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# EMPIRICAL ARTICLE

# Things Have Changed But Now They'll Stay the Same: Generational Differences and Mental Time Travel for Collective Remembering of National Historic Events

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Collective memories refer to a group's shared representation of the past. They are slow to change over time but do change. To investigate such potential shifts, representative samples of American and German younger adults (YAs) and older adults (OAs) rated the emotional valence of 12 national historic events for their country. Additionally, both age groups were then asked to mentally time travel: OAs reported their past emotional valence on the same events, and YAs provided ratings of their imagined future emotional valence. The results indicated that YAs and OAs hold differing opinions on numerous events today, suggesting shifting public perceptions between generations. Mentally traveling back in time, OAs also perceived changes in their own opinions about the events. YAs, on the other hand, anticipated few changes in the future. Our study captures change in collective remembering, which seems to be perceived across a lifetime, but is not anticipated in advance.

#### General Audience Summary

Collective memories refer to a group's shared representations of the past, which are important to national/ cultural identity. For example, 9/11 is a salient collective memory shared by most Americans that has informed relevant sociopolitical beliefs and narratives. While collective memories are typically slow to change, they do change and may reflect shifts in the wider sociocultural climate. This study sought to investigate such potential shifts through comparing the collective memories of younger adults (YAs) and older adults (OAs) in America and Germany for 12 national historic events in their country. Specifically, participants shared how they feel about each of these events today, making emotional valence ratings from -3 (extremely negative) to 3 (extremely positive). Then, both age groups were asked to mentally time travel. That is, OAs reported how they used to feel about the same events when they were between 18 and 24 years old, and YAs imagined how they might feel about the events in the future, when they become over the age of 60. The results showed that YAs and OAs hold differing feelings toward numerous events today, suggesting generational differences that may reflect changing historical narratives and school curriculums. The samples from the United States and Germany showed some variation, but both data sets confirmed generational differences in present-day affective judgments of nationally important historic events. OAs also perceived several changes in collective memories across their lifetimes, whereas YAs anticipated few changes in the future. Thus, our study was able to capture change in collective remembering of nationally important historic events, which seems to be perceived across a lifetime, but is not anticipated in advance. Notably, perceived changes in collective remembering of a country's history do not necessarily follow the same trajectory everywhere. Understanding these changes can provide insight into how collective memories and national identities shape one another.

Keywords: collective memory, memory for historical events, mental time travel, aging, generational differences

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Data and survey materials are available on the Open Science Framework at https://osf.io/84vjy/?view\_only=7f35981ed5f44fffbb2a15915148cb52.

Sharda Umanath played a lead role in project administration and software and an equal role in conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, resources, writing–original draft, and writing–review and editing. Claire Hou played a supporting role The way that big groups of people, like nations, come to remember a somewhat unified version of their past forms and inform their group identity. Collective memory is conceptualized as a shared representation of the past that is slow to change (e.g., Hirst et al., 2015; Roediger & Abel, 2015). It is often discussed as a stable body of knowledge, but the past is also contentious (Dudai, 2002). Like individual memory, collective memory is constantly reconstructed and renegotiated. In this work, our aim was to examine such collective change in American and German older adults (OAs) and younger adults (YAs) through mental time travel.

There is evidence that collective memories can, and do, change, even at a glacial pace. This has been studied by examining differences across time and generations. Immediately following World War II (WWII) in 1945, 57% of French citizens credited the Soviet Union with having contributed the most to the Nazis' defeat (Berruyer, 2015). Strikingly, in more recent polls, 54% credited the United States with having contributed most (Roediger et al., 2019; see also Abel et al., 2019). Moreover, people from the same country can agree a given event is important but perceive it differently. OAs and YAs both nominated the atomic bombings of Japan as an important event of WWII, but OAs rated the event highly positively in valence whereas YAs rated it extremely negatively (Zaromb et al., 2014). Generational change has also been documented in public perceptions of Christopher Columbus, shifting from hero to villain (Corning & Schuman, 2022).

Mental time travel provides a novel approach to investigating collective change via perceptions of historical events. In particular, assessing emotional valence for past historical events at different points along the mental time line can illuminate the extent to which people perceive and anticipate changes in remembering. For OAs, this is a fairly straightforward comparison between how they felt about the same historical events in the past and today. When OAs are asked to list autobiographical events across their lifetime, a high proportion of events come from their youth (i.e., the reminiscence bump), suggesting that this time period is particularly memorable (Berntsen & Rubin, 2004; Corning & Schuman, 2015; Rubin & Berntsen, 2003; Rubin et al., 1986). Asking OAs how they feel today and felt as a young person may thus reveal perceived change in their views toward national historical events within their own lifetime. Note that we focus on participants' perceptions of changes rather than attempting to examine the accuracy of these perceptions.

For YAs, we can use forward mental time travel to observe possible expected changes in collective memory by asking them how they anticipate feeling about the same historical events in the future compared to today. Although YAs have less lived experience to draw upon, they can engage in thought that simulates the future, a time that has yet to occur. In prior work, when YAs were asked to generate events that might occur in the future of their nation, they often displayed a negativity bias and generated a greater number of worrisome events (Deng et al., 2023; Öner & Gülgöz, 2020; Shrikanth et al., 2018; Shrikanth & Szpunar, 2021; Yamashiro & Roediger, 2019; but see also Hacıbektaşoğlu et al., 2022; Öner et al., 2023; Topcu & Hirst, 2020). In such studies, however, participants imagined the collective future by generating fictitious future events, which lack clear start and end points, as well as connections to larger national narratives. Here, YAs were instead asked to anticipate how their own personal views on the same past historical events may change in the future of their lifetime.

Using online representative samples of about 150 YAs and OAs in the United States and Germany, the goal of the present study was to examine differences between age groups and perceptions of change within them. Participants rated the emotional valence of 12 national historical events from their country, which relate to United States and German national identity (Choi et al., 2021; Schuman et al., 1998). First, they did so in terms of how they felt about the events today. We expected to observe intergenerational differences in how OAs and YAs see the same nationally important events today (e.g., WWII, or the landing in the Americas by Christopher Columbus; see Corning & Schuman, 2022; Zaromb et al., 2014). Then, participants engaged in mental time travel. OAs rated the same events' emotional valence based on how they felt when they were YAs, whereas YAs imagined how they might feel about the same events in the future when they become OAs. If change within an individual's lifetime can be perceived, we would expect OAs' ratings when mentally traveling back in time to differ from those for today. Moreover, if change can be anticipated, YAs' ratings when mentally traveling forward in time should also differ from their ratings today. Potentially, these future projections could be biased to the negative (Liu & Szpunar, 2023; Oner & Gülgöz, 2020; Shrikanth et al., 2018; Shrikanth & Szpunar, 2021). In sum, we expected our study to provide several new insights into perceived change in collective remembering.

#### Method

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

# **Participants**

Much of the existent research on collective memory has been done in the United States. To examine collective remembering more broadly, the present work also includes YAs and OAs from Germany. The two countries were selected because each has a unique history but share some commonalities, as well as including some intersections. In addition, importantly, we were able to use previous work on historic events relevant to national identity as a jumping-off point for both countries (see Choi et al., 2021).

Data were collected via Qualtrics Pools, an online survey platform that recruits participants based on specific demographic considerations (see http://www.qualtrics.com/panelmanagement and https:// www.qualtrics.com/research-services/ online-sample/for more information about Qualtrics). In this study, Qualtrics was asked to provide representative samples on the basis of nationality, gender, and

in data curation, formal analysis, software, writing-original draft, and writing-review and editing and an equal role in visualization. Amy Corning played a supporting role in methodology and an equal role in conceptualization, funding acquisition, and writing-review and editing. Magdalena Abel played a lead role in visualization and an equal role in conceptualization, data curation, formal analysis, funding acquisition, investigation,

methodology, resources, software, writing-original draft, and writing-review and editing.

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geographic region, separately for two age groups (OAs and YAs). Quotas for race/ethnicity were additionally provided for participants in the United States. The goal was to collect data from about 150 participants in each age group from both the United States and Germany.

Participation was voluntary with compensation provided through Qualtrics. Participants were excluded prior to analysis based on the following prespecified criteria: (a) If a participant did not belong to either the younger adult or older adult age groups; (b) If a participant reported a nationality not corresponding with the country they were meant to represent (e.g., a participant in the U.S. pool did not report being American); (c) If a participant chose the same response for all events; (d) If a participant chose "neutral" and then "Because I am not sure how I felt about the event/I don't have an opinion" for all events in at least one of two parts of the survey; and (e) If a participant failed to pass the attention check question in the second part of the survey. We did not exclude participants that reported looking up information about the events because this only occurred infrequently; moreover, when it occurs, participants' explanations suggested that they were simply reminding themselves of what a few events were referring to rather than reading up in order to form an opinion.

For the U.S. sample, 302 completed data sets were considered for analysis (out of 607 total responses; note that this number includes even single clicks on the survey contents, irrespective of whether any real responses to survey questions were recorded or not). The final sample for U.S. participants included 148 OAs (60+ years old; M = 68.4; SD = 6.0) and 154 YAs (18–24 years old; M = 21.0, SD = 1.9). For the German sample, 311 completed data sets were considered for analysis (out of 714 total responses). The final sample for German participants included 158 OAs (60+ years old; M = 65.8; SD = 4.7) and 153 YAs (18–24 years old; M = 20.9; SD = 1.9). Detailed information about demographics of all participants can be found in Table 1.

#### Materials

Participants were asked to rate their emotional valence about 12 major historical events in their respective countries (see Tables 2 and 3). Event selection was based on multiple factors. First, we were able to identify events perceived as important to national identity in the history of the United States and Germany through prior studies (Choi et al., 2021; Schuman et al., 1998). In the study conducted by Choi et al. (2021), American and German participants were asked to generate up to 10 events that made them feel proud or ashamed of their own country, and up to 10 events that they thought might make people from the other country ashamed or proud to be from that country. For example, for Germany, the Holocaust was an "ashamed" event nominated by both German participants and American participants, while the Fall of the Berlin Wall was a "proud" event nominated by both groups. For the United States, slavery was an "ashamed" event nominated by both American and German participants, while the U.S. moon landing was a "proud" event nominated by both groups. This helped us determine and ultimately select a range of both positively and negatively viewed events. We also aimed to include events that occurred during and before participants' lifetimes. Some events, such as the Revolutionary War in the United States, as well as World War I (WWI), occurred before the lifetimes of both OAs and YAs. Others, such as the Cold

War and division of Germany into East and West (Division of Germany) occurred during the lifetimes of OAs but not YAs.

Certain events from U.S. history were selected in order to observe expected differences between generations based on data from past studies (Corning & Schuman, 2022; Zaromb et al., 2014). This included contentious events such as Christopher Columbus's landing in the Americas ("Columbus") and the atomic bombings of Japan during WWII ("Atomic Bombings") in the United States, as there has been change over time in the content and tenor of discussions surrounding these events. As such, these events are meant to more effectively measure the possibility of shifting collective memories across generations. For events from German history, no previous data were available for the selection of events with a high chance of observing collective change. Nevertheless, some events were picked because such change seemed likely to have occurred, for example, for events such as German colonialism and Germany's Membership in the European Union. In contrast, other events from United States and German history were selected as "controls" and expected to be viewed consistently over time and generations. In the United States, examples of such consensus events include "Revolutionary War" and "Abolition of Slavery," which are both relatively noncontroversial events today. In Germany, this included events like "The Foundation of the German Reich" in 1871 and the "German Revolution" in 1918.

Finally, we also considered event specificity, that is, whether an event was specific or occurred over an extended period of time. For instance, the U.S. moon landing ("Moon Landing") is a specific, singular event, while "WWII" would be an example of an extended event that cannot be limited to any singular occurrence. In Germany, an example of a specific event is "The Fall of the Berlin Wall," while an example of an extended event includes "German colonialism." In this context, it is also important to note that some of the selected events were related. For example, for the United States, the "Atomic Bombings" constitute a specific event that occurred during the extended event "WWII." For Germany, "The Holocaust" as an extended event also occurred during "WWII." In prior work (e.g., Abel et al., 2019; Choi et al., 2021), these and other related events were nevertheless nominated separately by participants, suggesting that they still considered them as somewhat unique. As such, we included such related events to learn more about how they may be viewed today versus in the past versus in the future. Even though ratings may be influenced by the relationship between events, asking about one event (e.g., "WWII") would definitely not be equivalent to asking about a related event (e.g., "The Holocaust," "Atomic Bombings"), and as such, the results will still be informative. Again, see Tables 2 and 3 for the lists of included events from United States and German history, respectively.

#### Procedure

The online survey was completed in a self-paced manner and provided in English to U.S. participants and in German to German participants. Among U.S. participants, OAs took about 7.6 min and YAs took about 8.3 min to complete the survey. The difference was not statistically significant, t(300) = -0.23, standard error of the difference, SED = 172.92, p = .820, d = -0.03. Among German participants, OAs took about 8.1 min and YAs took about 4.7 min to complete the survey. The difference was statistically significant, t(210.66) = 6.57, SED = 26.66, p < .001, d = 0.74; that is, German YAs were quicker in completing the survey than German OAs.

	U.S. American sample			German sample	
Variable	Older adults $(n = 148)$	Younger adults $(n = 154)$	Variable	Older adults $(n = 158)$	Younger adults $(n = 153)$
Age (years)					
Range	60-86	18-24		60-77	18-24
M(SD)	68.4 (6.0)	21.0 (1.9)		65.8 (4.7)	20.9 (1.9)
Gender (%)					
Male	50.7	37.7		49.4	43.8
Female	48.0	53.9		50.6	54.2
Nonbinary	0	7.1		0	0.7
Prefer not to say/self-describe	1.3	1.3		0	1.3
Race (%)					
White	73.0	68.2		N/A	N/A
Black or African American	13.5	16.2			
Asian	6.1	3.9			
Other	5.4	5.2			
Multiracial	2.0	6.5			
Ethnicity (%)					
Hispanic, Latino, or Spanish	88.5	82.5		N/A	N/A
Not Hispanic, Latino, or Spanish	11.5	17.5			
Highest level of education (%)					
Less than HS	1.4	8.5	Less than Hauptschule	0	0.7
HS degree/GED	17.6	35.6	Hauptschul degree	5.1	4.6
Some college but no degree	21.6	29.3	Realschul degree	12.7	23.5
Bachelor's degree (4 years)	34.4	11.7	Higher education entrance qualification	5.7	50.3
Associate degree (2 years)	11.5	11.7			
Master's degree	10.8	3.0	Completed vocational training	53.8	13.1
Doctoral degree	2.0	0.1			
Professional degree (JD, MD)	0.7	0.1	Bachelor's degree	2.5	5.2
<b>-</b>			Master's degree/Diploma/State examination	18.4	2.6
			Doctoral degree	1.9	0
Geographic region (%) <sup>a,b</sup>			-		
Northeast	12.8	16.9	North	20.9	18.3
Midwest	22.3	20.8	East	25.3	19.0
South	38.5	50.0	South	19.6	29.3
West	26.4	12.3	West	34.2	33.4

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Demographic	Details	of Participants
Demographic	Dennis	of I unicipulity

*Note.* N/A = not applicable; HS = high school; GED = General Educational Development Test.

<sup>a</sup> Geographic regions in the United States: Northeast = Connecticut, Maine, Massachusetts, New Hampshire, Vermont, New Jersey, New York, Pennsylvania, Delaware, Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia, Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, Texas, Washington D.C., Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, Washington, Idaho, Montana. <sup>b</sup> Geographic regions in Germany: North = Schleswig-Holstein, Lower Saxony, Mecklenburg-Vorpommern, Hamburg, Bremen; East = Berlin, Brandenburg, Saxony-Anhalt, Thuringia, Saxony; South = Bavaria, Baden-Württemberg; West = North Rhine-Westphalia, Rhineland-Palatinate, Hesse, Saarland.

After providing consent and some demographic information (see Table 1), the main study consisted of two parts. In the first part, participants were provided with the title of one of the 12 events and the following instructions: "Please consider how you feel about the following event *today*. Use the response options below to rate how negatively or positively you feel about the event." They then selected one option on a 7-point Likert scale ranging from -3 (*extremely negative*) to +3 (*extremely positive*). The events were presented in random order for each participant.

In the second part of the survey, participants were provided with the same 12 events in a new random order, but with differing instructions for OAs and YAs. OAs saw the following statement: "Please consider how you felt about the following event *when you were 18–24 years old.*" Meanwhile, YAs saw the following statement: "Please imagine how you will feel about the following event *in the future, when you become an older adult (around 60 years of age and older).*" Among these events, an attention check was included, which asked all participants to select "somewhat positive" among the options.

For both parts of the survey, if participants selected "neutral" for their emotional valence of any of the events, they were immediately asked a follow-up question about why they chose the "neutral" option. The three answer options for this question included (a) "Because I am not sure how I feel about the event/I don't have an opinion"; (b) "Because I see the event as neither negative nor positive"; and (c) "Because I see the event as both negative and positive."

After completing the full survey, participants were asked a few postsurvey questions about whether they had looked up any information during the survey and thanked for their time.

Event	Year(s)	Importance
Christopher <b>Columbus</b> 's landing in the Americas	1492	Widely considered the European "discoverer of America," criticized for his brutal treatment of native populations
American Revolutionary War	1775–1783	War that secured American independence from Great Britain
<b>Trail of Tears</b> (treatment and relocation of Native Americans)	1830–1850	A series of large-scale forced displacements o Native Americans by the U.S. government
American Civil War	1861	Civil war between the Union ("the North") and the Confederacy ("the South"), primarily over the institution of slavery
Abolition/End of slavery	1865	13th Amendment officially abolished slavery, freeing more than 4 million enslaved people
World War I	1914–1918	United States entered the war in 1917, when i officially declared war on the German Empire
World War II	1939–1945	United States declared war on Japan after the Pearl Harbor attack in 1941
Atomic bombings of Japan by the United States during World War II	1945	Detonation of two atomic bombs by the United States over Hiroshima and Nagasak during World War II, leading to mass casualties (largely civilians); Japan surrendered to the Allies shortly after
Cold War	1947–1991	Period of geopolitical tension between the United States and Soviet Union
U.S. Civil Rights Movement	1954–1968	Social and political movement to opposing racial segregation, discrimination, and disenfranchisement
Vietnam War	1965–1973	U.S. military involvement in the Vietnam War in response to communist expansion
U.S. Moon Landing	1969	Two American astronauts became the first humans to ever land and walk on the moor

Table 2				
12 Major Events	From American	History in	Chronological	Order

*Note.* The full event labels correspond to the labels used in the survey. We use the terms printed in bold as shorter labels in all following tables and figures.

#### **Research Transparency and Openness**

The survey materials used in this study, as well as anonymized data for all main analyses, are publicly accessible on the Open Science Framework at https://osf.io/84vjy/?view\_only=7f35981e d5f44fffbb2a15915148cb52. The study reported in this article was not preregistered. The study protocol was reviewed and approved by the ethics review board of Claremont McKenna College. Any further requests can be sent to the corresponding author.

#### Data Analysis

Our main analyses in the Results section focus on differences in mean event ratings—(a) between OAs' and YAs' ratings today, (b) between OAs' ratings today versus their ratings when mentally traveling back in time (to when they were 18–24 years old), and (c) between YAs' ratings today versus their ratings when mentally traveling forward in time (to when they become 60 years of age and older). Response distributions for each event were also examined, and we report on the most interesting response patterns. As explained above, for neutral responses, participants were asked to select why they chose this response option. For brevity's sake, however, these data are not reported (they are available from the authors upon request).

#### Results

# OAs' Versus YAs' Emotional Valence About Historical Events Today

#### U.S. Participants

When American OAs and YAs rated the emotional valence about 12 major events in American history, there was substantial evidence of generational differences in collective remembering with the exception of a small number of consensual events. The mean rating values are depicted in Figure 1; to enhance readability, the detailed statistics for the findings described below are provided in Figure 1 as well.

First, only four out of the 12 events were not rated significantly differently by American OAs and YAs. These "consensus" events included "Civil War," "Moon Landing," "Civil Rights Movement," and "Abolition of Slavery." Interestingly, three out of these four consensus events ("Moon Landing," "Civil Rights Movement," "Abolishment of Slavery") were originally selected with the speculation that they would be unlikely to show great generational differences in collective remembering: They are seemingly noncontroversial in terms of their emotional valence, and all appeared on the list of most common "proud" events for U.S.

#### Table 3

12 Major Events From German History in Chronological Order

Event	Year(s)	Importance
Martin Luther and the Protestant Reformation	1517	Religious reform movement, established the Protestant church in Germany
Foundation of the German Reich (German Empire)	1871	Unification of German-speaking states, marks the origin of a German nation
German colonialism (e.g., in Africa)	1884–1918	After initial reluctance, the German Empire established colonies, especially in Africa, which it lost when defeated in World War I
World War I	1914–1918	The first of two major wars in the 20th century on German soil
November <b>Revolution</b> (1918/1919) and end of monarchy in Germany	1918/1919	Marks the end of monarchy in Germany and the switch to a democratic form of government
Founding of the Weimar Republic	1918–1933	Germany's first establishment of a parliamentary democracy
World War II	1939–1945	The second major war in the 20th century on German soil, started by Nazi Germany
Holocaust (Nazi genocide of the Jews)	1941–1945	The systematic murder of ~6 millions of Jews across Europe by Nazi Germany
Occupation of Germany after World War II	1945–1949	The division of Germany into occupation zones by the Allied forces (France, U.K., the United States, the Soviet Union) after World War II
Division of Germany into FRG and GDR	1949–1990	The division of Germany into East (GDR, established from the Soviet occupation zone) and West (FRG, established from the Western occupation zones)
Fall of Berlin Wall	1989	Marks the reunification of East and West Germany after roughly 40 years of division
Germany's membership in the European Union (EU)	1993	An important milestone in the history of a unified Europe

*Note.* The full event labels correspond to the labels used in the survey. We use the terms printed in bold as shorter labels in all following tables and figures. FRG = Federal Republic of Germany; GDR = German Democratic Republic.

national identity in Choi et al. (2021). The final "consensus" event, "Civil War," is more complicated. The event received relatively neutral ratings from most YAs but a much wider range of both negative and positive responses from OAs that averaged to be close to neutral (M = 0.07). Specifically, 38% (n = 57) of OAs today rated it as being negative, 18% (n = 26) as being neutral, and 44% (n = 65) as being positive. Ultimately, the mean ratings of "Civil War" by the two age groups did not differ significantly, but the response distributions within each group indicated that they view the event somewhat differently.

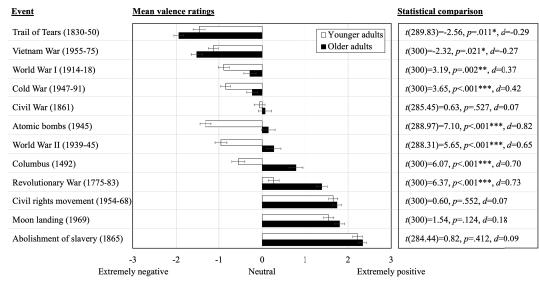
Second, the remaining eight events showed significant differences in mean valence ratings between OAs and YAs. For five of these events, the age groups agreed on the general valence "direction": on average, the events were either positively or negatively viewed by both age groups. However, OAs and YAs differed significantly with regard to the intensity of the valence. These events included "Trail of Tears," "Vietnam War," "WWI," "Cold War," and "Revolutionary War." "Trail of Tears" and "Vietnam War" were rated negatively overall but significantly more so by OAs. "WWI" and "Cold War" were also rated negatively but significantly more so by YAs. "Revolutionary War," on the other hand, was rated positively by both groups but significantly more so by OAs.

Finally, the other three events not only showed significant differences in intensity between age groups, but these differences were in opposing valence directions, demonstrating the most extreme divergence in collective remembering across generations. These "contentious" events illustrate that OAs and YAs today consider certain events in fundamentally different ways. This includes the atomic bombings of Japan by the United States during WWII ("Atomic Bombings"), Columbus landing in the Americas in 1492 ("Columbus"), and "WWII." For all three events, YAs rated them as being negative, whereas OAs rated them as slightly positive. This pattern replicates results from previous studies that have found contrasts in the way these events have been viewed by different generations (Corning & Schuman, 2022; Schuman & Scott, 1989; Zaromb et al., 2014).

However, it is important to note that while OAs' average ratings for "WWII" and "Atomic Bombings" were both slightly positive (WWII = 0.27, Atomic Bombings = 0.14), the underlying responses ranged widely. In other words, when these two events are examined more closely, OAs are actually quite split in their perceptions even within their age group. For "WWII," 37% of OAs (n = 55) rated the event as being negative, 10% (n = 15) as being neutral, and 53% (n =78) as being positive. For "Atomic Bombings," 41% (n = 61) of OAs rated the event as being negative, 14% (n = 21) as being neutral, and 45% (n = 66) as being positive. Compared to these two events, the responses for "Columbus" were less mixed within groups. Generally, the ratings were more positive for OAs (0.78), and more negative for YAs (-0.55). This is in line with the existing literature on the shifting perception of Christopher Columbus over time (Corning & Schuman,

#### Figure 1

Mean Valence Ratings by Younger and Older Adults From the United States, as Well as Statistical Comparisons, Across the Two Age Groups (Two-Tailed Independent-Samples t Tests)



\* p < .05. \*\* p < .01. \*\*\* p < .001.

2022; Schuman et al., 2005), and provides further evidence for generational change in collective memories.

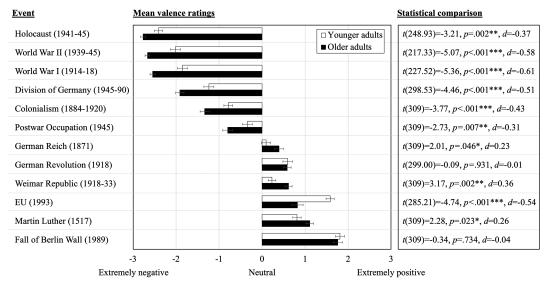
#### German Participants

The data of German participants also provided clear evidence of generational differences in collective remembering. Mean event ratings are shown in Figure 2, separately for OAs and YAs; Figure 2 also provides detailed statistics. The only two events that were *not* rated significantly differently by OAs and YAs were "The Fall of the Berlin Wall" and "German Revolution," both of which were rated as equally positive by participants from both age groups. The remaining 10 events showed significant differences as a function of age.

For nine out of 10 events, ratings by YAs were less intense than ratings by OAs but still expressed the same direction. For example,

#### Figure 2

Mean Valence Ratings by Younger and Older Adults From Germany, as Well as Statistical Comparisons, Across the Two Age Groups (Two-Tailed Independent-Samples t Tests)



*Note.* EU = European Union.

<sup>\*</sup> p < .05. \*\* p < .01. \*\*\* p < .001.

the events "Martin Luther and the Protestant Reformation" and "Founding of the Weimar Republic" were rated as positive by both age groups, just as less positive by YAs than OAs. Similarly, "WWI" and "WWII" were rated as clearly negative by both age groups, just as less negative by YAs than OAs. For some events, the decrease in rated intensity observed in YAs was an expression of a more neutral assessment of the events. For example, though the majority of participants in both age groups rated "German colonialism" as negative (73% of OAs, 54% of YAs), it was rated as neutral by 34% (n = 52) of YAs but only by 18% (n = 29) of OAs. For other events, however, the observed decrease in mean rated intensity reflects not just a shift to the neutral but partly even to the opposite valence. "WWI," for instance, was again rated as negative by the majority of participants in each age group (97% of OAs, 82% of YAs). Only 3% (n = 4) of OAs rated the event as neutral. In contrast, the event was rated as neutral by 9% (n = 13) of YAs, and was even rated as positive by another 9% (n = 14) of YAs.

The only event that showed higher ratings in YAs than in OAs was "Germany's Membership in the European Union." The event was, on average, again rated as positive by both age groups but this time as more positively by YAs than OAs. A closer look at response distributions for this event reveals that OAs showed greater variability in their judgments, with 25% (n = 40) rating the event as negative (relative to only 4% of the YAs; n = 6). Still, the majority of participants in each age group rated the event as positive, namely 67% (n = 105) of OAs and 82% (n = 126) of YAs.

Thus, a straightforward difference from the American data discussed above is that German participants showed greater agreement on the general valence assigned to each event today. Indeed, there were no events that were clearly contentious, and for which means flipped from the positive to the negative or vice versa across the age groups. Instead, on average, half the events were rated as positive by both age groups, and the other half as negative by both age groups. The pattern for events rated as negative was very clear, with OAs showing more intense ratings for all six events. The pattern for events rated as positive was a bit more variable, with two events showing no age-related differences and one event showing more intense ratings by YAs.

# Backward Mental Time Travel: How OAs Felt About Historical Events When They Were Young Versus Today

#### U.S. Participants

American OAs seemed to perceive change in collective remembering over their lifetimes when asked to remember how they felt about the same 12 historical events when they were 18–24 years old. The mean rating values are depicted in Figure 3, as are detailed statistics for the findings described below.

Only two out of 12 events did not show significant changes in mean ratings today versus when mentally traveling back in time: "Revolutionary War" was rated as moderately positive at both time points, and "Atomic Bombings" were rated as slightly positive both today and in the past. Notably, ratings for "Atomic Bombings" remained divided (i.e., receiving a mix of both positive and negative responses). Thirty-six percent (n = 54) of OAs rated their past emotional valence about this event as being negative, 14% (n = 20) rated it as being neutral, and 50% (n = 74) rated it as being positive. The ratings of "Atomic Bombings" at both time points demonstrate the polarizing nature of the event that has persisted across OAs' lifespans.

The other 10 events all showed significant changes in mean ratings across time. Nine of these events maintained the same valence direction over time (either negative or positive), with the intensity of the valence changing. Notably, all negative events were judged as being significantly more negative today than in the past

#### Figure 3

Mean Valence Ratings by Older Adults From the United States for Past and Present, as Well as Statistical Comparisons, of the Two Time Points (Two-Tailed Dependent-Samples t Tests)

<u>Event</u>	Mean valence ratings	Statistical comparison
Trail of Tears (1830-50)	⊳ Past	t(147)=-4.13, p<.001***, d=-0.34
Vietnam War (1955-75)	■ Preser	nt t(147)=-2.07, p=.040*, d=-0.17
World War I (1914-18)		t(147)=-3.53, p<.001***, d=-0.29
Cold War (1947-91)	⊨ <b>_</b>	t(147)=-2.00, p=.047*, d=-0.16
Civil War (1861)		t(147)=-2.16, p=.033*, d=-0.18
Atomic bombs (1945)		t(147)=-1.49, p=.138, d=-0.12
World War II (1939-45)		t(147)=-2.13, p=.035*, d=-0.18
Columbus (1492)		t(147)=-4.22, p<.001***, d=-0.35
Revolutionary War (1775-83)		t(147)=0.70, p=.485, d=0.06
Civil rights movement (1954-68)		t(147)=2.70, p=.008**, d=0.22
Moon landing (1969)		t(147)=-2.93, p=.004**, d=-0.24
Abolishment of slavery (1865)		t(147)=2.62, p=.010**, d=-0.22
-3 Extremely		3 mely positive

<sup>\*</sup> p < .05. \*\* p < .01. \*\*\* p < .001.

("Cold War," "Vietnam War," "Trail of Tears"). In contrast, most positive events were judged as being significantly more positive in the past than today ("Civil War," "Columbus," "WWII," "Moon Landing"), with the exception of "Civil Rights Movement," which was rated by OAs as being moderately positive at both time points but significantly more so today than in the past. The final event, "WWI," was the only event to demonstrate some reversal in valence over time; it was rated as slightly positive (0.10) in the past and slightly negative (-0.28) in the present.

# German Participants

Two of the 12 events from German history that were included in the first part of the survey referred to events that had not happened yet when OAs were 18–24 years old, namely "The Fall of the Berlin Wall" and "Germany's Membership in the European Union." We included the events in the survey anyway because they played an important role in Germany's history. As a consequence, however, for OAs from Germany, the second part of the survey only comprises 10 (instead of 12) events.

Mean event ratings by German OAs also provided evidence of perceived changes in collective remembering across their lifespan (see Figure 4). Only two events received roughly the same ratings today and when mentally traveling back in time, namely "WWII" (rated as highly negative at both points along the mental time line) and "The Foundation of the German Reich" (rated as slightly positive both times). For all other events, OAs' mean ratings expressed change from when they were young compared to today.

Again, this change did not take the form of a reversal in valence, but rather, a change in the intensity of the perceived valence. Mentally traveling back in time, all positive events were judged as less positive compared with today (e.g., "Founding of the Weimar Republic," "Martin Luther and the Protestant Reformation"). The same held for most negative events, which were also judged as less negative when mentally traveling back in time (e.g., "German colonialism," "Division of Germany," "WWI"). Thus, for the majority of events that showed within-participant change across the lifespan, OAs reported feeling more intensely today than they used to feel as YAs. The only event that showed a different pattern was "Postwar Occupation of Germany," which was judged as less negative today than in the past.

# Forward Mental Time Travel: How YAs Anticipate Feeling About Historical Events When They Grow Old Versus Today

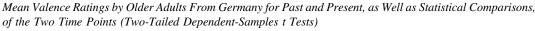
# U.S. Participants

YAs in the United States did not appear to anticipate much change in collective remembering when asked to mentally travel forward in time and imagine how they would feel about the same events when they were 60 years or older. The mean rating values, as well as detailed statistics, are provided in Figure 5. Only two out of 12 events showed significant anticipated change from the present. Both events were rated moderately to very positively by YAs today ("Abolishment of Slavery," "Moon Landing"), and mental time travel ratings indicated that YAs anticipated feeling less intensely (i.e., less positively) about them in the future. Apart from these two relatively small changes, no other events showed significant anticipated change in collective remembering over YAs' lifetimes.

#### German Participants

Mean ratings of YAs in Germany also provided little evidence of anticipated change in collective remembering in the future (see Figure 6). Only four out of 12 events were rated differently when mentally traveling to the future versus now. Three of these events were perceived as positive ("November Revolution and End of Monarchy in Germany," "Martin Luther and the Protestant Reformation," "Germany's Membership in the European Union"),

#### Figure 4



<u>Event</u>	<u>Mean valence ratings</u>	Statistical comparison
Holocaust (1941-45)	SPast	t(157)=-2.67, p=.008**, d=-0.21
World War II (1939-45)	■ Present	t(157)=-1.40, p=.164, d=-0.11
World War I (1914-18)		t(157)=-3.09, p=.002**, d=-0.25
Division of Germany (1945-90)		t(157)=-2.61, p=.010**, d=-0.21
Colonialism (1884-1920)		t(157)=-2.76, p=.006**, d=-0.22
Postwar Occupation (1945)		t(157)=2.19, p=.030*, d=0.18
German Reich (1871)		t(157)=0.53, p=.594, d=0.04
German Revolution (1918)		t(157)=2.15, p=.033*, d=0.17
Weimar Republic (1918-33)		t(157)=2.52, p=.013*, d=0.20
Martin Luther (1517)		t(157)=2.05, p=.042*, d=0.16
	-3 -2 -1 0 1 2	3
Extreme	ly negative Neutral Extrem	nely positive

#### Figure 5

Mean Valence Ratings by Younger Adults From the United States for Future and Present, as Well as Statistical Comparisons, of the Two Time Points (Two-Tailed Dependent-Samples t Tests)

<u>Event</u>	Mean valence ratings	Statistical comparison
Trail of Tears (1830-50)	Silling Stature	t(153)=-0.06, p=.950, d=-0.01
Atomic bombs (1945)		t(153)=-0.71, p=.479, d=-0.06
Vietnam War (1955-1975)		t(153)=1.45, p=.150, d=0.12
World War II (1939-45)		t(153)=-0.71, p=.479, d=-0.06
World War I (1914-1918)		t(153)=1.00, p=.319, d=0.08
Cold War (1947-1991)		t(153)=-0.18, p=.854, d=-0.02
Columbus (1492)		t(153)=0.66, p=.510, d=0.05
Civil War (1861)	1 I I I I I I I I I I I I I I I I I I I	t(153)=-0.43, p=.665, d=-0.04
Revolutionary War (1775-83)		t(153)=0.13, p=.901, d=0.01
Moon landing (1969)		t(153)=2.23, p=.027*, d=0.18
Civil rights movement (1954-68		t(153)=0.43, p=.670, d=0.03
Abolishment of slavery (1865)		t(153)=2.32, p=.022*, d=0.19
	-3 -2 -1 0 1 2 ly negative Neutral Extrem	3 nely positive

\* p < .05.

and participants' ratings suggested that they anticipated a decrease in intensity, that is, feeling less positively about these events in the future. The other event was perceived as negative ("Postwar Occupation of Germany"), and in this case, participants anticipated an increase in intensity, that is, they anticipated perceiving the event as more negative in the future. Indeed, for all four events, a closer look at response distributions indicates that the anticipated change represents a slight shift to the negative. For example, 63% (n = 96) of YAs rated the event "Martin Luther and the Protestant Revolution" as positive in the first part of the survey, whereas this was only the case for 56% (n = 86) of participants in the second part of the survey, when they were asked to mentally travel

#### Figure 6

Mean Valence Ratings by Younger Adults From Germany for Future and Present, as Well as Statistical Comparisons, of the Two Time Points (Two-Tailed Dependent-Samples t Tests)

<u>Event</u> <u>N</u>	Mean valence ratings	Statistical comparison
Holocaust (1941-45)	Stuture	t(152)=0.08, p=.936, d=0.01
World War II (1939-45)	Present	t(152)=0.49, p=.626, d=0.04
World War I (1914-18)		t(152)=0.80, p=.427, d=0.06
Division of Germany (1945-90)		t(152)=-0.99, p=.325, d=-0.08
Colonialism (1884-1920)		t(152)=-0.14, p=.893, d=-0.01
Postwar Occupation (1945)		t(152)=3.27, p=.001***, d=0.27
German Reich (1871)	+ <del>42</del> -1	t(152)=0.34, p=.731, d=0.03
Weimar Republic (1918-33)		t(152)=-0.93, p=.356, d=-0.08
German Revolution (1918)		t(152)=2.19, p=.030*, d=0.18
Martin Luther (1517)		t(152)=2.16, p=.032*, d=0.18
EU (1993)		t(152)=2.17, p=.032*, d=0.18
Fall of Berlin Wall (1989)		t(152)=1.65, p=.101, d=0.13
-3 Extremely		

*Note.* EU = European Union. \* p < .05. \*\*\* p < .001. forward in time. Simultaneously, the percentage of participants who rated the event as negative increased from 10% (n = 16) in the first part of the survey to 18% (n = 28) in the second part of the survey. For all four events, the anticipated changes were quite small, however (see Figure 6, for details).

#### **Additional Analysis: Neutral Responses**

In this section, we briefly discuss neutral responses, with the goal of addressing the degree to which neutral ratings might be reflective of mixed feelings toward nationally important events. On average, for both parts of the survey, OAs from the U.S. sample rated 3.3 (SD = 3.8) events as neutral, whereas YAs rated 3.8 (SD = 3.8)events as neutral. The difference was not statistically significant, t(300) = 1.08, p = .282, d = 0.12. Moreover, for the full U.S. sample, participants indicated to have chosen the neutral rating due to seeing the event as both positive and negative for 31.3% of all events that were rated as neutral. A similar pattern was observed in the German sample. Here, OAs rated an average of 3.5 (SD = 3.1) events as neutral, whereas YAs rated an average of 4.1 (SD = 3.2) events as neutral. The difference was not statistically significant, t(309) =1.62, p = .106, d = 0.18. It should be noted, however, that the total number of ratings was 22 for OAs from Germany (because two events could not be included when asking OAs about the past), and 24 for YAs. Across the full German sample, for 21.2% of all events rated as neutral, participants indicated seeing the event as both negative and positive. Overall, these numbers are consistent with prior work, showing that at least some nationally important events are not perceived as clearly negative or clearly positive by everyone, but can sometimes also be perceived as mixed instead (see also Choi et al., 2021, for a more detailed approach). For the U.S. sample, the event "Atomic Bombings" received among the highest number of such mixed responses (total n = 42), likely because the event helped to end WWII, but also inflicted death and suffering on hundreds of thousands of civilians. For the German sample, the event "Weimar Republic" received the most mixed responses (total n = 41), likely because the event reflects the introduction of a parliamentary democracy in Germany but also paved the way for Hitler's rise to power.

#### Discussion

Overall, our results provide evidence that people can and do perceive changes in collective memories for historically salient events, both within a lifetime and between generations. Retrospective (and prospective) judgments about attitudes or opinions can be influenced by implicit theories of change and stability over the lifespan (Pearson et al., 1992). Yet, the two target age groups in the present study (18–24 years and 65+ years) are thought to be particularly susceptible to changes regarding sociopolitical attitudes relative to midlife (e.g., Alwin et al., 1991; Kiley & Vaisey, 2020). Our findings demonstrate that substantial differences exist between and within them regarding collective memories for historical events.

Our first focus was on generational differences in collective remembering. Differences in present-day affective judgments between OAs and YAs were seen for the majority of events in both American and German samples. In the United States, YAs were more negative than OAs about almost all events, including three contentious events that showed opposing valence directions ("Atomic Bombings," "WWII," "Columbus"). Indeed, materials for covering historic events in schools and other educational settings were likely revised during OAs' lifetimes. Events may be portrayed in a more nuanced and less glorifying manner in the recent past, with greater emphasis on their human costs, which likely affects how they are remembered (Corning & Schuman, 2022; Lachmann & Mitchell, 2014). Notably, while OAs' overall ratings of "Atomic Bombings" and "WWII" were both slightly positive, a closer look at the response distributions revealed that the emotional valence of these two events was not highly agreed upon within this age group; a wider range of ratings ultimately led to the slightly positive average reported. YAs' comparatively uniform and definitively negative ratings of "Atomic Bombings" and "WWII" support the possibility of a decisive shift in public views of these events. Examining "neutral" responses also helps provide a fuller picture of participants' feelings. For example, when judged as "neutral," "Atomic Bombings" received a high number of "Because I see the event as both positive and negative" responses in both age groups, suggesting mixed opinions. Nonetheless, the mean valence rating can still serve as a good measure for most events, which are generally less controversial.

For Germany, no events were clearly contentious. Instead, YAs' mean ratings showed a general decrease in perceived intensity relative to OAs. Greater emotional intensity and generally stronger phenomenology in OAs have been observed for autobiographical memory (e.g., Luchetti & Sutin, 2018). Here, this pattern of generational differences was very stable for negative events, with slightly more variation for positive events. More broadly, German collective memory has largely been characterized by intense guilt following the events of WWII, but there is evidence of a more recent change in public consciousness, leading to more confident expressions in national identity (Wittlinger, 2006; Wittlinger & Boothroyd, 2010). Corroborating evidence of this shift may be reflected here in German YAs. Relative to OAs, their ratings suggested a decrease in the intensity of feelings about all negative historic events (including "WWII" and "Holocaust"), whereas an increase was only seen for one positive event ("Germany's Membership in the European Union").

Although the samples from the two countries thus show some variation, both data sets confirm generational differences in presentday affective judgments of nationally important historic events. These differences may be indicative of shifts in collective memory, perhaps due to other important historic or political developments that occurred in the meantime, prompting changes in knowledge, educational curriculums (e.g., Burton, 2020; Koumpilova, 2022), and historical narratives (Bode & Heo, 2016; Schuman et al., 2005; Thome, 2017; Wertsch, 2008).

Our second focus was on using mental time travel to examine perceived and anticipated change in remembering within one's lifetime. Evidence from OAs suggested that changes in remembering can be perceived (though we cannot assess accuracy of the reported change). American OAs reported feeling significantly more negatively about most events today than in the past, whereas German OAs mostly reported feeling more intensely today. There is a large body of evidence that OAs reappraise past events in their autobiographical memory, but typically, they do so toward positive valence (Kennedy et al., 2004; Mather & Carstensen, 2005; Spaniol et al., 2008), suggesting a difference for OAs' collective memory. However, such findings may be consistent with reported changes in autobiographical memories for creating an overall trajectory of self-improvement (Liu & Szpunar, 2023; Wilson & Ross, 2003). Thus, results for the two national samples again differed in their precise patterns. However, they still consistently suggested that engaging in mental time travel to the past can reveal differences in affective judgments of nationally important events that may have occurred within a lifetime.

Ross and Conway (1986) proposed that making retrospective judgments about personal beliefs involves a two-step process. First, one considers one's current state. Second, a retrospective judgment is made, reflecting change or lack thereof from one's current state. Here, OAs generally characterized their past feelings as different from now. Asking OAs to mentally travel back to their youth, a highly memorable period in life (Berntsen & Rubin, 2004; Corning & Schuman, 2015; Rubin et al., 1986), should enable them to draw upon their lived experience and actual memories of how they or others around them viewed the same events decades earlier to make these judgments. Retrospective judgments can also be influenced by broad implicit theories of how specific personal attributes like views and attitudes may transform over time (Ross, 1989; Ross & Conway, 1986; Ross & Newby-Clark, 1998). Inasmuch as implicit theories contributed to the present findings, OAs predominantly assumed that views on important historic events should change across one's lifetime rather than remain stable.

In contrast, evidence from YAs suggested that it may be harder to anticipate such differences ahead of time. Prior work mostly showed that YAs tend to hold a negative view of the collective future. When asked to generate fictitious events that might occur in the future of their nations, participants often imagined negative events (Deng et al., 2023; Öner & Gülgöz, 2020; Shrikanth et al., 2018; Shrikanth & Szpunar, 2021; but see also Hacıbektaşoğlu et al., 2022; Oner et al., 2023; Topcu & Hirst, 2020). Here, YAs were asked to provide affective judgments of historic events that have already occurred, with established connections to national narratives and national identity. Results from both samples consistently indicated few expected changes in affective judgments of such events, most consistent with anticipated stability in how they will remember nationally important events in the future (see also McFarland & Ross, 1987). When mentally traveling to the future, YAs simulate a time that has yet to occur, involving imagination rather than just pure memory. In considering implicit theories (Ross, 1989), YAs largely assumed that views on important historic events should remain stable across one's lifetime. The higher degree of stability observed with mental time travel to the future versus the past also reflects the so-called endof-history illusion (Quoidbach et al., 2013), a phenomenon describing people's tendency to retrospectively perceive personal change but underestimate the magnitude of such change in the future. This could be attributed to psychological factors such as individuals' belief that they know themselves well (Eurich, 2018), which is threatened by the possibility of future change. Moreover, it is generally more challenging to construct new things (i.e., imagine future feelings) than to reconstruct old ones (i.e., recall past feelings; Robinson & Clore, 2002; Ross, 1989).

Consistent with prior work (Shrikanth & Szpunar, 2021; Yamashiro & Roediger, 2019), the present data from U.S. participants suggest a trajectory of decline over time. OAs reported

feeling significantly more negative about most events today than in the past, demonstrating a perceived shift in remembering. Meanwhile, YAs anticipated few changes in the future, but for the few events where they predict significant changes, expected to feel less positively. However, this pattern was not reflected in the German sample, and especially not in OAs. Rather than reporting feeling increasingly negative over time, German OAs seemed to feel more intensely today than in the past (i.e., more negative/positive today). This discrepancy in findings suggests that perceived changes in collective remembering of a country's history over time do not necessarily follow the same trajectory everywhere (see also Deng et al., 2023; Mert et al., 2023, for demonstrations of cultural differences in collective remembering and/or future thinking). How a nation collectively perceives its past is informed by its unique sociocultural situation. Factors like socioeconomic development or the age of a nation can, for example, greatly impact collective memories of national historic events (Choi et al., 2023; Liu et al., 2021).

Like individual memory, collective memory is constantly reconstructed and renegotiated. Although the results of the present study clearly support the shifting of collective memories over time, there are some limitations. The United States and Germany, while each having their own historical events and national context, both represent Westernized, educated, industrialized, rich, democratic populations (Henrich et al., 2010). The generalizability to other national groups is unclear, especially considering salient cultural differences in construals of the individual versus the collective (e.g., Carducci, 2012; Park et al., 2017), as well as differences in attitudes toward historical events between developed and developing countries (e.g., Choi et al., 2023; Liu et al., 2021). In addition to expanding this line of research to include other national collectives, a critical next step is to understand why these respective groups, by age, country, and perhaps by subgroups within nations, collectively remember certain events in the way that they do. For example, narratives likely shift around events important to that nation over time (Wertsch, 2008). Through this work, we hope to shed light on sociocultural factors that may be contributing to perceived and anticipated changes (or lack thereof) in collective memory. Understanding shifts in collective remembering can provide insight into the relationship between collective memories and the shape of national identities.

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