



**Roskilde  
University**

## **Remembered Experiences and Revisit Intentions**

A Longitudinal Study of Safari Park Visitors

Barnes, Stuart; Mattsson, Jan; Sørensen, Flemming

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1 **REMEMBERED EXPERIENCES AND REVISIT INTENTIONS: A LONGITUDINAL**  
2 **STUDY OF ZOO VISITORS**

3  
4 **Abstract**

5 User-based innovation of the tourist experience requires an intimate understanding and  
6 tracking of visitors' preferences, attitudes, and behaviour. We adopt a longitudinal approach  
7 to memory data collection from psychological science, which has the potential to contribute  
8 to our understanding of tourist behaviour. In this study we examine the impact of  
9 remembered tourist experiences in a safari park. In particular, using matched survey data  
10 collected longitudinally and PLS path modelling, we examine the impact of positive affect  
11 tourist experiences on the development of revisit intentions. We find that longer-term  
12 remembered experiences have the strongest impact on revisit intentions, more so than  
13 predicted or more immediate memory after an event. We also find that remembered positive  
14 affect is temporally unstable and declines over time.

15  
16 **Keywords:** Memory retrieval; attractions; revisit intentions; positive affect; PLSPM.

17  
18  
19 **1. Introduction**

20 How do tourists' memory of their experiences influence their future behaviour? There has  
21 been a paucity of research into the role of autobiographical memory in classical decision-  
22 making models in psychology. These models have instead focused on prior attitudes and  
23 comparisons of attributes in predicting choice. A strong argument against retrospective  
24 reports on specific memories has been that they have been shown to be unreliable compared  
25 to actual experiences followed "moment-by-moment" (Kahnemann, 2009). However, even

26 though memory of events may be inconsistent with actual and self-reported experiences  
27 during the event, they may nevertheless influence future action. For instance, it has been  
28 shown that vivid personal experiences may have this effect (Kovabara and Pillemer, 2010)  
29 and also that they are better at predicting future behaviour (Wirtz et al., 2010). Further,  
30 memory of episodes can have both a conscious, and unconscious, directive effect on future  
31 decisions (Pillemer, 2003). Consequently, specific personal memories may in fact be a  
32 powerful influence on beliefs and behaviours (Bluck, 2003). Hence, from a managerial point  
33 of view, prompting the recall of emotional and positive memories may be an effective way to  
34 influence intentions and decisions of tourists (Kuwabara and Pillemer, 2010). This is the  
35 underlying argument used for the research question of this paper, namely: How do tourists'  
36 memories of positive emotional experiences of a tourist attraction over a period of time  
37 influence revisit intentions? This knowledge is crucial in terms of user-based innovation in  
38 tourism because it provides more reliable hints about what development strategies attractions  
39 should follow in order to increase repeat visits, compared with, for example, more  
40 instantaneous satisfaction measurements.

41 In this article we present data collected about memories of tourist experiences in an  
42 open tourist setting, namely a large safari park. To examine the research question, we apply a  
43 longitudinal approach to memory data collection, in as much as we use the same survey  
44 instrument for tourists just before the entry to the park (t1), a day or two after the visit (t2),  
45 and finally a month and a half after the visit (t3). In this way, we investigate how longitudinal  
46 remembered positive affect for visitors' entire self-created safari experience predicts future  
47 revisit intentions.

48 The structure of the paper is as follows. In the next section we discuss the underlying  
49 theory and hypotheses for our research. This is followed by a discussion of the research  
50 methodology employed in our study. Subsequently, the results of our research are presented

51 and then discussed. Finally we round-off with conclusions, including the contribution and  
52 further implications of our research.

53

## 54 **2. Theory and hypothesis development**

55 Tourism is an experience-intensive sector in which customers seek and pay for experiences  
56 above everything else (Sørensen and Jensen, 2015). The fundamental outcome of experiences  
57 and of experiencing is memory of the experience (Pine and Gilmore 1999; 2013; Sundbo and  
58 Sørensen, 2013). Thus, providing memorable experiences is critical for tourism providers'  
59 competitiveness (Grissemann and Stokburger-Sauer, 2012). Indeed, memory of the past is  
60 crucial for an understanding of the present, including the predicted behaviours of visitors to  
61 tourist destinations. One perspective on how memories are created and then develop over  
62 time is that of social representations – based on the theory of Moscovici (1963). Social  
63 representations refer to collective systems of meaning – of both the real and the symbolic –  
64 connecting individual and social spheres. Social representations are based on such resources  
65 as common sense, shared knowledge, cognition and understanding, and formed through the  
66 linkages between people and processes used to make sense of the world (Moscovici, 1982;  
67 1988). Social representations tend to be complex, dynamic and anchored to social structures,  
68 and are further developed through communication and other behaviours. Many types of  
69 tourist experiences are social, and therefore memories are likely to be construed as social  
70 representations that are sophisticated and malleable.

71 To date, little research on the importance and nature of tourist experience memories  
72 has been conducted. Exceptions include Ballantyne et al.'s (2011) study on memories of  
73 wild-life tourism and Kim's (2014) study on how to measure destination attributes associated  
74 with memorable experiences. Other studies in hospitality and tourism research, such as those  
75 by del Bosque and San Martin (2008), Lee et al. (2008), and Jang and Namkung (2009), have

76 used constructs examining positive and negative emotions to examine determinants of post-  
77 consumption behaviour. In this article we intend to add to the existing studies by discussing  
78 the role of emotions and memories of tourism attractions for revisit intentions from a  
79 longitudinal perspective.

80 We seek to test the applicability of an extended psychological research model to  
81 explain revisit intentions in a tourism context (shown in Figure 1). The research model was  
82 developed by Wirtz et al. (2003) and tested in the context of the vacation experiences of  
83 university students during the Spring Break. Wirtz et al. (2003) found that behavioural  
84 intentions were determined only by remembered positive affect, and not by predicted positive  
85 affect or online (during event) positive affect. However, the study did not examine revisit  
86 intentions in a realistic, single consumer context. Rather the study asked “Would you take this  
87 same vacation over again (assuming you hadn’t just been there, but knowing what you know  
88 now)?” (p. 521). We further extend the existing research model by omitting the “online”  
89 aspect of experience – originally measured using PDAs during an experience (Wirtz et al.,  
90 2003) – which was not a significant determinant of respondents’ desires to repeat an  
91 experience and by including two distinct remembered time periods. The time periods we  
92 include are shortly after visiting the tourist attraction (1-2 days) and a longer period after  
93 visiting the attraction (six weeks). The latter period is used to capture long-term memory of  
94 the experience. This was important for two reasons. First, we wished to extend Wirtz et al.’s  
95 (2003) model of remembered experience and behavioural outcomes to create a serial model  
96 of remembered experience and tourist revisit intentions, whereby the most recent  
97 remembered experiences are posited to determine revisit intentions rather than previous  
98 remembered experiences. Second, we wished to test for a decline in remembered experiences  
99 over time.

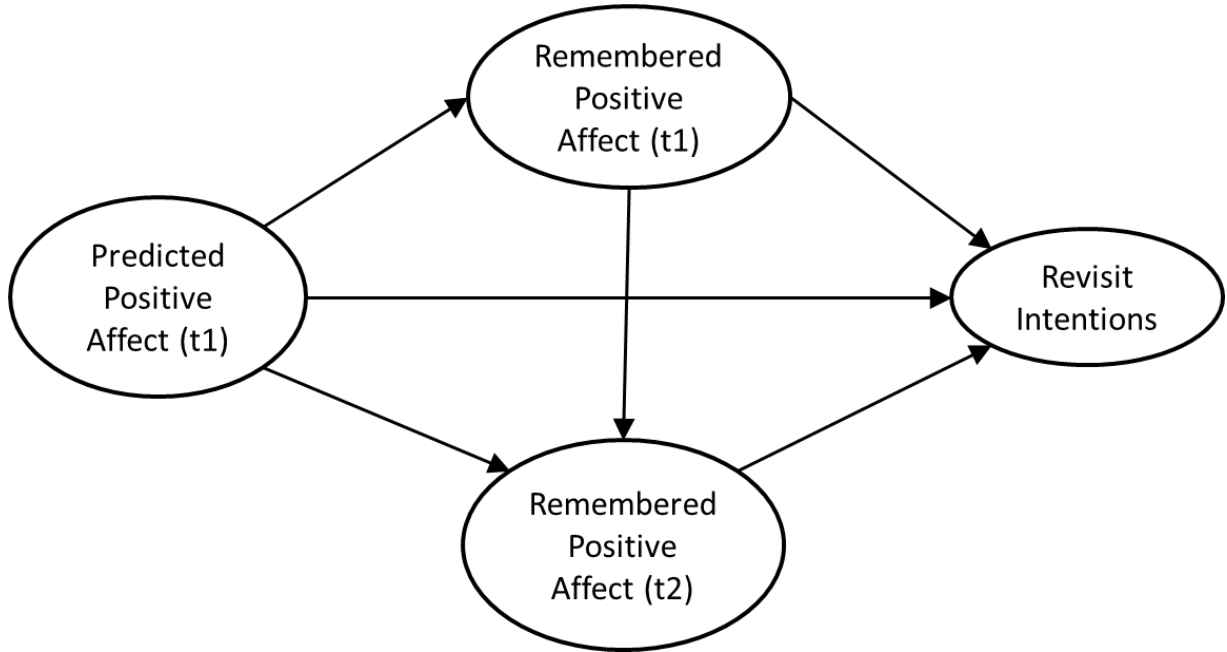
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**Figure 1: Research Model**



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The focus of our research is on positive affective experiences. Thus, we examine emotions, defined by Hosany and Prayag (2013), based on Cohen and Areni (1991), as: “affective states characterised by episodes of intense feelings associated with a specific referent and instigating specific response behaviours” (p. 731). Emotions have been measured using many typologies in psychology, social science and in tourism research more specifically. One of the most common typologies used in research is that of positive affect and negative affect, including the popular scales developed in social psychology by Watson et al. (1988). Other psychological scales applied in tourism research include Mehrabian and Russell’s (1974) tripartite typology of pleasure, arousal and dominance and Plutchik’s (1980) scale based on anger, anticipation, disgust, fear, joy, sadness, surprise and trust (e.g. see Bigné et al., 2005; Jang and Namkung, 2009). The Consumption Emotion Set is a scale that stems from the consumer behaviour literature and consists of 16 dimensions. This has also

118 been applied in the tourism context but found to lack fit (Huan and Back, 2007). More  
119 recently some typologies have been developed and applied solely within the tourism  
120 literature: Hosany and Gilbert (2010) develop a measure of destination emotion based on joy,  
121 love and positive surprise and further validate it in different national contexts (Hosany et al.,  
122 2015).

123         The role of emotion in understanding consumer behaviour, including as a determinant  
124 of satisfaction and behavioural intentions, is a core stream of marketing research. More  
125 recently, the role of emotion in leisure and tourism research has also been recognised as key  
126 in understanding post-consumption behaviours (Gnoth, 1997; Hosany and Prayag, 2013),  
127 influencing the development of tourists' satisfaction and behavioural intentions (Bigné et al.,  
128 2005; del Bosque and San Martin, 2008; Goossens, 2000l; Lee et al., 2005).

129         Research suggests that affective experiences are important in the formation and  
130 retention of memory (Tung and Ritchie, 2011). Moreover, positive affective experiences are  
131 much more relevant to the tourism context than negative or neutral affective experiences.  
132 Hosany et al. (2015) argue that vacations are essentially a set of positive experiential  
133 processes that are consumed principally through hedonic motivations (Hosany, 2012; Hosany  
134 and Gilbert, 2010; Mannell and Iso-Ahola, 1987; Nawijn, 2011; Otto and Ritchie 1996).  
135 Thus, unsurprisingly, tourists tend to seek pleasure and memorable experiences whilst on  
136 vacation (Currie, 1997). Hosany et al (2015) also suggest that the "rosy view" phenomenon  
137 (Mitchell et al., 1997) acts to alleviate or even override negative affective memories of  
138 experience of events and magnify positive experiences (Lee and Kyle, 2012).

139         Hosany and Prayag (2013) find that visitors experiencing positive affect are the most  
140 likely to display positive post consumption behaviours in a tourism context. Del Bosque and  
141 San Martin (2008) also find that positive emotions are a stronger driver of intention to return  
142 to and to recommend a tourism destination. Positive affect can broaden the scope of

143 attentiveness and increase happiness (Frederickson and Branigan, 2005). Research in  
144 psychology suggests that positivity is suggested to create more accurate knowledge that  
145 becomes a long-term resource for individuals (Frederickson and Losada, 2005), partly as a  
146 result of more exploratory, learning behaviours that can confirm or amend initial expectations  
147 (Frederickson, 2001). Thus, we would expect memories of positive affect experiences to  
148 drive future revisit intentions and we therefore posit:

149

150 *H1: The decision to revisit a tourist attraction will be positively related to*  
151 *remembered positive affect.*

152

153 Individuals forget information over time (Wixsted, 2004). Research has shown that  
154 forgetting in long-term memory does not come about as a result of decay, but rather, more  
155 complex phenomena (Jenkins and Dallenbach, 1924; McGeoch, 1932), such as those  
156 explained via the psychological theories of interference (Underwood, 1957; Underwood and  
157 Postman, 1960) and consolidation (Dudai, 2004; McGaugh, 2000). Interference theory  
158 suggests that with the passage of time existing memories will be disrupted by other  
159 information that has been learnt in the past or that will be learnt in the future (Baddeley et al.,  
160 2009). Forgetting will occur due to interference from other memories, as long-term memories  
161 become confused or combined (Baddeley et al., 2009). This process can happen proactively,  
162 where existing memories interfere with the encoding of new memories (Underwood, 1957;  
163 Underwood and Postman, 1960), or retroactively, where new memories displace or disrupt  
164 old ones (Keppel, 1968; Wixsted, 2004). Consolidation theory emphasises biological  
165 processes in creating memories (Squire and Alvarez, 1995). The consolidation process, which  
166 involves biochemical processes in the neurons of the brain (synaptic consolidation or late-  
167 phase long-term potentiation), takes time, during which information is encoded, stored and



168 moved from working memory to long-term memory (Martin et al., 2000). This process can  
169 take months or even years (Abraham et al., 2002). Factors facilitating consolidation of  
170 experiences as long-term memories include emotionality and stress during the encoding of  
171 significant experiences (as a result of hormones such as epinephrine) (McGaugh and  
172 Roozendaal, 2002), quality of sleep (Walker et al., 2005), mental replay of experiences  
173 (Vertes, 2004), and the new and unique nature of the experience (Wixsted, 2004). Memory  
174 that is not consolidated will thus be lost over time.

175 Memory is malleable and dynamic, not fixed (Helkkula et al., 2012). Bartlett (1932)  
176 suggests that focusing upon the process of remembering is more important than memory *per*  
177 *se*. Barlett (1932) explains that memory is complex and mutable:

178

179 “Remembering is not the re-excitation of innumerable fixed, lifeless and fragmentary  
180 traces. It is an imaginative reconstruction or construction, built out of the relation of  
181 our attitude towards a whole active mass of organised past reactions or experience,  
182 and to a little outstanding detail which commonly appears in image or in language  
183 form. It is thus hardly ever really exact, even in the most rudimentary cases of rote  
184 recapitulation, and it is not at all important that it should be so.” (p. 213).

185

186 In line with the theories outlined above, we would expect visitors’ remembered  
187 experiences to fall over time following a visit to a tourist attraction. We therefore posit:

188

189 *H2: Remembered positive affect will fall over time following the visit to the tourist*  
190 *attraction.*

191

192 Behavioural intentions of consumers have been demonstrated to be temporally  
193 unstable (Mazursky, 1990): “sometimes they are formed immediately after learning about the  
194 unique characteristics of an object (or person). In other instances, the need to form a decision  
195 is invoked only after an initial delay interval.” (p. 383). In particular, behavioural intentions  
196 develop over time as the result of memory and differential modes of information processing  
197 (Mazursky, 1990; 2000). While specific object attribute beliefs (e.g. of a product or service)  
198 are likely to exert a strong impact directly after an experience, after a time gap general  
199 product beliefs are likely to be the primary driver for behavioural intentions (Mazursky,  
200 1990). The process is likely to be due to the formation of memory over time (e.g. through  
201 consolidation) and the recall of formed memory in determining behavioural intentions. As a  
202 result, we would expect more recent behavioural intentions after a time gap to be a greater  
203 determinant of revisit intentions for an attraction than those formed immediately after the  
204 visit, due to the temporal effects of memory (including consolidation and disruption, as  
205 explained previously). In other words, the long-term formation of memory from attraction  
206 experiences is more important in determining revisit intentions than immediate memories.  
207 Thus we posit:

208

209 *H3: Intentions to revisit a tourist attraction will be most significantly determined*  
210 *by recent memory.*

211

212 In the following section we discuss the context and practical methodological issues  
213 associated with our study.

214

215 **3. Methodology**

216 In this section we briefly summarize the research context and the method of data collection  
217 and analysis adopted in this study.

218

### 219 *3.1 The tourism context*

220 Data collection took place in the large safari park, Knuthenborg Safaripark, which is the  
221 largest of its kind in Northern Europe ([www.knuthenborg.dk](http://www.knuthenborg.dk)). Its main attraction is the  
222 possibility for visitors to drive their vehicles among animals roaming freely within large  
223 fenced areas. The park also has a number of facilities such as playgrounds and restaurants.  
224 The attraction is located in the Danish coastal destination of Lolland-Falster. It is the largest  
225 attraction at the destination measured by numbers of visitors: about 250,000 visitors per year.  
226 The dominant visitor segment to the attraction is the same as for the coastal destination:  
227 families with children. Dominant nationalities among visitors are Danes and Germans. The  
228 company owning the park is an entrepreneurial top-down managed business with  
229 approximately 100 (mostly seasonal) employees.

230 Like in other safari parks, visitors can drive their vehicles and observe freely roaming  
231 animals. Apart from areas with dangerous animals, visitors can also leave their cars and walk  
232 among animals, for example camels and kangaroos. Smaller areas are prepared for walking  
233 only, for example the 'Birds Paradise', and the playground area. The main attractions within  
234 the park are the Tiger, the Wolf and the Monkey Forests, as well as a 'Savannah' with African  
235 animals such as giraffes, zebras, antelopes, and rhinoceros. Another major attraction within  
236 the safari park is the large nature playground area where a souvenir shop and a restaurant are  
237 located. Here is also found a water playground and a so-called Expedition Tiger attraction, an  
238 audio-visual and theatrical attraction taking the visitors on a trip in search for tigers, as well  
239 as a flume ride. Another major attraction in itself is the landscape of the park, which has been  
240 designed as a large English garden from the 19th century.

241

### 242 *3.2 Survey design and data collection*

243 Three sets of questionnaires were filled out by visitors to the safari park. The first  
244 questionnaire was handed out to visitors queuing at the entrance to the park shortly before the  
245 park opened in the morning. This questionnaire was filled out manually before the  
246 respondents entered the park. Questions concerned the respondents' experiential expectations  
247 about their visit to the park and of specific attractions at the park. Predicted positive affect  
248 was measured using two items from Wirtz et al. (2003), "Happy" and "Joyful," via the  
249 question "To what extent do you agree or disagree that your visit to Knuthenborg will make  
250 you feel the following emotions?" measured on a 7-point Likert scale from 7=completely  
251 agree to 1=completely disagree, where 4= neither agree nor disagree. The data collected was  
252 confidential but not anonymous since we required to track respondents through the three time  
253 periods. Hence, the data from the three questionnaires were joined into one file by matching  
254 the respondents' e-mail addresses. However, all email addresses were removed to anonymise  
255 the data prior to analysis.

256 Both the second and third questionnaires were sent to the same respondents as an on-  
257 line survey. The second questionnaire was distributed one to two days after the respondents  
258 visited the park, and the third questionnaire about six weeks later. The second and third  
259 questionnaire included the same questions as the first questionnaire but they were phrased in  
260 the past tense, that is, they focused on the remembered experience. The second questionnaire  
261 also included questions about demographics, including age and gender. The last questionnaire  
262 measured revisit intentions via the question: "To which degree to you agree that you would  
263 like to visit Knuthenborg again?" measured on a 7-point Likert scale from 7=completely  
264 agree to 1=completely disagree, where 4=neither agree nor disagree.

265 Our data was collected in summer and autumn 2014. The initial questionnaire was  
 266 handed out to, and responded to, by 175 visitors. Of the initial sample of n=175 (all of which  
 267 received a link to the second questionnaire), 82 responded to the second questionnaire, and of  
 268 those 82 individuals, 55 responded to the third questionnaire. Responses with missing data  
 269 were excluded. Consequently, of the initial 175 respondents, 31% filled out all three  
 270 questionnaires and the following analysis is therefore based only on the answers of those 55  
 271 respondents. This sample size is 57% larger than the original sample of n=35 in the study by  
 272 Wirtz et al. (2003) reported in *Psychological Science*, one of the leading journals in the field  
 273 of psychology. In order to gauge the adequacy of our sample for partial least squares path  
 274 modelling, we conducted a post-hoc power analysis using G\*Power 3.1 (Faul et al., 2007).  
 275 The analysis ( $\alpha=0.05$ ,  $1-\beta=0.8$ ) indicated that the matched sample (n=55) is adequate for  
 276 moderate to high population effects (effect size  $f^2 \geq 0.15$ ). Given the problematic nature of  
 277 longitudinal data collection from respondents it represents a good sample size for this type of  
 278 study.

279 The questionnaires were formulated in Danish and all respondents were Danes. The  
 280 mean age of respondents was 42.19 years (SD=11.92 years). The sample was 59.3% female  
 281 and 94% visited the zoo with family. A summary of the descriptive statistics for items used in  
 282 the study is shown in Table 1.

283

284

**Table 1: Descriptive statistics for items used in the study**

<b>Construct</b>	<b>Items</b>	<b>Mean</b>	<b>Std. deviation</b>
<i>Predicted Positive Affect (t1)</i>	Happy (t1)	6.887	0.317
	Joyful (t1)	5.981	1.073
<i>Remembered Positive Affect (t2)</i>	Happy (t2)	6.623	0.621
	Joyful (t2)	5.906	1.233
<i>Remembered Positive Affect (t3)</i>	Happy (t3)	6.472	0.716
	Joyful (t3)	5.585	1.265
<i>Revisit Intentions</i>		6.830	0.423

285

286

### 287 *3.3 Data analysis*

288 The research utilized the PLSPM module of the XLSTAT software package (XLSTAT, 2015).  
289 PLSPM is a variance maximization structural equation modelling technique that makes no  
290 distributional assumptions for data samples. It has greater statistical power than covariance-  
291 based structural equation modelling (Hair et al. 2014). The PLS technique has become  
292 increasingly popular in tourism and business research more generally in the last decade or so,  
293 influenced by its flexibility; indeed, PLS is able to handle small- to medium-sized samples  
294 (Chin, 1998). Our study relies on a small sample and thus PLS was an appropriate choice for  
295 analysis.

296

### 297 *3.4 Validity and reliability*

298 Unidimensionality and homogeneity of the reflexive multi-item constructs were measured  
299 using recent best practice guidelines on the application of PLS path modelling (Esposito  
300 Vinzi et al., 2010). Dillon-Goldstein's rho (also known as Jöreskog's rho or composite  
301 reliability) was used to examine internal consistency (Wertz et al., 1974). Rho is considered a  
302 superior measure to other measures of reliability that assume parallelity or tau equivalence of  
303 the manifest variables in PLS path modelling (Chin, 1998). The reliability of all composite  
304 measures was above the recommended level of 0.7 (Wertz et al., 1974; Esposito Vinzi et al.,  
305 2010): Predicted positive affect (t1),  $\rho=0.777$ ; Remembered positive affect (t2),  $\rho=0.848$ ; and  
306 Remembered positive affect (t3),  $\rho=0.853$ .

307 Convergent and discriminant validity were measured using the methods prescribed by  
308 Fornell and Larcker (1981) and Chin (1998). All items loaded on their designated theoretical  
309 constructs at  $p<.001$ , with loadings ranging from 0.691 to 0.883. Table 2 further shows cross-  
310 loadings among constructs. As we can see, all items loaded clearly on their own constructs,

311 demonstrating discriminant validity (Chin, 1998). A further test of discriminant validity  
 312 recommended by Fornell and Larcker (1981) compares the average variance extracted (AVE)  
 313 for a construct with the squared intercorrelations. Applying this test to our data set we find  
 314 that in all cases the AVEs for a construct are higher than the squared intercorrelations with  
 315 other constructs, confirming discriminant validity. The results are shown in Table 3. In  
 316 addition, the values of AVE in Table 3 range from 0.629 to 0.742, well above the  
 317 recommended level of 0.5 (Fornell and Larcker, 1981), suggesting that the constructs also  
 318 demonstrate convergent validity.

319

320

**Table 2: Cross-loadings between constructs**

	<i>Predicted Positive Affect (t1)</i>	<i>Remembered Positive Affect (t2)</i>	<i>Remembered Positive Affect (t3)</i>	<i>Revisit Intention (t3)</i>
<i>Happy (t1)</i>	<b>0.691</b>	0.406	0.303	0.138
<i>Joyful (t1)</i>	<b>0.883</b>	0.498	0.524	0.284
<i>Happy (t2)</i>	0.494	<b>0.841</b>	0.359	0.331
<i>Joyful (t2)</i>	0.487	<b>0.873</b>	0.528	0.295
<i>Happy (t3)</i>	0.385	0.349	<b>0.840</b>	0.451
<i>Joyful (t3)</i>	0.538	0.538	<b>0.883</b>	0.291
<i>Revisit Intentions</i>	0.281	0.364	0.424	<b>1.000</b>

321

322

**Table 3: Squared-intercorrelations between constructs (AVE on diagonal)**

	<i>Predicted Positive Affect (t1)</i>	<i>Remembered Positive Affect (t2)</i>	<i>Remembered Positive Affect (t3)</i>
<i>Predicted Positive Affect (t1)</i>	<b>0.629</b>		
<i>Remembered Positive Affect (t2)</i>	0.327	<b>0.735</b>	
<i>Remembered Positive Affect (t3)</i>	0.293	0.273	<b>0.742</b>
<i>Revisit Intention</i>	0.079	0.132	0.180

323

324

#### 325 4. Results

326 The results of testing the research model using PLSPM in XLSTAT are presented in Figure 2.

327 The fit of the model was assessed using Esposito Vinzi et al.'s (2010) Relative Goodness-of-

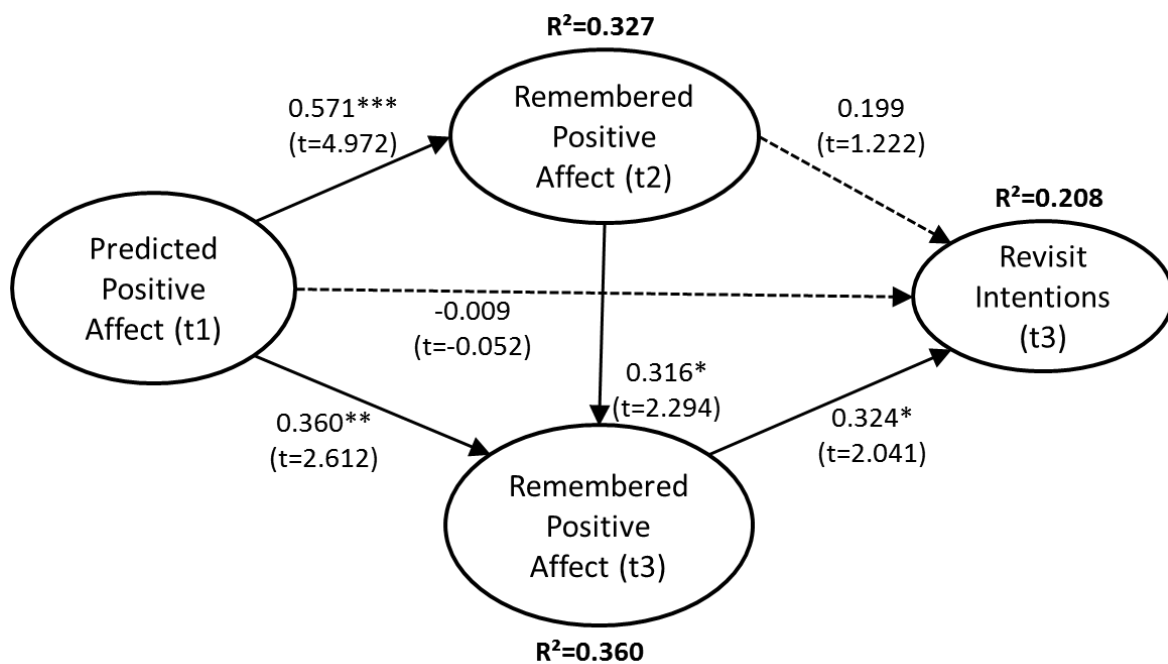
328 Fit Index (GoF<sub>rel</sub>), designed and recommended as best practice for PLS path modelling

329 (Henseler and Sarstedt, 2013). We find that the fit of the model is above the level of 0.9  
 330 recommended by Esposito Vinzi et al. (2010) and is therefore acceptable ( $GoF_{rel}=0.906$ ). The  
 331 goodness-of-fit of the outer model and inner model were also high (0.988 and 0.917  
 332 respectively), providing positive support for the fit of the model.

333

334

**Figure 2: Results of Testing the Research Model**



335

336

337 The PLSPM results found that predicted positive affect (t1) was a significant  
 338 determinant of remembered positive affect (t2) ( $R^2=0.327$ ,  $F=24.724$ ,  $p<.001$ ), with a high  
 339 path coefficient ( $\beta=0.571$ ,  $SE=.115$ ,  $t=4.972$ ,  $p<.001$ ).

340 Remembered positive affect in time period 3 was also significantly positively  
 341 determined by the variables in our model ( $R^2=0.360$ ,  $F=14.059$ ,  $p<.001$ ). In particular, there  
 342 was a significant relationship between predicted positive affect (t1) and remembered positive  
 343 affect (t3) ( $\beta=0.360$ ,  $SE=.138$ ,  $t=2.612$ ,  $p=.012$ ) and between remembered positive affect (t2)  
 344 and remembered positive affect (t3) ( $\beta=0.316$ ,  $SE=.138$ ,  $t=2.294$ ,  $p=.026$ ).



345 Finally, our results showed that revisit intentions (t3), although having a reasonable  
346 variance explained by our model ( $R^2=0.208$ ,  $F=4.278$ ,  $p=.009$ ), were only significantly  
347 determined by one construct in our model, remembered positive affect (t3) ( $\beta=0.324$ ,  
348  $SE=.159$ ,  $t=2.041$ ,  $p=.047$ ), with neither remembered positive affect (t2) ( $\beta=0.199$ ,  $SE=.163$ ,  
349  $t=1.222$ ,  $p=.227$ ) or predicted positive affect (t1) ( $\beta=-0.009$ ,  $SE=.165$ ,  $t=-0.052$ ,  $p=.959$ )  
350 showing significant relationships. Thus, the research finds support for H1 and H3.

351 From an examination of Table 1, there appears to be a fall in positive affect over the  
352 time periods (t1, t2 and t3). In our study we were interested in examining the loss of memory  
353 over time and thus confined our attention to t2 and t3 for test purposes, which represents a  
354 gap of around 6 weeks. A t-test for differences in means between the two time periods found  
355 that the fall of 0.231 in positive affect was significant ( $t=2.160$ ,  $p=0.35$ ), thus supporting the  
356 hypothesis that there is a loss of long-term memory (H2).

357

## 358 **5. Discussion**

359 The results of our study support the findings from Wirtz et al.'s (2003) study. Indeed, we  
360 have confirmed that predicted positive affect influences remembered positive affect which in  
361 turn influences revisit intention (repeat experience in the original study). In line with Wirtz et  
362 al., our data shows that predicted positive affect does not influence revisit intention. We have  
363 also found support for a serial theory of memory and revisit intentions in the tourism context:  
364 not only are behavioural intentions more significantly determined by long-term remembered  
365 positive affect, the most recent period of remembered positive affect is the only determinant  
366 of intentions to revisit the attraction.

367 Our research has focused upon a particular kind of tourist attraction, zoos, which can  
368 be broadly be positioned within the category of theme parks. Although our research has  
369 focused upon positive affective experiences, in line with the aims of the study, it should be

370 noted that the broader context of the memory of experience will consist of many other  
371 factors. The richer orchestra of experience consists of a much broader framework (Pearce et  
372 al., 2013) including not just remembered affective experiences but relationship experiences,  
373 actual behaviours, cognitive understanding and learning, and sensory experiences (Schmitt,  
374 2003). Revisits to theme parks, particularly family domestic revisits, as is typically the case  
375 for zoos, are different to other tourism contexts, such as long-haul international cities, in that  
376 they tend to be more frequent and the resource more accessible. Thus, we may speculate that  
377 remembered experiences between visit and revisit are less likely to change to the same degree  
378 than is the case for infrequent visit destinations. If so, there is perhaps relatively less of a  
379 need for tourist managers of zoos to provide remembered experiences that are as enduring. In  
380 terms of the typology of Hosany and Gilbert (2010), elements of joy and love may be more  
381 important than positive surprise. Notwithstanding, revisit intentions will be determined by the  
382 capacity of the positive aspects of the visitor experience to be remembered in the time  
383 between the visit and the decision to revisit. Focusing on providing a memorable and  
384 enjoyable family or group experience through attractions that are sensory, social and  
385 interactive would appear to be particularly important, along with opportunities to ‘capture the  
386 moment’ through audio-visual recording devices.

387         As noted earlier in the paper, tourism research has emphasised the importance of  
388 positive psychology in garnering favourable responses from visitors. In this respect, and in  
389 terms of the specific nature of the context of the individual experience, tourism research  
390 represent a unique opportunity for psychological science, and can make a significant  
391 contribution to both. Pearce (2008), emphasising this point, calls for further research into  
392 positive psychology in tourism research, noting that “tourism research can offer insights into  
393 the operations of mindfulness and the assessment of authenticity in different ways from that  
394 conceived of by psychologists working in more constrained experimental settings” (p. 37).

395           A potentially fruitful avenue for future work in this area is that of the theory of  
396 savouring (Bryant and Veroff, 2007; Bryant et al., 2011). Bryant et al. (2011) suggest that  
397 individuals differ in their savouring beliefs, which reflect their perceptions of how much they  
398 are able to enjoy positive experiences. Savouring experiences refer to “sensations,  
399 perceptions, thoughts, behaviors, and feelings when mindfully attending to and appreciating a  
400 positive stimulus” (Bryant et al., 2011, p.108). Savouring processes refers to “mental or  
401 physical operations that unfold over time and transform a positive stimulus into positive  
402 feelings to which a person attends and savors,”; a savouring response is “specific concrete  
403 thought or behavior that amplifies or dampens the intensity, or prolongs or shortens the  
404 duration, of positive feelings. Examples [include]...taking “a mental photograph”  
405 [and]...closing one’s eyes to focus ones attention” (*op. cit.*, p. 108). Thus, understanding the  
406 temporal process by which savouring is linked to memory may be key to understanding how  
407 events are remembered and construed in relation to future actions, such as revisit intentions to  
408 a zoo. This provides an alternative theory by which the longitudinal approach to visitor  
409 memory in tourism contexts could be examined, including the study of positive affective  
410 experiences of zoo visitors.

411           Since visits to zoos are inherently group or social outings, another lens that could  
412 offer possible explanations of the remembering of such events over time is social  
413 representations theory (Moscovici, 1963; 1984). Indeed, application of the theory can surface  
414 profound implications for tourism research (Pearce and Butler, 1999), including  
415 understanding individual revisit intentions to a destination. Social representations of a visit to  
416 a zoo are likely to be formed of shared knowledge, cognition and understanding, particularly  
417 through the linkages between people and the process that are used to comprehend the event.  
418 These collective systems of meaning are developed through the connectedness between the  
419 individual and the social, for example through behaviour and communication (formal and

420 information), of both the symbolic and the real (Moscovici, 1982; 1988). One explanation for  
421 the change in the nature of the remembered experiences an individual after a zoo visit is that  
422 the nature of social interactions following the event may work to this effect. Such interactions  
423 may work to affirm certain positive (or negative) remembered experiences between group  
424 members that make the determination of revisit intentions much more complex, dynamic and  
425 social. In the case of our research, social relations may have transformed the collective  
426 system of construal of positive affect to such an extent that it is the most recent remembered  
427 experience that is most important in influencing future behavioural intentions. We  
428 recommend this as an avenue for future research.

429         Our results have shown that respondents experienced a fall in long-term memory of  
430 positive affect in the six weeks following the visit to the zoo. Recent research in both  
431 psychology and neuroscience offer some possible explanations for this finding. Psychology  
432 has a long-standing body of research that has examined theory underlying serial position  
433 effects (SPE) upon memory, positing that there is a relationship between the order in which  
434 information is presented to a respondent and the probability of retrieving the information  
435 from memory (Murdoch, 1962). Primacy effects relate to the ease with which respondents are  
436 able to recall information at the beginning and recency effects refers to the tendency for  
437 individuals to remember items at the end of an experience (Goodman and Bennett, 2014).

438         Evidence from neuroimaging studies suggests that individuals experience temporal  
439 (recency) effects upon long-term memory, but that these effects are likely to have a number of  
440 other covariates. In particular, research has examined retrieval of autobiographical memory  
441 through activation in a key part of the brain involved in long-term memory, the hippocampus  
442 (Maguire and Frith, 2003; Maguire and Mummery, 1999; Piefke et al., 2003). Research has  
443 found that in addition to recency, other factors that affect hippocampal activation include  
444 temporal specificity / personal relevance, emotionality, and level of detail (Addis et al.,

445 2004). In terms of temporal specificity, specific event memories (such as “my son’s birthday  
446 visit to the zoo”) are more likely to be remembered than autobiographical facts (such “my  
447 aunt’s name is Doreen”) (Maguire and Mummery, 1999). Personally significant events are  
448 important for auto-noetic consciousness and information is therefore more likely to be  
449 captured in long-term memory (Wheeler et al., 1997). The emotional arousal experienced  
450 during hippocampal activation (e.g. positive affect during a zoo visit) is also likely to  
451 contribute to recollection (Peifke et al., 2003), as is the level of detail (e.g. information  
452 relating to different types of animals in the zoo) (Maguire and Frith, 2003).

453         From another perspective, Helkkula et al. (2012) suggest that the values derived from  
454 experiences are in essence constructed and reconstructed and affected not only by lived, but  
455 also by imagined experiences, past and future experiences, as well as by individual and – not  
456 least – by social interpretations of the experience. Thus, over time, the memories of  
457 experiences and revisit intentions are shaped by complex individual, psychological and  
458 collective forces.

459

## 460 **6. Conclusions**

461 This study has provided support for the effect of recent remembered experiences on  
462 behavioural intentions to revisit a tourist attraction. The study has both confirmed the  
463 research model of Wirtz et al. (2003) and provided a contribution by extending the model to a  
464 more general theory of serial remembered positive affect and behavioural intentions. Due to  
465 the factors impacting on the transformation of memory over time (forgetting), revisit  
466 intentions are determined not by previous memory of positive affect or predicted positive  
467 affect, but by the most recent remembered positive affect. We believe that this is the first  
468 study to test such a model in the tourism context. The research is important in demonstrating  
469 that although positive emotional experiences are important in driving behaviour, they are also

470 temporally unstable and will change over time as a result of various memory effects that are  
471 partly idiosyncratic and partly open to various external stimuli.

472         Positive affect is a powerful psychological driver for tourism behaviour (Hosany et  
473 al., 2015). Other elements of the remembered orchestra of the tourist experience (Pearce et  
474 al., 2013) that deserve further examination include relationship experiences, sensory  
475 experiences, actual behaviours, cognitive understanding and learning. The uniqueness and the  
476 personal nature of an event may be particularly important. According to Wixted (2004), “a  
477 novel situation that involves unfamiliar activities, strange sights, and unusual sounds may  
478 elicit the most hippocampal activity ... and, therefore, the greatest rate of new memory  
479 formation.” Recent tourism research has also shown that behavioural outcomes are most  
480 significantly determined by destination brand experiences that are sensory (Barnes et al.,  
481 2014). Tourism managers should therefore seek to develop novel, multisensory experiences in  
482 order to make them memorable and to drive future revisit intentions. Additionally, if recent  
483 memories are more important for revisit intentions it will be crucial for companies to  
484 intervene with the intent to affect customers’ emotions and memories of experiences – and to  
485 use strategies to reinforce them – when revisit decisions are expected to be made.

486         Future research should seek to examine the impact of the aforementioned additional  
487 factors in determining the retention of affective memory and thereby behavioural intentions  
488 of visitors to an attraction in a tourist setting. In particular, future research should examine  
489 more aspects of the context of an individuals’ own personal experiences of their visit to an  
490 attraction. The particular contextual factors that could usefully be captured include the order  
491 in which exhibits are visited at an attraction and subsequent remembered experience of those  
492 exhibits in order to examine primacy and recency effects. Further examination of the  
493 emotionality experienced by specific exhibits could also shed some light on the elements of  
494 remembered experience, as could an assessment of the personal significance of the overall

495 visit to an attraction for individuals, and level of detail of the experience. Furthermore, while  
496 attractions are a core element of tourism and a core determinant of tourism memories, many  
497 other elements and other involved businesses are responsible for shaping the memories of a  
498 complete vacation experience. Questions to be answered in future research thus also include  
499 the role of emotions and memories for revisit intentions in other tourism businesses across the  
500 horizontal tourism value chain (including hospitality and transport) as well as at the overall  
501 destination level.

502           Our study could be considered limited in a number of respects. Our sample size could  
503 be considered small. However, this is a rare and difficult to collect sample, since respondent  
504 attrition over time makes data collection very challenging. Furthermore, our sample size  
505 (n=55) is in fact larger than the original study published in *Psychological Science* (n=35).  
506 Further, in collecting our longitudinal data sample, we used repeated measures. This is in line  
507 with Wirtz et al. (2003). However, this approach could create bias through sensitizing  
508 respondents to the questions. An alternative design for future studies with sufficient resources  
509 could be matched sampling. Our study has also focused on positive affective experiences and  
510 other aspects of the orchestra of the remembered tourist experience (Pearce et al., 2013), as  
511 discussed above, may shed further light on longitudinal remembered experiences. Another  
512 possible limitation is that we have not measured intentions to revisit at each point in time  
513 during the study. Examining how the strength of the relationship between affective memory  
514 and revisit intentions changes over time would provide an alternative research design to track  
515 the effect of the decline in remembered affective experiences. We encourage future studies to  
516 use a similar research design to capture more longitudinal data across additional areas of the  
517 tourism value chain.

518

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