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Memory Characteristics in Relation to Age and Community Identity: The Influence of Rehearsal on Visitors' Recollections of the 2005 Aichi World Exposition, Japan

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ABSTRACT

This study investigated autobiographical memory characteristics in relation to age and community identity using Japanese visitors' recollections of their experiences of the 2005 Aichi World Exposition in Japan, which they had attended 4 years past. A total of 82 visitors completed a 38-item Memory Characteristics Questionnaire (MCQ). Age was grouped in 2 levels—younger adult visitors (ages 18 to 30) and older adult visitors (ages 60 to 82)—and community identity by 2 distinct community groupings—visitors from Kansai area and visitors from Aichi area. Autobiographical memory characteristics, reflected by the factors of the MCQ, were explored through analysis of variance in terms of age and community identity to determine the influence on visitors' long-term memories of the Aichi Expo. Explanations of the significant effects include sociocultural identities that motivate recollection and rehearsal activity and lead to clear or improvised autobiographical memories of the event.

Studies of episodic and autobiographical long-term memories of naturalistic, non-experimentally contrived, everyday life events offer interesting insights for enhancing visitor experiences and understanding psychological factors that shape long-term memories (Anderson, Storksdieck, & Spock, 2007). This is because such studies provide understandings about how and why we as human beings develop and recall memories of our life experiences. Understanding the psychological factors that shape memories may then permit those who develop or provide experiences to become more informed about their design.

Visitors' age and identity, which are interrelated factors, have been shown in a number of studies to influence various characteristics of autobiographical memories. A recent line of studies, discussed below, has explored long-term memories of everyday life events using the episodic context of visitors' leisure-time experiences at World Expositions. Anderson (2003) studied the episodic and autobiographical memories of

visitors at Expo 1986 (Vancouver) or Expo 1988 (Brisbane) through in-depth face-to-face interviews. His study concluded that the sociocultural identities of visitors—their age, life stage, personal and community values, and personal interests—at the time of the experience were critical factors that shaped memory of the expo experience and determined what visitors perceived and, ultimately, recollected of the experience years later. Anderson and Shimizu's (2007a, 2007b) studies of visitor memories of Expo 1970 (Japan) investigated long-term memories of the event recalled 34 years later. The studies revealed that heightened emotional positive and negative affect associated with specific episodes of visitors' experience (e.g., visiting exhibits, watching films, shared experiences with family and friends) was linked to frequent rehearsal of memories (i.e., thought back on, discussed, remembered), which, in turn, led to later retention of vivid long-term memories many years after the experience. Anderson and Shimizu (2007a) determined through multiple linear regression modeling of factors (affect, agenda fulfillment, and rehearsal) that the extent of visitors' rehearsal of episodic and autobiographical memories (through often-told life stories, conversations, photographs, and personally meaningful souvenirs) was the most significant influence of vividness of long-term memories. However, when all factors were considered together in the multiple linear regression modeling, only rehearsal was significant (accounting for 85.9% of variance). The study is important because it demonstrates the role of affect on long-term memory development via the rehearsal mechanism.

Other studies also provide evidence for the contribution of rehearsal on development of detailed, clear, and vivid memories of leisure-time events. For instance, Hamond and Fivush (1990) revealed that children who talked about their Disneyworld experience more frequently with their families subsequently recounted more information during their interview about the experience; and Stevenson (1991) and Medved and Oatley (2000) reported that engaging in conversations with friends and family about museum visits contributes to later episodic recall.

Anderson and Gosselin (2008) studied personal and private long-term memories of Canadian visitors' experiences of Expo 1967 (Montreal). They compared the memories of 25 Francophone participants from Montreal and 25 Anglophone participants from Vancouver. There were differences in the things remembered and vividness of memories, explained by the authors in terms of distinctions in sociocultural identities (i.e., who they perceived themselves to be, their personal identification with their local community, and the community values they held). Hence, the community in which participants belonged were interpreted as important for encoding and later retrieval of memories.

Age, Community Identity, and Autobiographical Memory

In Anderson and Shimizu's (2007a, 2007b) studies of visitors' memories of Expo 1970, conducted with older adults (60–85 years), no statistically significant age difference was observed. However, this finding is perhaps not surprising as younger adults were not sampled and the study was staged 34 years following the exhibition. It can be hypothesized that age may be a significant predictor of memory vividness—a view informed by the outcomes of Anderson (2003) and other recent literature, especially on the topic of memories of the self and the reminiscence bump (e.g., Rathbone, Moulin, & Conway, 2008)—which suggest that older adults might engage in more

reminiscence (rehearsal of memories) and, therefore, recall more vivid memories. Older people tend to recall more personal and private memories of events from adolescence and early adulthood than other age groups. This temporal distribution of autobiographical memories is not a new finding. The literature shows childhood amnesia, indicating the failure to remember personal events from the first few years of life (0–5 years), and the recency effect indicating relatively easy success remembering recent personal events (last 5 years). That is, a contemporary investigation of memory development has revealed age as a key variable but does not exert a simple or monotonic effect on autobiographical memories (cf. Conway & Pleydell-Pearce, 2000; Hashtroudi, Johnson, & Chrosniak, 1990). Hence, an examination of age as a variable influencing autobiographical memory warrants further research, especially on visitors' memories of exhibitions. With these facts in mind, an examination of age as a variable influencing autobiographical memory seems highly reasonable, particularly when highly differentiated as part of the research design, that is, a comparison of distinctly different age groups.

Relations between identity and memory have been addressed by Conway (1997), Anderson (2003), and Anderson and Gosselin (2008), which suggest that community belonging has a collective cultural identity that in turn shapes autobiographical memories in unique ways, particularly with regard to social events within or outside the community context. These studies are consistent with Halbwachs's (1992) assertion that all memories are formed and organized within a collective context—as such, all events, experiences, and perceptions are shaped by individuals' interactions with others within the collective community or society. Hence, in this study we subscribe to a context-dependent view of autobiographical memory construction, in which the society or community provides the framework for beliefs, behaviors, and recollections, which we define as *community identity*.

Accordingly, in this study our hypothesis was two-fold. First, older adult visitors would be more likely to retrospectively reflect and rehearse memories and hence hold higher clarity of memories of the event, compared with younger adult visitors. Second, the community identity of visitors would have a bearing on the memory characteristics participants held of events, such as differences in the things remembered and the clarity of memories.

METHOD

This study concerns the factors that shape vivid long-term memories and how these factors influence autobiographical memories. The overarching research question was: How are memory characteristics, including clarity, retrospective recollection, and rehearsal, influenced by participants' age and community identity?

Participants

A total of 82 Japanese nationals voluntarily participated in the study in the spring of 2009. The sample was grouped by the age and community identity of visitors to Expo 2005. Age was grouped by two levels: 40 younger adults ages 18 to 30 years and 42 older adults ages 60 to 82 years. At the same time, community identity was clustered by two distinct groups—visitors resident in the Kansai Area (in and around

the city of Osaka) comprising 30 participants (14 younger adults and 16 older adults) and those in Aichi prefecture (in and around the city of Nagoya) comprising 52 participants (26 younger adults and 26 older adults). We chose the Kansai and Aichi communities as distinct groups for comparison for a number of reasons. First, both regions had previously staged a World Exposition. Kansai staged the 1970 Japan World Exposition—Osaka (Anderson, 2008), and Aichi staged the more contemporary 2005 Aichi World Exposition (Heller, 2008). It is known that the staging of the expositions, as major and significant historical events, powerfully affected the cultural identities of both communities (Commemorative Association for the Japan World Exposition, 1970; Japan Association for the 2005 World Exposition, 2005; Rydell & Gwinn, 1994). Also, it was known that there were distinctions between Kansai and Aichi by virtue of geographic separation (Kansai area is about 200 km from Aichi area), geography, industry, metropolitan characteristics, community values, and so on.

Instrument

Psychological studies of autobiographical memory have used a variety of questionnaire instruments. For example, Rubin, Schrauf, and Greenberg (2003) developed the Autobiographical Memory Questionnaire, and Sutin and Robins (2007) developed the Memory Experiences Questionnaire. In this study, the Memory Characteristics Questionnaire (MCQ) was used and deemed suitable for investigating research questions that drove the study and has previously been used in our research studies of autobiographical memories of life events.

The MCQ was developed by Johnson, Foley, Suengas, and Raye (1988) to explore differences between real and imagined events. It comprises 39 items; participants self-rate on a 7-point scale the extent to which they experienced a particular attribute of memory in a specific autobiographical event. The nature of the factor structure of the MCQ was recently examined by Takahashi and Shimizu (2007) through an examination of the long-term memories of 1,183 junior high school students' graduation day. In addition, Shimizu, Anderson, and Takahashi (2012) undertook a rigorous critical review of the MCQ and concluded that the outcomes of the MCQ vary as a function of the context in which the autobiographical memory originated. As such, it is worthwhile to determine (or re-establish) the factor structure of the MCQ with data from the autobiographic memory context under consideration, in the instance of this study, the memories of a World Exposition.

The Memory Context

The Aichi World Exposition was an international exposition held in Aichi Prefecture, Japan, east of the city of Nagoya. The Expo ran for 185 days between March 25 and September 25, 2005, and the official attendance over the 6 months was 22 million visitors, 95.4% of whom were residents of Japan (Japan Association for the 2005 World Exposition, 2005). The main site of the Expo was a forested area in Nagakute east of Nagoya, covering an area of about 1.85 square km (460 acres). A smaller area of 0.15 square km (37 acres) nearby, accessible by gondola from the main site near Seto, was also part of the Expo. Typical visitor experiences included visiting national and corporate pavilions during which they viewed high-technology movies, visual

displays, and static as well as interactive exhibitions. Technologies, such as robots, featured highly in the exposition, in addition to modern art (kinetic sculptures), nature experiences (parks and woodlands), dining and eating experiences (restaurants), shopping experiences (gift and souvenir shops), and shared social experiences.

Aichi Expo is useful for examining long-term memory of a naturally occurring life event. Visitors' memories of Expos are generally positive, easily recalled events, which many people in Japan experienced. In addition, the exposition experiences represent a defined marker in time for which the retention interval since the event can be ascertained for all participants, thus countering the threat to validity that might arise through examination of events with varying retention intervals. Although memories of personal experiences construct and reconstruct longitudinally, and participants might not recall an entirely accurate version of the experience that originally produced the memories (Bruner, 1994; Freeman, 1993; Neisser & Fivush, 1994), the focus of this study was an investigation of the factors influencing the vividness or clarity of long-term memory, and not the accuracy of self-reported experience.

Procedure

Participants were recruited from community centers via posters and electronic mailing lists in both Kansai and Aichi areas. The procedure comprised a semistructured interview followed by the completion of a 38-item version of the MCQ.¹ The session was about 40 minutes (30 minutes for the interview and 10 minutes for the MCQ). The interview served a very important cue that was instrumental in assisting participants to access and reflect thoughtfully about their memories of Aichi Expo. As a result of this experience immediately prior to the completion of the MCQ, we believe participant responses possessed higher internal validity. At the conclusion of each interview, the participants completed the MCQ, in which they self-rated the strength of various attributes of their memories of their visit(s) to Aichi Expo four years earlier. Demographic data, including the participants' age, community identity, gender, the number of visits they claim they made to Aichi Expo, and their social grouping (single or group visitation) also were collected.

Data Analysis

Analysis of the MCQ data comprised three stages. First, factor analysis of the MCQ for the memory context of Japanese visitors' experiences of World Expositions was undertaken. To achieve this, we draw upon all MCQ data that we had concerning visitor memories of Japanese World Expositions, including the data set of this Aichi Expo study ($n = 82$) and an MCQ data set of visitor memories of the 1970 Japan World Exposition ($n = 47$) (Anderson & Shimizu, 2007a). In total, this provided us with 129 participants and a sufficient sample size with which to reexamine the factor structure of the MCQ within the autobiographical memory context of Japanese visitors' experiences of World Expositions (Shimizu et al., 2012). Second, the internal consistency of each of the factors was determined using Cronbach's alpha to confirm

¹Item 39 was removed because the question probed when the event occurred, which was obvious to the participants (i.e., the year 2005); in addition, the form of the item in Johnson et al. (1988) was not a Likert scale in the same form as Items 1 to 38.

the reliability of each memory characteristic factor. Third, the MCQ factors were explored using analysis of variance (ANOVA), with the rating of each factor considered as dependent variables and Age and Community Identity as independent variables. This approach enabled us to explore the influence of age and community identity on each of the memory characteristics. In addition, *gender* and *number of visits* to Expo were explored as independent variables that could potentially confound the data and its interpretation or provide additional insights.

RESULTS

Factor Structure and Reliability

The factor analyses were performed using IBM SPSS™ Version 19. We computed Cronbach's alpha to assess the internal consistency of the MCQ for all 38 items, which was determined to be 0.932, showing good internal consistency within the questionnaire as a whole. To determine the factor structure, initial factor extraction was performed using principal component analysis; a promax rotation was used because there was no special reason to expect an orthogonal solution. Using the criteria of eigenvalues greater than 1.00, ten factors emerged that accounted for 68.3% of the total variance. Because two factors (factors 9 and 10) contained only one item they were removed from the questionnaire resulting in the eight factors presented in Table 1. The correlations between all pairs of ten factors are shown in Table 2. All correlations varied between .043 and .531 with absolute values, and most correlations were low to moderate. This indicates that the factors were roughly considered to be mutually independent.

Table 3 contains descriptions and reliability scores of the eight MCQ factors for the memory context of Japanese visitors' experiences of World Expositions and for Takahashi and Shimizu's (2007) autobiographical memories of junior high school graduation ceremonies. (Factor definitions are in the table note.) The comparisons yielded the following values of Chronbach's alpha: Clarity (9 items, $\alpha = 0.89$), Retrospective Reflection (6 items, $\alpha = .85$), Sensory Experiences (5 items, $\alpha = .79$), Events Before and After (3 items, $\alpha = .69$), Time Information (4 items, $\alpha = .67$), Affect (2 items, $\alpha = .79$), Rehearsal (2 items, $\alpha = 0.69$), and Bizarreness (2 items, $\alpha = .29$). Bizarreness had a low reliability and was not considered further in the analysis. When compared with Takahashi and Shimizu (2007) autobiographical memories of junior high school graduation, a new factor, Rehearsal, was identified and spatial information items were subsumed into other factors. Items 2 and 11, clustering on the Rehearsal factor, were worded in a way not consistent with the construct of Rehearsal, and hence deleted.

Age and Community Identity

A 2 (age) \times 2 (community identity) ANOVA for each memory characteristic revealed that for every factor age, community identity, or their interaction had a significant effect on visitors' long-term memories of the Aichi Expo (Table 4 and Figure 1). Gender and number of visits to Expo were not significant in any test. Hence, both age and community identity appear to be new significant variables influencing the character of visitors' autobiographical memories.

Table 1. Factor loadings for 38 items using principal components analysis with promax rotation

Item no.	Abridged items	Factors								Communalities
		1	2	3	4	5	6	7	8	
Factor 1: Clarity										
8	Vividness	.812	.580	.491	.397	.197	.390	.355	.318	.724
33	Overall memory	.793	.732	.457	.493	.377	.373	.481	.397	.796
1	Clarity	.790	.517	.547	.423	.259	.472	.423	.284	.690
36	Doubt/certainty	.763	.438	.297	.471	.317	.366	.111	.306	.700
15	Objects(spatial)	.733	.246	.308	.268	.368	.235	.297	.101	.612
13	Location	.665	.359	.322	.442	.290	.102	.370	.546	.649
9	Event detail	.648	.493	.475	.337	.348	.271	.423	.260	.659
10	Order of events	.647	.113	.620	.171	.363	.261	.286	.237	.670
16	People(spatial)	.619	.337	.430	.294	.245	.260	.340	.034	.544
Factor 2: Retrospective Reflection										
32	Self-revealing	.559	.787	.338	.512	.300	.332	.348	.269	.683
25	Seeming implications	.315	.771	.271	.181	.217	.231	.277	.195	.721
26	Actual implications	.349	.727	.272	.515	.204	.430	.284	.403	.621
27	Remembered feeling	.677	.681	.350	.410	.447	.451	.355	.356	.664
31	Remembered thoughts	.654	.659	.359	.630	.300	.389	.278	.538	.716
30	Current intensity	.521	.636	.398	.442	.319	.474	.284	.621	.693
Factor 3: Sensory Experiences										
5	Smell	.370	.307	.755	.365	.259	.130	.428	.154	.648
6	Touch	.441	.343	.744	.428	.363	.301	.068	-.061	.773
7	Taste	.347	.379	.727	.330	.300	.470	.281	.301	.648
3	Visual detail	.567	.459	.694	.293	.239	.392	.457	.002	.761
4	Sound	.458	.342	.673	.378	.165	.198	.188	.214	.719
Factor 4: Events Before and After										
35	Event after	.507	.383	.442	.873	.229	.318	.206	.322	.838
34	Event before	.506	.313	.425	.759	.258	.283	.402	.199	.691
22	Event duration	.143	.416	.245	.593	.291	.062	.254	.093	.544
Factor 5: Time Information										
19	Season	.245	.280	.219	.377	.773	.060	.145	.217	.669
20	Day	.293	.286	.366	.178	.700	.078	.171	-.035	.624
17	Time	.459	.462	.362	.527	.680	.332	.408	.348	.652
21	Hour	.310	.001	.125	-.128	.614	.072	.002	-.052	.603
Factor 6: Affect										
28	Felt(-/+)	.318	.290	.307	.259	.139	.876	.320	.252	.788
23	Tone(-/+)	.310	.396	.218	.194	-.018	.839	.174	.224	.759
Factor 7: Rehearsal										
11	Complexity	.352	.353	.197	.270	.176	.200	.806	.210	.706
38	Overt rehearsal	.317	.398	.457	.296	.115	.370	.723	.232	.608
2	Color	.442	.279	.305	.269	.230	.600	.642	.127	.645
37	Covert rehearsal	.478	.426	.539	.568	.269	.499	.577	.544	.688
Factor 8: Bizarreness										
12	Realism	.079	.091	.003	.105	.009	.067	.053	.691	.652
29	Felt intense	.434	.517	.160	.215	.053	.383	.211	.599	.686

Note. Absolute values of loadings greater than 0.500 are indicated by bold type. Factor numbers refer to the items in the Memory Characteristics Questionnaire (see appendix).

Table 2. Correlation matrix for the factors in the ten-factor solution (promax rotation)

Factor	1	2	3	4	5	6	7	8	9	10
1		.519	.531	.436	.378	.422	.402	.361	.043	.274
2			.377	.522	.324	.418	.375	.380	.126	.333
3				.392	.313	.359	.377	.155	-.069	.308
4					.323	.304	.323	.385	.079	.246
5						.163	.240	.117	-.070	.121
6							.331	.282	.096	.267
7								.224	-.045	.235
8									.368	.193
9										-.101
10										

Each of the memory characteristics below is interpreted with the aid of data represented in Table 4 and Figure 1, and through our understanding of the participants and the memory context of Japanese visitors' experiences of World Expositions.

Clarity

The Clarity of visitors' autobiographical memories of Aichi Expo varied as an interaction of age and community identity. Older Aichi participants had high Clarity

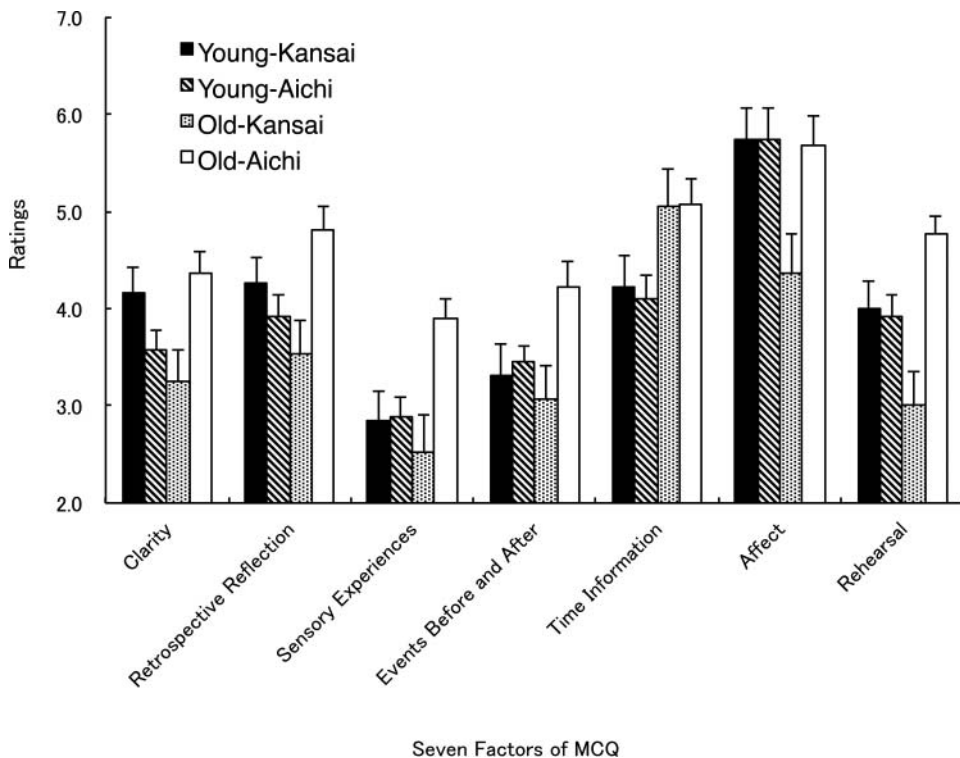


Figure 1. Mean ratings for each factor of the MCQ. Survey questions (and rating labels) are included in the Appendix. The error bars indicate the standard error of the mean. MCQ = Memory Characteristics Questionnaire.

Table 3. Comparison of internal consistency of Memory Characteristics Questionnaire factors for autobiographical memories of junior high school graduation ceremonies (Takahashi & Shimizu, 2007) and autobiographical memories of Japanese visitors' experiences of World Expositions

Autobiographical memories of junior high school graduation ceremonies (Takahashi & Shimizu, 2007) (<i>n</i> = 1183)			Autobiographical memories of Japanese visitors' experiences of World Expositions (<i>n</i> = 129)				
No. of items	Items	Factor	Cronbach's alpha	No. of items	Items	Factor (modified name)	Cronbach's alpha
10	8, 1, 3, 9, 2, 33, 11, 10, 36, 4	Clarity	0.90	9	8, 1, 33, 36, 9, 10, 15, 13, 16	Clarity	0.89
9	37, 26, 27, 25, 32, 38, 29, 30, 27, 31	Retrospective Reflection	0.88	6	32, 25, 26, 27, 31, 30	Retrospective Reflection	0.85
3	5, 6, 7	Sensory Experiences	0.74	5	5, 6, 7, 3, 4	Sensory Experiences	0.79
2	35, 36	Events Before and After	0.69	3	22, 34, 35	Events Before and After	0.69
6	18, 21, 20, 17, 19, 22	Time Information	0.69	4	19, 20, 17, 21	Time Information	0.67
3	28, 23, 24	Overall Impression	0.72	2	28, 23	Affect ^a	0.79
2	15, 16	Spatial Information	0.74				
3	12, 13, 14	Bizarreness	0.41	2	37, 38	Rehearsal	0.69
				2	12, 29	Bizarreness	0.29

Note. Spatial information identified in Takahashi and Shimizu (2007) was not evident in the Expo factor analysis. A new factor, Rehearsal, was identified in the Expo factor analysis and comprised Items 37 and 38. Items 14, 24, and 18 did not load onto any of the factors and were removed from the analysis. Items 2 and 11, although clustering on the Rehearsal factor, were worded in a way not consistent with the construct of Rehearsal and removed from the analysis. Definitions: *Clarity* is the overall clearness of the autobiographical memories of the event; *Retrospective Reflection* is the extent of one own feelings and implication of the event in retrospect; *Time Information* is the overall clarity of memories around the specific time period of the target event; *Affect* is the emotional tone and feelings about the memories of the event; *Sensory Experiences* is the extent of memories of sensory experiences (smell, taste, touch, sound, visual detail) of the event; *Bizarreness* is the overall bizarreness (unusualness) of the memories of the event; *Events Before and After* is the extent to which memories before and after the event were recalled; *Rehearsal* is the extent to which deliberate recall of the memories.

^aOverall Impression in Takahashi and Shimizu (2007) was relabelled Affect.

Table 4. Summary of statistical effects for memory characteristics for age, community identity, and the Age × Community Identity interaction

Memory characteristic	Age	Community Identity	Age × Community Identity
Clarity	<i>ns</i>	<i>ns</i>	$F(1,82) = 8.78, p < .004^{**}$
Retrospective Reflection	<i>ns</i>	<i>ns</i>	$F(1,82) = 7.93, p < .006^{**}$
Sensory Experiences	<i>ns</i>	$F(1,82) = 5.84, p < .018^*$	$F(1,82) = 5.39, p < .023^*$
Events Before and After	<i>ns</i>	$F(1,82) = 5.06, p < .027^*$	<i>ns</i>
Time Information	$F(1,82) = 9.13, p < .003^{**}$	<i>ns</i>	<i>ns</i>
Affect	$F(1,82) = 5.35, p < .023^*$	$F(1,82) = 4.28, p < .042^*$	$F(1,82) = 4.29, p < .042^*$
Rehearsal	<i>ns</i>	<i>ns</i>	$F(1,82) = 4.89, p < .030^*$

Note. *ns* = not significant.

* $p < .05$. ** $p < 0.01$.

of memories of the event, while younger Aichi and older Kansai participants held the least clear and vivid memories of event.

Retrospective Reflection

The extent of Retrospective Reflection of Aichi Expo varied as an interaction effect of age and community identity. Older Aichi participants held significantly higher levels of Retrospective Reflection, while younger Aichi and older Kansai participants held significantly lower levels of Retrospective Reflection of the event.

Sensory Experiences

Visitors' recollections of Sensory Experiences associated with Aichi Expo varied with community identity and the interaction of age and community identity. Older Aichi participants possessed the richest memories of sensory experiences of the event compared with Kansai participants and younger Aichi participants.

Events Before and After

Visitors' recollections of Events Before and After varied by community identity. Aichi participants had clearest memories of events occurring before and after Aichi Expo as compared with Kansai participants.

Time Information

Memories of Time Information around the Aichi Expo event varied by age. Older participants had significantly clearer memories of Time Information around the event compared with younger participants.

Affect

Visitors' Affect associated with Aichi Expo varied by age, community identity, and the interaction of age and community identity. Older Kansai participants held the least positively toned emotional response, whereas Aichi participants' held the highest levels of positively toned memories.

Rehearsal

The extent of Rehearsal of visitors' memories of Aichi Expo varied as an interaction of age and community identity. Aichi participants were more likely to rehearse their memories of the event as compared with any other participant group.

DISCUSSION

This study reveals interesting insights about characteristics of autobiographical memories participants held about their experiences of Aichi Expo four years after the event. In particular, it appears that older Aichi participants have higher Clarity of long-term memories of the event than any other participant group, including older and younger Kansai and younger Aichi participants. Moreover, they reported highly positively-toned Affect of Aichi Expo, as did younger Aichi and Kansai participants, and had higher levels of recollection about their Sensory Experiences. Finally, older Aichi participants engaged more often in Retrospective Reflection and Rehearsal of their memories as compared with any other participant group.

On the other hand, older Kansai participants held the least positively-toned feelings and Affect concerning the event and possessed lower levels of Retrospective Reflection

and Rehearsal than any other group. Younger participants lay somewhat in the middle ground between the extremes of the memories of older Aichi and Kansai participants. We also see that memories of Time Information varies as a function of age, with higher ratings seen among older participants compared with younger participants.

Sociocultural Identity of Participant Groups

To understand these outcomes, it is necessary to appreciate the sociocultural identities of the participants. Our interviews with participants, although not reported here in detail, offer insights about the identities of the participant groups that enable an informed interpretation of these quantitative data. In particular, older Aichi participants could be characterized as predominantly retirees who held a heightened awareness of and interest in their communities. For this group, Aichi Expo had been a part of the community identity since 2001, was reported frequently in the local media in the years leading up to 2005, and was significant for the citizens of Aichi prefecture through both controversy and pride associated with staging the event. For older Aichi participants, Aichi Expo seemed a part of a broader community script in which they found ongoing meaning in the years leading up to the opening of the Expo, culminating in their positive personal experiences of visiting the Expo itself, and living on after the closure of the Expo as active participants in the ongoing community script. Furthermore, these older people had more spare time and more time to reflect about life's events. It could also be reasoned that they were at a life stage where the disposition to reflect and reminiscence was characteristically higher than one might expect of younger adults.

Kansai participants, on the other hand, were not a part of the Aichi community script around Aichi Expo. Aichi Expo was rarely reported in the Kansai media and there was no real sense of expectation about Aichi Expo as an event of significance in the way that members of the Aichi community interpreted it. For older Kansai participants (who were also dominantly retirees), their reminiscence focused on the significance of Expo 1970 staged in Osaka 39 years earlier, and on the impact of this event on the nation. For older Kansai participants, Aichi Expo could not be compared as being in any way as momentous as Expo 1970, and thus Aichi Expo held minimal emotional significance for them. Furthermore, most older Kansai participants had visited Aichi Expo on packaged holiday tours of which the Aichi Expo experience was merely one of many recreational highlights and, hence, not such a novel or particularly special event.

The younger participants in this study were students. All participants alluded to their day-to-day stress and the pressure of being busy high school students four years earlier. Visits to Aichi Expo for most of these participants was a small break from the somewhat stressful and busy life of a student. As a general assertion, we found younger participants the least reflective and apt to rehearse their memories of the event. We regard their life stage, and their associated condition of being busy and tired, as being one which was not conducive to promote active recollect and rehearsal activity of the past in the way older participants might. Also, we speculate that, for younger Aichi participants, Aichi Expo was not so special in their local environment but rather a normal backdrop to their growing up in the Aichi community. For younger Aichi participants, the Expo experiences were often directed strongly toward their social

environment—for example, dating and family—whereas the focus of the visit was to deepen social relationships. This was different for older adults who held agendas for personal self-fulfilment and learning new things. The older participants' attentions were more frequently directed toward the exhibits and exhibitions. Younger Kansai participants, like their older counterparts, were not part of, or exposed to, the rich Aichi community script around Aichi Expo that had been playing itself out over the past decade. For them, memories of Aichi Expo were perhaps more novel and special in that they traveled to Nagoya (~200 km away) as part of a special one- or two-day trip, unlike their Aichi counterparts. Furthermore, these interpretations are related to the fact that memories of time information were richer for older participants than younger participants. We speculate that older participants have a greater disposition to reflect on the past and, hence, recall and rehearse the memories more often than do younger participants.

The Rehearsal Mechanism on the Development of Memory

The hypotheses of this study were (a) older adults are more likely to rehearse memories and, therefore, hold richer, more vivid and clearer memories of the event compared with younger adults, and (b) the community identity of participants would have a bearing on the kind of memory characteristics they held of the event. We proposed an explanation—Anderson and Shimizu's (2007a) rehearsal mechanism—for characteristic attributes of autobiographical memories (MCQ factors) being heightened among older Aichi participants and impoverished among older Kansai participants. That is, the act of thinking back again and again, and the frequent recollection and rehearsal of memories, may be evidently simple, but it is the most influential act on the generation or construction of clear and vivid autobiographical memories.

Aichi Expo held the strongest meaning for older Aichi participants, who, because of their life stage and personal identities as members of the Aichi community, were more likely to find personal meaning in the event. We conclude that they were more positively disposed to retrospectively reflect and rehearse their positive memories of the event in ways that other participant groups did not, which ultimately explains the extent of clarity of the autobiographical memories.

CONCLUSION

The outcomes of this study demonstrate that both age and community identity are important influences on many autobiographical memory factors measured by the MCQ. The influence of community identity on characteristics of long-term autobiographical memories is vividly demonstrated in comparison of older Aichi and Kansai participants. The explanation for these differences can be understood in terms of community identity and as a critical attribute of that identity a disposition (or disinclination) to retrospectively reflect and rehearse memories of the event. It may be reasonable to expect that participants' age is a determinant on participants' personal identity and, by logical consequence, an influence on community identity. Certainly, younger participants collectively and commonly held identities of being busy people and generally not strongly reflective about their Aichi Expo experiences.

We regard retrospective reflection and rehearsal to be significant factors influencing the clarity of long-term autobiographical memories of these kinds of leisure time experiences. It follows that to influence the clarity of future long-term memories of visitors, the providers of experiences ought to think about how to incite visitors to actively think back on their experiences in the post-visit phase. Such strategies might include, for instance, tactics to encourage visitors to access related web resources that directly connect with their visitation experiences, and careful and creative thought about the provision of souvenirs that not only connect with experience at the time of the visit but also actively promote rehearsal of their memories of the experience. This study also demonstrates the importance for researchers who are investigating long-term autobiographical memories to appreciate the context-dependency of memory characteristics and, in particular, the significant influence of age and community identity in mediating such kind of memory.

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APPENDIX: MEMORY CHARACTERISTICS QUESTIONNAIRE: AICHI EXPO STUDY

Name: _____ Gender: F M Age: _____ Participant # _____ Aichi/Kansai

No.

1	My memory for this event is 1 = dim; 7 = sharp/clear	<i>Dim</i>	1 2 3 4 5 6 7	<i>Sharp/clear</i>
2	My memory for this event is 1 = black and white; 7 = entirely color	<i>Black and white</i>	1 2 3 4 5 6 7	<i>Entirely color</i>
3	My memory for this event involves visual detail 1 = little or none; 7 = a lot	<i>Little or none</i>	1 2 3 4 5 6 7	<i>A lot</i>
4	My memory for this event involves sound 1 = little or none; 7 = a lot	<i>Little or none</i>	1 2 3 4 5 6 7	<i>A lot</i>
5	My memory for this event involves smell 1 = little or none; 7 = a lot	<i>Little or none</i>	1 2 3 4 5 6 7	<i>A lot</i>
6	My memory for this event involves touch 1 = little or none; 7 = a lot	<i>Little or none</i>	1 2 3 4 5 6 7	<i>A lot</i>
7	My memory for this event involves taste 1 = little or none; 7 = a lot	<i>Little or none</i>	1 2 3 4 5 6 7	<i>A lot</i>
8	Overall vividness is 1 = vague; 7 = very vivid	<i>Vague</i>	1 2 3 4 5 6 7	<i>Very vivid</i>
9	My memory for the event is 1 = sketchy; 7 = very detailed	<i>Sketchy</i>	1 2 3 4 5 6 7	<i>Very detailed</i>
10	Order of events is 1 = confusing; 7 = comprehensible	<i>Confusing</i>	1 2 3 4 5 6 7	<i>Comprehensible</i>
11	Story line is 1 = simple; 7 = complex	<i>Simple</i>	1 2 3 4 5 6 7	<i>Complex</i>
12	Story line is 1 = bizarre; 7 = realistic	<i>Bizarre</i>	1 2 3 4 5 6 7	<i>Realistic</i>
13	My memory for the location where the event takes place is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
14	General setting is 1 = unfamiliar; 7 = familiar	<i>Unfamiliar</i>	1 2 3 4 5 6 7	<i>Familiar</i>
15	Relative spatial arrangement of objects in my memory for the event is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
16	Relative spatial arrangement of people in my memory for the event is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
17	My memory for the time when the event takes place is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
18	for the year is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
19	for the season is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
20	for the day is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
21	for the hour is 1 = vague; 7 = clear/distinct	<i>Vague</i>	1 2 3 4 5 6 7	<i>Clear/distinct</i>
22	The event seems 1 = short; 7 = long	<i>Short</i>	1 2 3 4 5 6 7	<i>Long</i>
23	The overall tone of the memory is 1 = negative; 7 = positive	<i>Negative</i>	1 2 3 4 5 6 7	<i>Positive</i>

No.				
24	In this event I was 1 = a spectator; 7 = a participant	<i>A spectator</i>	1 2 3 4 5 6 7	<i>A participant</i>
25	At the time, the event seemed like it would have serious implications: 1 = not at all; 7 = definitely	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Definitely</i>
26	Looking back, this event did have serious implications: 1 = not at all, 7 = definitely	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Definitely</i>
27	I remember how I felt at the time when the event took place: 1 = not at all; 7 = definitely	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Definitely</i>
28	Feelings at the time were 1 = negative; 7 = positive	<i>Negative</i>	1 2 3 4 5 6 7	<i>Positive</i>
29	Were 1 = not intense; 7 = very intense	<i>Not intense</i>	1 2 3 4 5 6 7	<i>Very intense</i>
30	As I am remembering now, my feelings are 1 = not intense, 7 = very intense	<i>Not intense</i>	1 2 3 4 5 6 7	<i>Very intense</i>
31	I remember what I thought at the time: 1 = not at all; 7 = clearly	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Clearly</i>
32	This memory reveals or says about me: 1 = not much; 7 = a lot	<i>Not much</i>	1 2 3 4 5 6 7	<i>A lot</i>
33	Overall, I remember this event: 1 = hardly; 7 = very well	<i>Hardly</i>	1 2 3 4 5 6 7	<i>Very well</i>
34	I remember events relating to this memory that took place: in advance of the event; 1 = not at all; 7 = yes, clearly	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Yes, clearly</i>
35	after the event: 1 = not at all; 7 = yes, clearly	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Yes, clearly</i>
36	Do you have any doubts about the accuracy of your memory for this event? 1 = a great deal of doubt; 7 = no doubt whatsoever	<i>A great deal of doubt</i>	1 2 3 4 5 6 7	<i>No doubt whatsoever</i>
37	Since it happened, I have thought about this event: 1 = not at all; 7 = many times	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Many times</i>
38	Talked about it: 1 = not at all; 7 = many times	<i>Not at all</i>	1 2 3 4 5 6 7	<i>Many times</i>