

## ***Motivational factors and the visitor experience: A comparison of three sites***

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### **Abstract**

Museums, art galleries, botanical gardens, national parks, science centres, zoos, aquaria and historic sites are important public learning institutions. The free-choice learning offered in these settings is closely linked to visitors' intrinsic motivation, making it important to understand the motivational factors that impact on visitors' experiences. This paper presents questionnaire data collected from visitors to three sites: a museum, an art gallery, and an aquarium. It examines similarities and differences among the sites in relation to visitors' expectations, perceptions of learning opportunities, engagement in motivated learning behaviours, and perceptions of the learning experience. The importance of learning to museum visitors is highlighted, and the unique opportunities and challenges of the museum in relation to other educational leisure settings discussed. It is suggested that the study of motivational factors might contribute to the development of a common theoretical foundation for interpretation in museum and other informal learning settings.

In recent years there has been a renewed awareness of the contribution that museums and other educational leisure settings can make to lifelong public learning. Anderson (1997a; 1997b), observing the rapid growth in the learning needs of society, has predicted that education will become a major industry for developed countries in the twenty-first century and that the formal education sector alone will not be adequate to meet these needs. As societies change from industrially-based to knowledge-based economies, lifelong and free-choice learning is becoming fundamental (Falk and Dierking 2000). The informal learning sector will thus have an increasingly important role to play in society, and leisure settings will provide an important medium through which people can acquire information, develop ideas and construct new visions for themselves and their society. Such leisure settings may include art, history and natural history museums, botanical gardens, nature centres, national parks, science centres, zoos, aquaria, historic houses, historic reconstructions, heritage and archaeological sites and commercial tourism facilities.

Despite the important educational role of these facilities, it cannot be assumed that all visitors to such settings have actually come to learn something. Even in museum settings, which have long been considered “educational institutions” (Anderson 1997a), it has been suggested that, “a large percentage of visitors are there to ‘kill time’, to be entertained, to satisfy curiosity, or to ‘people watch’” (Koran and Koran 1986, 12). At the other extreme, commercial tourism facilities including theme parks such as Disney’s Epcot, deliberately cater to their visitors’ entertainment motives, while attempting to maintain the education element as an “added extra” (Hedge 1995).

Museums are probably the best-known and most researched of all educational leisure settings. The International Council of Museums defines a museum as “a non-profit-making, permanent institution in the service of society and its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment” (Anderson 1997a, xii). The term “museum” has at times been used generically to include a range of educational leisure settings (Falk 2000; Falk and Dierking 1995; Hooper-Greenhill 1999), and these different settings are seen to have much in common (Falk, Dierking and Holland 1995a). For example, educational leisure settings usually have most, if not all, of the following characteristics:

- The setting provides direct experience with real objects, people or places (Falk, Dierking and Holland 1995b; Hooper-Greenhill 1995);
- Learning is voluntary (Falk et al. 1995b);
- Learning is stimulated by the needs and interests of the learner (Hooper-Greenhill 1995);
- Learning is often socially mediated (Falk et al. 1995b);
- Visitors come alone, in small or family groups of mixed sexes, ages and subject expertise with very diverse learning styles and prior learning experiences (Anderson 1995).

As a result of these characteristics, the opportunities for learning offered in leisure settings differ from, and complement, the learning provided by the formal education sector (Anderson 1997a). Educational leisure settings have the potential to provide a more learner-centred experience which involves exploring and examining, making choices, making personal connections, developing one’s own way of understanding, and controlling one’s own learning environment (Meadows 1997; Paris 1997; Schauble et al. 1996). However, because participation is a matter of free choice, the influence of motivational factors on visitors’ learning is of paramount importance (Falk and Dierking 1992). Some evidence that personal goals or pre-visit agendas influence visitors’ behaviour and learning in museums has been provided by Falk, Moussouri and Coulson (1998). The present study extends this work, focussing on a range of motivational factors that impact on visitors’ experience of learning in educational leisure settings.

Motivational factors include both the personal characteristics that visitors bring with them to the visit, such as personal goals and capability beliefs, and the situational characteristics that they find in the setting itself, such as opportunities for learning, and aspects that arouse interest. According to motivation theories (Ford 1992; Maehr 1984) these factors are presumed to impact on the selective direction of behaviour (the choice of one action over others), energisation of behaviour (the amount of energy or effort expended) and persistence of behaviour (its maintenance over time). These behavioural patterns in turn lead to various desired outcomes such as achievement, personal growth or life satisfaction. In the present study, indicators of motivation will focus on the selective direction, energisation and persistence of learning behaviours, and desired outcomes will be considered in terms of the visitors' self-reported experience of learning and satisfaction with their visit (see Figure 1).

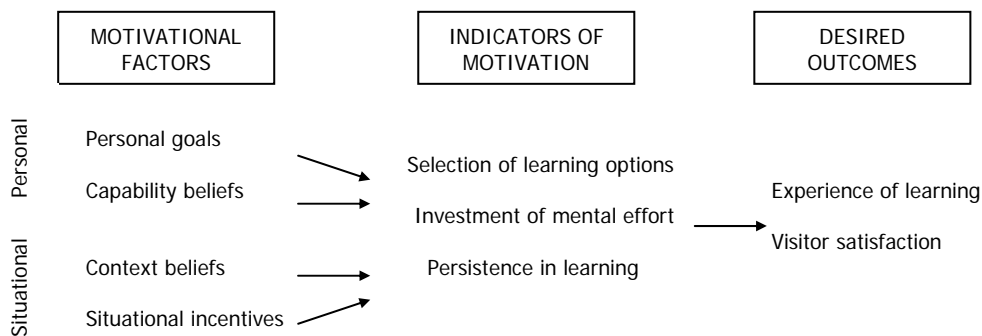


Figure 1. The impact of motivational factors on learning behaviours and outcomes.

This paper reports results from a questionnaire survey conducted at six educational leisure sites in Queensland, Australia. The questionnaire was designed to measure a range of motivational factors and learning indicators across the six sites. Comparative results from three of these sites are presented here – a museum, an art gallery and an aquarium. These three sites were selected for this analysis as they all endeavour to provide an educational experience for their visitors using exhibits that are interpreted predominantly through signage. In each case, exhibits are housed in a purpose-built centre, which visitors are free to encounter in a self-directed manner. The three sites not included are an open-area wildlife centre, a guided tour of an historic site, and a guided tour of a national park area. Visits to the latter sites tended to be longer (up to 8 hours in some cases) and less self-directed (being dependent on tour guides and show times). Further information on visitors' responses at these sites is available in Packer (2002).

## METHOD

**The educational leisure sites: museum, art gallery and aquarium** – The museum and art gallery are located close to the inner city, and the aquarium is located close to a seaside resort area. The museum contains a range of exhibits, in

themed areas, covering both the natural environment and cultural heritage. The art gallery displays a permanent collection of Australian and international paintings, sculptures, prints, drawings, photographs, decorative arts and crafts, as well as a wide range of visiting exhibitions. The aquarium contains a range of live aquatic displays including sharks, whales, crocodiles, stingrays, corals, fish, sea jellies and seals. There is a charge for admission to the aquarium, but not to the museum or art gallery.

**The questionnaire** – The questionnaire was designed around an integrative framework of motivational factors, which was derived from conceptual analysis of the literature. Further information on measurement issues is provided in Packer (2002). The first half of the questionnaire was completed before the visit, in the presence of the researcher, and covered personal reasons for visiting and need for cognition (Cacioppo and Petty 1982) as well as visitor characteristics such as age, gender, place of residence, previous visits, who they were visiting with, and type of daily occupation. Participants then kept the questionnaire with them during their visit, completed the second half at the end of the visit and returned it to a designated place near the main exit. The second half focused on their perceptions of the learning environment, their experience of learning during the visit, and their overall satisfaction. Each section of the questionnaire took approximately 10 minutes to complete.

**Participants and procedure** – All independent adult visitors during a 2-3 day data collection period at each site were invited to complete the questionnaire. Visitors in organised tour groups were not included in the study because they typically have limited time at the site and are not always free to encounter the exhibits in a self-directed fashion. Adults accompanied by young children were also excluded for similar reasons – the difficulty of taking time to complete the questionnaire, and the likelihood that the nature of their learning experience would be determined by the child's needs and interests rather than their own. Although these sampling considerations limit the generalisability of the findings, they contributed to maintaining the study's focus on free-choice learning experiences.

Table 1. Visitor participation rates

	Museum	Art gallery	Aquarium	Test of difference between sites
Accepted questionnaire (as % of all visitors approached)	48	32	27	$\chi^2_2 = 25.45, p < .01$
Returned questionnaire (as % of those who accepted)	90	91	82	$\chi^2_2 = 5.23, N.S.$
(as % of all visitors approached)	43	29	22	$\chi^2_2 = 28.51, p < .01$

Visitors were approached as they entered the site and invited to participate in the study by completing a questionnaire. The approximate time commitment (10 minutes before and 10 minutes after the visit) was explained, and those who were willing to participate were offered a small incentive in the form of a free cup of tea or coffee to encourage and thank them for their time. Questionnaires were distributed at each site until at least 70 had been returned. Completed questionnaires were thus received from 81 museum visitors, 88 art gallery visitors and 81 aquarium visitors.

Participation rates varied markedly between sites (Table 1), museum visitors being more willing to take, complete and return a questionnaire than art gallery and aquarium visitors.

The fact that a common response when refusing was “I’m here to relax, I don’t feel like thinking” sheds some light on the reasons underlying this variation in participation rates and has two major implications for this study. First, it suggests that visitors to the different sites approach their visit with different levels of openness to cognitive activity, a finding that is pertinent to the aims of the study (to investigate motivational factors across the three sites) and is discussed in this context below. Second, it introduces a response bias, in that those who value and enjoy cognitive activity are likely to be over-represented among the survey respondents. This possibility is further explored in the discussion of the survey findings.

Although a quota sampling procedure was not strictly adhered to, checks were made during the process of questionnaire distribution to ensure that adequate numbers of males/females and different age groups were represented. Other personal characteristics, such as place of residence, previous visits and type of companions (with the exclusions noted above) were allowed to vary naturally according to the visiting population on the days sampled, although the effect of seasonal variations cannot be discounted. Visitor characteristics at each site are presented in Table 2.

In summary, respondents at the museum tended to be younger, more often from overseas, and more likely to be visiting for the first time than respondents at the other sites. Art gallery respondents were more often locals who had made a number of previous visits, and aquarium respondents included a mix of locals and tourists, usually visiting with family or friends. Because sampling was not carried out on a purely random basis (particularly in relation to seasonal and weekly variations), these differences can not necessarily be considered representative of the visiting population in general, or indeed of museums, art galleries and aquaria in other places. However, the findings suggest that these three institutions appeal to different visitor groups, and this is supported by other data reported below.

## **RESULTS**

Comparisons between the three sites were made in terms of four motivational factors:

- visitors’ reasons for visiting the site (personal goals);

- visitors' need for cognition, i.e., personal tendency to enjoy and engage in cognitive activity (capability beliefs);
- perceptions regarding the opportunities for learning available at the site (context beliefs); and
- perceptions regarding the interest-arousing characteristics of the environment (situational incentives).

Visitors' self-reported learning experiences and their overall satisfaction with the visit, were also compared among the three sites.

Table 2. Visitor characteristics by site (percent of visitors in each category)

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>
<b>Age group</b>			
Under 30	52	36	28
30-49	25	32	38
50 and over	23	32	34
<b>Gender</b>			
Male	44	43	40
Female	56	57	60
<b>Residence</b>			
Local residents	17	37	8
Day trippers	10	12	24
Aust tourists	23	21	37
Overseas tourists	51	30	21
<b>Previous visits</b>			
First time visitors	72	44	68
Repeat visitors	28	56	32
<b>Company</b>			
Alone	31	38	6
One adult	53	44	48
Group	16	18	46
<b>Length of visit</b>			
Up to 2 hours	84	97	63
Over 2 hours	16	3	37

**Reasons for visiting** – Visitors were given 40 possible reasons for visiting an educational leisure setting, expressed in terms of the desired outcome of the visit. These items were derived from previous research in leisure motivation (Beard and

Ragheb 1983; Crandall 1980; Crompton 1979) and goal taxonomies (Ford and Nichols 1987) and revised in the light of pilot study findings. Factor analysis confirmed that these items can be summarised in terms of five subscales:

- *Learning and discovery* (the desire to discover new things, expand knowledge, be better informed and experience something new or unusual);
- *Passive enjoyment*<sup>1</sup> (the desire to enjoy oneself, to be pleasantly occupied and to feel happy and satisfied);
- *Restoration* (the desire to relax mentally and physically, to have a change from routine and recover from stress and tension);
- *Social interaction* (the desire to spend time with friends or family, interact with others and build relationships); and
- *Self-fulfilment* (the desire to make things more meaningful, challenge abilities, feel a sense of achievement and develop self-knowledge and self-worth).

Further details of these items and subscales are provided in Packer (2002). Visitors' mean scores on these five subscales are reported in Table 3.

Table 3. Reason for visiting by site (mean score out of 6)

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of differences between sites</b>
<b>Learning and discovery</b>	4.66 (n=79)	4.43 (n=84)	4.21 (n=78)	$F_{2, 238} = 3.19, p < .05$
<b>Passive enjoyment</b>	4.24 (n=79)	4.38 (n=87)	4.44 (n=81)	$F_{2, 244} = 0.52, N.S.$
<b>Restoration</b>	3.12 (n=78)	3.37 (n=87)	3.84 (n=80)	$F_{2, 242} = 4.79, p < .01$
<b>Social interaction</b>	2.15 (n=79)	2.07 (n=87)	3.10 (n=78)	$F_{2, 241} = 12.21, p < .001$
<b>Self-fulfilment</b>	2.67 (n=77)	2.91 (n=84)	2.56 (n=75)	$F_{2, 233} = 1.18, N.S.$
<b>Test of differences within sites</b>	$F_{4, 70} = 96.48,$ $p < .001$	$F_{4, 76} = 52.55,$ $p < .001$	$F_{4, 65} = 42.96,$ $p < .001$	

<sup>1</sup> This factor has been labeled 'passive' enjoyment to distinguish it from the concept of entertainment, which often includes ideas of discovery and exploration. For example, the desire to see something new and interesting was considered an entertainment motive by Falk, Moussouri and Coulson (1998). In this study, such items were found to load on the learning and discovery factor. This finding, and its implications for our understanding of the synergy of education and entertainment, will be discussed in detail in a future publication.

Significant differences between sites were found on three subscales: learning and discovery, restoration and social interaction. In particular, visitors to the aquarium rated social interaction and restoration goals more highly, and learning and discovery goals less highly than museum and art gallery visitors. As noted above, demographic characteristics of visitors varied significantly between sites, and so may act as confounding variables in the analysis of reasons for visiting. For example, the aquarium had more visitors who were accompanied by a friend or family member, and these visitors would be more likely to have social goals for their visit; the aquarium and art gallery had more local visitors and these were more likely to have restorative or social goals for their visit. The above analyses were repeated with these variables (company and place of residence) as covariates. Significant differences were still found on all three subscales although the effect of site on social interaction goals was considerably reduced when company was entered as a covariate (effect size reduced from .09 to .03,  $F_{2, 237} = 3.18$ ,  $p < .05$ ) and the effect of site on restorative goals was reduced when place of residence was entered as a covariate (effect size reduced from .04 to .03,  $F_{2, 229} = 3.24$ ,  $p < .05$ ).

Repeated measures ANOVA also indicated significant differences within sites. As illustrated in Table 3, museum visitors placed greater importance on learning and discovery goals than any of the other subscales. Art gallery visitors placed equal importance on learning/discovery and enjoyment goals, and these were both more important than the other three subscales. Aquarium visitors placed greater importance on enjoyment than on the other subscales.

Thus although learning and discovery goals were important to respondents at all three sites, they were especially important to museum visitors. Combined with the evidence regarding participation rates presented above, this suggests that museum visitors come with a greater willingness to use their mind and to reflect than visitors to other sites.

**Need for cognition** – The *need for cognition* scale was developed by Cacioppo and Petty (1982) to measure individual differences in the tendency to engage in and enjoy effortful cognitive endeavours. This scale has been thoroughly tested for reliability and validity and its use has been reported extensively in the psychology literature (Cacioppo, Petty, Feinstein and Jarvis 1996). Significant differences were found between the sites on this measure (Table 4), art gallery visitors having a higher need for cognition than either museum or aquarium visitors. Thus art gallery visitors were more likely to have a personal disposition

Table 4. Need for cognition by site

	Museum	Art Gallery	Aquarium	Test of differences between sites
Mean score on – 4 to + 4 scale	1.31 (n=79)	1.74 (n=83)	1.26 (n=72)	$F_{2, 231} = 4.59$ , $p < .05$
% of respondents with mean score > +2.0 on –4 to +4 scale	25	42	24	



towards enjoying and seeking out thinking and learning activities in general, even though they may not have specifically sought such opportunities in their gallery visit.

**Perceptions regarding the learning environment** – Significant differences between sites were found in relation to visitors’ perceptions of the learning environment. The museum was more often seen as educational rather than entertaining, the aquarium was more often seen as entertaining rather than educational, and art gallery visitors were evenly divided over whether it was more educational or entertaining (Table 5).

Table 5. Visitors’ perceptions of the nature of the visit

	Museum	Art Gallery	Aquarium	Test of difference between sites
The visit was more educational than entertaining (% of visitors)	25	23	6	$\chi^2_4 = 12.56, p < .05$
The visit was more entertaining than educational (% of visitors)	15	23	21	

The items reported in Table 6 shed further light on these perceptions. Although the museum was seen as a place where the presented information is important, it was actually perceived as having fewer opportunities to learn than the aquarium and learning was perceived as being less fun than at the aquarium. On all of these items, the art gallery was perceived to be less of a learning environment than the other sites.

**Situational incentives for learning** - Visitors were asked to rate each site in relation to a number of items identified in the literature and in pilot research as being aspects that were likely to arouse interest in learning. As indicated in Table 7, the museum was superior to other sites in terms of information being presented in an interesting way; visitors having the opportunity to participate actively; and visitors being able to see the real things or places to which the information referred. However, visitors felt they had less opportunity to ask questions than at the other sites and the information had less emotional appeal, although this was not statistically significant. Again the art gallery was perceived as having fewer incentives for learning than the other sites, with the exception of the emotional appeal of its material.

**The experience of learning** – A number of items were used to ascertain the extent to which visitors showed evidence of learning motivation during their visit, including selection of learning options (deliberately looking for opportunities to

Table 6. Perceptions of the learning environment (scale from -3 to +3)

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of differences between sites</b>
Understanding the information presented here is important to me	1.97 (n=79)	1.41 (n=87)	1.62 (n=76)	$F_{2, 239} = 4.04,$ $p < .05$
There are lots of opportunities to learn here	2.32 (n=79)	2.05 (n=87)	2.58 (n=78)	$F_{2, 241} = 8.14,$ $p < .001$
Learning here is a fun thing to do	1.81 (n=79)	1.57 (n=86)	2.14 (n=77)	$F_{2, 239} = 6.54,$ $p < .01$

Table 7. Situational incentives for learning (scale from -3 to +3)

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of differences between sites</b>
The information was presented in an interesting way	2.05 (n=78)	1.58 (n=86)	1.94 (n=78)	$F_{2, 239} = 3.52,$ $p < .05$
I had the opportunity to participate actively	0.85 (n=78)	-0.52 (n=87)	0.79 (n=76)	$F_{2, 238} = 20.21,$ $p < .001$
I was able to see the real things or places the information referred to	1.29 (n=77)	0.56 (n=82)	1.25 (n=77)	$F_{2, 233} = 5.14,$ $p < .01$
I had the opportunity to ask questions	-0.93 (n=76)	-0.55 (n=84)	0.38 (n=78)	$F_{2, 235} = 9.49,$ $p < .001$
The information appealed to my emotions	0.96 (n=77)	1.40 (n=87)	1.35 (n=77)	$F_{2, 238} = 2.16,$ N.S.

Table 8. Engagement in motivated learning behaviour (mean score out of 48).

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of difference between sites</b>
Motivated Learning Behaviour	23.42 (n=76)	22.65 (n=82)	19.02 (n=66)	$F_{2, 221} = 3.25$ , $p < .05$

Table 9. Visitors' self-reported experience of learning (mean score out of 21).

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of difference between sites</b>
Experience of learning	13.94 (n=76)	13.40 (n=79)	13.71 (n=63)	$F_{2, 215} = 0.43$ , N.S.

Table 10. Visitor satisfaction by site (-3 to +3 scale).

	<b>Museum</b>	<b>Art Gallery</b>	<b>Aquarium</b>	<b>Test of difference between sites</b>
Visitor satisfaction	1.97 (n=79)	1.99 (n=84)	2.18 (n=71)	$F_{2, 231} = 1.08$ , N.S.

learn or think); persistence in learning (persisting with a topic until they understood it); and amount of invested mental effort (cognitive engagement with the information presented). These were combined into a composite score for motivated learning behaviour, and as indicated in Table 8, museum visitors reported the highest scores on this measure.

Visitors were also asked to indicate the extent to which they had experienced aspects of learning and discovery during their visit (mental stimulation, discovering new things, learning and making sense of things). However, this measure did not vary significantly between the sites (Table 9).

**Satisfaction with the visit** – Visitors were asked five questions regarding their overall feelings of satisfaction with their visit, and there were no significant differences between sites on this measure (Table 10).

**Relationships between motivational factors, the experience of learning and visitor satisfaction** – At all sites, visitors who placed importance on learning and discovery goals were more likely to display motivated learning behaviour and to

report having experienced learning and discovery during their visit (Table 11). Context beliefs and situational incentives were also related to motivated learning behaviour and the experience of learning at all sites. Capability beliefs (operationalised in this study as the need for cognition) were related to motivated learning behaviour only at the museum.

As indicated in Table 12, visitor satisfaction was directly related to the experience of learning and discovery at all three sites, and to engagement in motivated learning behaviour at the museum and art gallery. The finding that these relationships were much stronger in the museum and art gallery than in the aquarium provides further support for the suggestion that learning is more important to these visitors. The relationships between motivational factors and the experience of learning are discussed in more detail in Packer (2002).

Table 11. Relationships between motivational factors and the experience of learning (all correlation coefficients are significant at  $p < .01$  level unless otherwise indicated, all  $n > 60$ )

	Motivated Learning Behaviour			Experience of learning		
	Museum	Art Gallery	Aquarium	Museum	Art Gallery	Aquarium
Learning and discovery goals	.56	.49	.47	.50	.42	.26 ( $p < .05$ )
Capability beliefs	.41	.17 (NS)	-.10 (NS)	.20 (NS)	.14 (NS)	-.09 (NS)
Context beliefs (items in Table 6)	.56	.58	.48	.44	.51	.42
Situational incentives (Table 7)	.45	.30	.28 ( $p < .05$ )	.45	.36	.30 ( $p < .05$ )

Table 12. Relationships between the experience of learning and visitor satisfaction (all correlation coefficients are significant at  $p < .01$  level unless otherwise indicated, all  $n > 60$ )

	Visitor Satisfaction		
	Museum	Art Gallery	Aquarium
Motivated Learning Behaviour	.45	.49	-.02 (NS)
Experience of Learning	.62	.69	.40

## DISCUSSION

The findings of this study reinforce the important place of learning in educational leisure settings, especially in museums. Respondents at the museum and art

gallery rated learning and discovery goals as their most important reason for visiting, and in the aquarium, this was second only to enjoyment goals. Respondents at all sites were keen to discover new things, expand their knowledge and be better informed. This finding needs to be interpreted with some care, however, because the response bias inherent in the data collection procedures may have resulted in the survey data overestimating the importance of learning to visitors (i.e., visitors who agreed to participate in the survey were more open to engaging in cognitive activity than those who refused). Additional data from research conducted at other educational leisure settings not included in this analysis provides some mitigating evidence in this regard. One of these sites was a guided tour of an historical site. Participation rates at this site were much higher (73% of all visitors accepted a questionnaire) because visitors were able to complete the questionnaire during a 1.5 hour boat trip before and after the tour. The findings from this site with regard to the importance placed by visitors on the learning aspects of the visit are comparable with the results reported here in relation to the aquarium (e.g., mean importance of learning and discovery goals = 4.33, compared with 4.21 at the aquarium [Table 3]) and thus run counter to the suggestion that the figures for the aquarium are an overestimate.

In comparison with the other two sites, visitors perceived the museum as a place where information which is important to them is presented in an interesting way. The aquarium was perceived more as a place where learning is fun, and the art gallery was perceived as a place where learning is emotionally engaging. Visitors to the museum were more likely to engage in motivated learning behaviour than visitors to the other two sites. In the museum context, visitors who invested themselves in learning in this way found the experience more satisfying overall.

Again, the effect of response bias can be discounted in relation to this finding. A response bias favouring an overestimation of the importance of learning would be expected to be greatest in the aquarium, where the participation rates were lowest, and lowest in the museum where participation rates were relatively high. Thus to correct for this effect would create even greater differences between the sites and provide even greater support for the conclusion that museum visitors place more importance on the experience of learning than visitors to other sites.

These findings highlight the important and unique role of museums among educational leisure settings. Museums attract visitors who are motivated to learn, perceive the museum as a place where important information is presented in an interesting way, are willing to devote effort to learning activities, and find such efforts satisfying. There is thus great potential for museums to continue to expand and develop their role as providers of informal education. The finding that art gallery visitors in this study had a higher need for cognition than visitors to the other sites suggests that art gallery visitors may also be receptive to further development of the thinking and learning aspects of their visit.

The findings also present a challenge for museum educators as they raise the question of how to attract visitors who are less motivated to learn. According to Hood (1983), museum visitors differ significantly from non-visitors in terms of the value they place on certain attributes and their perception that these attributes are present in museums. The current study suggests that museum visitors differ in

their perceptions and expectations from both art gallery and aquarium visitors. On the one hand, they are more likely to value the learning aspects of their visit. On the other hand, however, they are less likely to see the learning environment as entertaining, fun or emotionally engaging. These perceptions have implications for the way museum experiences are marketed.

The need for greater attention to theory in both museum learning (which encompasses learning in science museums, history museums and art galleries) and interpretation (which encompasses learning in recreational settings such as national parks, heritage sites and commercial tourist attractions) has been noted by scholars in both areas (Ballantyne and Uzzell 1999; Kelly 2002; Schauble, Leinhardt and Martin 1997; Uzzell 1998). The similarities and differences between sites that have been identified here suggest that the study of motivational factors can make an important contribution to a theoretical foundation for interpretation that is relevant to both museum and commercial tourism contexts. The development of a common theoretical foundation is an important response to Falk's (2000, 6) call to "solidify the growing unity of all museum-like institutions". An understanding of the motivational factors involved in leisure or free-choice learning across a range of settings will also help to meet the challenge inherent in all educational leisure settings – the need to stimulate visitors' motivation to learn.

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