
Atheist	70	20.8	
Agnostic	28	8.3	
Christian	1	0.3	
Deist	33	9.8	
Other	7	2.1	
Undecided/confused	13	3.9	
No answer	16	4.8	

Note. Gender, ethnic identity and religion are asked as open ended questions.

Table A.2 Demographic Characteristics of Participants in Study 2

	N	%	*M (SD)*
Age	215		26.4 (12.8)
Gender			
Female	132	61.4	
Male	80	37.2	
Non-Binary	2	0.9	
Other/No answer	1	0.5	
Voting Preference			
AKP	8	3.7	
CHP	107	49.8	
DEVA	5	2.3	
HDP	21	9.8	
İyi Parti	4	1.9	
MHP	1	0.5	
TİP	11	5.1	
Zafer Partisi	5	2.3	
Other	7	3.3	
Undecided	3	1.4	
Prefers not to vote	37	17.2	
No answer	6	2.8	
Ethnic Identity			
Turkish	157	73.0	
Kurdish	6	2.8	
Half Turkish - Half Kurdish	1	0.5	
Other	21	9.8	
Does not identify with an ethnic identity	17	7.9	
No answer	13	6.0	
Religion			
Muslim	94	43.3	
Atheist	64	29.8	
Agnostic	13	6.1	
Christian	0	0	
Deist	14	6.5	
Other	15	7.0	
Undecided/confused	6	2.8	
No answer	9	4.2	

Note. Gender, ethnic identity and religion are asked as open ended questions.

APPENDIX B

WRITING PROMPTS FOR EVENTS

Table B.1 Writing prompts for writing events with respect to the study and the experimental group.

Study	Group	Writing Prompt
Study 1 Collective Memories	Before born	Lütfen **<u>1960'TAN DOĞDUĞUNUZ GÜNE KADAR</u>** Türkiye'de olan toplumsal olayları düşünün. Aklınıza gelen beş olayı aşağıya yazınız. *(Please think about five collective events that happened in Turkey BETWEEN 1960 AND THE DAY OF YOUR BIRTH. Write five events that come to your mind.)*
	After age 10	Lütfen **<u>ONUNCU YAŞINIZDAN BUGÜNE KADAR</u>** Türkiye'de olan toplumsal olayları düşünün. Aklınıza gelen beş olayı aşağıya yazınız. *(Please think about five collective events that happened in Turkey AFTER YOUR AGE OF 10. Write five events that come to your mind.)*
Study 2 Vicarious Memories	Direct experience (Told to family/friends)	Lütfen **<u>BAŞINIZDAN GEÇMİŞ</u>** ve yakın çevrenize (aile ve arkadaşlar) anlattığınız anıları düşünün. Aklınıza gelen beş anıyı aşağıya yazınız. *(Please think about events that HAPPENED TO YOU and that you have told to your family and friends. Write five events that come to your mind.)*
	Indirect Experience (Listened from family/friends)	Lütfen **<u>YAKIN ÇEVRENİZİN</u>** (aile ve arkadaşlar) başından geçmiş ve size anlattıkları anıları düşünün. Aklınıza gelen beş anıyı aşağıya yazınız. *(Please think about events that HAPPENED TO YOUR FAMILY AND FRIENDS that they have told you. Write five events that come to your mind.)*

Q1) Sizce bu anılar ne kadar önemlidir? Ölçekleri kaydırarak cevaplayınız.

(*How important do you think these events are? Answer by sliding the scales.)*

0 - "Hiç önemli değil" (*"Not important at all"*)

100 -"Çok önemli" (*"Very important"*).

Q2) Study 1 round 1:

Değerlendirmenizi yaparken spesifik bir olaya odaklanmanız gerekmektedir. Başı sonu belli olmayan bir olayı veya dönemi tarif ettiyseniz (örneğin öğrenci ayaklanmaları, terör, barış süreci, vs.), lütfen o döneme ait spesifik bir olay seçiniz. Bu seçtiğiniz olayı aşağıya yazınız. Başlangıcı ve bitişi net bir olay seçtiyseniz, bu soruyu boş bırakabilirsiniz.

(*When making your assessment, you need to focus on a specific event. If you have described an event or period with an uncertain beginning (eg. student riots, terrorism, peace process, etc.), please select a specific event from that period. Write your chosen event below. If you have chosen an event with a clear beginning and end, you can leave this question blank.)*

Q2) Study 1 round 2:

Değerlendirdiğiniz olayın geniş bir dönemi kapsamaması gerekmektedir. Değerlendirmenizi yaparken başı sonu belli olan, 24 saat içinde başlayıp bitmiş ve belli bir mekanda gerçekleşmiş spesifik bir olaya odaklanmanızı istiyoruz. Seçilen olay bu şartlara uyuyor mu?

(The event you are evaluating should not cover a wide period. When conducting your assessment, we want you to focus on a specific event that has a certain beginning, that

started and ended within 24 hours, and that took place in a certain place. Does the chosen event meet these requirements?)

a) Evet uyuyor. *(Yes it meets the requirements.)*

b) Hayır ama o olayın içinden veya onunla alakalı böyle spesifik bir toplumsal olay seçebilirim (lütfen aşağıda belirtiniz).

   (No but I can find such a specific public event that is relevant or happened inside the specified event (please state below)

c) Hayır, aklıma böyle spesifik bir olay gelmiyor.

   (*No, I can not think of a such specific event"*)

If the answer is b:

Yukarıdaki şartlara uyan seçtiğiniz belirgin olayı birkaç kelimeyle kısaca aşağıya yazınız. Yazdığınız olay zaten bu şartlara uyuyorsa veya böyle bir olay bulamıyorsanız boş bırakabilirsiniz.

(*In a few words, briefly write down the specific event you have chosen that meets the above conditions. If the event you wrote already meets these conditions or you cannot find such an event, you can leave it blank.*)

Q2) Study 2

Değerlendirdiğiniz anının geniş bir dönemi kapsamaması gerekmektedir.

Değerlendirmenizi yaparken başı sonu belli olan, 24 saat içinde başlayıp bitmiş ve belli bir mekanda gerçekleşmiş spesifik bir anıya odaklanmanızı istiyoruz. Seçilen anı bu şartlara uyuyor mu?

(*The memory you are evaluating should not cover a wide period. When conducting your assessment, we want you to focus on a specific memory that has a certain beginning, that started and ended within 24 hours, and that took place in a certain place. Does the chosen memory meet these requirements?)*

a) Evet uyuyor. *(Yes it meets the requirements.)*

b) Hayır ama o anının içinden veya onunla alakalı böyle spesifik bir anı seçebilirim (lütfen aşağıda belirtiniz).

   (*No but I can find such a specific memory that is relevant or happened inside the specified memory (please state below))*

c) Hayır, aklıma böyle spesifik bir anı gelmiyor.”””

   (No, I can not think of a such specific memory”)

If the answer is b:

Yukarıdaki şartlara uyan seçtiğiniz spesifik anıyı birkaç kelimeyle kısaca aşağıya yazınız. Yazdığınız anı zaten bu şartlara uyuyorsa veya böyle bir anı bulamıyorsanız boş bırakabilirsiniz.

(*In a few words, briefly write down the specific memory you have chosen that meets the above conditions. If the memory you wrote already meets these conditions or you cannot find such a memory, you can leave it blank.*)

APPENDIX C

PHENOMENOLOGICAL FEATURES

Table C.1 Questions and Answer Scales for Phenomenological Variables

Measure	Question	Answer Scale
Vividness	Bu olayı berrak ve canlı görebiliyorum. *(I can see this event vividly and clearly.)*	5 point Likert scale 1: Hiç (*Not at all*) 5: Tamamen (*completely*)
Reliving	Bu olayı düşündüğümde, onu yaşıyormuşum gibi bir hisse kapılıyorum. *(When I think about this event, I feel like I am living it.)*	Same as above
Intensity	Bu olayı düşünmek bende yoğun duygular uyandırıyor. *(Thinking about this event arouses intense feelings.)*	Same as above
Physical	Bu olayı düşünmek vücudumun fiziksel bir tepki vermesine neden oldu (ör. çarpıntı, terleme, gerginlik, huzursuzluk, gülmek gibi). *(Thinking about this event triggers a physical reaction in my body (e.g., palpitations, sweating, nervousness, laughter, etc.))*	Same as above
Valence	Bu olayı düşündüğüm zaman hissettiğim hisler… *(The feelings I experience as I think about this event are…)*	7 point Likert scale -3: Çok olumsuz (*Very Negative*) -2: Olumsuz (*Negative*) -1: Biraz olumsuz (*Slightly Negative*) 0: Ne olumlu, ne olumsuz (*Neither Negative nor Positive*) 1: Biraz olumlu (*Slightly Positive*) 2: Olumlu (*Positive*) 3: Çok Olumlu (*Very Positive*)

APPENDIX D

PERSONAL FUNCTIONS

Self-Continuity

1. Bu olayı/anıyı düşünmek daha önceleri olduğum kişiye göre nasıl değiştiğimi anlamamı sağlar.

   (Thinking about this event/memory helps me understand how I have changed in relation to the person I used to be.)

2. Bu olayı/anıyı inançlarımın zaman içinde değişip değişmediği konusunda endişe duyduğumda düşünürüm.

   (I think about this event/memory when I worry about whether my beliefs have changed over time.)

3. Bu olayı/anıyı daha önceleri olduğum kişiyle aynı kişi olup olmadığımı anlamak için düşünürüm.

   (I think about this event/memory to see if I am the same person I was before.)

Directing-Behavior

1. Study 1 :

Bu olayı düşünmek toplumun geçmiş hatalarından ders çıkarmamı sağlar.

(Thinking about this event helps me to learn from the past mistakes of society.)

1. Study 2, direct experience group:

Bu anıyı düşünmek geçmiş hatalarımdan ders çıkarmamı sağlar.

(Thinking about this memory allows me to learn from my own past mistakes.)

1. Study 2, indirect experience group:

Bu anıyı düşünmek yakın çevremin geçmiş hatalarından ders çıkarmamı sağlar.

(Thinking about this memory allows me to learn from the past mistakes of my close circle.)

2. Bu olayı/anıyı geçmişte öğrendiğim bir dersi hatırlamak için düşünürüm.
   (I think about this event/memory to remember a lesson I learned in the past.)
3. Bu olayı/anıyı geçmişi düşünmenin geleceğime rehberlik edebileceğine inandığım zamanlarda düşünürüm.
   (I think about this event/memory when I believe that thinking about the past can guide my future.)

<u>Social-Bonding</u>

1. Bu olayı/anıyı biriyle yakın bir ilişki kurmak istediğimde düşünürüm.
   (I think about this event/memory when I want to have a close relationship with someone.)
2. Bu olayı/anıyı bir ilişkide daha fazla yakınlık geliştirmek için düşünürüm.
   (I think about this event/memory to develop more intimacy in a relationship.)
3. Bu olayı/anıyı başka birisi hakkında daha fazla şey öğrenmeyi umduğumda düşünürüm.
   (I think about this event/memory when I hope to learn more about someone else.)

Answers are given with 5 point Likert scales:

1 - Kesinlikle Hayır *(Absolutely not)*

5 - Kesinlikle Evet *(Absolutely yes)*

Note: In Study 1 event (olay) probes were used. In Study 2 memory (anı) probes were used.

APPENDIX E

POLITICAL FUNCTIONS

Bu olayla/anıyla bağdaştırdığınız ve kendinizi ait hissettiğiniz bir grup veya duruş var mı?

(Is there a group or stance that you associate with this event/memory and that you feel like you belong to?)

- Evet, var *(Yes, there is)*
- Hayır, yok *(No, there is not)*

If the answer is yes:

A) Bu olayla/anıyla bağdaştırdığınız duruşu/grubu düşünün. Lütfen bu duruşu/grubu belirtin:

(Think about the stance/group you associate with this memory. Please specify this stance/group:)

B) <u>Group-Identity:</u>

1. Bu olayı/anıyı düşünmek belirttiğim duruşun/grubun diğer üyeleriyle güçlü bağlar hissetmemi sağlar.
   (Thinking about this event/memory makes me feel strongly tied with other members of the stance/group that I mentioned.)
2. Bu olayı/anıyı düşünmek belirttiğim duruşa/gruba ait hissetmemi sağlar.
   (Thinking about this event/memory makes me feel like I belong to the stance/group that I mentioned.)

3. Bu olayı/anıyı düşündükçe belirttiğim duruşa/gruba ait olmaktan memnuniyet duyuyorum.

   (As I think about this event/memory, I feel satisfaction from belonging to the stance/group that I mentioned.)

C) Group-Continuity:

1. Bu olayı/anıyı düşünmek belirttiğim duruşun/grubun geçmişini, bugününü ve geleceğini birbirine bağlamamı sağlar.

   (Thinking about this event/memory allows me to connect the past, present and future of the stance/group that I mentioned.)

2. Bu olayı/anıyı düşünmek belirttiğim duruşun/grubun sürekliliğine inanmamı sağlar.

   (Thinking about this event/memory makes me believe in the continuity of the stance/group I'm talking about.)

3. Bu olayı/anıyı belirttiğim duruşun/grubun geçmişe göre aynı grup olup olmadığını anlamak için düşünürüm.

   (I think about this event/memory to understand whether the group that I mentioned is the same stance/group compared to the past.)

Understanding the World:

1. Bu olayı/anıyı düşünmek ülkemin ve dünyanın nasıl işlediğini anlamamı sağlar.

   (Thinking about this event/memory helps me understand how my country and the world work.)

2. Bu olayı/anıyı düşünmek ülkemin ve dünyanın nasıl değişeceğini tahmin etmemi sağlar.

   (Thinking about this event/memory helps me to predict how my country and the world will change.)

3. Bu olayı/anıyı düşünmek dünyada ve ülkemde olan olayları anlamamı sağlar.

   (Thinking about this event/memory helps me understand what is happening in the world and in my country.)

Answers are given with 5 point Likert scales:

1 - Kesinlikle Hayır *(Absolutely not)*

5 - Kesinlikle Evet *(Absolutely yes)*

Note: In Study 1 event (olay) probes were used. In Study 2 memory (anı) probes were used.

APPENDIX F

EXPLORATORY VARIABLES

Unsettled Event/Memory

1. Bu anı hala kafamı karıştırıyor.

   (This event still confuses me.)

2. Bu anıyla ilgili çözemediğim ayrıntılar var.

   (There are details about this event that I cannot decipher.)

Answers are given with 5 point Likert scales:

1 - Kesinlikle Hayır *(Absolutely not)*

5 - Kesinlikle Evet *(Absolutely yes)*

Source of Learning (Study 1)

1. Bu olayı hangi kaynaklardan öğrendiniz? Birden fazla seçenek işaretleyebilirsiniz.

   (From which sources did you learn about this event? You can check more than one answer)

- Yakın aile üyeleri (*Close family members*)
- Uzak aile üyeleri (*Distant family members*)
- Yakın arkadaşlar (*Close friends*)
- Uzak arkadaşlar (*Distant friends*)
- Kitap (*Book*)
- Film/Dize (*Movie/Series*)
- Tiyatro (*Theater*)

- Televizyon haberleri (*TV news*)
- Radyo haberleri (*Radio news*)
- Sosyal Medya (*Social media*)
- Kendim Yaşadım (*I have experienced it myself*)

2. Yukarıdakilerin dışındaki kaynakları virgülle ayırarak yazabilirsiniz:

   (You can write sources other than the above, separated by commas:)

Source of Learning (Study 2)

For the direct experience group:

Bu anıyı anlattığınız kişiyle ilişkiniz nedir? (anne, baba, kardeş, yakın arkadaş, arkadaş, vs.). Eğer böyle bir kişi düşünerek yazmadıysanız, boş bırakabilirsiniz.

(What is your relationship with the person whom you told the memory to? (mother, father, sibling, close friend, friend, etc.) If you have not written with such a person in mind, you can leave it blank)

For the indirect experience group:

Bu anıyı size anlatan kişiyle ilişkiniz nedir? (anne, baba, kardeş, yakın arkadaş, arkadaş, vs.). Eğer böyle bir kişi düşünerek yazmadıysanız, boş bırakabilirsiniz.

(What is your relationship with the person who told this memory to you? (mother, father, sibling, close friend, friend, etc.) If you have not written with such a person in mind, you can leave it blank)

Iconic Images (Study 1)

Bu olayla ilgili aklınıza gelen, medyada veya sosyal medyada sık paylaşılmış görüntüleri düşünün. Kısa cümlelerle, bu görüntüleri tarif edin. Bir kutuya birden fazla cevap yazmayınız. Aklınıza gelen bir cevap yoksa soruyu boş bırakabilirsiniz.

(Think of images that come to your mind about this event that have been shared frequently in the media or on social media. In short sentences, describe these images. Do not write more than one answer in one box. If you do not have an answer, you can leave the question blank.)

Flashbulb Characteristics

Bu olayı/anıyı ilk öğrendiğiniz ânı hatırlıyor musunuz?

(Do you remember when you first learned about this event/memory?)

- Evet *(Yes)*
- Hayır *(No)*

If the answer is yes:

1. Yazdığınız olayı/anıyı ilk öğrendiğiniz ânı mümkün olduğunca ayrıntılı bir biçimde hatırlamaya çalışın. Hatırladıklarınızı lütfen aşağıya yazın.
   (Try to remember in as much detail as possible the moment you first learned about the event/memory. Please write what you remember.)
2. Önceki sorularda değerlendirmelerinizi yaparken yazdığınız olaya/anıya mı odaklandınız yoksa o olayı/anıyı öğrenme ânınıza mı odaklandınız?
   (While making your evaluations in the previous questions, did you focus on the event/memory you wrote down or did you focus on the moment you learned about that event/memory?)

1- Tamamen olayı/anıyı öğrenme ânıma odaklandım.

(I completely focused on the moment that I learned about the event/memory.)

6 - Tamamen olayın/anının kendisine odaklandım.

(I completely focused on the event/memory itself.)

Reason for Selecting the event

Sizce neden bu olayı/anıyı seçtiniz?

(Why did you pick this event/memory?)

Note: In Study 1 event (olay) probes were used. In Study 2 memory (anı) probes were used.

APPENDIX G

DEMOGRAPHICS QUESTIONS

Age and Gender

- Yaş: (*Age:*)
- Cinsiyet: (*Gender:*)

Voting Preference

Bu pazar bir seçim olsa hangi partiye oy verirsiniz?

(For which party would you vote if there were an election this Sunday?)

- AKP
- BBP
- CHP
- DEVA
- Gelecek Partisi
- HDP
- İYİ Parti
- LDP
- Memleket Partisi
- MHP
- Saadet Partisi
- TİP
- TKP
- Vatan Partisi

- Oy vermem (*I would not vote*)
- Diğer-Belirtiniz (*Other-Please specify*): _____

Ethnic Identity

Etnik kimliğinizi nasıl tanımlarsınız? (*How do you identify your ethnic identity?*)

Religious Belief

Dini inancınızı nasıl tanımlarsınız? (*How do you identify your religious belief?*)

History and Humanity Courses (Study 1)

Yakın zamanda bir tarih dersi aldınız mı? (*Have you taken a history course recently?)*

- Evet, önceki dönem almıştım *(Yes, last semester)*
- Evet, geçen sene almıştım *(Yes, last year)*
- Evet, iki sene önce veya daha öncesinde almıştım

  (Yes, two or more years ago)
- Hayır *(No)*

Tarih dersi aldıysanız, aldığınız ders(ler)in kodunu veya adını yazar mısınız?

(*If you have taken a history course, can you write the code or name of the course(s)*?)

Yakın zamanda bir humanities dersi aldınız mı? (*Have you taken a humanities course recently?)*

- Evet, önceki dönem almıştım *(Yes, last semester)*
- Evet, geçen sene almıştım *(Yes, last year)*
- Evet, iki sene önce veya daha öncesinde almıştım

(Yes, two or more years ago)

- Hayır *(No)*

Humanity dersi aldıysanız, aldığınız ders(ler)in kodunu veya adını yazar mısınız? (*If you have taken a humanities course, can you write the code or name of the course(s)*?)

Comments

Eklemek veya bize iletmek istedikleriniz:

(*Anything you want to add or say to us:*)

APPENDIX H

ETHICS COMMITTEE APPROVAL

Evrak Tarih ve Sayısı: 19.12.2021-43502

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

Toplantı Sayısı	:	25
Toplantı Tarihi	:	15.12.2021
Toplantı Saati	:	15:00
Toplantı Yeri	:	Zoom Sanal Toplantı
Bulunanlar	:	Prof. Dr. Ebru Kaya, Prof. Dr. Fatma Nevra Seggie, Dr. Öğr. Üyesi Yasemin Sohtorik İlkmen
Bulunmayanlar	:	

Doruk Tunaoğlu
Psikoloji

Sayın Araştırmacı,
"Episodic features of collective and vicarious memories" başlıklı projeniz ile ilgili olarak yaptığınız SBB-EAK 2021/78 sayılı başvuru komisyonumuz tarafından 15 Aralık 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 onay mektubu üye ve raportör olarak Fatma Nevra Seggie tarafından bütün üyeler adına e-imzalanmıştır.

Prof. Dr. Fatma Nevra SEGGIE
ÜYE

e-imzalıdır
Prof. Dr.Fatma Nevra SEGGIE
Raportör

APPENDIX I

SUPPLEMENTARY MATERIALS

Probability calculations for obtaining coefficients whose 95% confidence interval did not include zero in regressions

Let S denote the number of coefficients whose confidence interval does not include zero and N denote the number of all coefficients. Let α denote the confidence interval threshold. In other words, with α probability we can get such a coefficient even in the case of no relationship between the predictor and the outcome. The probability of getting exactly e number of coefficients out of N coefficients is:

$$C(N, e) * \alpha^{e} * (1-\alpha)^{(N-e)}$$

where C denotes the combinatorial function. In other words, C(N, e) denotes the number of distinct ways of selecting e elements out of N elements.

In order to calculate the probability of obtaining at least S such coefficients, I have to sum all the probabilities where the number of such coefficients is equal to or more than S. This corresponds to:

$$\sum_{e=S}^{N} C(N, e) * \alpha^{e} * (1-\alpha)^{(N-e)}$$

$$= \sum_{e=S}^{N} \frac{N!}{(N-e)!\, e!} * \alpha^{e} * (1-\alpha)^{(N-e)}$$

I calculated the probabilities of exactly getting S significant coefficients and at least S coefficients for N = 16. Results are shown in Table I.1.

Table I.1 Probabilities of Obtaining exactly S Coefficients whose 95% Confidence Interval does not include zero and at least S such Coefficients out of 16 Coefficients

S	*Probability of obtaining exactly S such coefficients*	*Probability of obtaining at least S such coefficients*
0	44.0%	100%
1	37.1%	56%
2	14.6%	18.9%
3	3.6%	4.3%
4	0.6%	0.7%
5	0.1%	0.1%
6	$7.5 * 10^{-5}$	$8.1 * 10^{-5}$
7	$5.6 * 10^{-6}$	$6.0 * 10^{-6}$
8	$3.3 * 10^{-7}$	$3.5 * 10^{-7}$
9	$1.6 * 10^{-8}$	$1.6 * 10^{-8}$
10	$5.6 * 10^{-10}$	$5.9 * 10^{-10}$
11	$1.7 * 10^{-11}$	$1.7 * 10^{-11}$
12	$3.6 * 10^{-13}$	$3.7 * 10^{-13}$
13	$5.9 * 10^{-15}$	$5.9 * 10^{-15}$
14	$6.6 * 10^{-17}$	$6.7 * 10^{-17}$
15	$4.6 * 10^{-19}$	$4.7 * 10^{-19}$
16	$1.5 * 10^{-21}$	$1.5 * 10^{-21}$

Simulation results

The results of the simulations can be found in Tables I.2-I.7.

Table I.2 Simulation Results for the Multiple Regressions for Indirectly Experienced Events in Study 1

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	51.1%	100%
1	26.4%	48.9%
2	12.5%	22.5%
3	5.5%	10%
4	3.1%	4.5%
5	1.0%	1.4%
6	0.2%	0.4%
7	0.1%	0.2%
8	0.1%	0.1%

Table I.3 Simulation Results for the Multiple Regressions for Directly Experienced Events in Study 1

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	46.3%	100%
1	31.0%	53.7%
2	14.8%	22.7%
3	5.0%	7.9%
4	2.2%	2.9%
5	0.5%	0.7%
6	0.0%	0.2%
7	0.1%	0.2%
8	0.0%	0.1%
9	0.1%	0.1%

Table I.4 Simulation Results for the Interaction Effects in Study 1

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	48.8%	100%
1	30.7%	51.2%
2	12.4%	20.5%
3	5.5%	8.1%
4	1.6%	2.6%
5	0.6%	1.0%
6	0.4%	0.4%

Table I.5 Simulation Results for the Multiple Regressions for Indirectly Experienced Events in Study 2

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	43.6%	100%
1	31.2%	56.4%
2	16.0%	25.2%
3	5.9%	9.2%
4	2.6%	3.3%
5	0.6%	0.7%
6	0.1%	0.1%

Table I.6 Simulation Results for the Multiple Regressions for Directly Experienced Events in Study 2

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	44.2%	100%
1	33.6%	55.8%
2	15.3%	22.2%
3	4.0%	6.9%
4	2.3%	2.9%
5	0.5%	0.6%
6	0.1%	0.1%

Table I.7 Simulation Results for the Interaction Effects in Study 2

S	*Probability of obtaining exactly S coefficients* whose 95% confidence interval does not include zero	*Probability of obtaining at least S such coefficients*
0	44.6%	100%
1	31.5%	55.4%
2	16.3%	23.9%
3	4.5%	7.6%
4	2.2%	3.1%
5	0.8%	0.9%
6	0.1%	0.1%

Descriptives of Phenomenological Features for Flashbulb Events

Table I.8 Descriptives of Phenomenological Features for Flashbulb Events for Study 1

Event Type	Vividness	Reliving	Intensity	Physical	Valence	N
Not-flashbulb	3.44 (1.17)	2.77 (1.42)	3.03 (1.44)	2.13 (1.28)	-1.67 (1.40)	39
Flashbulb	3.55 (1.42)	2.89 (1.42)	2.91 (1.43)	2.11 (1.53)	-1.89 (1.38)	44

Note. Mean values are shown, standard deviations are provided in parentheses. Events where a participant stated that they remember about the moment of learning are analyzed. Not-flashbulb includes events where the participant stated that they focused on the event instead of the moment of learning (a score of 4, 5 or 6 for the flashbulb question). Flashbulb event shows the exact opposite (a score of 1, 2 or 3 for the flashbulb question)

Table I.9 Descriptives of Phenomenological Features for Flashbulb Events for Study 2

Event Type	Vividness	Reliving	Intensity	Physical	Valence	N
Not-flashbulb	3.52 (1.21)	3.11 (1.36)	2.79 (1.45)	2.40 (1.51)	-.06 (1.92)	80
Flashbulb	3.32 (1.29)	2.96 (1.42)	2.65 (1.37)	2.06 (1.36)	-.25 (1.78)	72

Note. Mean values are shown, standard deviations are provided in parentheses. Events where a participant stated that they remember about the moment of learning are analyzed. Not-flashbulb includes events where the participant stated that they focused on the event instead of the moment of learning (a score of 4, 5 or 6 for the flashbulb question). Flashbulb event shows the exact opposite (a score of 1, 2 or 3 for the flashbulb question)

Top Public Events and Iconic Images for Study 1

Table I.10 Top Public Events for Study 1

Event	Approximate Date	Number of participants that wrote the event	Participants that regarded it as the most important event	Participants that regarded it as the least important event
15th of July, Coup Attempt	2016, July	198 (55%)	39	63
Gezi Park Uprising	2013, June	179 (49%)	48	23
1980 Coup (12th of September)*	1980, September	138 (38%)	45	8
1960 Coup (27th of May)*	1960, May	76 (21%)	22	9
Soma Mining Disaster	2014, May	57 (16%)	4	6
Boğaziçi University Resistance	2021-2022	49 (14%)	4	11
Covid - Pandemic	2020-2021	43 (12%)	11	5

Cyprus Operation*	1974, July	42 (12%)	4	11
Referandum for the Presidency System	2017, April	41 (%12)	9	3
28th of February, Post Modern Coup*	1997, February	38 (%11)	6	7
12th of March, Military/Coup Warning*	1971, March	35 (%10)	1	15
17th of August, Marmara Earthquake*	1999, August	35 (%10)	11	3
Madımak (Sivas) Massacre*	1993, July	33 (9%)	3	3
Repeat Elections for Istanbul Municipality (Victory of İmamoğlu)	2019, June	24 (7%)	0	4
2001 Economic Crisis*	2001	22 (6%)	4	6
17-25 December Tape Recordings	2013, December	19 (5%)	1	1
Suicide Bomb Attacks	2016	18 (5%)	2	1
Current Economic Crisis	2021-2022	18 (5%)	2	2
İzmir Earthquake	2020, November	18 (5%)	3	1
Van Earthquake	2011, January	18 (5%)	2	5

Note. Events that are written by at least 5% of the participants are shown. Events that are marked with an * show the events that are written for the before group (events that happened before a participant was born).

Table I.11 Top Iconic Images for Study 1

Image	Related Event	Number of participants that wrote the image	Percentage of participants who wrote the image (out of who evaluated the event)
Soldiers and Tanks on Boğaziçi Bridge	15th of July, Coup Attempt	33	32%
Coup Declaration Read on National TV	15th of July, Coup Attempt	21	21%
Kenan Evren's (military general) talk after the coup	1980 Coup (12th of September)*	15	28%
Erdoğan's Call for Citizens to Fight Against the Coup (via Facetime, in a TV channel)	15th of July, Coup Attempt	14	14%
The woman in red (whom the police is spraying tear gas directly on her face)	Gezi Park Uprising	13	18%
People who lay down in front of tanks to stop them	15th of July, Coup Attempt	11	11%
Collapsed houses/buildings	17th of August, Marmara Earthquake*	11	79%
Execution of Adnan Menderes by hanging (prime minister of the time)	1960 Coup (27th of May)*	11	35%
Masks / masked people	Covid - Pandemic	10	63%
Tents and people in Gezi Park	Gezi Park Uprising	10	14%

Planes bombing the parliament building	15th of July, Coup Attempt	9	9%
Soldiers walking in the streets	1980 Coup (12th of September)*	8	15%
Police handcuffing the entrance gate of the university	Boğaziçi University Resistance	8	53%
Tanks in streets	1980 Coup (12th of September)*	7	13%
Noon watches of academicians (15 minutes of silence with their backs turned to the rectorate building)	Boğaziçi University Resistance	7	47%
Photos of Berkin Elvan (13 year old child, killed in the protests by a tear gas capsule)	Gezi Park Uprising	7	10%
Cars that are crashed under the tanks (tanks in streets)	15th of July, Coup Attempt	6	6%
Lines of people in front of markets	Covid - Pandemic	6	38%
Patients in intensive care units	Covid - Pandemic	6	38%
TOMAs (armed vehicles of police for breaking the crowds)	Gezi Park Uprising	5	7%

Note. Iconic images that are written by at least 5 participants are shown. Events that are marked with an * show the events that are written for the before group (events that happened before a participant was born). Participants who wrote the event as the most or the least important event evaluated the event in detail and they were asked for iconic images. The last column shows the percentage of participants who wrote the iconic image out of who evaluated the event.

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