THE INTERRELATIONSHIPS BETWEEN ADULT MUSEUM VISITORS’ LEARNING IDENTITIES AND THEIR MUSEUM EXPERIENCES

CHAPTER 3. STUDYING LEARNING IDENTITIES: METHODOLOGY

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Abstract

Many museums around the world are reviewing the ways they are thinking about visitors and learning. Current theories of learning focus on the meaning individuals make based on their experiences—alone, within a social context and as part of a community. A critical aspect in better understanding the process of learning for individuals is to find out how people view themselves as learners across the rich array of available formal and informal learning experiences. Research has shown that when asked why they visit museums people often say “to learn” but there has been little exploration into what this means. What do museum visitors think learning is? How do visitors view themselves as learners within the context of a museum visit and does this change during and after their visit?

The research question investigated in this study was What are the interrelationships between adult visitors’ views of learning and their learning experiences at a museum? A key focus of the study was on how adults describe learning, the place of learning in their lives and where museums are situated. Other areas examined included the relationship between learning, education and entertainment, as well as the roles visitors play during a museum visit. The framework of learning identity was used to characterise how individuals describes themselves as learners within a sociocultural context, including their future views of learning and the roles learning plays in their lives.

The study was undertaken in two parts—Stage One investigated individuals’ personal philosophies and views about learning, and Stage Two explored how a museum exhibition experience provided insights into visitors’ learning identities.

It was found that participants in the study describe learning in very rich and detailed ways, yet there were also a number of common ideas that emerged. It is proposed that museum learning can be framed under six interrelated categories—person, purpose, process, people, place and product—called the 6P model of museum learning. The literature review showed that visitors learn a great deal from museums across a diverse range of content areas and at many different levels. However, the method used in this study also revealed that visitors could learn more about the concept of learning as well as their own learning processes—likes, dislikes, preferred strategies—if they are encouraged to think about themselves as a learner before they engage with an exhibition.
Chapter 3. Studying Learning Identities: Methodology

The purpose of this study was to understand the interrelationships between adult visitors’ views of learning and their learning experiences at a museum. A key focus was on how individuals viewed themselves as a learner across a variety of learning contexts, with an emphasis on museums. This investigation included examining the relationship between learning, education and entertainment, and the impact of a museum visit on visitors’ learning identities.

This chapter outlines the methods used in both stages of the study. The first part discusses the theoretical framework followed by the research methods for each stage, including the rationale for sampling adults, ethics and the pilot studies. Finally, reliability, validity and data analysis challenges are addressed.

3.1 Theoretical framework: an interpretive approach

This study is framed under an interpretive approach to research that is … concerned with the relation between meaning-perspectives of actors and the ecological circumstances of action in which they find themselves (Erickson, 1987, p.127).

One of the main assumptions underlying interpretive research is that the complexities of social realities can only be revealed through understanding the personal meanings of an individual (Carr & Kemmis, 1986; Silverman, 1995; Usher, 1996). It has also been suggested that there is no one single explanation of an action, there are multiple ones (Merriam & Simpson, 1995).

There were five reasons for choosing an interpretive approach for this study. First, as mentioned above, a feature of this approach is uncovering the multiple meanings that individuals give to a particular construct—in this case how the concept of learning was described. Second, it recognises that these meanings are based on both an individual’s cultural background and the wider sociocultural context (Erickson, 1987). Although humans share meanings through culture (Ogbu, 1995), Erickson argued that these ‘… surface similarities mask an
underlying diversity' (1987, p.126). Usher (1997) recognised that ‘… subjects cannot be separated from their subjectivity, history and socio-cultural location’ (p.32). Therefore, the goals of interpretive research are to make sense of meanings across the range of sociocultural contexts an individual operates within (McIntyre, 1998; Schauble et al., 1997). In this thesis views and perspectives about learning needed to be obtained from a variety of different individuals, and then understanding how these views relate to their museum experiences and their own lives.

The third reason for choosing the interpretive framework is that it allows for development of new theories (Erickson, 1987) which contribute towards solving what Mason (1996) called “causal puzzles”. One aim of this thesis is to investigate new ideas and develop theories about how an individual’s views of learning—their learning identity—both informs and is informed by their experiences when visiting museums. As interpretive research concerns issues of human choice and meaning which lead to improvements in practice (Carr & Kemmis, 1986; Erickson, 1987; Usher, 1997) investigating how the elements of visitors’ museum learning experiences can be understood and then manipulated will be able to inform strategies that could provide better learning experiences for visitors in the future.

Fourth, it has been recognised that interpretive research can include techniques that are subjective yet rigorous and “scientific” (Schwandt, 1998) with the possibility to utilise both qualitative and quantitative methods (Denzin & Lincoln, 1998a). While both methods are concerned with an individual’s viewpoint, qualitative techniques allow the researcher to get closer to a subject, while quantitative procedures generate measures that locate an individual or group within the larger population (Denzin & Lincoln, 1998a). In the present study a mixed-method approach has been used to gather qualitative and quantitative data at both individual and group levels.
Finally, the interpretive approach recognises that the position of the researcher needs to be made clear, both in the analysis of data and in the conclusions that are formed (Carr & Kemmis, 1986; Denzin & Lincoln, 1998b, 1998c, 1998d; Erickson, 1987; Patton, 1990). It has been acknowledged that research is a social practice which results in a network of beliefs and assumptions that underlie interpretations (Usher, 1997), therefore understanding how this study fitted within the field of museum learning research was critical (Yates, 2004). Both interpretive approaches and scientific methods have been widely applied in museum learning research (Hein, 1998; Loomis, 1987). One challenge was to avoid becoming tied to “traditional” quantitative methods and theoretical constructs about learning and museum visiting that are well-established parts of museum learning research and still maintain creativity in the research process (Janesick, 1998; Richardson, 2000). The research design for the present study drew on methods used in current museum learning research, particularly those that encourage the inclusion of visitors’ voices.

3.2 Research design

The research questions investigated in this study are:

- What are the interrelationships between adult museum visitors’ learning identities and their learning experiences at a museum?
- How does a visit to a museum exhibition interact with an adult visitors’ learning identity?

Stage One investigated individuals’ personal philosophies and views about learning focussing on the following areas:

- How do adult museum visitors describe learning?
- How is learning viewed in relation to education and entertainment?
- How do adults learn something new?
- What resources and places are accessed when learning
- Where do museums fit in people’s learning lives?
As demonstrated in the literature review there were few studies that looked at conceptions of learning in a museum context. Therefore, developing a suitable methodology for Stage One was undertaken through a series of pilot studies, described in Section 3.2.3. Following these, both qualitative and quantitative data were gathered from three different groups of adults, which is described in Section 3.3.

Stage Two was undertaken within the context of a museum visit looking at how an exhibition impacted on adult visitors’ learning identities. The following sub-questions were addressed:

- How well do learning opportunities provided by museums match a person’s learning identity?
- What roles do visitors play in a museum visit and do these roles influence their learning identity?

The method used in Stage Two is outlined in Section 3.4.

### 3.2.1 Choosing the sample: adult museum visitors

The sample consisted of adults aged over 18 years, chosen for two reasons. First, adults comprise the largest segment of museum visitors in Australia. At the Australian Museum, adults aged over 18 years comprise approximately 86% of all visitors with the highest proportion (41%) being aged between 35 and 49 (Australian Museum Audience Research Centre, 2004a). The Australian Bureau of Statistics (2002) reported that 25% of the Australian population aged over 18 years had visited a museum during 2001, with the highest attendance rates for adults aged 25-34 years (27%) and 35-44 years (29%).

The second reason to focus on adults is that museums can be seen as places for lifelong learning. A lifelong learner has been defined as

... a person who takes responsibility for their own learning and who is prepared to invest “time, money and effort” in education or training on a continuous basis

... Lifelong learners must have the motivation and capacity to learn, in any type of setting, with any type of teacher, or simply by themselves (Watson, 1999, p.3, emphasis in original).
Lifelong learning is becoming more widely recognised in museums as a way to describe the motivations of adult visitors (Anderson, 1997; Baldwin et al., 1994; Claxton, 1999; Falk & Dierking, 2000). It was found that participants in adult museum programs had ‘… a strong desire for lifelong learning and pursue that desire, through involvement with a museum’ (Sachatello-Sawyer & Fellenz, 2001, p.18). It has been acknowledged that museums need to understand both the ways adults approach learning and their perspectives on learning in order to better cater to their learning requirements (Baldwin et al., 1994; Brennan, 1994; Claxton, 1999; Gunther, 1994; Hooper-Greenhill, 1994; Kelly, Savage, Landman & Tonkin, 2002; Matheson & Matheson, 1996; Sachatello-Sawyer et al., 2002).

3.2.2 Ethics and privacy
Confidentiality for participants was maintained at all times through using pseudonyms. Each in-depth interviewee in the pilot studies and Stage One and each primary participant in Stage Two signed a University of Technology Sydney consent form (Appendix 1 and 2). Any information obtained about participants was stored separately from other data. Tapes, data files, transcripts and completed questionnaires have been kept in a locked cabinet in the Audience Research Centre at the Australian Museum. Additionally, computerised data files have been password-protected. Ethics approval was obtained from the University in March, 2000 and August 2002 (approval letters are in Appendix 3). As no individual can be identified in this thesis, privacy requirements have also been met.

3.2.3 Pilot studies
As demonstrated in Chapter 2 little research had been undertaken to study museum visitors’ views of learning and subsequently developing a method to do this presented a challenge. Therefore, some time was taken trying different approaches to answering the research questions in Stage One through three pilot studies. The aim of these were to test the guiding questions, the data collection instruments and analysis, as well as providing the opportunity to practise and refine interview techniques. The questions developed were based on the literature
(Clarke, 1995, 1998; Marton et al., 1993; Packer, 2002; Park, 1994; Sachatello-Sawyer & Fellenz, 2000; Taylor, 1996), then trialled and modified after feedback from the interviewees, discussions with supervisors and reflection.

The **first pilot study** was undertaken in December, 1999 to trial a set of data collection tools. Four respondents that met the sampling criteria were interviewed in-depth using an initial set of guiding questions which were then refined after each interview. A *learning diagram* (example in Figure 3.1) was used at the beginning of the interview to encourage participants to write down key words and phrases that came into their minds when thinking about the word learning.

**Figure 3.1 Example of learning diagram**

![Learning Diagram Example](image)

This was followed by an interview where participants described learning; discussed a recent general learning experience and their learning experiences during their last museum visit. Respondents also completed a *participant information sheet* to gather personal details such as age, visiting habits and whether they had children (Appendix 4).
After the first pilot study the questions were reviewed deleting those that were either repetitive or did not add to understanding an individual’s ideas about learning. The way the questions were asked evolved so that by the last two interviews I felt that my interview technique had improved through developing listening and prompting skills and allowing interviewees to talk more. The participant information sheet tested well as it provided background information needed to further understand those sampled.

All interviews were audio-taped and transcribed for analysis. From these results a deeper understanding was gained of how each person described themselves as a learner and the process of learning itself. At the same time new skills in data transcription and analysis were gained.

A second pilot study was undertaken in June, 2000 to try out the revised guiding questions, test better ways of utilising the learning diagram as well as introducing the semantic differential scale (described in Section 3.3.2) as another method to obtain data. The revised question guide worked well, although on further reflection it was clear that the prompts used needed to be more open-ended and less directed. To encourage further discussion, a set of phrases were developed to ensure that interviewees were not led too much.

Each participant was again asked to complete the learning diagram at the beginning of the interview. This time they were shown a worked example using an unrelated concept (“fruit”) to give them an idea of what was required (Appendix 5). At the end of the interview they were given a different coloured pen and asked whether they wanted to add or amend anything to illustrate how their thinking may have evolved during the course of the interview, consistent with the idea that meaning can change through reflection (Novak & Gowin, 1984).
The semantic differential scale was trialled in the second pilot using two suggestions from the interviewees about how to best arrange them. First, they recommended that similar constructs (such as active/passive and dull/lively) needed to be separated on the form. Second, they requested that a worked example be provided to help them start. Participants reported they had really enjoyed completing the scales, with the words used in the scales encouraging further dialogue. As well, the scales added depth to the learning diagram by giving participants ideas and options they hadn’t thought of at first, yet on reflection they considered were important in their views of learning.

On reflection it was decided that one final interview (pilot study three) be conducted to further refine interview techniques to be less directive and more open-ended. After thinking further about the previous interviews, an opportunity was identified to better utilise the learning diagram by reflecting the interviewee’s own words back to them, which they could then discuss further. This proved to become a very useful technique, allowing further exploration of issues raised and overcoming the problem of “leading” the person. Once that interview was completed, analysed and discussed with my supervisor it was decided that the instruments were ready for Stage One fieldwork which commenced in December, 2000.

3.3 Stage One method

Stage One investigated individuals’ personal philosophies and views about learning focussing on the following areas:

- How do adult museum visitors describe learning?
- How is learning viewed in relation to education and entertainment?
- How do adults learn something new?
- What resources and places are accessed when learning
- Where do museums fit in people’s learning lives?

Eight in-depth interviews and 100 questionnaires with adult visitors to the Australian Museum, Sydney were conducted in Stage One. As well, a telephone
A survey of 300 Sydney adults was undertaken to compare responses of Museum visitors with the general population as outlined in Table 3.1.

### Table 3.1. Research outline: Stage One

<table>
<thead>
<tr>
<th>Sample</th>
<th>Method</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult museum visitors aged over 25 years (n=8)</td>
<td>In-depth interview</td>
<td>Long interview (45 minutes – 1 hour):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Describe learning as a general concept</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Talk about a recent general learning experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Describe recent museum experience</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Complete “Learning diagram” Complete semantic differential scales</td>
</tr>
<tr>
<td>Adult visitors to Australian Museum aged over 18 years (n=100)</td>
<td>Questionnaire</td>
<td>Face-to-face interview (10-15 minutes):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Frequency of museum visiting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Describe learning, education and entertainment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Rate sets of statements about learning and resources accessed when learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Demographic information</td>
</tr>
<tr>
<td>Sydney adults aged over 18 years (n=300)</td>
<td>Telephone survey</td>
<td>Telephone interview (10 minutes):</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Rate sets of statements about learning and resources accessed when learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Whether had visited a museum and frequency of visits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Demographic information</td>
</tr>
</tbody>
</table>

#### 3.3.1 In-depth interviews

In Stage One eight in-depth interviews were conducted with adults aged over 25 who had visited the Australian Museum in the previous six months. The participants were selected from both the Museum’s database and others recruited through snowball sampling (Fink, 1995b), or “friend-of-a-friend”, where

... previously identified members of a sample identify other members of the population ... [and is used] when a list of names for sampling is difficult or impractical to obtain (1995b, p.23).

Demographic information about interviewees (age, gender, family situation, educational level, employment status, cultural background and visiting patterns) were collected using the participant information sheet.
The interview guide used in Stage One (Appendix 6) consisted of a set of questions that covered:

- how an individual described learning
- how an individual liked to learn through talking about a recent learning experience
- describing a recent museum visit and how this related to their views on learning.

Each interview lasted between 45 minutes and one hour. Two were conducted at the Australian Museum; one at the person’s home and the other five at their workplaces. Each was audio-taped and transcribed. The data were analysed both at an individual level and across the whole sample through categorising responses and identifying trends. At the individual level an overview was written about each participant, covering their views of learning, education and entertainment and summarising their museum learning experiences (see example in Appendix 7). At the group level a range of common themes were identified, with their relationship to theory and practice discussed in Chapter 5.

### 3.3.2 Questionnaires

The questionnaire (Appendix 8) was administered during a short face-to-face interview at the Museum. It asked about views of learning, education and entertainment through a combination of both qualitative (open-ended questions) and quantitative methods (rating scales) to further examine the findings that had emerged from the in-depth interviews. As well, the questionnaires enabled an analysis of trends across a range of variables about key concepts from the perspective of those who have experienced museums.

To obtain answers to the questionnaire, 100 adult visitors to the Australian Museum were interviewed over seven days—two weekends in November 2002 and three days in January 2003. Due to the fluctuation in visiting patterns at the Australian Museum these times were chosen to enable the data to be collected within a reasonable time frame and across two different time periods, while
maximising the response rate. Diamond (1999) suggested that 96 visitors is a sufficient sample size to make generalisations and produce conclusions for a museum that has one million visitors per year with a ten percent sampling error. As the Australian Museum averages between 250,000 and 400,000 visitors per year (Australian Museum Audience Research Centre, 2004a) it was considered that 100 participants was adequate to obtain reliable findings.

Respondents were randomly sampled from visitors to the Museum’s search & discover exhibition. Given that the survey took around 10-15 minutes to administer this area was chosen as it contained a meeting room where visitors could sit and be interviewed in a relaxed atmosphere. An imaginary line was drawn outside the exhibition and every fourth visitor was approached and asked to participate. If they declined (and only three did so citing lack of time) the next visitor was asked.

The interview began by asking three open-ended questions:
1. Could you please describe in your own words what you think learning is?
2. Could you please describe in your own words what you think education is?
3. Could you please describe in your own words what you think entertainment is?
Verbatim responses were recorded on the survey form, with participants’ being prompted to continue answering until they had nothing else to add to their responses.

These questions were followed by two sets of statements which respondents rated on a five-point Likert rating scale.
First, they were asked to rate the following 11 statements that described various aspects of learning based on how important they are to the person as a learner:

1. Learning in a physical, “hands-on” way.
2. Learning when the information provided is of immediate interest to me.
3. Learning that builds on what I already know.
4. Learning that specifically fits with how I like to learn.
5. Teacher-led learning at school/other formal place.
6. Being told what to learn.
7. Constructing meaning based on my own experiences.
8. Changing how I see myself.
9. Seeing something in a different way.
10. Learning with and through others.
11. Learning new facts.

These statements were developed to uncover a broad range of views about learning using questions developed from both theories of museum education and learning (Hein, 1992, 1995, 1997a, 1998; Hergenhahn, 1982; Malone, 1990; Woolfolk, 1998), as well as previous research that had used similar quantitative questions (Clarke, 1995, 1998; Marton et al., 1993; Packer, 2002; Park, 1994; Sachatello-Sawyer & Fellenz, 2000; Taylor, 1996). The final statements used represented the theoretical perspectives of didactic learning; discovery learning; physical/hands-on learning and social learning. As well, several aspects of constructivism were investigated through these statements—meaning making, seeing things differently, prior knowledge and interests, and choice.
Participants then rated the following nine resources based on the importance to them when learning something new:

1. Internet, websites
2. Other people – family, friends
3. Books/library
4. Work colleagues, peers
5. Television programs
6. Computer programs/CD-ROMs
7. Adult education courses
8. Universities, formal education courses
9. Museums, galleries, other cultural institutions.

These resources were developed both from the literature (Chapter 2) and the findings that had emerged from the in-depth interviews.

de Vaus (1991) identified three advantages in using rating scales. First, they encourage respondents to make a choice based on how strongly they feel about a complex subject area. Second, they increase validity by adding to data obtained from open-ended questions. Finally, reliability is met through obtaining a number of different sets of measures for similar question areas.

One aspect of rating scales that emerged during Stage One was deciding whether to use a five or seven point scale. In a review of the literature dealing with this issue Cox (1980) concluded that

… the magic number seven plus or minus two appears to be a reasonable range for the optimal number of response alternatives (p.420).

He also added that the number chosen needed to be enough to obtain the required information, yet not too refined to cause errors. Osgood & Suci (1969) noted that the greater the intensity of assertions, the more likely they will be allocated to one end of the scale or other. After considering these ideas, a five-point rating scale was implemented for the learning and resource statements in the questionnaire.
Another issue in rating scales is the potential for bias in designing the questions (Argyrous, 1996; Cohen & Manion, 1994). For example, participants may give a biased response to a scale because of the way statements were ordered by responding more positively to statements asked at the beginning and more negatively later. To overcome this problem, two questionnaires were administered that rotated the order of the learning statements and resource questions.

After answering the rating scales, respondents were then asked to complete a set of semantic differential scales. The pairs chosen emerged from the learning literature review (Chapter 2) and discussions with supervisors. The scales are summarised in Table 3.2 and an example of one from the questionnaire is in Figure 3.2.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Constructs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>Structured/unstructured</td>
</tr>
<tr>
<td>National park</td>
<td>Formal/informal</td>
</tr>
<tr>
<td>Theme park</td>
<td>Active/passive</td>
</tr>
<tr>
<td>Art gallery</td>
<td>Hard/easy</td>
</tr>
<tr>
<td>School</td>
<td>Fun/boring</td>
</tr>
<tr>
<td>Library</td>
<td>Chosen/imposed</td>
</tr>
<tr>
<td>Museum now</td>
<td>Dull/lively</td>
</tr>
<tr>
<td>Museum ideal</td>
<td>Useless/useful</td>
</tr>
<tr>
<td>Learning</td>
<td>Alone/with others</td>
</tr>
<tr>
<td>Education</td>
<td>Facts/ideas</td>
</tr>
<tr>
<td>Entertainment</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 3.2. Example of a semantic differential scale: art gallery**

<table>
<thead>
<tr>
<th>construct</th>
<th>art gallery</th>
</tr>
</thead>
<tbody>
<tr>
<td>structured</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ unstructured</td>
</tr>
<tr>
<td>formal</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ informal</td>
</tr>
<tr>
<td>active</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ passive</td>
</tr>
<tr>
<td>hard</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ easy</td>
</tr>
<tr>
<td>fun</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ boring</td>
</tr>
<tr>
<td>chosen</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ imposed</td>
</tr>
<tr>
<td>dull</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ lively</td>
</tr>
<tr>
<td>useless</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ useful</td>
</tr>
<tr>
<td>alone</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ with others</td>
</tr>
<tr>
<td>facts</td>
<td>_____ _____ _____ _____ _____ _____ _____ _____ ideas</td>
</tr>
</tbody>
</table>
Semantic differential scales have been used to measure attitudes and feelings towards a topic or set of concepts (de Vaus, 1991; Henerson, Lyons Morris & Taylor Fitz-Gibbon, 1987; Kinnear & Taylor, 1996; Kotler & Kotler, 1998; Kotler, FitzRoy & Shaw, 1980). The Semantic Differential Technique was a methodology proposed to account for variations in meanings that combined both associational research methods and scaling procedures. They originated from psychological studies of meaning, with the assumption that associations produced between ideas were not random but semantically determined (Osgood, 1969). The questions consist of sets of words and their antonyms (constructs) on opposite sides of a scale, with respondents being asked to indicate what position best represents their attitude towards a topic or object written at the top of the scale (concepts). Semantic differential scales were considered appropriate for this study as they gave a structured way to compare results across ten concepts, for example, how a museum was perceived compared to learning or education.

The five steps used to construct the semantic differential scale were adapted from Henerson, Lyons Morris and Taylor Fitz-Gibbon (1987, p.90-91):
1. Determine the attitude object to investigate (a concept such as learning, school, internet).
2. Select approximately ten pairs (the constructs, such as structured/unstructured; chosen/imposed).
3. Write the concept at the top of the scale and place constructs beneath it.
4. Instruct respondents how and where to mark their ratings and, as the scales call for first impressions, encourage them to work quickly.
5. Work out scores by assigning a number to each mark on the scale, averaging them and/or plotting them graphically.
3.3.3 Telephone survey

Two questions were inserted into a telephone survey to provide a point of comparison between Museum visitors and the general Sydney population. The survey was administered to 300 Sydney adults in October 2002 by a specialist research company that was conducting another survey for the Museum and agreed to add two questions. Respondents rated the same set of 11 learning statements and nine resources used when learning something new (described in Section 3.3.2), again using a five-point Likert scale. Overall percentage responses for each question were supplied by the company and provided a comparison between the general population and Museum visitors. These results are reported in detail in Chapters 4 and 5.

3.4 Stage Two method

Stage Two looked at the question: *How does a visit to an exhibition interact with an adult visitors’ learning identity?*, addressing the following areas:

- How well do learning opportunities provided by museums match a person’s learning identity?
- What roles do visitors play in a museum visit and do these roles influence their learning identity?

Ten groups of visitors to the Australian Museum participated in Stage Two, as detailed in Section 3.4.1. First, they were asked to describe their views of learning. Then, they visited an exhibition and afterward asked again about their views of learning and how the exhibition experience matched their earlier thoughts. They were also audio-taped with detailed behavioural observations undertaken in the exhibition, as outlined in Section 3.4.2. The exhibition used in the study, *Uncovered: Treasures of the Australian Museum*, is described in Section 3.4.3.
3.4.1 Sample
Given the social nature of museum visiting and the importance of others in learning found in both the literature and from Stage One, it was decided to sample ten visitor groups in Stage Two—five families and five couples aged from 20-75 years. This allowed for a wide age spread, while also including adult couples who have not been as extensively studied as families (as reported in Chapter 2).

Participants were selected from lists of volunteers who had either visited the Australian Museum in the previous 12 months or some time ago (5-10 years). A total of 17 adults were involved in Stage Two: 10 female and 5 male. As far as possible a gender balance was sought, but was not always possible due to the composition of each group. All families as well as one couple were accompanied by children aged from 3 to 16 years. Several of the children enthusiastically participated in both the exhibition visit and interviews. However, as this study focussed on adults, the only data from children used are incidental comments from the conversations and interviews where relevant.

Further details about the Stage Two sample are in Chapter 6, Section 6.1.

3.4.2 Procedure
Each group was met and briefed about the study and signed a university consent form (Appendix 2) which outlined the aims of the study and privacy considerations. They then participated in a pre-visit interview (Appendix 9) which asked them:

- to describe in their own words what the word learning means
- to outline how they personally like to learn
- to rate the same eleven statements about learning and nine resources for learning used in Stage One.

After the interview each group was taken to Uncovered, a primary participant identified and fitted with a lapel microphone and tape recorder to record their
conversation. They were observed, with their pathways marked on a copy of the exhibition floor plan and field notes taken (Appendix 13). When participants had completed their visit to Uncovered a post-visit interview was held (Appendix 9) which addressed:

- the main messages of the exhibition
- what they found particularly interesting and would tell others
- how the learning they experienced in the exhibition fitted (or not) with the ways they had stated in the pre-interview that they liked to learn
- general demographic information (age, cultural background, number of visits they had made to museums and galleries in the previous 12 months).

As a way to find out how they felt they learned in the exhibition, participants were also asked to rate the following ten statements on a four-point scale of Yes / a lot; Yes / somewhat; No / not really; Not at all:

1. I discovered things I didn’t know.
2. I learned more about things I already knew.
3. I remembered things I hadn’t thought of for awhile.
4. I shared some of my knowledge with other people.
5. I got curious about finding out more about some things.
6. I was reminded of the importance of some issues.
7. I got a real buzz out of what I learned.
8. It was pleasant to be reminded and to learn more.
9. It was all very familiar to me.
10. Some of the things I learned will be very useful to me.

These statements were derived from those used in a recent study of museum learning across a range of cultural institutions in Australia (Griffin, Kelly, Hatherly & Savage, 2005).
3.4.3 The exhibition

_Uncovered: Treasures of the Australian Museum_ (hereafter referred to as _Uncovered_) was an exhibition held at the Museum from 13 March to 10 October, 2004. This exhibition was chosen as it was considered “traditional” in the sense that it consisted of objects, labels and text panels, with no hands-on or interactive elements. Appendix 10 contains an exhibition floor plan, with a selection of photographs in Chapter 6.

The exhibition focussed on why, how and what the Museum collected, through detailing the stories, images and voices behind some of the most important discoveries of the previous 175 years. Other areas dealt with why collections were so important and past, present and future Museum scientific research. The exhibition was developed by a small group of staff who had consulted widely across the Museum. In contrast with many other exhibitions at the Museum, _Uncovered_ was extremely object-rich, with all artefacts sourced from the Museum’s vast collections. It was divided into ten areas that reflected the Museum’s collections and research strengths:

1. Anthropology (Australian Aboriginal and Torres Strait, as well as the Pacific and Indonesia)
2. Arachnology (spiders and their relatives)
3. Entomology (insects)
4. Herpetology (lizards and snakes)
5. Ichthyology (fish)
6. Malacology (molluscs, octopus, squid)
7. Mammalogy (marsupials, bats, monotremes, whales)
8. Mineralogy (rocks, minerals, crystals)
9. Ornithology (birds)
10. Palaeontology (fossils)
There were additional areas in the exhibition that covered the history of Museum collecting; why the Museum collected; the value of the collection; how to access the collection and information about the future of Museum collecting. There were also three DVDs showing a range of interviews with Museum staff who managed collections and conducted scientific and anthropological research.

Data from the exhibition summative evaluation undertaken by the Museum (Australian Museum Audience Research Centre, 2004b) was accessed for comparisons with participants in the present study. The Museum study consisted of two visitor surveys; one tracking study; an analysis of 20 visitor conversations; visitor counts and focus groups. The Museum study found that exhibits which encouraged conversations were exhibits that contained large, dead specimens (such as an emperor penguin and albatross); text that asked provocative questions; text that encouraged visitors to make connections to their lives; specimens that visitors considered to be strange and surprising; and tiny specimens that prompted visitors to wonder how scientists discovered them. Exhibits that enabled visitor groups to gather and talk and those that dealt with the practices of museum taxidermy and collecting also enhanced visitor conversations.

3.5 Reliability and validity

Regardless of the paradigm researchers choose to work within and whether methods used are qualitative or quantitative, reliability and validity issues need to be considered. One criticism of the interpretive approach, in particular, is a perceived lack of reliability and validity in both data collection and analysis (Usher, 1996). Yet, as Silverman (1993) stated, interpretive research ‘… can be both intellectually challenging and rigorous and critical’ (p.144, emphasis in original).
3.5.1 Reliability

Reliability is defined as ‘… a measure of how consistent a research method is’ (Diamond, 1999, p.77). Silverman (1993) outlined a number of ways that reliability can be achieved in qualitative research: pre-testing interview protocols and questions; using fixed-choice responses; and systematically collecting, transcribing and reporting field notes and transcripts for others to review as necessary.

In this study reliability was achieved through being a sole interviewer/observer and using the same set of guiding questions for all interviews. The quantitative tool used (the questionnaire) was reviewed by professional colleagues and contained questions that had been pre-tested. Fixed-choice responses were also used in a number of questions. Additionally, reliability was covered through systematically tape-recording and transcribing the interviews and exhibition conversations.

3.5.2 Validity

Validity was another issue considered in this study. Validity is defined as a ‘… measure [that] measures what it is intended to measure’ (de Vaus, 1991, p.55). Validity relates to how well the analysis actually represents the phenomena it purports to represent: ‘… to know [that] the means of assessment you have developed is accurate and appropriate’ (Diamond, 1999, p.75). One issue related to validity is bias. This is especially problematic in qualitative research as it has been recognised that interviewers come to the research with their own biases (Carr & Kemmis, 1986; Usher, 1996; Yates, 2004).

Silverman (1993) stated that validity in qualitative research can be covered through triangulation—using several different ways to collect and analyse data about the same phenomena. Triangulation has been defined as ‘… the use of two or more methods of data collection in the study of some aspect of human behaviour’ (Cohen & Manion, 1994, p.233). Triangulation enables the complexity of human behaviour and thought to be uncovered, as well as offering
opportunities for introducing more creative and flexible elements to the research. The term derived from navigation where different bearings were used to give the correct position of an object (Cohen & Manion, 1994). Triangulation provides validity checks by comparing data gathered in different ways.

Another concept discussed in the literature is ecological validity, also called context validity. Ecological validity means that theories which will be applied to a specific setting, such as a museum, need to be generated from studies that are undertaken within that setting in order to be confident about the applicability of any resulting theory (Dierking, 1992; Entwistle, 1997).

There were two ways validity was addressed in this study. First, the variety of instruments used in the interviews, questionnaires and case studies ensured triangulation. These included learning diagrams, open-ended questions, rating scales, semantic differential scales, conversations and observations. Second, ecological validity was met through locating the study within a museum setting and selecting participants that had previously visited a museum. Ecological validity was further strengthened by studying visitors in an exhibition that focussed on collection objects and research (or what could be called the “work” of the Museum) as these types of exhibitions commonly occur across many cultural institutions.

### 3.6 Data analysis issues: Stage One

Once the data were gathered, managing the wealth of qualitative data and identifying the appropriate statistical tests was a considerable challenge. Another problem was analysing the data generated from the semantic differential scales, given that much of the literature sourced about analysing these scales had been written before using manual, not computerised data management systems.

Approaches to manage and analyse qualitative data outlined by Miles and Huberman (1994) were used in Stage One. The in-depth interview transcripts were first analysed individually (an example of a marked-up transcript is in Appendix 11), and then common themes that emerged across the eight transcripts
were identified. The open-ended responses from the questionnaire respondents were also gathered into a set of categories, enabling statistical tests to be applied across samples and meaningful conclusions to be drawn without losing the individual nature of the responses.

In the questionnaires a range of statistical tests were considered for the learning statements and resource questions to test relationships between variables and see whether the findings were significant (Argyrous, 1996; Diamond, 1999; Fink, 1995a; Fitz-Gibbon & Morris, 1987; Francis, 1999). Before deciding which tests were the most suitable the dependent and independent variables were identified, as detailed in Table 3.3.

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Independent variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptions of learning</td>
<td>Age</td>
</tr>
<tr>
<td>Descriptions of education</td>
<td>Composition of visiting group</td>
</tr>
<tr>
<td>Descriptions of entertainment</td>
<td>Educational qualifications</td>
</tr>
<tr>
<td>Learning statements</td>
<td>Gender</td>
</tr>
<tr>
<td>Resources used in learning</td>
<td>Museum/gallery visiting habits</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
</tr>
<tr>
<td></td>
<td>Place of residence</td>
</tr>
</tbody>
</table>

To further investigate the questionnaire data and test relationships between dependent and independent variables the *chi-square test* was used to check significant differences by age; composition of visiting group; education qualifications; gender; occupation; place of residence and visiting habits against responses across three question areas:

- describing learning, education and entertainment;
- the learning statements; and
- resources used in learning something new.

Significance was determined when $p<0.05$ and when the cell size was more than 5 cases (Bryman & Cramer, 2001; de Vaus, 1991; Fink, 1995a; Francis, 1999). The results of these tests are reported in Chapters 4 and 5.
Determining how to analyse and present data from the semantic differential scales took some time as early studies reported in the literature were undertaken before the availability of computer technology for analysing quantitative data. Although a small number of more recent references were found (Kinnear & Taylor, 1996; Kotler & Kotler, 1998; Kotler et al., 1980) these gave minimal guidance about how to manage the analysis of the scales using computer software. Therefore, to analyse these results a range of charts were generated in PowerPoint using the mean, or average score, for each construct. These charts illustrated the results and differences between ratings of the 11 concepts. However, in the analysis it was found that the meaning of the scores in the middle became unclear and, therefore only scores with clearly differentiated results were used.

3.7 Methodological issues: Stage Two

Section 3.3 described the various methods employed in Stage One, justifying the choices made and the processes of developing the research instruments. A number of different methodological issues were faced in Stage Two: how to analyse conversations and undertaking observations.

3.7.1 Analysing conversation data

Silverman (2000) outlined three ways to analyse conversation data. The first was to identify sequences of related talk. Second, to examine how speakers took on different roles and identities. Finally, he suggested to look for specific outcomes and trace those back in the conversation to find out where and how they originated. Ash (2002) noted that

Maintaining the tension between looking closely at any particular segment(s)
while maintaining the integrity of the whole is paramount in microanalysis
(p.394),
yet Silverman (2000) reminded us that as long as the parameters of analysis are made clear ‘… the analysis of conversations does not require exceptional skills’ (p.151) and should be reasonably straightforward.
In museum learning research techniques to analyse conversations developed to date have ranged from relatively simple to more complex systems that involved quantitatively counting chunks of conversation (Allen, 2002) or developing more qualitative/holistic categories that considered the broader context of the conversation and how they applied to learning (Ash, 2002; Paris & Mercer, 2002; Rosenthal & Blankman-Hetrick, 2002; Stainton, 2002). Leinhardt and Knutson (2004) used conversations to discuss museum learning in terms of “conversation elaboration”, that accounted for the conjunction of the museum context with the shared identity of the group.

Rosenthal and Blankman-Hetrick (2002) taped visitors’ conversations with interpreters at a living history museum. The categories of analysis they developed for those conversations were:

- *list* when visitors listed what they saw
- *synthesize* when they compared current experiences to prior experiences and knowledge
- *analyze* when they discussed how something that they saw might have worked or been used in the past
- *explain* when visitors brought together existing information and new insights to draw conclusions or clarify what was happening.

Another way of coding conversations was employed in a study of interactions between visitors attending an exhibition about African art (Stainton, 2002). Learning was uncovered through the meaning making that could be inferred from transcripts of visitor conversations, as well as comparing their views about the content in pre- and post-interviews. The categories Stainton developed were drawn from the curatorial intent of the exhibition gathered through interviews with staff (Table 3.4, over the page).
Table 3.4. Visitor talk: coding categories

<table>
<thead>
<tr>
<th>Category of Talk</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetic</td>
<td>Aesthetic ideas supplied in text/labels or by visible features of artwork</td>
</tr>
<tr>
<td>Anthropological</td>
<td>Anthropological ideas supplied in text/labels or by visible features of artwork</td>
</tr>
<tr>
<td>Visitor/aesthetic</td>
<td>Visitor’s own interpretations on aesthetic ideas/features</td>
</tr>
<tr>
<td>Visitor/anthropological</td>
<td>Visitor’s own interpretations on anthropological ideas/features</td>
</tr>
<tr>
<td>Visitor management</td>
<td>Refers to spatial orientation, feelings of tiredness, interactions with others, other talk relating to museum as a venue, not exhibit-related</td>
</tr>
<tr>
<td>Visitor personal</td>
<td>Talk not related to above categories</td>
</tr>
<tr>
<td>Other</td>
<td>Inaudible, unintelligible, too fragmented to code</td>
</tr>
</tbody>
</table>

(Adapted from Stainton, 2002, p.225)

Allen (2002) used conversation analysis in studying visitor learning from an exhibition about frogs at the Exploratorium, United States. Allen categorised conversations to look for evidence of “learning talk” which she defined deliberately “… quite narrowly to refer to discussion of the exhibits and the exhibition, and its topic area” (p.262). Allen employed the following set of underpinning questions:

- Is this evidence of learning? … Is it likely that one or both of these people have just acquired new knowledge or new ability from what was said? … Has this utterance advanced the dyad’s collaborative process of making meaning from the exhibition? (p.263).

The categories that resulted from Allen’s investigations were:

- **Perceptual talk** where visitors drew attention to something through identifying, naming, paraphrasing text.
- **Conceptual talk** being cognitive interpretations including inferences, predictions and reflection.
- **Connecting talk** making explicit connections between something in the exhibition and visitors’ external experiences.
- **Strategic talk** which was explicit discussion about how to actually use the exhibition.
- **Affective talk** expressing feelings, emotions and pleasure (adapted from Allen, 2002, p.274-277).
Ash (2002) studied how families made sense of biological themes in an exhibition about life through time by looking at interactions and behaviour over a longer time period. Ash decided to identify significant conversation events (SEs) for in-depth analysis, recognising that ‘… language is a negotiating medium for teaching and learning’ (p.361). SEs were defined as having

… recognisable beginnings and endings … [and] were sustained conversational segments that differed from short interactions, which can precede and follow [other] SEs (Ash, 2002, p.366).

The conversations gathered in Stage Two were transcribed then analysed through applying Ash’s idea of significant conversation events (SEs), to identify short, sustained segments of conversation with definite beginnings and endings that related to a particular exhibit, content area or theme. The underlying question addressed was whether the conversations gave any indication of how an individual’s learning identity was expressed when viewed in relation to themes identified from the interview and observation data. Appendix 12 contains a sample marked-up conversation transcript.

### 3.7.2 Observations

Observation as a methodology has its origins in the practice of anthropology and ethnography (Silverman, 1993). Observation techniques have been used over a long period of time in museums to understand how visitors behave in exhibitions (Alt, 1977; Alt & Shaw, 1984; Beer, 1987; Black, 2005; Gilman, 1916, 1923; Screven, 1990; Serrell, 1998), and from these behaviours infer what they may have learned (J. Griffin, 1998; Griffin et al., 2005). In a museum context observations are unobtrusive recordings of visitor behaviour in an exhibition or across an entire museum, noting the exhibits attended to and what people are doing (for example reading, browsing, studying), time spent and pathways/flow. Observations can be systematic collections of data through watching visitors either at specific sections of an exhibition or tracking their pathways and behaviour across an entire exhibition.
Cohen and Manion (1994) noted that there were a wide variety of ways that observations could be undertaken, depending on the aims and nature of the study. They described observations as ‘… a methodological approach rather than one specific method’ (p.122, emphasis added). However, Cohen and Manion also noted that observations as a method have been criticised as being subjective, biased and impressionistic, and not always quantifiable.

Diamond (1999) reported that observations have played a major role in how museum staff have viewed visitor engagement. She pointed out that the vast range of observational studies conducted in museums since the 1930s demonstrated the critical role of social interaction in exhibitions and visitor learning. Diamond also outlined how reliability and validity could be met in conducting observational studies through developing a consistent means of assessment and developing coding frames that emerged from the environment being studied. One advantage of conducting observations in museums identified by Diamond is that a floor plan of the exhibition or the entire museum can be used to track visitor pathways in order to systematically note behaviours at different parts of the exhibition.

Hein (1998) noted that there were a range of observation methods that museum research has employed over the years. Naturalistic observations used a qualitative approach in watching and noting what visitors were doing in discrete ways. Structured observations and event-based observations were more quantitative in nature employing a pre-defined set of coding categories. When conducting observation studies Silverman (1993) stressed the importance of writing field notes and using these in developing coding frames, as did Huberman and Miles (1998). Grounded theory principles (Strauss & Corbin, 1998b) can also be employed to generate coding categories.
Observation and tracking studies in museums (Beer, 1987; Hein, 1998; Screven, 1995; Serrell, 1997) have generally found that visitors:

- follow individual pathways
- spend little time at exhibition components
- look at a small proportion of the total number of objects on display
- seldom read labels
- stop at less than half of the exhibits, skipping many elements (visiting around one-third)
- use trial and error for interactives
- spend usually less than 20 minutes in an exhibition
- attention to exhibits dramatically decreases after 30 minutes.

However, these generalisations also reflect enormous individual variance between the type and locations of each study.

Of relevance to Stage Two is the work of McManus (1987; 1988) who studied 1,572 individuals in 641 visitor groups in the Natural History Museum, London. She found differences across a range of visitor types. Singletons briefly visited exhibits and comprehensively read text panels and labels. Couples also read in detail and didn’t converse as much as others, yet stayed longer in exhibitions. Adult social groups would look closely at exhibits but were likely to leave them after 30 seconds, and were overall less involved than other types of visitors. McManus found that visitor groups containing children were more likely to use interactives; have long periods of conversation about what they had seen and done; visited an exhibition for longer; and were not as likely to read labels. She also described family visitors as “hunter-gatherers”:

… actively foraging in the museum to satisfy their curiosity about the topics and objects which museum professionals collect and study. … [This] behaviour is practical and economical since the exploration and information-gathering is shared out between the family members (McManus, 1994, p.91).

In Stage Two observations were conducted using a floor plan of Uncovered, marking the pathways visitors took and the total time they spent in the exhibition. Extensive field notes were made and photographs taken (with participants’ permission) as a visual record of those involved in the study. Appendix 13
contains a sample of the observations and field notes. The observation results were compared with a broader set of visitors to the exhibition (Australian Museum Audience Research Centre, 2004b), as well as to general visitor behaviour described earlier (Hein, 1998; McManus, 1988; Screven, 1995; Serrell, 1997) to see whether there were any notable differences that emerged from the Stage Two sample.

3.8 Where now?

This chapter outlined the methodology used in the entire study, including sampling and choice of specific qualitative and quantitative methods. It also addressed ethical, reliability, validity and statistical issues. The pilot studies demonstrated that it was possible to develop a set of instruments to test the research questions using a triangulated strategy within an interpretive framework. Individuals’ views of learning were uncovered and sets of data generated across the whole sample that contributed to answering the research questions. The following two chapters describe and discuss the findings from Stage One and identify new issues that emerged, which were subsequently investigated in Stage Two.
References


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