Sensory and Emotional Components in Tourist Memories of Wildlife Encounters: Intense, Detailed, and Long-Lasting Recollections of Individual Incidents

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Abstract: To quantify the role of senses and emotions in creating memorable tourism experiences, we need measurement frameworks that match how memories are created. This study examines that process through directed-content qualitative analysis of tourist encounters with wildlife. Data are derived from: interviews with 20 experienced wildlife tourism experts in 12 countries; 3000 social media posts on tourism enterprise and wildlife encounter websites; and participant observations and records of 168 memorable encounters involving >100 wildlife species, >850 tourists, and ~10,000 h in total, ranging over five decades. Across all data sources, senses and emotions differed between tourist interests and personalities, wildlife species and behaviours, and encounter circumstances. All senses were reported, with the most frequent being sight, followed by sound and smell, and, rarely, touch or taste. Descriptions were fine-grained and complex. The emotions reported were awe, joy, wonder, delight, thrill, amazement, envy, aww (cute-emotion), surprise, elation, satisfaction, interest, boredom, disappointment, sadness, embarrassment, concern, pity, distress, disgust, anxiety, shock, alarm, fear, and panic. Some experiences generated powerful recalls persisting for decades. Short-term, intense, and finely detailed senses and emotions defined experiences, created memories, and determined satisfaction, wellbeing, and subsequent outcomes. More accurate methods are needed to measure and characterise senses, emotions, and memories in tourism experience.

Keywords: experience; value; animals; recall; wellbeing; health; duration; psychology

1. Introduction

Senses and emotions are influential components of tourism experiences [1–3] and wellbeing [4–6], but they are difficult to quantify. Recent approaches rely on broadly defined sensescapes [7,8] and emoscapes [9], which compress the complexity of real-life experiences into simplified numerical scales. The wildlife tourism sector [10] provides a natural experiment to test these approaches. Experience value and satisfaction depend on wildlife sightings, but sightings are not guaranteed [11–14]. Therefore, we can compile data from sightings and encounters that did occur and proved memorable, and examine how tourists recall their sensory and emotional components. This is relevant to the psychological analysis of tourist experience and the experiential marketing of tourism products.

2. Theoretical Framework

The theoretical framework adopted here is summarised in Figure 1. The tourism destination, attraction, and activity create sensory experiences; these, coupled with individual tourist personalities, create emotional experiences, which form memories, contributing to long-term wellbeing. This framework is a distillation from multiple previous models. It includes place and activity components from nature tourism research [15,16], sensory, emotional, and personality components from marketing research [17], memory components from research on memorable tourism experiences [18], and well-being components from research on tourism and wellbeing [19]. It treats short-term well-being perceptions within
emotional components, and long-term well-being outcomes as derived from memories of experiences. It considers self-perceived qualitative well-being, rather than externally quantified mental health. By incorporating existing knowledge in a simple testable structure, Figure 1 complies with the criteria for strong psychological theories [20–24].

![Figure 1. Theoretical framework: principal linkages.](image)

Place or destination, and personality and psychology, are longstanding aspects of tourism research [25] that need not be repeated here. Recent additions show specifically that destination wildlife diversity can contribute to wellbeing [26–29]. Senses have been analysed extensively in tourism contexts [7,8,30–35]. These analyses include sight [36,37], sound [38–49], smell [50–52], taste [53–57], and touch and temperature [58,59]. Emotions also play a central role in tourism experiences [60–62]. There are numerous theories of human emotions [63–67], including neurophysiological [68,69], psychological [70], evolutionary [71], behavioural [72,73], social [74], cultural [75], and linguistic [76]. Emotions may be associated with either immediate or recollected sensory impressions [77,78]. Emotions reported in tourism include awe [79–81], fear, thrill, and triumph [82,83], as well as joy, amazement, sadness, concern, and empathy [84]. In wildlife tourism, emotions have been reported during encounters with whales [85], pandas [86], wolves [87], bears [88], and penguins [89]. None of these analysed the longevity of emotions post-encounter [10,90].

Memorable experiences are key components of tourism [18]. Memories are strongest for critical incidents associated with powerful emotions [77,78,91–93]. Powerful emotions can be experienced in less than a second but recalled lifelong [82,94–97]. The well-being effects of tourism are widely studied [4,5,19,25,98,99]. In particular, they include significant relief and recovery from stress, both via commercial tourism products [16,100–102] and independent outdoor recreation [103–105], especially in parks and nature [106–111]. The well-being effects of vacation experiences fade out over periods of weeks, months, or years [3,101,112–121]. The well-being effects of wildlife tourism have been examined specifically [122].

3. Materials & Methods
3.1. Multi-Source Directed-Content Qualitative Analysis

The overall method adopted was a directed-content analysis [123,124], using multiple data sources in parallel, each with different data compression approaches. The focus was on the sensory and emotional factors that contributed most strongly to memorable wildlife tourism experiences. The data sources were interviews with expert practitioners, netnographic analysis of online content, and participant observation and ethnography. Interviews and netnography yield written text content, amenable to standard thematic analysis under an interpretivist paradigm. Participant observation and ethnography rely on spoken communications and unspoken observations from critical incidents, providing data for qualitative meta-analysis of cases [125].

3.2. Expert Interviews and Netnography

The interviews were carried out during 2020–2022, in person or electronically, with 20 experienced wildlife tourists from 12 countries. They were semi-structured, and catalysed by asking interviewees to describe their earliest memorable wildlife encounters. Data
included species, circumstances, year, age, senses, emotions, and memories. Each person described 1–3 encounters, ~50 in all. These also yielded data on intensity, wildlife species, worldview effects, and the early age of first memorable encounters. Netnographic data were obtained from public social media accounts of (a) wildlife tourism enterprises worldwide, following an approach adopted by earlier analysts [13], and (b) wildlife-watching, identification, and appreciation groups on social media, which provided additional information on highly memorable encounters. Data-rich posts in comment threads were extracted, ignoring short data-poor text or emoji comments. Searches were stopped after 3000 posts were scanned.

3.3. Participant Observation, Ethnography, and Autoethnography of Encounter Incidents

Participant observation [126], used widely in outdoor tourism research, is an ethnographic method where the researcher is a full member of the group under study, indistinguishable by ethnicity, language, wealth, or behaviour. In participant observation, the researcher (a) earns recognition within the group through extended membership, capability, shared experiences, and mutual obligations past and present, and (b) experiences events and communications as a peer participant within the group. The method includes ethnographic components through observations and communications with other participants, and autoethnographic components through observations of one’s own actions and emotions [82,96], including flashbulb memories [127] of critical incidents [128,129].

This study includes participant observation of wildlife encounters during commercial wildlife tours over several decades (Supplementary Tables S1 and S2). Encounters were recorded in notebooks, photographs, and video, including audio of spoken reactions. These records were used: (a) to document the longevity of individual memories; (b) to trigger encounter memories that can then be recalled and reexperienced mentally [82]; and (c) to confirm emotions experienced by other tourists, as identified at the time from spoken language, voice tone, non-verbal vocalisations, facial expressions, and body language [74]. Tourists were close together, quiet, and still, in a vehicle, boat, or on foot, and often discussed their sensory and emotional experiences of individual wildlife sightings. Observations did not alter any encounter, for either wildlife or tourists. Data, observations, and analyses were replicated across individuals, species, ecosystems, and methodologies.

4. Results

4.1. Interviews

Interviewees reported encounters from Australia, Brazil, Chile, France, India, Kenya, Mexico, Nepal, Norway, USA, Venezuela, and Vietnam. Strong sensory and emotional memories were reported from up to 60 years ago, when the respondents were aged from 4 years old (2 cases) upwards. Several respondents emphasised the level of detail in their memories: “I remember everything as if it were yesterday”. Some reported encounters involving little emotion: “I’m not a very emotional person”. Some reported interest, e.g., for tiger or armadillo, or pleasure at finding a long-sought species, e.g., rare species of monkey or wild cat, or feelings of connectedness to nature. Some reported awe tinged with fear, e.g., of ostrich or grizzly bear at close range, or awe mixed with joy, e.g., for whale sharks. Many reported various levels of excitement, delight, and joy. Emotions were felt not only for larger wildlife, but also for frogs, smaller mammals such as chipmunks, and birds such as blue jays and toucans. One person reported that surfing with dolphins generated an extremely intense level of happiness or bliss, so that they felt blessed by the experience.

4.2. Netnography

Comment threads on the social media accounts of commercial wildlife tourism enterprises used terms such as “breathtaking”, “awesome”, “amazing”, “stunning”, “magnificent”, “splendid”, “beautiful” and “gorgeous”, with longevity indicated by phrases such as “forever engraved on my mind”. One described a hippopotamus as “funny, incredible, and terrifying at the same time”. Another described “the sound of pure nature when a megapod of common dol-
Comment threads on broader wildlife-related social media accounts provided many examples of powerful recollections. One person, describing a childhood experience, wrote that a red fox sat so close to her that “I could see the sunlight in each individual hair . . . red fur seemed to glow from the inside out. I was in awe. Dumbstruck. I’ll never forget it”. [130]. Describing close encounters with moose in Alaska and Norway respectively, individuals wrote that they were “scared” with their “heart pounding” but would remember the encounter “like it was yesterday”, even at age 95. Descriptions included smell, e.g., of skunk, and especially sound: “You can feel the bass notes rumbling in your cells”; “love hearing bighorn sheep butt those horns”; “an otter screaming”. Overall, these posts show that some wildlife encounters have strong sensory and emotional components, can be highly memorable for decades, and contribute to well-being.

4.3. Participant Observation and Ethnography

Participant observations included 168 incidents, involving >850 individual tourists and >100 wildlife species, from ~10,000 h as clients or guides in >100 wildlife tours from 1970–2019, across all continents and oceans. Individual incidents lasted from seconds to minutes, with an aggregate duration of ~10 h, <0.1% of the overall period. Senses and emotions could be recognised in <1 s. Encounters are listed and described in Supplementary Tables S1 and S2. Sensory and emotional components are summarised in Tables 1 and 2.

Some sensory experiences can be recalled in considerable detail. Sights include colours, patterns, shapes, and movements. Sounds include intensities, frequencies, and recognisable origins. Scents, smells, and tastes differ by type and intensity, and many are identifiable to particular sources. Individuals respond differently to specific smells and tastes, and also to touch, temperature, and humidity. Sensory experiences can be very complex and detailed. An elephant seen at a far distance, for example, generates a very different set of sensory experiences than an elephant encountered on foot, within trunk range, with direct eye contact. Different senses are dominant for different memorable experiences. Some experiences involve the interactions of multiple senses [52,131]. Wildlife tourists react very differently, depending on how they interpret the significance of sensory impressions: e.g., as an immediate threat, or a long-sought goal. People from different cultural backgrounds may react differently to the same sensory experiences [132–134]. Many sensory experiences have emotional connotations [62], considered below.

Table 1. Sensory experiences during wildlife tourism encounters.

<table>
<thead>
<tr>
<th>Sense</th>
<th>Examples from Wildlife Tourism Encounters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sight</td>
<td>Colour: plum-coloured starling, lion or tiger eye, iridescent mantle of clam or octopus, distinctive colours of parrots or nudibranchs</td>
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<tr>
<td></td>
<td>Shape: identifying features, e.g., of bird, gazelle, or shark species</td>
</tr>
<tr>
<td>Movement</td>
<td>Movement: sunlight rippling on whale shark skin, wheeling bird flocks and fish schools, undulating manta ray fins, muscles moving on a bear</td>
</tr>
<tr>
<td>Sound</td>
<td>Birdsong, e.g., Arctic loon, skylark, curlew, Australian magpie; speeding wings, e.g., cockatoos; howls, e.g., wolves, coyotes; trumpeting elephant</td>
</tr>
<tr>
<td>Smell</td>
<td>Characteristic scents, e.g., striped possum; disgusting odours, e.g., rotting hippopotamus carcass; powerfully pungent smells, e.g., stifling airborne ammonia in bat colonies; acrid identifying scents, e.g., large carnivores</td>
</tr>
<tr>
<td>Touch and temperature</td>
<td>Fur or feathers, e.g., possum or goose; wool, e.g., sheep; hide, e.g., rhinoceros; scales, e.g., snake or fish; shells, e.g., crustacea or molluscs; spines, e.g., sea-urchin or echidna; slime, e.g., eel; jelly, e.g., frog eggs or jellyfish; hot or cold bird feet</td>
</tr>
<tr>
<td>Taste</td>
<td>Rarely involved in wildlife tourism, except consumptive hunting, fishing and foraging, e.g., for rock oysters or mopane worms</td>
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Table 2. Emotions experienced during wildlife tourism encounters.

<table>
<thead>
<tr>
<th>Emotions</th>
<th>Examples from Wildlife Tourism Encounters</th>
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<tbody>
<tr>
<td>Awe</td>
<td>Elephant, rhino, tiger, whales, flocks of birds, schools of fish</td>
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<tr>
<td>Wonder</td>
<td>Exceptional behaviours, e.g., narwhal crossing horns</td>
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<tr>
<td>Thrill</td>
<td>Whale breaching near boat, elephant trumpeting close by</td>
</tr>
<tr>
<td>Joy</td>
<td>Surfing with dolphins, virtuoso birdsong, very close views</td>
</tr>
<tr>
<td>Delight</td>
<td>Bird courtship displays, sand-swimming lizards</td>
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<tr>
<td>Amazement, envy</td>
<td>Acrobatic bird flight, marine mammal swimming</td>
</tr>
<tr>
<td>Aww/cute</td>
<td>Galago, sugar glider, newborn mammals, bird chicks</td>
</tr>
<tr>
<td>Elation</td>
<td>Pygmy seahorse, aardwolf, numbat, rare bird species</td>
</tr>
<tr>
<td>Interest</td>
<td>Observations of rarely-seen animal behaviours</td>
</tr>
<tr>
<td>Sadness, pity</td>
<td>Animal injury or death, abandoned juveniles, e.g., from predation</td>
</tr>
<tr>
<td>Distress</td>
<td>Juveniles suffering violent predation, parent animals powerless</td>
</tr>
<tr>
<td>Embarrassment</td>
<td>Mating behaviours, especially large mammals</td>
</tr>
<tr>
<td>Disgust</td>
<td>Animals eating rotting carcasses, nasal mucus, vomit etc</td>
</tr>
<tr>
<td>Shock</td>
<td>Close views of dismemberment, e.g., during predation</td>
</tr>
<tr>
<td>Concern, anxiety</td>
<td>Circumstances potentially putting observers at risk</td>
</tr>
<tr>
<td>Alarm</td>
<td>Animal behaviours requiring observers’ immediate safety response</td>
</tr>
<tr>
<td>Fear, panic</td>
<td>Actual or threatened attack, e.g., elephant, monkeys, sharks, leopard</td>
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</tbody>
</table>

Over 20 identifiable named emotions were recorded. This is several times more than reported previously from wildlife tourism [84], but only about a quarter of the overall set of named emotions [76]. Valences included both positive and negative, and intensities ranged from very low to very high. Several emotions, even of different valence, were sometimes experienced simultaneously. Experiences generating negative emotions are nonetheless valued by many wildlife tourists. Individuals can experience: very powerful positive emotions such as awe, wonder and joy; moderately powerful positive emotions such as thrill, delight, elation, and aww or cute-emotion; and weaker positive emotions such as enjoyment. They can experience: weakly negative emotions such as disappointment or sadness; moderately negative emotions such as pity, embarrassment or concern; and powerful negative emotions such as distress, disgust or fear. Some emotions reflect principally the circumstances of the observers themselves; others, the observers’ attitudes towards the animals under observation. Different tourists at the same wildlife sighting may experience different emotions.

4.4. Memories

Recollections with intense sensory and emotional components can persist for at least five or six decades. This matches the findings from the interviews and netnography. Written records show that there were also many unemotional sightings that no longer exist as memories. Where encounters are still recalled, the memories commonly contain very high levels of detail, sufficient for the individual concerned to mentally re-experience the encounter. This matches an analysis of adventure tourism [82]. As with that study, memories of wildlife encounters may include complete mental replay, including the physiological re-creation of emotions experienced at the time, or they may include the unemotional recollection of past senses and emotions experienced at the time, without re-experiencing them.
5. Discussion

5.1. Principal Findings

Wildlife tourism generates detailed and powerful sensory and emotional experiences that remain memorable for many decades. Such recollections of wildlife encounters have been identified in popular literature for well over a century. One example from over a century ago [135] mentioned hunting tour guides in the Indian Himalayas, describing decades-earlier encounters with ibex, serow, and markhor as “every detail lighted from behind like twigs on tree-tops seen against lightning”. This is the principal finding here. The degree to which past wildlife tourism may contribute to current wellbeing and life satisfaction, and hence to future repeat bookings, depends on fine detail and the intensity of memories from specific encounters, not broad aggregate sensescapes or emoscapes. This matches recent analyses of well-being outcomes from holiday experiences more generally [3,112].

The second principal finding is that experiences can differ considerably between tourists. Different circumstances can generate different responses, and different individuals may have different responses to the same encounters, or similar responses but for different reasons. For example, one may be happy to see a bird because it is beautiful, another because it is rare, and another because it adds to their lifetime checklist. Responses may have cultural components: particular species may be seen as cute or ugly, or lucky or unlucky, and perceptions of animal sentience, pain, and cruelty differ considerably between cultures. Responses also depend on what individual animals are doing. An inactive animal may generate elation if it is long-sought and indifference if it is not, whereas the same species in a more active mode may generate fear, awe, or delight. Wildlife tourism enterprises and guides choreograph encounters to create memorable sensory and emotional experiences, whilst sparing them from shock or panic. In doing so, they also focus on fine detail, aiming to create encounters with individual animals engaged in particular behaviours.

5.2. Research Priorities

First, given the key importance of fine sensory and emotional detail in memorable wildlife tourism experiences, the most immediate research priority is to seek techniques to quantify individual senses and emotions in fine detail. This is needed for sounds [38–49,136], scents [50–52,137], touch [59], and taste [53–57], as well as sight. It is also needed in analysing emotions, using fine linguistic distinctions rather than broad valence-intensity approaches. Broad “scape” approaches, e.g., as proposed for experiential marketing [7], are too imprecise for the psychological analysis of individual tourist experiences. Second, we can compare factors creating differences between individuals. We can compare the effects on experiences, memories, and well-being, of: animal species and behaviours [138]; circumstances of encounters; and the personality and experiences of individual tourists [139]. Such differences are also likely to prove important in increasingly customised marketing through the digital matching of clients, products, and destinations [16,55,140].

Third, we could quantify the effects of intense and memorable wildlife tourism experiences on mental health parameters that can be converted to health service values [107] and hence to economic valuations, e.g., of the role of wildlife tourism product design and wildlife tourism guide skills in engineering-specific wildlife encounters for clients. Fourth, we could search for an underlying psychological model for these links. As a testable hypothesis, perhaps intense positive memories create a buffer that protects net self-perceived well-being against negative experiences, and individual memories continue to contribute to that buffer as long as they can be recollected, even decades later. This hypothesis applies well beyond tourism, but we could use tourism to analyse it by testing links from short-term responses to medium-term stress recovery and long-term worldview change. If supported, it would add to the general frameworks of human psychology. Recent neurological research has shown that mental resilience is physically expressed in long-lasting brain structures that change as a result of individual experiences [141].
5.3. Practical Implications in Mental Health and Tourism Marketing

The COVID-19 pandemic has greatly extended the incidence of poor mental health worldwide, from ~13% of the populations in developed nations [142] to 40–50% [143–146]. Poor mental health imposes substantial economic costs [147]. Countries are seeking low-cost measures for mental health recovery, as components of broader social and economic recovery. Where tourism can improve well-being, it has a role to play in promoting mental health. The results outlined here indicate that wildlife tourism, in particular, certainly does have such an effect. Therefore, tourism portfolios, enterprises, and advocates can lobby for the promotion of wildlife tourism as one means of post-pandemic mental health recovery, with associated social and economic benefits [107,148]. Wildlife tourism enterprises, and tourism enterprises more generally [15,98,106,149–152], can enhance the effects of their products on client satisfaction and well-being through design and guide choreography to create close and memorable encounters with intense sensory and emotional experiences [18,55,153]. As retail applications of virtual reality become increasingly commonplace [140], tourism enterprises and destinations can also improve the effectiveness of experiential marketing through more effective use of sensory and emotional components.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/su14084460/s1, Table S1: List of Wildlife Encounters; Table S2: Descriptions of Encounters and Emotions Experienced. Reference [154] is cited in Supplementary Materials.

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Informed Consent Statement: Informed consent was obtained from all identifiable subjects involved in the study.

Data Availability Statement: Data provided in Supplementary Tables S1 and S2.

Acknowledgments: The participant observation component included commercial wildlife tours. Some of these were sponsored by the enterprises concerned.

Conflicts of Interest: The author declares no conflict of interest.

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