Exploring family learning in a Mexican science museum from a Latin American socio-cultural perspective

by

ADRIANA BRISEÑO-GARZÓN

B.Sc., Universidad Nacional Autónoma de México, 1999
M.Sc., Colegio de Postgraduados, 2001
M.A., University of British Columbia, 2005

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

in
THE FACULTY OF GRADUATE STUDIES

(Curriculum Studies)

THE UNIVERSITY OF BRITISH COLUMBIA
(Vancouver)

January, 2010

© Adriana Briseño-Garzón, 2010
Abstract

The crucial influence of socio-cultural elements on people’s ways of making sense of the surrounding world has been widely recognised. Any learning process is contextualized by the learner’s social and cultural backgrounds. However, socio-cultural issues are mostly absent in the literature pertaining to visitor studies and museum learning, which has been traditionally dominated by Anglo views emerged from research conducted in Anglo institutions. Additionally, the family environment has been acknowledged as a key aspect of any individual’s development and learning.

Framed by constructivist and socio-cultural theoretical perspectives on learning, this case study research explores the role that people’s socio-cultural traits play in shaping their learning experiences at a science museum, when visiting as part of a family group. Conducted in Universum, Museo de las Ciencias, a science museum located in Mexico City, this study investigates the ways in which the members of 20 Mexican family groups learn and support each other’s learning in the context of a museum visit. The research design involves semi-structured interviews as well as on-site unobtrusive observations as the principal methods of inquiry.

An interpretive analysis of the data suggests that even when the current Anglo perspectives on family learning in informal settings describe in general terms the ways in which families with Mexican socio-cultural backgrounds experience a museum visit, there exist important particularities that require researchers’ and museum educators’ awareness. First and foremost, the notion of “family” requires a definition that is socio-culturally grounded, since this study’s data shows that in the Mexican context, family implies a complex net of interconnected relationships and people. The dynamics in which family members engage, as well as their affective interactions are identified as crucial elements in modeling children’s and adults’ learning outcomes.

Also, the study points out the multiplicity of learning events that, often beyond the content matter presented in exhibits, family groups experience as a result of a museum visit. In particular, issues that relate to children education and rearing are discussed.

Implications and recommendations for research and practice are discussed, including methodological suggestions for conducting research in culturally diverse environments.
# Table of contents

Abstract .......................................................................................................................... ii
Table of contents ............................................................................................................. iii
List of tables ...................................................................................................................... vii
List of figures ................................................................................................................... viii
Acknowledgements ......................................................................................................... ix
Dedication ......................................................................................................................... x

**Chapter 1: Introduction** ............................................................................................... 1
  1.1 Background .............................................................................................................. 2
    1.1.1 Museums as research sites .............................................................................. 2
    1.1.2 The problem .................................................................................................... 4
  1.2 Significance .............................................................................................................. 5
  1.3 Theoretical framework ........................................................................................... 6
  1.4 Methodological approach ....................................................................................... 6
  1.5 Organization of the thesis ....................................................................................... 7

**Chapter 2: Theoretical framework and literature review** .................................................... 9
  2.1 Constructivism and socio-cultural theory perspectives on the nature of learning ...... 9
    2.1.1 Constructivism ............................................................................................... 10
    2.1.2 Socio-cultural theory ..................................................................................... 11
    2.1.3 Situating the research .................................................................................... 12
  2.2 Working definition of terms and concepts: Identity, Culture, Latin American, Latino,
    and Anglo .................................................................................................................. 14
    2.2.1 Socio-cultural identity ..................................................................................... 14
    2.2.2 Culture ........................................................................................................... 16
    2.2.3 Latin America(n) ........................................................................................... 16
    2.2.4 Latino ............................................................................................................. 17
    2.2.5 Anglo ............................................................................................................ 18
  2.3 A case for Latin American socio-cultural identity .................................................... 18
    2.3.1 Shared history, shared traits ......................................................................... 19
    2.3.2 The Latin American notion of ‘family’ ............................................................. 21
  2.4 Parent-child interactions, culture and learning ......................................................... 23
3.7.4 Confirmability ................................................................. 59

3.8 Ethical considerations .......................................................... 59

3.9 Methodological and ethical challenges and remarks of conducting research in socio-cultural diverse contexts ................................................................. 60

3.9.1 The researcher as an insider .................................................. 61

3.9.2 Participants' perception of the inquiry process .................................. 62

3.9.3 Ethics requirements as perceived by participants .................................. 63

3.10 Limitations of the study .......................................................... 63

Chapter 4: Data and analysis. Five families, five stories: A deeper examination of a subsample of cases ................................................................. 65

A. The Carrillos: In busy times, family comes first – The primary role of the family in the education of children ................................................................. 65

B. The Jáureguis: My child is your child – A socio-culturally rooted notion of “family” ................................................................. 70

C. The Aragóns: In command of one’s emotions – Extended family and emotional competence ................................................................. 74

D. The Esparzas: Learning comes in different shapes and colours - The relevance of the social outcomes of a museum visit for family groups ................................................................. 78

E. The Berlangas: Teaching from the heart – Grandparents as pillars of family life........ 82

F. End note ........................................................................ 86

Chapter 5: Data and analysis. Family learning in the museum context........ 88

5.1 Description of participants’ museum experience ........................................ 88

5.1.1 Motivations and agendas ......................................................... 90

5.1.2 Mexican families and museum visitation ........................................ 93

5.1.3 Family dynamics ................................................................ 95

5.1.4 Cognitive outcomes of the visit ................................................ 97

5.1.5 Summary ........................................................................ 98

5.2 “Family” defined in/with action ..................................................... 99

5.2.1 More than just the people ......................................................... 99

5.2.2 Nuclear and extended families ............................................... 102

5.2.3 Gender roles and parental involvement in child rearing .................. 105

5.2.4 Participation of children in family life and sibling relations ............ 107
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.2.5</td>
<td>Summary</td>
<td>110</td>
</tr>
<tr>
<td>5.3</td>
<td>&quot;Educación&quot; y familia</td>
<td>110</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Social outcomes of the visit</td>
<td>110</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Parents and observation of discipline and 'good behaviour'</td>
<td>112</td>
</tr>
<tr>
<td>5.3.3</td>
<td>Parents as transmitters of values and morals</td>
<td>114</td>
</tr>
<tr>
<td>5.3.4</td>
<td>Maintenance of traditions and culture: Language and religion</td>
<td>116</td>
</tr>
<tr>
<td>5.3.5</td>
<td>Emotional competence</td>
<td>118</td>
</tr>
<tr>
<td>5.3.6</td>
<td>Summary</td>
<td>119</td>
</tr>
<tr>
<td>5.4</td>
<td>Education and family</td>
<td>119</td>
</tr>
<tr>
<td>5.4.1</td>
<td>Learning defined in context</td>
<td>120</td>
</tr>
<tr>
<td>5.4.2</td>
<td>Parents as educators</td>
<td>121</td>
</tr>
<tr>
<td>5.4.3</td>
<td>Parents as learners</td>
<td>125</td>
</tr>
<tr>
<td>5.4.4</td>
<td>Children as learners</td>
<td>129</td>
</tr>
<tr>
<td>5.4.5</td>
<td>Summary</td>
<td>133</td>
</tr>
</tbody>
</table>

Chapter 6: Conclusions and implications

6.1 Key outcomes

- 6.1.1 Participants' museum experience                                | 135  |
- 6.1.2 Membership and roles. What is 'family'?                       | 137  |
- 6.1.3 'Educación', a broader concept                                | 138  |
- 6.1.4 Education                                                     | 139  |

6.2 Implications and recommendations

- 6.2.1 Recommendations for research                                   | 143  |
- 6.2.2 Recommendations for museum practice                           | 145  |

6.3 Limitations of the study                                          | 147  |

6.4 Issues for future research                                        | 149  |

References                                                             | 151  |

Appendix A – Advertisement poster (Spanish version used for data collection) | 167  |
Appendix B – Consent form (Spanish version used for data collection)     | 167  |
Appendix C – Participants' demographic information                     | 170  |
Appendix D – Interview protocol (Spanish version used for data collection) | 172  |
Appendix E – UBC behavioural research ethics board certificate of approval | 174  |
List of tables

Table 2.1 Summary of attributes and values associated with families from Latin American and Latino socio-cultural backgrounds ................................................................. 32

Table 2.2 Summary of the outcomes of the research on family learning in museums, mainly conducted in the Anglo socio-cultural context ................................................................. 37
List of figures

Figure 3.1 Diagram of the research design employed during this study .................. 45
Figure 3.2 Diagram of data collection procedures and methods employed in this study .......... 51
Figure 3.3 Categories and codes of analysis .......................................................... 54
Acknowledgements

I would like to acknowledge my supervisor, Dr. David Anderson, for his support, encouragement, and mentoring throughout this journey. He has been an invaluable and steady source of guidance and advice for the last six years (and counting). For that, I am greatly indebted to him.

I am also thankful to my committee members, Dr. Ann Anderson and Dr. Carmen Sánchez. Their priceless input, critique, and support were crucial for the successful completion of this thesis. To all my teachers, thank you for contributing so much to my career.

The research reported in this thesis would have not been possible without the participation and total support of Universum, Museo de las Ciencias. I offer my thanks to all the staff members that facilitated and assisted me during the data collection process. Particularly, I would like to express my gratitude to Arq. Lourdes Guevara and M. en C. Gabriela Guzzy for their interest and cooperation throughout the research process.

I would also like to thank all the families who took part in this study and kindly offered their time and insights about their museum experiences.

This research, as part of my PhD program, was funded by University Graduate Fellowships from the University of British Columbia. This support is gratefully acknowledged.

I also wish to thank and acknowledge my dear friends, family members, and fellow graduate students whose companionship and affection have been fundamental over my years at UBC. Particularly, I would like to extend my thankfulness to my colleagues Wendy Nielsen, Rachel Moll, and Gillian Gerhard for all these years of mutual encouragement, insightful and enjoyable chats, and shared spaces and goals.

Finally, I wish to thank my loving husband for helping me be the best person that I can be. This thesis was possible because of his unconditional love and support.
Dedication

To my beloved family:

Baby, my inner inspiration
Sofia, the light of my days and the smile of my heart
Alejandro, my partner in life
Chapter 1: Introduction

Much of the research and awareness in the field of science education in the last few decades has focused on formal learning environments like the structured classroom setting. Nonetheless, the classroom is not the only setting where educational goals can be accomplished and meaningful learning can take place (NRC, 2009). People also learn from experiences in informal situations and environments, such as the home, museums, field trips, or in simple everyday experiences. In fact, Gerber, Cavalo and Marek (2001) and NRC (2009) affirm that most learning experiences actually take place outside of formal classroom settings. However, despite the growing popularity of informal settings worldwide, and the growing body of research centred on the learning behaviours of visitors to such settings, more research is needed in order to broaden and deepen our understanding of how and what people learn in informal settings.

In particular, family learning in museums has been a topic of interest to researchers since the 1980s and has continued into the early part of this decade. The family demographic constitutes a significant fraction of the visitors to many museums (Blud, 1990; Ellenbogen, Luke, & Dierking, 2004; McManus, 1994) and hence, research into family learning experiences in museums is well justified and relevant. It is important to acknowledge, however, that most studies of family learning in museums have been conducted in Anglo socio-cultural contexts and have primarily examined Anglo participants.

Currently, however, it is accepted that the socio-cultural context plays a central role in people’s cognitive development and learning (Brown, Collins & Duguid, 1989; Butterworth, 1993; Cole, 1996; McDaniel, 1990; Mercer, 1993; Ostrosky, Gaffney, & Thomas, 2006; Wachs, 1990). In particular, the significance of children’s experiences within the cultural environments of the home, and the form and content of parent-child interactions has been recognized. Thus, there is a need for research involving non-Anglo cultural groups and contexts, where educational research in general and visitor studies specifically, is significantly absent.

The study reported in this thesis investigates the ways in which strategies, values, prior ideas, traditions and behaviours that constitute the social and cultural practices of Mexican

---

1 The term 'Anglo' is used to indicate a relation to England and the United Kingdom, and thus refers to people, culture and countries with former or present English influence (i.e., Australia, Canada, the United Kingdom, and the United States).
families shape their ways of learning within a local science museum context. The discussion of the outcomes explore how these culturally-mediated learning experiences are similar/different from the Anglo perspective on family learning, which currently dominates the education research and literature.

This research study is based on the premise that understanding the role of the social and cultural processes of learning is essential to understanding the nature of learning in museums. A socio-cultural approach provides a broad frame for exploring how the visiting group is situated within the wider social and cultural context and also how this influences people's ways of learning. This approach further highlights how learning processes extend beyond the individual learner to the group or community level (Ellenbogen, Luke, & Dierking, 2007).

1.1 Background
This study stems from the researcher’s own socio-cultural background, as well as from her academic and professional interests and expertise in the natural sciences and in science education within informal settings. Now a mother of a two-year old, the researcher was born and raised in Mexico City by an urban middle class Mexican family. She lived in Mexico City until she moved to Canada six years ago where she currently lives with her husband and daughter. Since then she has researched the nature of family learning in different informal settings and has taken part in diverse research projects in the fields of science learning in informal contexts and culture and learning.

The researcher holds a four year Bachelor degree in Biology, a Master of Science in Agricultural Entomology, and a Master of Arts in Science Education. She has seven years of professional experience in the field of agricultural biotechnology awareness and communication, and six years of experience in education research. The perspectives and points of view presented in this thesis are fundamentally rooted in the researcher’s personal and professional history.

1.1.1 Museums as research sites
The overall and long-lasting impact of learning science as a result of experiences in informal settings has been widely recognised (e.g., Anderson, Storksdieck, & Spock, 2007). Furthermore, it has been acknowledged that museums and similar settings, such as aquariums, science centres, zoos, botanic gardens, and the like, serve important roles in the science education infrastructure of a community. These institutions serve as public leisure experiences;
as educational events for school groups, families, tourists, and the general public; as research institutions; and as historic and natural reservoirs (Falk, Koran, & Dierking, 1986).

Regardless of the educational goals, mission, vision, and structure of different types of informal settings, all museums cater to highly heterogeneous populations, have displays and aids for their interpretation, such as labels and facilitators, and all are places where visitors have freedom of choice (Falk et al., 1986; Rennie & Johnston, 2004; Wellington, 1990). Furthermore, the way in which visitors experience a visit to an informal setting is the result of a combination of factors such as personal history and backgrounds, personal interests and motivations, agendas, physical space, social situations and interactions, prior experiences, and random factors (Falk & Dierking, 2000; Falk et al., 1986), which together account for the socio-cultural identities of the visitors.

All in all, museums are physical settings unlike others most people encounter in their daily lives (Falk, 2007). Besides offering a broad range of learning situations, museums typically present visitors with voluntary and non-sequential experiences and events that are highly influenced by the features of the setting (Falk & Dierking, 2000). As a result, visitor learning has been described by Falk (2007) as being significantly influenced by visitors' adaptation to the physical setting, their ability to navigate the space, and the design and architectural features of the museum itself and its individual exhibits.

Today's science museums and similar settings are far more than just the exhibits they present in their galleries; lectures, special events, workshops, outreach programs, and classes, are just some examples of the types of activities offered to their different audiences. Amongst these audiences, families are particularly relevant for museums and the like since generally family groups constitute more than half of museum visitors (Blud, 1990; Diamond, 1986; Dierking & Falk, 1994; Falk, 1998; McManus, 1987).

Most visitors perceive informal environments as possessing interesting, stimulating, and important ideas/things that are worth seeing or learning about. For families, the informal environment represents a place to share interesting, fun, and educational experiences in a perceived safe and friendly setting. Family groups can continually access informal experiences, from which multiple and diverse long-lasting learning opportunities arise.

Building upon constructivist theories on learning (e.g., Ausubel, Novak & Hanesian, 1978; Driver & Easley, 1978; Merriam & Heuer, 1996; Roschelle, 1995), the crucial role of prior knowledge and experience has been extensively acknowledged in the field of museum learning, as well as the influence of visitors' agendas or interests and motivations. More
recently, it has been recognized that identity also plays a role in the learning outcomes of a museum visit (Falk, 2007). What is more, learning in and from informal settings has been described as multi-dimensional, since it can potentially impact, not only the cognitive domain, but also the emotional-affective, aesthetic, and social domains (Merriam & Heuer, 1996; Schauble et al., 2002). Also, learning related to a visit to an informal setting can be evidenced in other contexts relevant to visitors’ lives in the weeks, months or even years after the visit (Anderson, Stroksdieck, & Spock, 2007; Rennie & Johnston, 2004). Thus, understanding the learning processes and outcomes that take place in museums and similar settings is a complex endeavour that demands the simultaneous investigation of multiple factors (Falk, 2007).

1.1.2 The problem
Visitor studies in the 1980s made important contributions to the understanding of the social behaviour of groups, particularly families, in museum and similar settings. Research focused mainly on what group members ‘do’, and later shifted to what group members ‘say’; more recently the focus has been on ‘how’ visitors support and take part in each others’ learning. In other words, behaviourist approaches to understanding the learning outcomes of a museum visit have taken a more cognitive perspective in the last decade, whereas currently research on museum learning has moved to the use of socio-cultural perspectives to interpret and understand visitor experiences.

In fact, studies of family groups in museum settings to date have demonstrated the influence of social factors over the extent and depth of the learning outcomes resulting from museum experiences (Blud, 1990; Borun, Chambers & Cleghorn, 1996; Diamond, 1986; Hilke, 1987; McManus, 1987). Diverse research studies show that families visiting museums are strongly influenced by the interactions and relationships they have with members of their own social group, and with people outside their social unit (e.g., demonstrators, guides, other visitors). What is more, it has been asserted that cultural identity also plays a role in how and what families learn from museums (Falk, 2007). All in all, it can be said that learning from museums is in fact shaped by within-group social interactions (including social roles), by social interactions with individuals outside the visitor’s social group, by the physical context, and by the socio-cultural identity of visitors (Anderson, 2003; Briseño-Garzón, Anderson & Anderson, 2007a; McManus, 1994). However, the influence of the socio-cultural context and socio-cultural background is an important, yet mostly missing element in the field of visitor research.
For instance, research studies involving non-Anglo cultural groups and contexts are scarce, even though there are numerous museums around the globe that service non-Anglo communities. In this respect, expanding and deepening our understandings of the influence of people’s socio-cultural backgrounds in their meaning making processes within the museum context is fundamental in order for exhibit and program developers, educators, and researchers to provide rich and enjoyable educational opportunities for family groups from diverse backgrounds. Hence, the examination of a context such as Mexico would add to our understandings on how families with non-Anglo socio-cultural backgrounds experience and learn from museums.

1.2 Significance

By pulling together the notions that learning and cognition are typically situated in a social and cultural context (Butterworth, 1993; Mercer, 1993; Ostrosky et al., 2006), and that visitors’ learning experiences in museums are mediated by attitudes, beliefs, interests, personal history, prior knowledge, and social interactions (Anderson, 2003; Falk & Dierking, 2000; Rennie & Johnston, 2004), the research herein reported contributes novel insights to our understanding of the roles of socio-cultural backgrounds in shaping people’s ways of learning science through museum experiences. In particular, this research study adds to the body of literature in informal learning by exploring the particularities in which individuals with Mexican socio-cultural heritage socially construct meaning and understanding as a result of a museum visit.

This area of research is important because few studies that examine visitors’ scientific learning in informal settings have been conducted in Latin American museums with Latin American audiences from a Latin American perspective (Jaramillo, 2005; Maciel, 2006; Orozco, 2005).

Although some initiatives have attempted to investigate and better understand how multicultural audiences living in multicultural contexts, such as Latino and African American populations in the U.S., learn from museum experiences (e.g., Falk, 1993; Falk, Anderson, & Castro de Cortez, 1996; Garcia-Luis, 1997; Garibay & Bonney, 2007; Silverman, 1995; Tanenbaum, Callanan, Alba-Speyer, & Sandoval, 2002), a huge void still exists in the body of literature on education research in regard to Latin American participants within their communities of origin.

This research study intends to address this gap by reporting on a study where a Latin American researcher conducted research in a Mexican science museum, with local visitors, thus
making a unique contribution to the field. Investigating Mexican cases is important for expanding our empirical understandings of the particularities of the ways in which families with Latin American socio-cultural backgrounds interact, socially construct scientific meanings and knowledge, and ultimately learn in informal settings.

This work is also relevant because it provides some evidence for substantiating and differentiating the current perspectives on family learning in informal contexts that predominantly emanate from research conducted in Anglo socio-cultural contexts from Anglo standpoints. Such perspectives are valid in their socio-cultural contexts of origin and actually serve as conceptual frameworks for educational research around the globe. However, as will be further elaborated throughout this thesis, some socio-culturally ingrained particularities and distinctions exist when dealing with the Mexican context.

Overall, the research reported in this thesis adds to the still incipient Latin American body of knowledge in the field of visitor studies, and contributes to our global understandings of how and what people learn as a result of a museum visit. Also, the outcomes of this study have informed recommendations for the design of educational experiences (e.g., exhibition and program development) with optimal learning potential for visiting Mexican family groups living in their home countries or elsewhere.

1.3 Theoretical framework
This study is theoretically framed by two intersecting theories of knowledge: constructivism and socio-cultural theory. Acknowledging the role that prior beliefs, understandings and attitudes that have developed through personal experiences have in the construction of new understandings, and that this process takes place in individual and personal ways (Ausubel, 1967; Driver & Easley, 1978; Glaserfeld, 1993), this research study is also framed by the notion that learning involves a continuous interaction between the learner, the environment and the social situations that individuals face (Lave & Wenger, 1991; Roschelle, 1995; Vygotsky, 1978). Thus, both the contextual and personal aspects of the processes of thinking and acting are key in the learning process, and are inherently interconnected.

1.4 Methodological approach
In order to investigate the nature of the learning experiences of the members of family groups visiting a Mexican science museum, a qualitative methodology was implemented. An interpretive multiple case study approach (Merriam, 1998; Stake, 2000; Yin, 2003) was used to
richly and deeply describe the experiences of 20 family groups at Universum, Museo de las Ciencias. A critical examination of all family members’ impressions, interpretations, recollections, and actions, was required to elucidate the particularities of participants’ learning interactions and experiences, from a socio-cultural theory perspective. Semi-structured, open-ended interviews were used as the main source of data; on-site unobtrusive observations were used as a means for data triangulation. Data analysis included transcription, coding, and interpretation of the data, informed by the current perspectives on family learning in informal settings and Latin American views on family and learning that serve as foundations for this study.

A research approach informed by socio-cultural theory highlights not only the learning of the individual, but also learning at the level of social groups, such as family and community. Thus, this approach permitted an understanding of the learning outcomes that go beyond content knowledge and extend to the social nature of a family visit to a museum. In particular, socio-cultural aspects of learning emerged as important, such as learning to communicate with other family members, learning new things about family members, learning about the family dynamics, and learning a sense of civic responsibility or national identity.

1.5 Organization of the thesis
The thesis includes a total of six chapters. Following this introductory chapter, Chapter 2 provides a review of the literature relevant for this study. It first discusses the definition of learning that frames the conceptualization and implementation of the present research study. Then, it develops the theoretical framework for the study, out of perspectives of social constructivism and socio-cultural theory. The current theories and perspectives on learning in informal settings are then presented. Chapter 2 also includes a section with the definition of some key terms that are used throughout the remainder of this thesis, such as ‘socio-cultural identity’, ‘Latin American’, ‘Latino’, and ‘Anglo’. Moreover, this chapter presents a review of the research pertinent to the development and implementation of the current study, including a discussion of the socio-cultural attributes that have been identified as characteristic of the Latin American culture; the family as a social learning unit and the roles of parent-child interactions in the learning processes of individuals with a focus on the Latin American socio-cultural context; current perspectives of family learning in informal settings; and current research in visitor studies in Mexican and Latin American contexts.
Detailed accounts of the methodology, methods, and research design used for data collection and data analysis are offered in Chapter 3, including the particulars of the procedures for the recruitment of participants. The research site – Universum, Museo de las Ciencias, is described in detail and socio-demographic information about the participants is also provided. Furthermore, issues of trustworthiness and generalisability are also explored. Chapter 3 also includes key ethical considerations that relate to the study, as well as its methodological limitations.

The outcomes of the study are presented in Chapters 4 and 5. In Chapter 4, results and analysis are presented in a narrative style, illustrating the cases or 'stories' of five family groups. The five cases presented in this chapter are a sub-sample of the total of cases that constitute the whole data set. These families were selected for the richness of their accounts regarding the nature of their intra-familial interactions and their collective learning experiences. Also, these families represent contrasting cases between them, and each one embodies an illustrative example of the issues that are further discussed in Chapter 5.

Chapter 5 includes a thematic analysis of the outcomes of the study. The perspectives and insights of the 20 participant family groups are represented in these discussions, with constant reference to the five cases that are individually examined in depth in Chapter 4. The topics and themes explored in Chapter 5 emerge mainly from the review of the research presented in Chapter 2, and include aspects such as a Mexican definition of family and family members' roles; family dynamics and interpersonal interactions as mediators of learning; parents' perceptions of their roles as educators and transmitters of socio-cultural values and identity; and socialization strategies and their influences on group learning.

Finally, Chapter 6 presents a summary of the key findings of this research study and their connections to the current body of literature in the field of learning in informal settings. Conclusions resulting from the data analysis, as well as implications and recommendations for practice are also included in this chapter. Chapter 6 closes with an exploration of the limitations of the study and some issues and questions for further research.
Chapter 2: Theoretical framework and literature review

In this chapter the theoretical framework in which this study is located is discussed and established. The discussion starts with a section on the working definition of learning that serves as foundation for the study. Social constructivist perspectives on learning (Ausubel, 1967; Driver & Erickson, 1983; Winn, 2003) as well as socio-cultural theory (Lave & Wenger, 1991; Rogoff, 1998; Vygotsky, 1978; Wertsch, 1985) are then explored in detail as part of this discussion, as well as the current theories and perspectives on learning in informal settings.

This chapter also includes the examination of some key terms relevant for the study reported in this thesis. The socio-cultural attributes that characterise and differentiate the Latin American identity from other traditions, taking the Mexican case as an exemplar, are also explored and delineated, with an emphasis on the role of the family in the Latin American socio-cultural context. The role of parent-child interactions in the learning process is further discussed and the role of the family as a learning environment is highlighted. Furthermore, a review of the existing literature of research on parent-child interactions in Latin American and Latino families is presented.

This chapter also details the relevant literature in the area of family learning in museums and similar venues, with special emphasis on parent-child interactions as mediators and modulators of the learning experience. Socio-cultural aspects of research in museum settings are further elaborated. Finally, the state of the art of the field of family learning in informal settings within the Latin American context is explored, and some insights into the current research that is being carried out in this field of research are provided.

2.1 Constructivism and socio-cultural theory perspectives on the nature of learning

The nature and character of learning has been discussed extensively for decades by educators, psychologists, sociologists, and philosophers. Different schools and theories of learning have influenced the way in which teaching and educational research are conducted both in the informal and the formal contexts. At the same time, current theoretical approaches are constantly being shaped by research outcomes on how people learn. In this section, the overlap of two theoretical frameworks: constructivism and socio-cultural theory is discussed. It is within this overlap that this study is located.
2.1.1 Constructivism

Hein (1998) describes theories of learning as being organised on a continuum with two contrasting extremes. At the one end, learning is considered as a transmission-absorption process by which people add small bits of knowledge linearly with time and experience. From this perspective, learning does not involve any discovery from the learner who is only required to internalise or incorporate the material. In the other extreme, learning is regarded as a constructive process where learners actively make sense of the world as a function of real life experiences and prior knowledge (Driver & Easley, 1978; Glaserfeld, 1993).

From such a constructivist standpoint, the role of prior knowledge and experience is considered an important variable (Ausubel, Novak & Hanesian, 1978; Feher & Rice, 1985; Jarvis, 1992; Merriam & Heuer, 1996; Mintzes & Wandersee, 1998; Roschelle, 1995; Winn, 2003). Constructivism stipulates that the creation of new understandings and attitudes depends on the integration of the learner's prior experiences with new experiences afforded by the physical and socio-cultural context of, for example, a museum visit (Falk & Adelman, 2003; Roschelle, 1995). The new elements that may trigger reconnections and reorganisation of the existing conceptions and perceptions will typically have an idiosyncratic significance (Falk & Dierking, 1997; Hein, 1995). This learning theory further claims that learning and development take place when learners interact with the environment and the people around them (Hein, 1995; Roschelle, 1995; Winn, 2003). The continuous rearrangement of our cognitive frameworks due to the incorporation of new concepts and ideas is not a passive phenomenon, nor does it take place on an arbitrary basis (Ausubel, 1967, 2000). A learning experience requires engagement and, to some extent, mental, physical, or social activity on the part of the learner (Rennie & Johnston, 2004). This experience does not have a meaning by itself, meanings are made from experiences (Merriam & Heuer, 1996).

Ausubel (1967), Driver and Easley (1978), and Glaserfeld (1993) consider knowledge to be actively constructed and dependent on practical experience and the application of ideas to action. Knowledge is not detached from its circumstances and cannot be separated from exploration or discovery. From a constructivist viewpoint, knowledge is the result of an active process that learners experience through interaction with their physical and social environments. Likewise, learning takes place throughout the learners' lives, although its dynamics and characteristics may vary as learners mature (Ausubel, 2000).

Merriam and Heuer (1996), Rennie and Johnston (2004), and Schauble et al. (2002) also support the notion that learning encompasses more than just the cognitive domain. Learning in
the broad sense, not only consists of outcomes such as the construction of scientific concepts and the application of such knowledge to solve problems. These authors regard learning as a process and a product that involves the development and change in attitude or behaviour, motivation, and interest, expanded aesthetic and kinaesthetic experiences and appreciation, socially mediated conversations and interactions, formation and refinement of critical standards, and the growth of personal identity. From this standpoint, the affective domain of learning is considered to be as important as the cognitive domain, despite the fact that affect has been often neglected in formal science education (Hodson, 1998; Wellington, 1990). Wellington (1990) has even claimed that this disregard might contribute to reduced uptake of the sciences, shortages of scientists and technologists in industry, and gender division particularly in the physical sciences.

Learning then, could be defined as the dynamic, continuing, and continuous process of transforming conscious experiences into knowledge, skills, attitudes, values, and beliefs; it is making sense of experience through time, space, and society (Jarvis, 1992).

2.1.2 Socio-cultural theory
Socio-cultural theory is a rather recent approach to research that stems directly from the application of Vygotskian ideas on language within context and the social and cultural forces that shape individual cognition and learning (Wertsch, 1985). Cognition and learning are considered to be internal processes that are socially and culturally embedded and shaped (Lave & Wenger, 1991; Rogoff, 1998; Vygotsky, 1978). From this perspective, the mind is considered as a socio-cultural and socio-historical construction (Cousin, Diaz, Flores, & Hernandez, 1995; Rogoff, 1998; Vygotsky, 1978; Wertsch, 1985). Learning occurs, according to Rogoff (1998), when young generations collaborate with older generations in different forms of interpersonal engagement. Learning and knowledge reflect then the cumulative wisdom of the culture in which they are used and the insights and experience of individuals; their meaning is the product of a negotiation within the community. Goodnow and Warton (1993) posit that the adoption and retention of particular cultural models is a matter of one’s sense of identity and group membership. Areas of knowledge, views of the world, ways of approaching problems, and styles of thought, are all linked to issues of identity and socio-cultural background. All in all, socio-cultural theory considers that learning and cognition are typically situated in a social and cultural context and are rarely, if ever decontextualised (Vygotsky, 1978; Wertsch, 1985).
Demographic and socio-cultural characteristics are commonly considered crucial in defining people's ways of learning and making sense of the surrounding world, since in any learning situation, the ways in which knowledge is gained, shared and evaluated are strongly influenced by cultural factors (Brooker, 2003; Hao & Bonstead-Bruns, 1998; Rogoff, 1990). Not only the type and quality of the instructional practices people engage in are influenced by the socio-cultural milieu, but so are individuals' ultimate learning and development; culture and the ways learning is exercised act together to determine the way people see the world (Brown, Collins, & Duguid, 1989; Cole, 1996; Hao & Bonstead-Bruns, 1998; McDaniel, 1990). Learning typically involves the ability to call up an appropriate scheme derived from experience and from the ways members of an individual's community understand the world (De Gaetano, 2007; Mercer, 1993). Thus, such reasoning schemes cannot be abstracted from culturally specific contexts. Everyday learning is generally based on types of culturally specific knowledge, meaning that context and content are inseparable in the learning process (Brown et al., 1989; Butterworth, 1993). Even when learning tasks have identical content, differences in referential cultural contexts may result in different outcomes. Knowledge is not the same for all individuals in society but is shared within delimited communities of knowers (Rogoff & Lave, 1984). However, issues of ethnicity and culture are among the least studied areas in intergenerational learning, developmental psychology, and formal and informal learning (Brooker, 2003; Gadsden & Hall, 1996; Ochoa & Sharifzadeh, 1994).

Despite the label of 'socio-cultural', the theory is not a theory of the social or the cultural aspects of human existence, but a theory of mind that recognizes the central role that social relationships and culturally created constructs play in organizing human forms of thinking and feeling in a unique manner (Lantolf, 2000; Thorne, 2005; Wertsch, 1985). A goal of research founded on socio-cultural theory is to understand the relationship between human mental functioning and cultural, historical and institutional settings (Thorne, 2005; Wertsch, 1985).

2.1.3 Situating the research
This research study is located within the intersecting perspectives of constructivism and socio-cultural theory, with a strong emphasis on the collaborative and culturally mediated nature of the learning processes.

For Glaserfeld (1992) and Lave and Wenger (1991), learning is a participatory process of self-organization and construction that takes place as the individuals interact with other
members of the community in a particular environment. According to Bredo (1997) and O’Loughlin (1992) learning is an evolutionary process that is collaborative and meaningfully related to the activities of others, thus placing emphasis on the social origin of the mind and its processes. Accordingly, learning involves a constant and reciprocal interaction between the mind, the environment, and the social situations in which it occurs (Cobb, 1994; Lave & Wenger, 1991; Roschelle, 1995; Vygotsky, 1978; Winn, 2003), and the contextual and personal aspect of thinking and acting are critical in the learning process (Cobb, 1994; Driver, Asoko, Leach, Mortimer, & Scott, 1994; Glaserfeld, 1992). Meanings are derived from the dynamic interplay between individuals and their society and are the result of a process that involves reflection upon past and present experiences, evaluation, and judgment within a social and physical context (Merriam & Heuer, 1996).

In this research then, learning is considered as both a process of individual construction based on prior experience, and a process of enculturation (Cobb, 1994; Driver et al., 1994; Merriam & Heuer, 1996) by which individuals develop a sense of identity that in Mezirow’s (1994) perspective encompasses social norms, ideologies, language, and values. Moreover, learning is deemed as an adaptive, cumulative and continuous process that takes place within a specific community of practice (Wenger, 1998). This research is framed by the notion that the personal and the socio-cultural are intrinsically interconnected, closely bound, and are mutually influenced and defined.

By placing such an emphasis on the socio-cultural and the personal context of the learner, this research focuses not just on the immediate experiences of family groups in the museum, for instance, but more broadly on the ways in which families are situated within the larger social and cultural context and the roles of such socio-cultural characteristics in shaping their individual and collective learning experiences. In taking into consideration learners’ own background, previous experiences, interests, social skills, and current understandings and acknowledging the socio-cultural nature of any learning, understanding and meaning making, constructivism and socio-cultural theory are ideal frameworks to investigate the influences of Mexican socio-cultural backgrounds in family groups’ ways of learning from science museum experiences.
2.2 Working definition of terms and concepts: Identity, Culture, Latin American, Latino, and Anglo

A central argument in this study is that researching Mexican families represents a window to better understand how members of families with Latin American socio-cultural backgrounds learn as a result of their mutual interactions. In this section, a justification of why this argument is a valid one is offered by exploring the notion of Latin American identity and discussing the socio-cultural attributes that in a way characterise and differentiate the Latin American tradition from others. As a fundamental part of this discussion, a detailed rationalization for the concepts and terms that are used throughout this thesis, such as socio-cultural identity, culture, Latin American, Latino and Anglo, is provided.

2.2.1 Socio-cultural identity

There are many different conceptions of what ‘identity’ is. The different explorations of identity demonstrate how difficult and contested this concept is. Different notions of identity use the term with different meanings and scopes. According to Larrain (2000), there are two notions of identity. In philosophy, identity refers to individual sameness or whatever makes an entity definable and recognizable, in terms of possessing a set of qualities or characteristics that distinguish it from entities of a different type. In disciplines such as psychology, anthropology, and sociology however, identity is an umbrella term used to describe an individual's comprehension of him or herself as a discrete, separate entity. In this sense, identity is constructed with a quality or conjunction of qualities with which a person or group sees themselves connected.

More specifically, a psychological identity relates to self-image, self-esteem and individuality. Gender, for instance, is a crucial component of such personal identity since this shapes how an individual views him or herself both as a person and in relation to society (Cote & Levine, 2002; Leary & Tangney, 2003). Anthropologists have most frequently employed the term identity to refer to the unique properties and individuality that make a person distinct from others (Cote & Levine, 2002), with a particular focus on ethnicity and customs. In sociology on the other hand, the notion of identity has been defined as the way that individuals label themselves as members of particular groups (e.g., nationality, social class, ethnicity, gender).

In other words, a sociological definition of the concept accounts for the many social groups or units as part of which individuals categorize or ascribe themselves, including for instance, their family unit and the larger socio-cultural milieu in which they live and develop.
For this reason, for the purpose of this study and acknowledging the deep complexity and diversity of the concept of identity, a sociological notion of the term ‘identity’ will be adopted. Accordingly, identity ought to be understood as the qualities of sameness in relation to a person’s connection to others and to a particular group of people, or as the collection of group memberships that define the individual. Identity is not a given innate essence, but a social process of construction. Such construction is possible when individuals define themselves or identify themselves with some qualities that are shared with other members of the community, and that make individuals belong to a group that can be identified by some specific features (Larrain, 2000), which Schutte (2001) refers to as identity constructs. In this definition, the role of the individual in social interaction and the social construction of identity are recognized. Identity is bound up with difference, since what constitutes an individual’s identity is also presumably what sets her apart from others (Gracia, 1999). As Larrain (2000) asserts, identity is rooted in collective contexts culturally determined. Identity then, presupposes the existence of others who have different modes of life, different values, customs and ideas.

According to this perspective, identity and socio-cultural identity are used interchangeably throughout this thesis. Identity, or socio-cultural identity, is a basic element of any individual’s personality, and is a powerful contributor to ethnic group formation, maintenance, and membership (Bernal et al., 1993). Language, for instance, is closely and affectively connected to the formation and maintenance of one’s socio-cultural identity (Baer & Schmitz, 2007). Bernal et al. (1993), Baer and Schmitz (2007) and García and de Oliveira (2006) claim that people’s socio-cultural identity is represented by the cultural belief systems in which communities are embedded, manifests in their everyday lives, their child-rearing patterns and practices, the transmission of such cultural characteristics to their children, and the ultimate patterns of learning and development (Cole, 1996; Hao & Bonstead-Bruns, 1998; McDaniel, 1990).

In itself, socio-cultural identity is merely a collective artefact that changes over time, is not static and does not rely on character or psychological traits but on meanings and accounts with which individuals can identify. It involves the customary practices and sense-making systems accumulated in people’s ancestry (Larrain, 2000; Martín, 2000). Such identity is co-created, reinforced, and strengthened by cultural and political institutions which provide, create and promote identity through traditions, ceremonies, celebrations, parades, flags, national anthems and other symbols which seek to enhance a sense of common identity.
2.2.2 Culture
Defining the concept of 'culture' is also a difficult and complex task. For instance, according to De Gaetano (2007), one of the challenges in defining the concept of culture is to avoid assigning a set of characteristics or particular traits to a group, and not acknowledging the many differences that actually exist within groups. For Vygotsky (1978) the concept of culture offers a way of linking the history of a social group, the communicative activity of its members, and the cognitive development of its children. Others, view culture as a process that is dynamic and changing (De Gaetano, 2007), and consider transmission and transformation as essential elements of the definition of 'culture' (Dekker, 2001). However, it is not the purpose of this section to give a detailed philosophical account of the many meanings and connotations that are attributed to this concept. The intent is to offer an operational definition of this term and the meanings associated with it throughout the present thesis.

In the context of this study culture is to be understood as a multi-dimensional, historical, and collective construct, which is built upon and shapes any individual's values, behaviours, preferences, traditions, feelings, and for instance, cognitive styles. Culture is a complex knowledge and symbol network that is shared amongst human societies at many different levels (e.g., gender, ethnicity, nationality, etc.). All human societies manage a dynamic cultural network for generating and transmitting knowledge, which differentiates them from other communities (Mercer, 1993; De Gaetano, 2007; Dekker, 2001).

Culture, then, is one of the determinants of identity since it encompasses constructs such as sense of self, social-norms, language, values, habits, and preferences that individuals and social groups use to distinguish where they stand in differentiation from others (Mezirow, 1994; Schutte, 2001).

2.2.3 Latin America(n)
It is not the intent of the researcher to generate or promote universal generalizations about the members of the communities described in this section, or to endorse stereotypes and distortions. The sole purpose of this and the following sub-sections is to substantiate the choice of terms and to provide the reader with a rationale for this preference.

Even though in many countries it is common to refer to the United States as 'America' and its citizens as 'Americans', this ignores the fact that America is the name for North America, Central America, South America, and the Caribbean. Latin America is part of the American continent. Some would say that geographically, Latin America is located south of the
U.S.-Mexican border. However, that would imply that Suriname or Jamaica are Latin countries and the millions of Latin Americans who live in the U.S. would be left out of the picture. Others would rather use a cultural definition of Latin America which considers language, religion, music, and cultural consciousness, and would include an important fraction of the United States in it. What is more, the francophone regions of Canada could also be considered as part of Latin America.

The term ‘Latin America’ is relatively recent. It was made popular by the French in the XVII century (Ardao, 1986). The term includes not only the region which had been first called Hispano-America\(^2\) by the Spanish (i.e., all Spanish speaking countries), but the former Portuguese colonies which also comprise what is known as Ibero-America\(^3\) (i.e., Brasil), and the former French territories (i.e., French Guiana, Quebec). For the purposes of this paper, the term ‘Latin America’ refers to the former Iberian territories which make up the Spanish speaking countries of the continent and Brasil. The use of the term ‘Latin American’, in consequence, denotes the peoples who inhabit the nations that currently compose Latin America.

2.2.4 Latino

Taking into consideration the millions of Latin Americans who actually live in the United States and Canada and the significant body of research that has been conducted in minorities with Latin American descent in these countries, it is important to briefly discuss the use of the term ‘Latino’. In keeping consistent with the inclusion of Brasil in the prior discussion on Latin America, the term ‘Latinos’ and not ‘Hispanics’ will be used in order to talk about the ever growing numbers of people with Latin American ancestry who for one reason or another currently live within the geographical demarcation of the United States and Canada.

It is worth noting that as Gracia (1999) contends, the Latino community is not representative of all Latin American communities, insofar the former is a minority community composed largely of disadvantaged and marginalised peoples. Caution is then needed when drawing conclusions from analysis based on the Latino community, since research outcomes may not apply or accurately describe other Latin American groups (Gracia, 1999).

\(^2\) The term “Hispanic” has historically denoted relation to the ancient ‘Hispania’ (‘España’, translated to English as Spain) and its peoples.

\(^3\) In reference to the Iberian Peninsula.
2.2.5 Anglo

The term ‘Anglo’ is used in this thesis to indicate a relation to England and the United Kingdom, and thus refers to people, culture and countries with former or present English influence (i.e., Australia, Canada, the United Kingdom, and the United States).

2.3 A case for Latin American socio-cultural identity

Issues of socio-cultural identity in Latin America can only be addressed by taking a glance at the history of this region. For this reason, the notion of Latin American socio-cultural identity is introduced by briefly outlining some historical elements. It is also worth noting that the presence of indigenous groups (i.e., not mestizos) is still quite strong in many Latin American countries. In an attempt to be respectful to these peoples’ culture and values, the insights regarding Latin American identity as expressed in cultural ways of making sense of the world, do not intend to speak for the indigenous Latin Americans but for the mestizos, who represent the vast majority of the region’s population.

Issues of identity in the Latin American region have been raised since the critical years of conquest and colonization (Gracia, 1999; Larrain, 2000; Zea, 1986). The process has not been spontaneous, since exclusion and imposition were the rule in the early days of colonization. Suffice to take the Spanish language and Catholicism as examples of imposed elements that are now at the core of the regional uniqueness. In Latin American countries, there has existed a consciousness of regional identity articulated with national identities due to a shared history of three centuries of Spanish domination, independence wars led by ‘criollos’ (descended from the Spanish conquerors), shared language and religion, and shared accounts of subsequent imperialist dominations which continue until present times (Gracia, 1999; Larrain, 2000; Oddone, 1986; Zea, 1986).

However, the notion of a collective regional identity is strongly contested. Some authors claim that the Latin American sense of shared or common identity has been imposed from the outside (Gracia, 1999; Larrain, 2000; Oddone, 1986; Zea, 1986), whereas many local thinkers and revolutionaries (e.g., Simón Bolívar, José Martí, José Vasconcelos) have dreamed of a united continent and favour a collective identity. Others question the existence of a Latin American identity altogether, arguing that diversity is so prevalent amongst and within nations that it seems practically impossible to speak to a common socio-cultural matrix.

It is true that most Latin American societies are not culturally unified and despite some central forms of integration, which certainly exist, cultural differences are still very important
within and across nations. Because of the original and persistent cultural heterogeneity, it can be said that in most Latin American countries the state has had to play a crucial role in the construction, maintenance and reformation of national identities and unities (Larrain, 2000; Oddone, 1986). Museums, for instance, were first developed in the Latin American region as a governmental strategy to promote a national identity after the independence from the Spanish crown (Herrero-Uribe, 2000).

However, regardless of the rich and vast diversity that undoubtedly exists in the region known as Latin America, and of the crucial roles that external impositions and discourses have played in the history and consolidation of the current Latin American nations, it could be argued that it is fair to speak about a common and shared identity. It is acknowledged though, that there are not characteristics that can be shown to be common to all Latin Americans at all times and in all places. Gracia (1999) claims that Latin Americans and Latinos constitute a community united by historical events, and that in every time and every place, Latin Americans and Latinos have properties that tie them together among themselves and distinguish them from other groups. Latin Americans and Latinos are a historical family, according to Gracia (1999). From the original encounter between the Hispanic culture and the Indian cultures, a pattern emerged, a shared identity that differentiates these ethnic groups from others.

2.3.1 Shared history, shared traits
Acknowledging the multiplicity, richness, and uniqueness of the Latin American peoples, the goal of this section is only to pinpoint some of the many cultural commonalities that account for a shared identity, values and traditions amongst the multiple Latin American communities. It can be said that the Latin American socio-cultural identity is very much marked by the presence and collapse of an original culture, a sense of catastrophe, public display of emotions, and an ambiguous relation to the Hispanic descent (Gracia, 1999; Larrain, 2000; Stavans, 2001). Such heritage is characterised by a historical coexistence of different civilizations and different pasts (Paz, 2001).

To varying extents, depending on the region, all Latin Americans are the result or the product of the fusion of European, indigenous and African ethnic groups. Latin Americans are ‘mestizos’ resulting from a mix of ethnic groups, this culture is a blend of cultures (Gracia, 1999; Oddone, 1986; Pietri, 1981; Schutte, 2001; Stavans, 2001; Zea, 1986). Language, architecture, literature, food, music, religion, dress, every aspect of life is the result of that merge of cultures. In fact, the impacts of that intermingling were not only significant for
America, but for Europe and the rest of the world as well. Latin America’s present, Schutte (2001) claims, is a hybrid reality in which the global, the national, the colonial and the pre-Columbian coexist. Vasconcelos (1997) in his classic piece ‘La raza cósmica’ [The cosmic race], advocates that the values and newness resulting from such mestizaje differentiate and empower Latin Americans as a novel and unique race. Some peoples (e.g., Bolivians, Ecuadorians, Mexicans, Peruvians) are strongly attached to an old and powerful cultural tradition. The Spanish tongue unites all nations and communities and allows for a unique dialogue, an instant connection and recognition. In fact, Latinos are amazingly loyal to their mother tongue; Spanish remains as a unifying force, used in every sphere in Latinos’ lives, regardless of linguistic disparities between groups of different nationalities (Romero de Terreros, 2004; Stavans, 2001).

Latin Americans have been described by many as idealists, collectivists, emotional, baroque, and as people who worship ornamentation in their ways of talking, interacting, writing, designing cities and so on. Many thinkers (e.g., Murena, Ortega y Gasset, Paz) have noted that in the Latin American culture: a) the emotional prevails over the rational and sentiments are highly valued; b) there is a tendency to imitation and a tendency not to tell things upfront; c) contradictory personalities with weak determination are ubiquitous. Octavio Paz’s classic ‘El laberinto de la soledad’ [The Labyrinth of Solitude] (1993) describes the character of Mexicans in ways which can be applied to the rest of Latin America. According to Paz, the Mexican is in search of his origins while in constant sense of abandonment and displacement; in so doing the Mexican finds himself trapped in a maze of nostalgia and introspection.

The Latin American identity encompasses a passionate and continuous search for roots (Paz, 1993; Paz, 2001; Stavans, 2001; Zea, 1986). Latin Americans are still struggling for independence and to find what makes them unique and different (Paz, 1993; Stavans, 2001). At the same time, Latin Americans are inhabited by a sense of noticeable pride, which they take wherever they go (Larrain, 2002; Stavans, 2001, Zea, 1986). Latin Americans enjoy life, resist changes and praise order, unity, collectivity, permanence and traditions (Paz, 2001; Stavans, 2001). Latin American people, according to Stavans (2001) appeal to “traditional moral values”

---

4 Consider food, for instance: Spanish introduced Europe to American native potatoes, tomatoes, beans, cacao and corn. Consider dress: Cotton was also taken from America and introduced to Europe by the conquerors.
5 Essay originally published in 1925.
6 Literary piece originally published in 1950.
which emphasise a strong respect for authority and order, the traditional family and the national heritage.

A marked regard for the authority figure also characterises the Latin American culture, according to Larrain (2000) and Stavans (2001). This trend persists in the political field, in the administration of public and private organizations, and in family life, and grants strong importance to the role of authority (e.g., parents, teachers). Larrain (2000) further asserts that authoritarianism characterizes the Latin American culture, in contrast to more tolerant or relaxed traditions.

All in all, the Latin American identity contrasts with Anglo ways which are considered to generally thrive on risk, change and diversity; to accept disorder and improvisation; to reject regularities and centralist control; to value and encourage individuality, personal initiative and self-sufficiency; and to further isolation and exclusion (Larrain, 2000; Paz, 2001).

The previously cited cultural features should not be essentialised or utilised to demarcate stereotyping definitions, but as reference for analysis and discussion. These traits are the result of history and can change, be modified, vanish or simply not be applicable to particular communities or individuals.

2.3.2 The Latin American notion of ‘family’

‘The Latin American family’ is difficult to discuss because so many kinds exist. Many designs for gender roles, parenting, sibling relations, generational esteem and family networking actually exist in the diverse populations that currently constitute Latin America. Therefore, as elsewhere, generalisations about family life may challenge individual specifics. However, it can be said that in general, no other institution in Latin America touches daily life as thoroughly as family; not school, occupation, politics, or religion. The legacy of kinship is still central to Latin American life (García & de Oliveira, 2006). Families provide loyalty, contacts, comfort, physical and emotional protection, welfare and a goal. The family further confers individual identity. Prestige and support are earned when one’s failings and weaknesses, challenges and accomplishments, are shared with family members. An individual is family and family makes the individual. In Latin America, an individual without family is considered an incomplete person (Hansis, 1997). Children inherit their families’ relative social status and their families’ ethnic backgrounds. However, more than rank and ethnicity, the family bestows a complex network of social relations and kin, since families in Latin America are more than blood relatives: families include trusted friends and associates.
In fact, ‘familismo’ or the cultural phenomenon characterized by positive interpersonal family relationships, high family unity, social support and interdependence, has been widely recognised as one of the most salient and culture-specific values of Latin Americans and Latinos (Coohey, 2001; Marin, 1993; Romero et al., 2004). This cultural value describes a strong identification and attachment individuals have with their nuclear and extended families, and strong feelings of loyalty, reciprocity, helpfulness, cohesion, caring, and solidarity among family members. According to Marin (1993), the importance of this value is crucial in explaining the relatively “trouble-free” adaptation of Latin American immigrants to the U.S.

Latin American families usually grant dual membership: in an immediate marital group and in an extended network, usually large in numbers (Hansis, 1997). Usually husband, wife, and children live together as a unit, but each marital unit relates closely to the larger network of an extended family. The extended family includes all blood relatives and many persons recruited through marriage, godparenting (‘compadres’) and friendship. The extended family serves as a huge and connecting umbrella protecting and uniting its many marital groups (Hansis, 1997; Marin, 1993).

Support and warmth characterise both marital immediate and extended families. Children circulate among aunts, uncles, cousins, grandparents, and godparents. The idea of elderly family members living alone or being sent to a retirement home is quiet foreign to Latin Americans, where the old cherish the young and youngsters still generally respect the elderly. All in all, Latin American families participate in extensive interactions with their relatives and tend to depend a lot on family members for aid, rather than on other institutions (Marin, 1993). In fact respeto is highly cherished amongst Latin American families (Valdés, 1996). The maintenance of harmonious interpersonal relationships through appreciation and recognition for self and others is seminal in all societal interactions.

For Latin Americans, dignity means education, a sense of order. The Latin American conceptualization of educación embodies the family’s role of inculcating in children a sense of moral, social, and personal responsibility and serves as the foundation for all other learning, including the academic-related development (Lagndon & Novak, 1998; Valenzuela, 1999). Among Latin American cultures, “educación” centers within the family. The family is considered primarily responsible for the “educación” of the children, and this education is about much more than cognitive skills and knowledge acquisition, it also includes values and morals. To be viewed as ‘mal educado’ is to be considered rude, possessing no manners and missing the qualities reflective of high morals (e.g., honesty, politeness, respectfulness, and
responsibility). Any lack of education resides directly within the family with whom the responsibility for “educación” lies (Valdés, 1996).

Latin American families and homes are designed for strength and privacy. The home is typically a refuge, a secure inner world for its members (Hansis, 1997). The attitude towards family and friends within a Latin American household is typically ‘mi casa es su casa’ (my home is your home). In many cases, the home permeates the outer world. However, family stability and security are challenged in Latin America by diverse factors. Hansis (1997) asserts that poverty and migration are amongst the most threatening elements.

The maternal figure evokes fascination and respect in all aspects of social life. As Hansis (1997) posits, the greatest irony in Latin America is that men dominate virtually all institutions except the most significant: the home. With men frequently busy in outer-family business, homes are virtually women-centered. Women manage the household regardless of socio-economic class (Garcia & de Oliveira, 2006). Even though traditional gender roles have been shifting in the last decade, it could be argued that women-centered households are still common and that parenthood falls to women, too. However, social change is progressing rapidly due to agents such as technologies, new goods and services, mass media, education, female employment, growing individualism, mass migrations, etc. Historic definitions of roles for males and females are being revised.

Childhood typically involves both cherished affection and immense responsibility. When protected by a strong and stable family, children are not only loved but usually respected. According to Hansis (1997), adults renew the spontaneity and joy of discovery through children, and in the process children are encouraged to inquire and create. Youngsters are usually very social and assume family responsibilities. Gender roles are commonly promoted from the early years of a child’s life. Physical emotional support is common throughout childhood. Children are normally embraced, bounced on knees, playfully teased, and are the recipients of a lot of affection by the immediate and extended family members. Families frequently display some kind of contact in public spaces. Poor rural children are often considered as economic assets, since early in life both boys and girls, assume immense economic and within-home responsibilities.

### 2.4 Parent-child interactions, culture and learning

The study of cognitive development in children has moved through various identifiable phases in recent years. First, there was a shift from a focus on intellectual processes within the
individual child, as in Piaget's classic research, to an interest on social cognition (Vygotsky, 1978). This shift emphasized that mind processes and cognitive growth are not only located within the individual, but are socially situated. However, contextual factors were for the most part seen only as moderators of cognitive growth. More recently, the crucial link between the context and cognition has been emphasized, thus reuniting the physical setting with the social milieu. Currently, it is further accepted that culture plays a central role in people's cognitive development and learning, and the separation between what is learned from how it is learned and used is challenged (Brown et al., 1989; Butterworth, 1993; Mercer, 1993; Ostrosky et al., 2006; Wachs, 1990). In particular, the significance of children's experiences within the cultural environments of the home, and the form and content of parent-child interactions has been recognized.

Analysing and discussing the particularities of parent-child interactions from a socio-cultural perspective is relevant if we consider the everyday quality of learning and understanding. Learning opportunities arise then from ordinary settings and situations in which children's social interaction and behaviour occur (Dunst et al., 1991). Learning, as Brown et al. (1989) argue, takes place and results from action in the particular culturally-defined situations from which physical problems and social encounters derive. Activity, concept and culture are interdependent and learning involves all three. From a situated cognition perspective, learners begin to understand the physical world and their social environment partly as a result of their diverse everyday experiences, or authentic activities, where social negotiation is involved. Intuitive knowledge is constructed from daily encounters with the natural and social worlds. Everyday knowledge is based on observation and experiment and has an adaptive value (Butterworth, 1993), it promotes the acquisition of competencies that are culturally rooted, functional, and make possible child participation in everyday family and community activities (Cole, 1996; Dunst et al., 1991; Goncu, 1999; Ostrosky et al., 2006; Lave & Wenger, 1991; Rogoff, Mistry, Goncu, & Mosier, 1993). Parent-child interactions are thus crucial in the cognitive development of individuals, since they affect what and how individuals learn.

Parenting practices or styles shape the lives of children at different developmental levels (Cervantes & Perez-Granados, 2002; Christenson, 1995; Epstein & Harold, 1991; Figueroa-Moseley, Ramey, Keltner, & Lanzi, 2006; Hao & Bonstead-Bruns, 1998; Ostrosky et al., 2006; Parker, Boak, Griffin, Ripple, & Peay, 1999; Scribner, Young, & Pedroza, 1999). Often

---

7 Authentic activities are defined by Brown et al. (1989) as the ordinary practices of any given culture (i.e., not related to formal classroom instruction).
embedded in a complex social network, parent-child interactions are rarely isolated from their familial and cultural context, and could be better described as a cluttered and complex social relationship than as a neat dyadic interaction. Dekker (2001) contends that parental intervention is important in aspects such as education, discipline, responsibility, organization, and ways of interacting with authority figures, whereas Figueroa-Moseley et al. (2006) argue that warm and positive parental interactions are positively correlated to children’s social, linguistic, and cognitive outcomes. Children’s emotional competence develops as a result of family interactions (Cervantes, 2002), and family experiences and interactions can influence vocabulary growth rate, vocabulary use, and IQ in young children (Hart & Risley, 1995).

2.4.1 The family as learning environment

A major function of the family is to support learning among its members (Bobbitt & Paolucci, 1975; Crowley et al., 2001; Schibeci, 1989). In fact, learning within the family environment is crucial to an individual’s educational experience (Bobbitt & Paolucci, 1975; Crowley et al., 2001; Ellenbogen et al., 2004; Schibeci, 1989; Stehlik, 2003). This process involves the joint construction of meanings (Merriam & Heuer, 1996; Steiner, 1997). The family is amongst the learning environments that are not always associated with formal education strategies, structures, or techniques. The family is associated with informal, self-directed, and incidental learning concerning both children and adults, even though families often engage in school-related activities.

Children experience a whole world of learning before they encounter formal schooling: they walk, talk, comprehend, and communicate with others (Stehlik, 2003). What the young child learns about the world, is learned from their significant kinship relations. The family is the basic unit of socialization where individuals learn the language, rules, morals, styles, customs, and ways of the society into which they are born (Kane, 1987). For instance, cultural learning begins at birth, is mostly non-verbal, and is largely unconscious for both children and adults (Khoshkhesal, 1995).

Research on socio-cognitive conflict has shown that social interactions can enhance cognitive progress in children, and that children learn by comparing and sharing their own view with the views of other people (Biggs & Telfer, 1987; Khoshkhesal, 1995). The family offers a context for continuing interaction, exchange and problem-solving. It has been asserted that for children social approval is necessary in order to accommodate contradictory views (Biggs & Telfer, 1987; Khoshkhesal, 1995). However, Hatch (1990) points out that when a child is
engaged in problem-solving with an adult, the consensus process can be challenged by the adult's perceived superior status as a knowledgeable person. Whether or not the adult individual experiences a cognitive conflict as a result of this type of child-adult interaction, or how this could impact adult learning, has started to be explored (Ellenbogen, Cohn, Anderson & Thomas, 2009).

2.4.2 The family and the perpetuation of socio-cultural identity

Several authors, amongst them Bronfenbrenner (1979), have discussed the influence of social ecology on family interactions, arguing that the interplay of environmental forces affects the socialization process of parents and children. The social ecology is determined by three sets of primary variables which, according to Knight, Bernal, Garza and Cota (1993), are more likely to function together rather than independently: the family background (e.g., ethnicity, family history, identity), the family structure (e.g., strength of familial interdependence, pattern of relationships within the family, family size), and the socio-cultural environment. It is to be expected thus, that differences in socio-cultural background lead to differences in socialization practices at the child-rearing level. At the same time, parental resources and the quality of the parent-child relationships affect, amongst other developmental issues, the salient influence of the family in the consolidation of socio-cultural identity (Baer & Schmitz, 2007; De Gaetano, 2007).

The home is the primary source of culture; according to Brooker (2003), each child experiences a unique home pedagogy and curriculum, which derives from his/her family's cultural practices. Parents, as the principal transmitters of culture, are a critical element in their children's learning. Their views and concepts of childhood, intelligence, instruction, and so forth influence their children's development though the implementation of specific day-to-day child-rearing patterns, practices, and decisions.

According to Baer and Schmitz (2007), Dekker (2001), García and de Oliveira (2006), Hurtado, Rodriguez, Gurin and Beals (1993), and Knight, Bernal, Garza and Cota (1993), one of the most significant functions of socialization is passing on and contributing to the maintenance of cultural systems. They posit that the ways in which developing individuals incorporate the culture transmitted to them through their family (i.e., parents, siblings, extended family) and other non-familial agents (i.e., teachers, peers, neighbours, the media) will have a direct impact on the social identities that compose their self-concept. Thus, socialization
involves the acquisition of particular socio-cultural and psychological traits as a result of coaching and guidance within a specific socio-cultural milieu.

Families in particular, pass on socio-cultural characteristics to their children generation after generation; the persistence of such traits in newer generations is highly dependent on the effectiveness of this transmission process. Children of all cultures experience enculturation since they all undergo the normative socialization experiences of their culture. Such enculturating experiences lead to the development of living skills, behavioural competencies, and values, as well as to a cultural identity. Different types of family relationships provide specific types of socialization experiences, and may also lead parents to strive for specific socialization outcomes.

2.5 A cross-cultural approach to research on parent-child interactions

Latino families share a common language, religion, ideas concerning family, and a common socio-cultural ancestry (Figueroa-Moseley et al., 2006). However, far from being homogeneous, the Latino population represents a heterogeneous group in terms of racial composition, socio-economic status, historical origins, cultural practices, and regions of settlement. Variability in parenting models may not only be a function of cultural differences, but can also be linked to socio-economic factors. It is not intended to portray Latin American and Latino families in a universal manner in this section. Variations in parenting and parent-child interactions are to be expected across Latin American and Latino peoples, given the multiplicity, richness and uniqueness that differentiate these groups. Rather, the aim of this section is to pin down some key points that can be associated to many families with Latin American socio-cultural backgrounds.

2.5.1 Research on Latin American parent-child interactions: A historical account

Halgunseth, Ispa and Rudy (2006) report that since the 1990s there has been a marked increase in the number of empirical studies on Latino parenting. Nonetheless, research on parent-child interactions and intra-familial dynamics in the Latin American context seems to be somewhat limited. García and de Oliveira (2006) claim that until the 1970s, family research in the Latin American context dealt mainly with issues related to traditional gender roles and their contribution to the overall family economy. Research rested largely on the notion that women performed home and children related chores, while men developed professionally in the job market. In the same decade census and survey data became available in Latin America (García
& de Oliveira, 2006); however, most socio-demographic data was then provided by women. It was in the late 70s and early 80s that opinion surveys were carried out with both women and men, thus providing researchers with information on people’s perspectives and values associated with family matters. All in all, research involving fathers is fairly recent in Latin America (García & de Oliveira, 2006).

According to García and de Oliveira (2006), Latin American research in the 1980’s was characterized by the investigation of intra-familial power relations. This wave of research shed new light on the understanding of the wide diversity of familial structures and dynamics in Latin America, and further increased the interest in exploring the nature of the social interactions within the family core (García & de Oliveira, 2006). However, up until now, family research in Latin America is highly marked by a focus on labor division, domestic task distribution, and gender roles and power relations (e.g., decision making, forms of control, and intra-familial violence) (García & de Oliveira, 2006). Specialists agree that family members’ roles are continuously changing, and that the increasing participation of males in domestic and child rearing tasks as well as the prevalent and ever growing involvement of females in the economic, political and academic spheres will promote further research on parental duties and parent-child interactions (García & de Oliveira, 2006). Nevertheless, literature of this kind is not yet widespread. What can be argued is that Latin American families are diverse in structure and interpersonal relationships.

Given the state of the art in Latin American research on intra-familial interactions, it is worth noting that much of the cited literature on parenting and child-rearing styles comes from research conducted in the U.S. with Latino groups, particularly, from studies of Mexican American families. It is also important to acknowledge that a major fraction of the Mexican families that currently live in the U.S. have roots in rural environments. This distinction is significant because there are demographic, social and cultural differences between the current rural and urban Mexican populations. In other words, the studies that will be discussed below address cultural groups who live out of their original cultural environments, and may not be representative of the Mexican society as a whole.

2.5.2 The Latin American/Latino parent-child relations
Ethnographic approaches have elucidated to some extent, the way in which Latino parents perceive their role in their children’s education. It has been stressed how much Latino parents care about their children’s school education (e.g., Langdon & Novak, 1998; Lopez, 2001;
Shannon, 1996), and it has also been concluded that Latino parents view their involvement in children’s education not only as a means to improving academic achievement, as most Anglo parents do, but as a means of supporting the total wellbeing of children, and transmitting socio-cultural values (Lopez, 2001).

Not only is the perception of the role of parents culturally grounded, so is their perception of the role of teachers. According to Langdon and Novak (1998), Latin American and Latino parents are likely to place teachers and school staff in high regard, and to share the notion that “teachers are their children’s parents” during school time. They are also prone to expect teachers to reinforce discipline. Also, according to Chavkin and Gonzalez (1995) Latin American and Latino parents tend to see a sharp boundary between the role of the school and the role of parents. While the role of parents is to provide nurturance and to teach morals, respect and good behaviour, the role of the school is to instill knowledge (Chavkin & Gonzalez, 1995; Scribner et al., 1999; Tinkler, 2002; Valenzuela, 1999). In the Latin American culture, teachers are highly respected and interference from parents could be considered as rude and disrespectful, and at the same time, parents often feel intimidated by the authority figure of a teacher (Chavkin & Gonzalez, 1995).

It has been reported that in contrast to Anglo parents, Mexican parents consider social skills and motivation as equally or even more important for children’s school readiness as cognitive skills (Halgunseth et al., 2006). Still, Tenenbaum et al.’s (2002) study with Mexican-descent Latino parents across differing educational backgrounds shows that they actually encourage their children’s developing understanding of the world through explanations and conversations. These authors also found that Mexican-descent mothers value children’s inquiries and critical thinking around school-related topics. Furthermore, Moreno (2002) and Langdon and Novak (1998) claim that Latino parents make use of unique and effective teaching strategies to instruct their preschool-age children in everyday activities.

Researchers in the U.S. concur that Mexican American families generally contain a large number of children. It has to be noted however, that in general terms, rural Mexican families tend to actually be large in size, whereas in the urban context this trend is not so prevalent. Overall, a relatively large family size may influence parental socialization goals in a number of ways. For instance, in large families it is common that children assume some responsibilities, such as caring for younger siblings. Also, large families require strategies for conflict regulation and resolution, and for resource allocation. Commonly, children are socialized to share among each other. Yet, Latinos tend to report higher levels of family
cohesion than Anglos (Halgunseth et al., 2006). Knight et al. (1993) further concur that amongst Mexican American families, strong mother-child bonds are frequent, and that Mexican American children more often avoid conflict with their mothers than do Anglo children. What is more, Mexican American mothers are considered by their children to be the more important role model through adolescence, in contrast to Anglo teens’ views (Knight et al., 1993).

Figueroa-Moseley et al. (2006) report that overall, Latino parents show high levels of nurturing behaviours with their children and they are often very permissive and indulgent with their young children. However, according to Halgunseth et al. (2006), Latino parents of older children are more likely to engage in unilateral decision making, to have more rules (particularly regarding out-of-home behaviour) and to exhibit greater harshness than Anglo parents. Amongst Latino parents, the approach toward the young is to soothe them, not to push them toward certain developmental and achievement milestones that are often highly valued in Anglo families (Figueroa-Moseley et al., 2006). Consequently, Latino children are frequently viewed by some Anglo researchers as reared to listen and observe rather than to speak up (e.g., Lagndon & Novak, 1998).

Parent-child interactions in Latino families have been described as encompassing a higher occurrence of physical contact when compared with Anglo families. Carlson and Harwood (2003) assert that Mexican and Puerto Rican American mothers provide more physical guidance during feeding, play, and teaching interactions with their infants and toddlers than do Anglo mothers. Also, Cuban American and Puerto Rican mothers are more likely to respond to infant distress with cuddling than Anglo mothers. Overall, research has shown a positive link between physical guidance and children’s well-being in Latino families. Bronstein (1994) reports that warm, supportive parent behaviour is positively related to assertive child behaviour. On the other hand, restrictive, directing and controlling behaviours such as giving orders, setting limits and directive teaching strategies have been positively related to negative child outcomes in Latino families, such as inattentiveness, passive resistance, and task disengagement (Bronstein, 1994).

Furthermore, according to Halgunseth et al.’s (2006) review, Latino parents are more protective and monitor their children more frequently than non-Latino parents, meaning that they recurrently promote their children’s safety and their ability to care for themselves, tend to limit their children’s exposure to negative influences and are commonly aware of their children’s whereabouts and behaviours. Also, Latino parents are likely to implement more rules
than Anglo parents (Halgunseth et al., 2006), thus reflecting the hierarchical family relationship in which the parent has ultimate authority to restrict or place limits on the children.

Emotional competence is closely related to the socio-cultural context in which people develop and interact (Cervantes, 2002). According to Cervantes (2002) emotion regulation is considered part of emotional competence in mainstream Anglo social contexts, whereas open verbalization of emotions is considered a competence in many non-Anglo contexts, such as Latin American communities. Mexican American mothers are more likely to express and engage in ‘emotion talk’ with their children, than either Anglo or Japanese American mothers (Cervantes, 2002; Tenenbaum et al., 2002). Such emotion talk, Cervantes (2002) argues, tends to confirm some gender patterns, has a distinctive interpersonal focus, and often involves the provision of nurturing advice about the social world, promotes empathy, awareness of familial expectations, and critical thinking about the social surroundings. In this regard, Zayas and Solari (1994) contend that Mexican families value and promote a strong commitment to family members’ connectedness and wellbeing through emphasising children’s expression of affection, honour and deference to adult authority figures, and the observation of proper conduct in social interactions.

Differences in parenting practices across cultural groups also occur at the level of involvement and presence of adults other than the parents in family life and child education. In some societies, the extended family plays an essential role in children’s education and enculturation. There is some empirical evidence regarding extended and nuclear family integration among Latino families. Studies have found that Latinos are more likely than Anglos to live with extended kin and to live near them (Sarkisian, Gerena & Gerstel, 2006). Knight et al. (1993) and Sarkisian et al. (2006), report that in the Latino family, compared to the Anglo family, there were closer relations and greater loyalty among members, more frequent visitation of relatives, increased assistance to extended kin, parental encouragement of family-centered orientations in their children, less freedom for children to play away from home, and greater disapproval for children contradicting authority. These observations suggest that it is likely that strong family ties reinforce frequent contact with family members and less social contact with non-familial persons, and also strengthen the type of socialization children receive. In the case of minority groups living in the U.S., this involves speaking Spanish, eating traditional foods in the home, and adhering to the traditional values of the family.

A summary of the outcomes of the research reviewed in this section is presented in Table 2.1.
Table 2.1 Summary of attributes and values associated with families from Latin American and Latino socio-cultural backgrounds

<table>
<thead>
<tr>
<th>Attribute/Value</th>
<th>Latin American/Latino families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s participation in family life</td>
<td>Common (e.g., caring for younger siblings, domestic duties)</td>
</tr>
<tr>
<td>Emotional competence</td>
<td>Open verbalization of emotions valued</td>
</tr>
<tr>
<td>Extended family</td>
<td>Highly involved in family life. Likely to live together/near</td>
</tr>
<tr>
<td>Family cohesion</td>
<td>High</td>
</tr>
<tr>
<td>Family size</td>
<td>Generally larger</td>
</tr>
<tr>
<td>Interactions</td>
<td>Physical interactions prevalent</td>
</tr>
<tr>
<td>Mother-child bonds</td>
<td>Stronger, less conflictive</td>
</tr>
<tr>
<td>Parental approach</td>
<td>Nurturing, permissive, indulgent with the younger children, authoritarian with older. More protective and with more rules</td>
</tr>
<tr>
<td>Perception of authority figures (e.g., teachers)</td>
<td>High respect, sharp boundaries</td>
</tr>
<tr>
<td>Perception of parental role</td>
<td>Support for children’s academic achievement, social and emotional skills, perpetuation of identity and values</td>
</tr>
<tr>
<td>Socialization focus</td>
<td>Sharing, empathy promoted</td>
</tr>
</tbody>
</table>

Source: Bronstein (1994); Carlson and Harwood (2003); Chavkin and Gonzalez (1995); Cervantes (2002); Figueroa-Moseley et al. (2006); Halgunseth et al. (2006); Knight et al. (1993); Langdon and Novak (1998); Lopez (2001); Moreno (2002); Scribner et al. (1999); Tenenbaum et al. (2002); Tinkler (2002); Valenzuela (1999); Zayas and Solari (1994).

2.6 Learning in informal environments

Since the middle of the 1990’s, special attention has been paid to the cognitive, affective, and social aspects of learning experiences of visitors to informal environments (Rennie & McClafferty, 1996), and many researchers have adopted a social constructivist definition of learning. According to Falk et al. (1986) and Wellington (1990), informal learning environments offer complex experiences that are typified by one or more of the following characteristics: voluntary and free-choice (attendance and goals are defined by visitors); haphazard and unstructured; open-ended; learner-led and learner-centred; multi-outcome; and non-evaluative and non-competitive. Museum experiences are fundamentally social experiences for which interactions are fundamental. What is more, according to Wellington (1990) and Gerber et al. (2001), enjoyable informal experiences contain the same fundamental elements that may be present in effective formal learning situations, such as cognitive challenges, social interaction, enthusiasm, and excitement. Rennie and Johnston (2004) stress that for a learning experience to take place mental, physical, or social engagement on the part
of the learner is required. Museums and similar settings are places where such events constantly occur.

Falk and Dierking's (2000) Contextual Model of Learning represents a sound representation of the elements that are in play during an individual's museum visit. According to this model, learning is seen as an adaptive process that involves three overlapping contexts within which the learning outcomes develop: the personal, the socio-cultural, and the physical. A fourth dimension for this model is time, since learning occurs throughout the learner's life.

2.6.1 The personal context
Many authors have acknowledged the importance of visitors' prior knowledge and alternative conceptions, and the idiosyncratic nature of the construction of meanings from experiences at informal settings (Anderson, Piscitelli, Weier, & Everett, in press; Falk & Dierking, 2000). References and meanings associated with the exhibit content may originate not only from the experiences with the exhibits themselves, but also from visitors' previous experience, emotions, memories, and personal lives (Anderson, Piscitelli, Weier, Everett, & Tayler, 2002; Boggs, 1977; Csikszentmihalyi & Hermanson, 1995; Doering & Pekarik, 1996; Ellenbogen et al., 2004; Falk & Adelman; 2003; Falk & Dierking, 2000; Rennie & Johnston, 2004).

Furthermore, it is currently accepted that choosing to visit a museum or a similar setting is a focused, intrinsically motivated act, and that such experiences facilitate some degree of learning in visitors, although this learning is typically highly personal and unique (Rennie & Johnston, 2004). Researchers agree that informal settings support rich and consistent learning that allows individuals to construct personal meanings about the world (Falk & Dierking, 2000; McManus, 1993; Rennie & Johnston, 2004).

2.6.2 The social context
The social context refers to the interactions as well as the social and cultural features associated with the learning experience. The collective experience has been further considered as critical in visitors' learning (Anderson, 2003; Blud, 1990; Dierking & Falk, 1994; McManus, 1994; Packer & Ballantyne, 2005). The social context permeates the communicative situation in the museum since both group composition and quality of social interaction within groups affect the way in which visitors take information from the exhibit and negotiate meanings. Social group structure affects the ways in which people work to make meanings (McManus, 1988). It has been established that even for solitary visitors, watching and listening to others is a social
activity that mediates the visit experience (Rennie & Johnston, 2004), and Blud (1990) affirms that the interaction between visitors may be as important as the interactions between the visitor and the exhibits. Furthermore, according to Schauble et al. (2002) "social interaction and cultural symbols are crucial for the adaptation and appropriation of knowledge, values and expressions" (p. 425).

Also, it has been stressed that during a museum visit, learners adapt to the actions of others in the course of ongoing negotiation (Cobb, 1994), and that museum visitors engage in a constant and dynamic process of negotiation that encompasses the logistic, educational, and emotional aspects of the visit. In this social activity, individuals function already with shared understandings and on the basis of prior experiences and knowledge (Borun et al., 1996; Cobb, 1994; Dierking & Falk, 1994; Gerber et al., 2001; Ramey-Gassert, 1994).

2.6.3 The physical context

The physical context comprises the physical aspects of the environment of the museum visit, including the architectural features, exhibition layout, the exhibits, labels and so on. It has been established that effective orientation within the museum facilities is directly linked to higher levels of learning (Balling, Falk, & Aronson, 1992). Maxwell and Evans (2002), on the other hand, found that learning is enhanced in quieter, smaller, better-differentiated spaces.

Leont'ev (1981) argues that thought develops from practical, object-oriented activity or labour, and Vygotsky (1978) wrote extensively on the notion that tools could enrich and broaden both the scope of the activity and the thoughts of the learner. Experiences in informal learning contexts have the potential to scaffold visitors in the development of manipulative skills, manual dexterity, hand-to-eye coordination, and so forth (Wellington, 1990). For instance, interactive museums foster learners' active participation through the interaction with objects through observation and direct manipulation (Hein, 1998).

2.6.4 Time

Recently, it has been stressed that the learning that results from a museum experience, does change over time, and not necessarily diminishes but rather increases in sophistication with other life experiences (Adelman, Falk, & James, 2000; Anderson et al., 2007; Briseño-Garzón, in press; Medved, 1998). It has been further concluded that long-term outcomes are frequently unpredictable from short-term outcomes. Thus, in order to understand visitors' learning outcomes from a museum visit, Falk (2007) claims that we need to understand visitors across
three time periods: visitor pre-museum phase; visitor in-museum experiences; and visitor post-museum phase, in particular the types of reinforcing experiences visitors have such as post visit conversations and other related activities.

2.7 Family learning in informal environments: An Anglo perspective of the field

Contemporary perspectives and theories on what and how people learn in and from formal and informal experiences are largely based on research conducted in the Anglo context. Educators, philosophers, sociologists, anthropologists, and other researchers whose work has been seminal for the development of our current understandings of the learning process, have mainly grounded their insights in Western-European and U.S. experiences, observations and socio-cultural perceptions. The field of family learning in informal settings has not been the exception. Most of what we know about families’ learning experiences in informal environments derives from Anglo perspectives and research conducted in Anglo institutions with Anglo participants. In this following section an overview of the field of family learning in informal environments grounded on such tradition is provided, followed by a discussion on alternative perspectives on the field.

It has been established that more than half of all visitors to museums and other informal venues are family groups (Blud, 1990; Diamond, 1986; Dierking & Falk, 1994; Ellenbogen et al., 2007; Falk, 1998; McManus, 1987). Most of the studies conducted in the field of family groups in museum settings define a family group as an intergenerational social group containing at least one child and one adult, although families can vary enormously in structure and size. According to McManus (1994), families behave in consistently different ways compared with other museum visitors. For instance, Sandifer’s (1997) observations of 47 visitors at the Reuben Fleet Science Center indicate that families spend more time than non-family groups in individual exhibitions and in the venue as a whole. Such observations concur with McManus’s (1988) conclusion that family groups are the audience that interacts with exhibits for the longest time. Daignault’s (2003) research with 115 families at Musée de la Civilisation à Québec also shows that family groups are the visitor demographic who stay longer at museums, participate more in workshops and shows, and spend more time in the gift shops. All these activities, she claims, contribute to a pleasant and positive experience.

Borun (2002) claims that each family brings its unique culture, shared knowledge, values, experiences, and expectations to the museum. In particular, families bring a rich background of prior knowledge and experience to their visits (Borun et al., 1996; Ellenbogen et
The museum in turn, enriches the family's culture through multiple learning experiences. An informal setting can be seen as an attractive destination for a family outing, since it is usually perceived as an easy, relaxing environment for social activity within the family (McManus, 1994). What is more, several authors suggest that when compared with traditional exhibits, interactive exhibits have a greater potential to attract and retain family groups (Adams & Moussouri, 2002; Daignault, 2003; Hilke & Balling, 1985).

Families in the Anglo context, go to museums with multiple goals. They value highly the social aspect of the experience, they seek an entertaining event, and are also interested in a worthy learning experience for all family members (Borun, 2002; Briseño-Garzón, Anderson & Anderson, 2007b; Daignault, 2003; Hilke, 1987; Hooper-Greenhill, 1994; McManus, 1987; McManus, 1994; Moussouri, 2003). In these environments both children and adults can look for and find meaning and connection in a personally relevant way (Falk & Dierking, 2000; Hooper-Greenhill, 1994).

Family learning occurs in the museum setting as a result of the social interactions that take place during and long after the visit (Borun et al., 1996; Briseño-Garzón, Anderson & Anderson, 2007a). Information exchange between family members not only takes place at the moment of experiencing a given situation, but can take place any time in the days, weeks, or even months following the museum experience (Borun, 2002; Borun et al., 1996; Briseño-Garzón, Anderson & Anderson, 2007a). In later episodes of information exchange, museum-related information can re-emerge in diverse situations and thus can be re-contextualised in meaningful ways.

Within the informal setting, interactions between adults and children in a family group can range from playful to very restricted or from haphazard to rather directed (Borun et al., 1996; Diamond, 1986). Families generally behave in a co-operative and co-ordinated way within the museum setting; hence, each member's experience is strongly influenced by the other members of the group (Hilke & Balling, 1989; McManus 1994). According to Hilke and Balling (1989), family groups display learning-support strategies during the museum experience such as acquiring, disseminating, or transferring and relating exhibit information with prior or future experiences. Verbal (i.e. "telling", "describing", or "posing questions") and nonverbal (i.e. "showing", "reading", or "manipulating") patterns of behaviour have been described by Borun et al. (1996) and Diamond (1986). Overall, it has been asserted that families maintain a high focus on the exhibits and engage in behaviours that support the acquisition and exchange of information. Hilke and Balling (1989) report that most information
exchange occurs in a spontaneous way, as members share the salient aspects of the experience. This constant exchange, Diamond (1986) states, is a reciprocal activity with different family members teaching at different times in different situations.

Moussouri (1997) and Daignault (2003) assert that both the age of the children and the status (e.g., parents, grandparents, relatives) of the accompanying adults influence the style and outcomes of a museum visit. Furthermore, differences in behavioural patterns amid family members have been documented by Diamond (1986) and McManus (1994). For instance, fathers and mothers are the family members that more frequently look at graphics, read, show, and tell, whereas sons and daughters frequently approach the exhibits first and manipulate them the most. Diamond (1986) further concludes that children tend to transmit information about the location, operation, and description of the exhibit phenomena, and also control the pace of family visits more often than adults.

Among the groups containing children in museums, family groups are those who have the longest conversations (McManus, 1988). Such conversations, Hilke (1987) asserts, tend to involve associations and comparisons to past events and individual experiences, thus reinforcing family history and a shared understanding among the family members. The family, hence, works collectively to build what McManus (1994) calls a “family perception” of the exchanges within the museum experience. At the same time, each individual family member forms his/her own conceptions and perceptions of the encounter. Such conceptions are mediated and defined by the social identity of the family.

A summary of the outcomes of the research reviewed in this section is presented in Table 2.2.

Table 2.2 Summary of the outcomes of the research on family learning in museums, mainly conducted in the Anglo socio-cultural context

<table>
<thead>
<tr>
<th>Feature</th>
<th>Family groups</th>
<th>Other audiences*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversations</td>
<td>Tend to involve associations to past events and shared experiences</td>
<td></td>
</tr>
<tr>
<td>Goals for visiting</td>
<td>High value on the social aspect, seek entertainment and are also interested in the learning outcomes of the visit</td>
<td>Vary according to type of audience, but tend to focus on one domain</td>
</tr>
<tr>
<td>Feature</td>
<td>Family groups</td>
<td>Other audiences*</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>In-gallery behaviours</td>
<td>Spend more time than other visitors in individual exhibits and the venue as a whole. High participation in other activities offered by the venues. Attracted to interactive exhibits. High focus on exhibits, continuous exchange of information. Longest conversations</td>
<td>Spend less time in exhibits and venues than family groups. Lower participation in activities. Lower focus on exhibits and lower exchange of information. For groups with children, shorter conversations</td>
</tr>
<tr>
<td>In-gallery interactions</td>
<td>Range from playful to restrictive. Cooperative, coordinated. Learning support strategies are commonly displayed</td>
<td>Less cooperative and coordinated. Learning support strategies less common</td>
</tr>
<tr>
<td>Post-visit information exchange</td>
<td>Prevalent</td>
<td>Less prevalent</td>
</tr>
<tr>
<td>Presence in the museum gallery</td>
<td>More than half of total visitors</td>
<td>Less than half of total</td>
</tr>
<tr>
<td>Structure</td>
<td>Intergenerational</td>
<td>Same age, intergenerational</td>
</tr>
</tbody>
</table>

* School groups, peer groups, singles, couples, etc.

Source: Adams and Moussouri (2002); Blud (1990); Borun (2002); Borun et al. (1996); Briseño-Garzón et al. (2007b); Daignault (2003); Diamond (1986); Dierking and Falk (1994); Ellenbogen et al. (2007); Falk (1998); Hilke (1987); Hilke and Balling (1985); McManus (1987); McManus’s (1988); McManus (1994); Moussouri (2003); Sandifer (1997).

2.8 Alternative perspectives on the field of family learning in informal settings

Even though the critical role of the social and cultural contexts in the overall learning experience of visitors has been acknowledged by researchers around the globe (Anderson, 2003; Blud, 1990; Dierking & Falk, 1994; McManus, 1994; Packer & Ballantyne, 2005; Schauble et al., 2002), a lot of research needs to be done in the field of learning in informal environments regarding non-Anglo perspectives and insights, and the role of such socio-cultural background in defining visitors’ learning experiences on the one hand, and non-Anglo informal settings’ responses and approaches to their audiences on the other.

The apparent limited number of documents resulting from research involving non-Anglo family audiences and non-Anglo venues could be due to accessibility issues. There is an existing body of literature mainly composed of unpublished documents such as graduate theses, internal reports and domestic studies, which are inaccessible to the general public. Peer reviewed documents are somewhat scarce, and so important limitations exist for those interested in retrieving information. Accessibility issues and actual occurrence of relevant documents apart, it is clear that despite the dominance of Anglo perspectives within the field of
informal education, some work has been done over the last decade, and some more research efforts are currently under way in non-Anglo countries.

Examples are works by Chaumier (1999), Daignault (2003) and Jonchery, Arrault, Lamouche and Dufresne-Tasse (2000) with families in Franco socio-cultural contexts (i.e., France, Quebec and Montreal). Their outcomes are, in general, in line with studies conducted in Anglo contexts. Mostly, these enquiries deal with descriptive and demographic aspects of family visitation, such as motivations for visiting, time spent at museums and particular exhibits, gender and age composition, preferences within the museum galleries, and so forth. Jonchery et al. (2000), on the other hand, offer a qualitative approach to understanding family learning and parent-child interactions in the context of a museum visit in a science museum in Montreal. Their work highlights the relevance of the social aspects of the visit on children’s learning outcomes, as well as the constant interplay between enjoyment and learning when families visit interactive museums.

Some efforts have been made in order to enhance our understanding of the learning experiences of multicultural audiences living in multicultural contexts, such as Latino and African American visitors attending U.S. museums and other informal settings (e.g., DiMaggio & Ostrower, 1987; Falk, 1993; Falk, Anderson, & Castro de Cortez, 1996; Garcia-Luis, 1997; Garibay, Monaco & Garcia-Luis, 2007; Garibay & Bonney, 2007; Silverman, 1995; Tanenbaum et al., 2002). It could be argued that a significant fraction of the research conducted in the U.S. addressing Latino families, focuses on how to get these commonly marginalized communities engaged and interested in visiting museums and other informal institutions (e.g., Garcia-Luis, 1997; Garibay & Bonney, 2007; Garibay et al., 2007; Russell, 2006). However, a huge gap exists in the body of literature on education research in general, in regard to Latin American peoples who live, develop and ultimately learn within their communities of origin.

The socio-cultural particularities of Latin American families described in former sections of this chapter have unmistakably shaped museum practices in Latin American countries. For instance, in Mexico City’s children’s museum, adaptations have been made to U.S. museum exhibits, in that more space around each exhibit has been allocated in order to allow interaction between family group members visiting the venue (Duensing, 2006). This responds to a number of families visiting such museum being larger than the average number of families visiting museums in the U.S., and to the fact that average Latin American families are larger than average Anglo families. In Brazil exhibits were modified from their U.S.
counterparts in order to allow a greater interaction with staff members, hence adapting to local visitors’ highly social culture and value placed on social interactions (Duensing, 2006).

2.8.1 Historical account of museums and museum research in Latin America

Traditionally, historical, anthropological and archaeological museums have dominated the Latin American context. Art museums became popular later, and children and science museums appeared in the late 80s or early 90s (Acosta, 2005; Herrero-Uribe; 2000). Reynoso, Sánchez, and Tagleña (2002) stress that in Latin America, science centers arose from a global western-inspired model. However, through time, they have developed an identity based on the incorporation of local cultural and ethnic elements into their exhibit and program content and delivery mode (Acosta, 2005; Reynoso et al., 2002).

In countries such as Argentina, Chile and Mexico, museums are commonly appreciated as educational settings, with direct social responsibilities that are addressed by offering a cultural product (Acosta, 2005; Sanguinetti & Garré, 2001; Zavala, 2006). In these countries, museums have been traditionally perceived as having social, spiritual, economic, political, and artistic missions. According to Mena and De Ugarte (2005), Latin American museums hold mainly a traditional focus on collections, research and exhibition of such collections of objects. In general terms, education and visitor studies areas are virtually nonexistent in these institutions, due to both lack of resources and external demands on prioritizing preservation and curatorial tasks (Acosta, 2005; Mena & De Ugarte, 2005).

Mena and De Ugarte (2005) and Sanguinetti and Garré (2001), report that in Latin America and Spain, visitor studies are broadly perceived as marketing tools used by the institutions to promote their products, and develop strategies to attend to the different sectors of the market. Secondly, visitor studies are used to get updated information with the final goal of responding to the necessities and expectations of the public. Latin American museums recognize that it is necessary to know the public that actually visits them, and that the completion of such a task requires visitor studies which capture descriptive information regarding times of visits, length of visits, visitation routes, and general behaviour patterns such as use of interactive exhibits, their appeal to visitors, and level of engagement elicited (Sanguinetti & Garré, 2001).

In other words, visitor studies conducted in the Latin American context are mainly focused on demographic data about visitors (i.e., gender, age groups) and visitation patterns (i.e., frequency of visitation, course and timing). Also, evaluations are carried out in order to
assess the clarity of the messages the museums want to convey (Mena & De Ugarte, 2005; Sanguinetti & Garré, 2001). With this goal, qualitative and quantitative studies are implemented to identify real and potential visitors (Jaramillo, 2005; Maciel, 2006; Mena & De Ugarte, 2005; Sanguinetti & Garré, 2001; Zavala, 2006). Particularly the need to conduct research focusing on the family group demographic has been stressed.

Nonetheless, there seems to be a generalized awareness and understanding of the relevance and scope of implementing visitor studies with diverse goals and methodological approaches, and the risks and challenges of appropriating tools and strategies emanating from research conducted elsewhere. Jaramillo (2005) and Maciel (2006) acknowledge that up until now, little has been done in Mexico in order to investigate the roles of the socio-cultural context of visitors in their learning experiences from museum visits. Their work further confirms that museum educators and administrators are aware of this situation and recognize the lack of local research in the field. Orozco (2005), for instance, acknowledges the need to conduct studies that help Mexican museums elucidate the way in which visitors learn collectively as a result of their visits.

Moreover, Orozco (2005) claims that in Mexico, evaluations are not a common task and that informal settings are not the exception. He states that few efforts are being carried out in order to study the effects that museum experiences have on their multiple audiences. In Mexico, he continues, evaluation and research consists of individual projects (e.g., thesis, school assignments), programs with specific and restricted goals, or at its best, institutional initiatives in a few venues. In Orozco’s view, visitors’ active role as learners still needs to be recognized and integrated into the educational initiatives developed by Mexican museums.

It stands out that at least in the reviewed documents, little mention is made to the value of visitor studies as tools for better understanding visitors’ learning experiences in informal environments. No mention is made to the contributions these kinds of studies can potentially make in order to provide optimal learning opportunities for the diverse audiences that visit Latin American museums. This reveals not only a need for these kinds of locally developed and implemented studies, but a vast field for research opportunities with a high potential to make important contributions to this still, incipient field of inquiry.
Chapter 3: Methodology and research design

Despite the fact that in the last twenty years significant research efforts have been made to enhance our understandings of the ways in which family groups learn as a result of a collective experience at museums and other informal settings, some significant gaps still exist in the literature. Particularly, issues that relate to visitors' socio-cultural backgrounds and how these factors shape people's understanding of the world and their impact on the outcomes of a museum visit, have rarely been investigated. By exploring the ways in which values, traditions and behaviours that constitute the social and cultural practices of Mexican families shape their learning experiences within a science museum context, this research study addresses some issues that had not yet been investigated in previous research.

This chapter deals with the methodological considerations of the study. A justification of the methodology and methods employed is offered, as well as a detailed account of the research design used. Procedures for data collection and data analysis are explained. Also, descriptions of the context of research and the participants of this study are provided in order to situate the meanings visitors derived from their experiences. Issues of trustworthiness and generalizability are further discussed. Finally, this chapter closes with some ethical considerations and remarks about the challenges of conducting research in socio-culturally diverse contexts. The limitations of the study are also addressed.

3.1 Research question
This study is guided by the following research question: In what ways do strategies, values, prior ideas, traditions and behaviours that constitute the social and cultural practices of Mexican families shape their ways of learning within a local science museum context?

3.2 Research methodology
Different purposes and theoretical perspectives shape qualitative research approaches. The set of assumptions within a particular theoretical framework inform how a study is conceived, designed, and ultimately implemented (Demarrais, 2004). Exploring the influence of people's socio-cultural backgrounds on their ways of learning through a socio-cultural theory approach called for a qualitative methodology that allowed for an in-depth exploration of people's inner perceptions and interpretations of the world and lived experiences. This examination included
the analysis of people's thoughts, values, feelings, recollections, emotions, and behaviours. Case study research was chosen because the approach allowed for the exploration of singularities in their real-life context through an interpretive methodology, and also the recognition of the complexity or 'embeddedness' of the social issues under investigation (Adelman, Kemmis, & Jenkins, 1980; Bassey, 1999; Hays, 2004; Merriam, 1998; Stake, 1995; Yin, 2003).

A socio-cultural approach required the application of methods of inquiry and analysis that permitted the researcher to obtain as much information as possible about how others build understandings and meanings, while considering their socio-cultural location. By carefully attending to social situations, through a case study approach it was possible to provide rich descriptions of the viewpoints and meanings held by participants (Bassey, 1999; Hays, 2004), and to link the outcomes of this study to existing theoretical ideas (Bassey, 1999). As a result, this research work communicates some details of the nature of human learning, which had been scantily investigated before, and adds to the existing perspectives on family learning in informal settings. Also, the outcomes of this study suggest issues for further investigation.

Moreover, and as Willis (2001) supports, such a methodology was also useful in helping prevent overgeneralizations about the target population (i.e., Mexican families visiting a science museum). By examining and interpreting particular cases, this study did not seek generalisable outcomes, but rather to expand our knowledge and appreciation of the richness of human experience as reflected in the learning processes that are manifest in informal contexts.

Yin (2003) defines case study research as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used. Based on this definition, this was an empirical study since it involved actual visitors and their actual museum experiences.

A descriptive-interpretive approach (Merriam, 1998) was used. Thus, interpretation and reflection according to the criteria of analysis or representation were necessary in order to account for the cases' own stories, constructs, and meanings. Also, a collective case study (Merriam, 1998) was implemented. In other words, data was collected from several cases. Accordingly, each case, represented by one family, can be described as an instrumental case study (Stake, 2000) because the exploration of the individual and collection of cases provided rich and complementary insights into the issue under analysis. This study can also be considered what Merriam (1998) calls a sociological case study because rather than focusing on
an individual, special interest was placed on the social institution of the family and the roles family members play in the collective learning experience. For the purpose of this study, the unit of study or ‘the case’ was considered to be a bounded, finite, complex, functioning and specific system, or family group, embedded in a particular context (Yin, 2003).

This case study can be considered particularistic (it focused on a particular phenomenon), descriptive (the end product was a rich description of the phenomenon under study) and heuristic (it provided some light on the understanding of the phenomenon under study) (Merriam, 1998). Moreover, following with Merriam’s definition of case study (1998), this research study investigated complex social units (i.e., Mexican families) with the objective of understanding the socio-culturally rooted particularities of the learning experience of family groups in a science museum setting.

In sum, the rationale for conducting a case study was to gain a richer understanding of the roles that socio-cultural background plays in Mexican visitors’ museum learning experiences, and to deepen our insights into issues around culture and learning.

3.3 Research design

This study explored the influence of socio-cultural factors in the way family groups construct understandings and ultimately learn as a result of visiting informal settings in the Mexican context, utilizing an interpretive case study methodology. The employed research design (Figure 3.1) was meaningful and useful for this study because it allowed for the exploration of family members’ perceptions and feelings about the learning dynamics that took place at the core of their families’ museum visits. Self report methods were used after participants’ visit as the principal method of inquiry. Also, on-site unobtrusive observations were carried out as a means for data triangulation during the participants’ visit to Universum.

The details of the procedures for data collection and data analysis used in this case study are outlined in the following sections.
3.4 Procedures

Data collection took place during August, 2008 at Universum, Museo de las Ciencias. Interviews with each participant family group were held in quiet areas provided by the museum, or in the outdoors when participants suggested it. All interviews were administered in a relaxed conversational manner in the mother tongue of participants: Spanish. The following sections describe the particulars of the research site, recruitment procedures, participants, and emergent methodological issues.

3.4.1 Universum as research site

Universum, Museo de las Ciencias is a public science museum located in southern Mexico City, Mexico. A dependency and jurisdiction of the Universidad Nacional Autónoma de México (UNAM), it is an institution dedicated to communicating and sharing scientific and technological advancements to the general public, with an emphasis on local research and
issues of national relevance. The displays often have national themes or highlight national scientific advances as central topics. It could be argued that Universum, like many other public and private institutions in the country, contributes to the inscription of a particular identity upon its local visitors, as throughout its galleries and halls it conveys different symbols of Mexican nationalism to its varied audiences.

Universum's philosophy is to offer the public the opportunity to be in direct and practical touch with the sciences through up to date, interactive and high quality exhibits. The museum, as part of UNAM, counts on the support and participation of national and international scientists and academics in their program and exhibit conceptualization and implementation. Overall, visitors are encouraged to explore and interpret the contents presented and with the aid of text panels, interactive exhibits and on-floor facilitators, develop understandings of scientific concepts and themes. It could be said, however, that Universum's pedagogical approach to the communication of its contents is rather text-book or fact oriented. Facilitators and guides are present in all galleries to assist visitors with the manipulation of exhibits, make demonstrations, and answer content-based questions.

The museum receives more than 500,000 visitors each year, amongst which school groups and families are the most prevalent. Admission was 40 Mexican Pesos (about 4 CAD) when the study was conducted; students, children, and UNAM faculty and staff get a reduced fare. Annual memberships are also available.

Universum consists of twelve permanent galleries, eleven of them devoted to a scientific subject matter and field of inquiry, and one gallery with science-related activities for children under the age of six. These galleries are: biodiversity; chemistry; evolution; harvest and the Sun; human biology and health; mathematics; our city; satellite technology; structure of matter; technology; and universe. Temporal exhibitions are customary in Universum. At the time of data collection for this study, the temporal exhibition was about Charles Linnaeus work and contributions to the natural sciences.

This museum also offers a wide range of activities, programs and demonstrations for children, youth, and adults throughout the year. The activities include: planetarium (with facilitated presentations); Euclid's window (video presentation on the anatomy and physics of 3D perception); Science Sundays (series of talks by guest speakers, focused on the communication of scientific topics to the general public); public lectures (lectures by guest speakers, on current scientific advancements); amusing science (hands-on workshops and craft making); theatre (shows with science content). Most of these activities are included in the
admission to the museum or are free of charge. The ‘amusing science’ workshops have an extra cost. Universum also runs a public library which offers to all audiences a wide selection of science-related bibliographical materials and resources: books, journals and magazines, videos, electronic resources.

Universum then, was an ideal setting for the instrumentation of this study, since it is a popular learning site for families. It recognises the importance of science education and communication for family visitors in its missions, policies, and programming. The diverse programs and activities offered at this science museum make it an appealing place to visit to different sectors of the Mexican society. Thus, investigating family learning in this informal environment represented a unique opportunity to gain a broader and richer understanding of the issues under analysis.

Architecturally, Universum is a very roomy site, with numerous halls and areas that serve as locations for permanent and temporary exhibitions. The spacious structural design allows for large groups of visitors to not only circulate through halls and corridors, but to interact and collectively benefit from the exhibits and panels on display.

The employed research design included carrying out direct and meaningful observations of the general public who, during the researcher’s stay in Universum Museo de las Ciencias, happened to visit the venue. These observations were hand recorded in the form of field notes, and provided rich evidence of the socio-cultural context in which this research study took place. For this reason, it is important to start this chapter by describing the atmosphere of the research site at the time of data collection.

3.4.2 Audience demographics at the time of data collection - summer audiences
Summer in Mexico City is a time of the year when schools are not regularly open. Parents, on the other hand, frequently have to attend their regular jobs. This creates a situation where hundreds or rather thousands of children are in need for daycare or adult supervision on weekdays. A popular alternative for those who cannot rely on extended family or friends to look after the youngsters is to enrol them in summer camps or summer courses. Universum, as many other museums, parks and leisure sites in Mexico City is a preferred destination for summer camp managers and supervisors. In fact, Universum offers a summer camp program of its own, where school-age children can take part in the museum’s activities and programs on a daily basis.
During the data collection stage, the population that visited Universum on weekdays was mostly composed by summer camp groups (e.g., one or two adults in charge of groups of up to 30 children). This resulted in a particular atmosphere in the museum galleries which were crowded with enthusiastic peer groups. Families were also present during weekdays, while teen-agers’ peer groups and couples were rare. Weekends, on the other hand, were different. There were no summer camps during these days, and the number of visiting families was significantly higher on Saturdays and Sundays than on other days of the week. Moreover, there were more couples and peer groups on weekends than on weekdays.

However, a closer observation of family structure shows differences in the overall family constitution amongst family groups visiting on weekdays and those visiting Universum on weekends. In general, it was common to see family groups composed of adult women and children on weekdays, and adult women and men with children on weekends. Also, family groups which included several minors under the supervision of a few adults, for the most part women, were also prevalent on weekdays. In these groups, children included not only adults’ own offspring, but also cousins, neighbours, and friends.

3.4.3 Recruitment process

Participants were non-randomly and purposefully selected (Merriam, 1998) with the objective of maximising the potential for gaining rich insights about families, learning and culture. This means that certain kinds of participants were approached and invited to take part in the study, as a result of specific criteria. Also, the sample was a convenient one (Merriam, 1998), meaning that participants were selected based on time, location, and availability of respondents. Stake (2000) suggests that variety is an important element in the task of learning about people. In this study, variety was important because investigating the experiences, interactions, behaviours, and ways of learning of different families optimised the richness of the insights. However, representativeness was not a goal of the sampling strategy.

The inclusion criteria used in this study were:

- Mexican family groups8 casually visiting Universum, Museo de las Ciencias during the data collection days
- Groups containing at least one adult and one child under 19 years of age

Groups with any of the following characteristics were excluded from participation:

---

8 A group was considered as a family when composed of intergenerational members sharing blood ties, strong affective ties, and/or home schooling activities.
• Family groups with children older than 19 years
• Non-Mexican family groups
• Other groups of visitors such as school groups or peer groups

Families were invited by the researcher to take part in the study as they first arrived to
the museum’s box office to buy their admission tickets. Also, an advertisement poster was
visibly placed at the box office, by which visitors were invited to volunteer and participate in
the study (Appendix A). In the initial contact with potential participants, as well as in the
poster, a brief description of the study and the implications of their consent to participate were
clarified. This introductory talk took up to five minutes.

Initially, upon a family’s acceptance of participation further recruitment was
temporarily ceased and participant consent and assent forms were provided for signing
(Appendix B). Families were observed for the whole duration of their visit, and approached to
be interviewed after the visit was over. This first approach to recruitment soon proved not to be
effective in the Mexican socio-cultural context, since the overall experience was that the
families who originally had agreed to take part in the study decided not to go on with the
project when the moment of the interview arrived, providing various reasons including not
having the time, being tired, or having to attend to other commitments. In the end, many
families who had originally agreed were not able to participate in the study.

Two methodologically relevant outcomes stemmed from this experience. First, an
immediate solution had to be implemented in order to initiate the data collection process and
get people to share their stories with the researcher. And second, research methods that are
effective in one socio-cultural context (i.e., the Anglo context) are not necessarily effective in
the other (i.e., the Mexican context). After many hours trying to understand why people would
consent and then deny participation over and over again, the interpretation and explanation of
this outcome was that as a society, Mexicans are not taught to say “no”. Mexicans of course do
not do things if they do not want to or cannot do them, but they do not state an upfront,
unambiguous “no”. Instead, Mexicans choose to excuse themselves afterwards. Or maybe
Mexicans are just afraid to commit or of being judged by others. Comments such as “Oh, sorry,
we don’t have time now” were so prevalent, that the experience was considered worthy of
being reported in this thesis. For instance, out of 18 attempts to enrol families in this study,
only one said “no” after the introductory talk and the rest consented to participate at first.
However, all of these families ultimately evaded the post-visit interview.
The problem needed to be overcome quickly and efficiently. The restructured recruitment strategy was as follows: Instead of recruiting just one family and waiting for them to conclude their visit to approach another one, four or five family groups were individually invited at approximately the same visit start time, assuming that the majority of them would decline participation in the study at the end of their visit. Families were invited to participate as they approached the box office, one at a time, with minutes of difference amongst them. Each family group received an introductory talk individually. All invited families were observed during their visits; only the observations of those who decided in the end to be part of the study, were taken under consideration for the analysis of outcomes. A total of 36 families were invited and agreed to take part in this study after the introductory talk; only 20 family groups completed the interview process. It can be said that as Hays (2004) and Robinson-Pant (2005) suggest, the research design was flexible enough to respond to unexpected circumstances and to adapt to unforeseen situations and outcomes.

Volunteer families were compensated for their time and insights with free issues of the science magazine "¿Cómo ves?", a publication of UNAM.

3.4.4 The participants

A total of twenty family groups voluntarily took part in the study. The information obtained from this group of participants was rich and vast. All of the participants were Mexican citizens. A total of 35 adults and 41 children under 19 years of age took part in this study. The age of the 41 children ranged from one to 14 years. A comprehensive account of the demographic composition of the participant family groups can be found in Appendix C.

When this study was implemented, almost all of the participant families were residents of Mexico City. Four families however, lived in smaller cities of the country (i.e., Ciudad del Carmen, Campeche; Los Cabos, Baja California; Querétaro, Querétaro; and Tuxtla Gutiérrez, Chiapas) and were visiting the metropolis for leisure reasons. All participant families were recurrent visitors to diverse informal settings. Most of the participant family groups had been to Universum before, whereas for seven families this was their first collective experience at this venue. From those who declared to have been to Universum before, six family groups described themselves as frequent visitors who had been there many times in the past.

It is important to pin down one prevalent characteristic of the participants in this study. All were middle-class, working/retired-educated people. Given that this information did not form part of the interview protocol and exact data was provided spontaneously by some
participants in the course of the interview, details are missing in Appendix C as to the exact level of schooling or professions of some of the adult participants. However, it is the researcher’s perception that at least one adult in every participant family was indeed an educated person, with at least university level education. This observation is relevant in the context of the study in terms of its limitations, credibility, transferability and dependability discussed later in this chapter. It also provides background for the critical analysis of outcomes presented in chapters 4 and 5.

3.5 Data collection

Bearing in mind that socio-cultural theory demands methods that take into consideration situational factors (Hallden, Haglund, & Strimdahl, 2007; Thorne, 2005), and recognizes the conceptual knowledge of people by taking their cultural competence and location into account (Sparks, 2002), two key methods of data collection were deemed appropriate to qualitatively elicit and describe visitors’ museum learning experiences: interviews and observations. The general procedures for data collection are illustrated in Figure 3.2.

![Diagram of data collection procedures and methods employed in this study](image)

Figure 3.2 Diagram of data collection procedures and methods employed in this study

3.5.1 Interviews

Face to face semi-structured interviews were used as the main research method. Semi-structured interviews were suitable for this research study because they permitted a dynamic rapport with all participants, and they provided a greater breadth of data given their qualitative nature (Fontana & Frey, 2000). A semi-structured interview method provided opportunities to probe diverse issues as a function of visitors’ responses.
Interviews lasted between 20 and 30 minutes per family group, and in almost all cases all family members were present during the post-visit meeting session. There were some instances however, where only some of the members took part in the interview because others chose not to participate. Only the comments and insights of the members present during the interview were considered for this analysis. All open-ended and semi-structured interviews were audio recorded for subsequent transcription and data analysis.

Where specific information was desired from respondents (e.g., demographic and general information about participants), a structured interview section was implemented. The largest part of the interviews, however, was guided by an interview protocol tool specifically designed for this research study, where wording and order of questions were flexible and adaptable to participants’ level of engagement in the interview. A series of adaptable, introspective, open-ended questions that dealt with issues of family history, history of museum visitation, family dynamics, perceptions of learning, family members’ roles within the family as related to learning aspects, and highlights of their visit, constituted the core of the interview process. The complete interview protocol can be found in Appendix D.

3.5.2 Observations
Unobtrusive on-site observations of all members of each participating family group were also carried out during their visits, thus, enhancing the internal validity of the study. The unobtrusive observations consisted of monitoring all the invited family groups, while keeping out of their visual field, during the complete duration of their visit. Visit times of participant families ranged from one and a half to six and half hours, with an average of three and a half hours spent in the museum. Field notes were recorded accordingly, with no prefixed observational protocol. These observations were used as valuable prompts for stimulated recall (Calderhead, 1981) during the post-visit interviews. Observations represented firsthand accounts of participants’ experiences at the science museum, and through them it was possible to record behaviours, critical incidents, family interactions, and generalities about the visit (e.g., order in which the galleries were visited, time spent in exhibits, time spent at the museum). At some points of participants’ visits, verbal interactions were also recorded in fieldnotes. Observations and field notes were useful in the holistic interpretation of participants’ learning outcomes, by contributing to a better understanding of the situations under study and affording behavioural data that would have been missing from the study otherwise.
3.6 Data analysis

Data analysis was the process of making sense of the data (Merriam, 1998), through a socio-cultural theory framework (Lantolf, 2000; Thorne, 2005; Vygotsky, 1978; Wertsch, 1985). This process involved interpreting participants’ opinions and behaviours, in the light of the current views on a) family learning in informal settings (e.g., Borun, 1990; Diamond, 1986; McManus, 1994; Rennie & Johnson, 2004); b) parent-child interactions and the family as a learning environment (e.g., Bobbitt & Paolucci, 1975; Crowley et al., 2001; Stehlik, 2003); and c) Latin American perspectives on family and learning (e.g., Cervantes, 2002; Gracia, 1999; Knight et al., 1993; Orozco, 2005).

All recordings and field notes for each of the 20 participant families were fully transcribed. All participants were each assigned a pseudonym in order to protect their identities. Interview and field notes transcripts constituted the raw dataset. Data were categorized, interpreted and coded using Atlas.ti (2008) software. Atlas.ti is a tool for qualitative analysis of large bodies of text, amongst other digital forms of data. This program allowed the researcher to arrange, reassemble, manage, and code all collected materials in a systematic way, and thus to identify the socio-cultural elements that came into play during participants’ visit to Universum. Atlas.ti was used exclusively as a coding tool and data manager for quote retrieval. No other functions of the software, such as data modeling and analysis applications were used in this study.

The coding process involved the creation of conceptual codes that informed the question of the roles and impact of the socio-cultural background on learners’ ways of building knowledge and understandings. As part of the analysis process, codes were organized by themes in six major categories or families of codes (Figure 3.3): 1) Participants and research site description; 2) Issues around methods and ethical procedures; 3) The visit; 4) Family within the Mexican context; 5) Socio-cultural elements in parenting practices and styles; and 6) Other.
Figure 3.3 Categories and codes of analysis
Many of the conceptual codes included in the larger categories of analysis were driven by the current perspectives on family learning, parent-child interactions and Latin American views on family and learning, whereas others were emergent themes that arose as the data analysis progressed. Emergent codes were either topics frequently brought up by participants (e.g., the family as socialization environment), or issues that were relevant in visitors’ lives (e.g., religion and language). All categories encompass both theory-driven and emergent codes. Categories 1 and 2 inform the present chapter, whereas the remaining four constitute the body of data that is presented in Chapters 4 and 5. Categories and conceptual codes reflected the purpose of the study, were mutually exclusive and conceptually congruent (Merriam, 1998), and captured some recurring patterns across data. The content analysis involved the coding of all the raw data through the lens of this coding scheme.

For analysis purposes, each family group was considered as a case or unit of analysis. The perspectives, comments and actions of all family members were part of a holistic and intensive description of each of the 20 units of analysis, or cases (Merriam, 1998, Stake, 2000). The first level of analysis, once the data was coded, was a thick descriptive account (Peshkin, 1993) of all cases, but because this was a multiple case study, the analysis involved two steps: a) a deeper examination of a sub-sample of cases and b) a cross-case analysis that included all the cases. Thus, the analysis of findings encompassed comparisons to pinpoint commonalities and particularities across the cases, in regard to all of the code categories previously described.

The sub-sample of cases comprised five different family groups that were selected because they were considered as particularly fascinating and unique according to the categories of analysis, had differences between them, and exemplified most of the relevant outcomes of the study. Together, these cases provide an interesting mosaic of families and their group dynamics, illustrate to some point the diversity of the Mexican socio-cultural context and embody most of the socio-cultural elements that are further explored by means of a cross-case analysis. This sub-sample of relevant cases (Chapter 4) is used in the cross-case analysis (Chapter 5) as a tool to discuss the data in a more powerful and contextualized manner.

The two layers of analysis are important because the individual analysis of a few cases allowed a richer and contextualized representation of members’ perspectives and interpersonal dynamics. As Stake (2000) suggests, learning from particular cases was related to how the cases were like and unlike other cases. Cross-case analysis, on the other hand, was necessary in order to explore the variation ns and commonalities amongst cases, as well as to present a wider and holistic analysis of the dataset. As Yin (2003) proposes, this holistic analysis
involved the construction of general explanations to fit each of the individual cases, even though the cases varied in their details.

3.6.1 Language choice

Socio-cultural theory considers that communication of meaning is mediated by the cultural and social tools available to participants within a community. Amongst all, language is the most important. Language is a powerful culturally embedded tool that allows people to express themselves. Culture, through language, shapes the way in which people, researchers and participants included, narrate their stories (Pressick-Kilborn, Sainsbury, & Walker, 2005). Language choice is not just a technical decision, but one that must consider ideological concerns around the identity of the researcher and the participants (Robinson-Pant, 2005).

On the other hand, it has been asserted that translation involves more than linguistics, it often has to do with culture and world views (Peña, 2007; Robinson-Pant, 2005). Translating word by word can risk the meaning of any original utterance (Mehra, 2001; Robinson-Pant, 2005). Translation is even more problematic when trying to convey the meaning of certain statements and actions in the context of a different culture. It thus implies a potential loss or distortion of meaning during the process of crossing the cultural boundaries of different linguistic contexts. Consequently, language issues in socio-cultural research are especially important.

Spanish is the original language of all primary data sources for this study. Considering that translation poses many important methodological, cross-cultural, and ideological challenges (Peña, 2007; Robinson-Pant, 2005), and that language issues in socio-cultural research are particularly significant (Pressick-Kilborn, et al., 2005), data analysis was conducted over non-translated Spanish transcripts. Once coding categories were established in consonance with the research question, and coding of contents was completed, fragments of transcripts and quotes needed to substantiate outcomes or illustrate insights were translated into English. This approach has been suggested by Robinson-Pant (2005).

During the analysis process it became clear that there are expressions and words that cannot be accurately translated from Spanish to English, and others that loose meaning when translated. In these cases the decision was made to either keep the original word and include an explanation of its meaning, or translate and incorporate a brief clarification of the actual cultural meaning of the expression/word in question. The reader will find some of these instances throughout Chapters 4 and 5.
3.7 Credibility (trustworthiness), transferability (generalizability), dependability (reliability) and confirmability of the data and outcomes

The term ‘validity’ has been traditionally used by quantitative approaches to research in order to refer to the realist assumption that there are better approximations to the truth of a given proposition or outcome, than others. In other words, validity is the extent to which a research finding is what it claims to be. From an interpretive standpoint, the assumption is that there are multiple co-constructed realities. From this perspective, the issue of validity is not relevant. Lincoln and Guba (1985) however, propose four alternative constructs that more accurately reflect the assumptions of the qualitative paradigm and replace the quantitative notions of internal validity, external validity, reliability, and objectivity. These are: credibility, transferability, dependability and confirmability.

3.7.1 Credibility

Credibility or trustworthiness establishes whether the outcomes of an inquiry are credible or believable from the perspective of the participants in the research (Lincoln & Guba, 1985).

Case study has been criticized on the basis of being regarded as an uncontrolled intervention in the lives of others that could give a distorted view of the world and could embalm practices that are actually always changing (Bassey, 1999). However, case studies rely on multiple sources of evidence and multiple methods for each research question, which allow for triangulation or testing of data of diverse nature (e.g., interviews and observational data) (Bassey, 1999; Hays, 2004; Lincoln & Guba, 1985; Yin, 2003). Triangulation permits researchers to clarify meanings and verify the observations and interpretations (Merriam, 1998; Stake, 2000). Thus, triangulation is how credibility or trustworthiness of the data was hardened in the study. The use of multiple methods and multiple sources as forms of triangulation made this case study outcomes not only more comprehensive, but also more complex.

Also, efforts have been made to ensure that all discussions and interpretations presented in this thesis are factual and accurate. In an attempt to interpret, make claims and draw conclusions from the data, further credibility was established through peer debriefing and critical examination. Also, by analyzing data in the original language, issues of credibility, transferability, and dependability are further addressed.

It is commonly accepted that definite and concrete recommendations and conclusions derived from qualitative research are seldom likely to emerge. As in any case study, the
outcomes and conclusions of this study involve complexity and uncertainty in particular contexts (Adelman et al.; 1980; Bassey, 1999; Hays, 2004; Lincoln & Guba, 1985; Stake, 1995) and much is left to the readers’ interpretation and consideration (Firestone, 1993; Hays, 2004; Lincoln & Guba, 1985; Stake, 1995). However, the aim is to present the case study in a form that is relevant and useful for educators, museum educators, researchers, and programmers.

3.7.2 Transferability
Transferability deals with whether the outcomes of an inquiry can be generalized or transferred to other contexts or settings. This study was designed as a case study and its objectives are to capture and understand the perspectives of participants through a socio-cultural theory lens. It is not appropriate then to expect similar conclusions from research conducted in other settings. Readers however, are encouraged to look for issues and outcomes that resonate with them (Bassey, 1999) and to decide for themselves if the outcomes of this study can apply in a different setting. With this end, the transferability of this study is enhanced with a thorough description of the research context, as well as the assumptions that were central to this research.

The issue of generalisability or transferability of outcomes is frequently raised when dealing with qualitative methodologies (Bassey, 1999; Firestone, 1993; Hays, 2004). A case study is the study of a singularity which is chosen because of its interest to the researcher and its relevance for understanding the processes that occur in a situation and the beliefs and perceptions of those in it, not because it is a ‘typical’ or ‘representative’ example. For Kain (2004), in seeking unique experiences and meanings for individuals, we can illuminate patterns that may apply to other persons and contexts. According to Merriam (1998) the inclusion of multiple cases is a common strategy for enhancing the generalisability or transferability of the findings.

Firestone (1993) on the other hand, points out that ‘generalization’ needs to be understood through two different but complementary perspectives. One is generalization to populations and the other is generalization to theory. The former refers to the sample to population extrapolation mostly seen in quantitative research; in the last one, researchers strive to generalize a particular set of results to a broader theory or to provide evidence to support a particular theory. In qualitative research in general, generalization to theory is the goal (Firestone, 1993). According to Stake (1995), results from case studies tend to be generalisable to the extent that readers can find similarities between reported cases, but the studies are not
intended to develop grand generalisations. The purpose of this study then, is the understanding of the cases presented in this thesis, as well as the contribution to theory (Adelman et al., 1980; Bassey, 1999; Hays, 2004; Stake, 1995; Yin, 2003). Outcomes are not meant to be read as generalisations, but rather as assertions located within the case study or as descriptions and elucidations of particular cases. As Stake (1995) suggests, occasional and careful reference to wider populations is made.

3.7.3 Dependability
The traditional quantitative notion of reliability deals with the extent to which outcomes can be replicated or repeated in a similar setting, given the same circumstances to the ones intended by the researcher. Merriam (1998) considers that human perception is very selective, subjective, and therefore partially unreliable. For Merriam, the extent to which findings can be replicated is generally problematic in qualitative research since human behaviour is never static.

The dependability construct, on the other hand, highlights the need to account for the continuous changes that take place in any given setting, and the effects that such changes can have on the research outcomes. Lather (1993) also argues that making such generalization can be problematic given the unique nature of each setting at any given time. The strategies described in sections 3.7.1 and 3.7.2, also helped increase the dependability of this study.

3.7.4 Confirmability
Confirmability refers to the degree to which the findings can be confirmed or corroborated by others. Acknowledging that the outcomes of this study reflect the researcher’s own unique perspectives to the issues under analysis, confirmability was thus enhanced by clearly presenting the theoretical framework of the study, the researcher’s own socio-cultural background and her position as insider during this study. As Stake (2000) states, the whole story may exceed anyone’s knowing and telling. Clarifying assumptions, worldview, theoretical orientation, and other researcher’s biases contribute to improve the confirmability of this research study.

3.8 Ethical considerations
Case study research shares an intense interest in personal views and circumstances. Thus, those whose lives and expressions are portrayed risk exposure. Considering that the objective of the study was the description and understanding of the learning experience of Mexican family
groups visiting a science museum, this was considered to be a low risk research study because no sensitive or deeply personal information was disclosed, and participation in the research study was harmonious with the participants' natural Universum experience. With this in mind, ethical clearance to conduct the research was sought and granted from the UBC Behavioural Research Ethics Board (BREB) (Appendix E). In keeping with their guidelines, participation was entirely voluntary and the identity and privacy of participants was protected by means of pseudonyms. All raw data has been stored in locked cabinets and password protected computers.

Another ethical consideration consisted of letting participants know that the information disclosed during their interview would serve as a platform for future research, publication of papers in journals, or presentations at conferences. This information was clearly stated in the consent and assent forms that all participants received and signed. Seeking consent (participants over 19 years of age) and assent (participants under 19 years of age) is a mechanism for participants to be informed of the conduct of the study, as well as inform them of their rights as volunteers.

No Ethics Board or Committee exists in Mexico to regulate research practice across and beyond the country. There, ethical considerations are left to researchers and institutions to define and enact. Thus, this research study followed the ethical guiding principles outlined by the University of British Columbia, Canada.

3.9 Methodological and ethical challenges and remarks of conducting research in socio-culturally diverse contexts
One prevalent challenge of carrying out social science research in non-Anglo countries, where a significant fraction of the body of research in many areas of knowledge has been produced (i.e., sociology, anthropology, psychology, and education), derives from the validity and appropriateness of research methods in socio-culturally diverse contexts. Making use of research methodologies and methods proven to yield reliable outcomes can create difficulties since methods which are appropriate for one cultural context might not be appropriate nor yield accurate outcomes in another (Acevedo-Polakovich, et al., 2007; Dana, 1998; Peña, 2007; Robinson-Pant, 2005; Sparks, 2002). This section presents the methodological and ethical pitfalls encountered during the data collection period at Universum, Museo de las Ciencias.
3.9.1 The researcher as an insider

Interpretation, Bassey (1999) suggests, involves a search for deep perspectives on particular observed events and for theoretical insights. Nevertheless, all interpretations are shaped by the researcher's own bias which is guided by academic experiences and theoretical constructs, and also by personal history and socio-cultural background. A researcher's identity plays a significant role in the final outcomes of the inquiry process, since it inevitably instills bias and subjectivity (Hallden et al., 2007; Mehra, 2001; Sparks, 2002; Zurita, 2001). For this reason, it is crucial to define and locate the author of this study in relation to the research endeavor and those involved in it (section 1.1). It is also important to describe what others might have seen in the researcher (section 3.9.2). In other words, for this particular study, it is important to make explicit what defines the researcher as an insider of the cultural group involved in this research, and how this condition shaped her interpretation tasks.

Although labels of any kind impose restrictions on a person's identity (e.g., gender, race, ethnicity, class), they all have meanings and implications and shape and limit the way in which we see and make sense of the world (Hallden et al. 2007; Mehra, 2001; Willis, 2001). In the researcher's case, her condition as a Mexican educated female born and raised in Mexico City in a middle class environment substantiates and legitimizes the contextualization and interpretations made about the setting, the experiences of participants, and the voices that form part of this research study. Her insider position allows her to more accurately interpret and contextualize outcomes and culturally linked elements embedded in the discursive and behavioral practices of the participants. Also, the insider position permitted the researcher to overcome the previously described methodological difficulties faced during the data collection stage. Moreover, it can be argued that while involved in the research process from an insider position, the researcher engaged in an introspective journey of self-discovery (Johnson-Bailey, 2004; Mehra, 2001), through which her own socio-cultural identity was challenged.

On the other hand, as an insider, the researcher faced some challenges. The risky position of taking for granted some cultural aspects of the researcher's own society had to be overcome (Johnson-Bailey, 2004). By making the familiar strange, a deliberate attempt was made not to dismiss elements that could have seemed ordinary and common place. Also, efforts were made to not over-romanticize the aspects of the culture under study that are most appreciated or considered worthy by the researcher, and to not denigrate those she considers as problematic. This way, an effort was made in order to overcome blind spots and contribute rich and informed interpretations of outcomes (Henry, 2001; Willis, 2001; Zurita, 2001). However,
it is acknowledged that this endeavor is problematic and complex, that some aspects worth of
analysis may not have been realized, and that some aspects of the Mexican socio-cultural
context could have been idealized.

3.9.2 Participants' perception of the inquiry process

As described in section 3.4.3, the first encountered challenge dealt with the recruitment of
participants. It can be argued that most people in Mexico are reluctant to participate in research
activities that involve talking about themselves and/or that demand some of their time.

Once the recruitment issues were solved, a rather general uneasiness amongst adult
participants was noticed. Frequently, at the end of the interview, people would ask if what they
had just shared was “right” or not, or whether it was “useful” for the study or not. That genuine
concern was interpreted as a lack of familiarity with the implemented methodology, and as a
culturally-rooted will to be as cooperative and supportive as possible with others around.

Adult and children participants were notably open to sharing their thoughts and
perceptions and were rather open to talk about their family members’ and their own customary
interactions and personalities. No difficulty whatsoever was found in eliciting people’s
responses although in a few instances probing was necessary. In more than one case, some
topics came up in discussion without the researcher even asking about them (e.g., religion), and
in general, it was perceived that participants were interested in the interview and were receptive
to the researcher’s presence in their family outing. The compensation offered to them at the end
of the interview, was in all cases gladly received as a “thank you” gift and not seen as a price
for their participation. All in all, it could be argued that such openness to talk to a stranger
about personal matters and a tendency to be so frank during a conversation says a lot about
participants’ socio-cultural identities. In fact, a couple of families approached the researcher
after their interview was finished to offer her candy or have their picture taken with her.

Also, it was possible to get a sense of the participants’ perception of the researcher.
Doubtlessly, the researcher was identified as a member of the Mexican society by all
participants (i.e., insider). However, her condition as a student researcher trained in a foreign
country put her in a particular position. As specified by the ethical protocols for research with
human subjects, the researcher introduced herself to potential participants as a PhD student at
the University of British Columbia. This simple introduction set the tone for the post-visit
interviews, since in many cases participants expressed their interest in and respect for the fact
that the study was part of a graduate program in a foreign university. In other cases, it was
perceived that the researcher was assigned some sort of authority or expert role, by the way people addressed the researcher or in comments made at the end of the interview. For example, when the interview was over, one adult asked the researcher’s opinion on their childrearing practices, as if she was academically trained and competent to confer advice on how better to educate children. Nonetheless, this somewhat explicit deference or admiration did not prevent people from sharing their opinions openly and honestly, as previously described.

3.9.3 Ethics requirements as perceived by participants

Educational research is dominated by traditions which include ethical procedures and values of Anglo research institutions that shape and dictate the standards by which others are assessed (Robinson-Pant, 2005). As justifiable and necessary as BREB procedures are from an Anglo tradition of research, it became clear that in the Mexican socio-cultural context the perception is different. Most of the participants were curious to learn what an informed consent/assent form was, since it can be said that in Mexico, research agreements are commonly an informal matter of trust, provided that all pertinent credentials are in place, as they were when the researcher introduced herself and the study to all potential participants. Most of the heads of families who agreed to take part in the study were nonetheless happy to sign the form because it was explained to them that their written consent/assent was needed. However, the requirement itself was surprising and intriguing to them. Some others were cautious with the signing process and took some extra information to convince them of the importance of their written consent/assent.

Overall, as unfamiliar as most of the participants were with the Anglo procedures for conducting ethical research with human participants, it can be said that no major issues arose during the data collection stage.

3.10 Limitations of the study

Although the researcher’s own socio-cultural background, personal history and academic experiences in the field of visitor studies afford her with rich and contextualized inquiry tools, being a case study this research was also intrinsically limited by her own sensitivity and integrity as investigator. It was a subjective work that was constantly under the influence of human error and interpretation, since the primary instrument of data collection and analysis was the researcher. The risk of bias in the selection of material to be analysed and in the criteria of interpretation, and the limitations that this may involve, are duly acknowledged. Also, the
limitations and challenges associated with researching from an insider position, as described in section 3.9.1, are acknowledged.

One of the limitations of case studies is the risk of oversimplification or exaggeration of particular situations, which could lead to erroneous conclusions about the ‘actual state of affairs’ (Merriam, 1998). This limitation is even greater when conducting research from an insider position. This risk was latent at two levels: a) participants’ comments and behaviours, and b) researchers’ subjective interpretation and evaluation of those comments and behaviours.

The potential for limiting factors such as expectancy and distortion effects during the interviewing process (Bernard, 1994) are also recognised. Expectancy effects refer to participants telling the researcher what they believe the interviewer wants to hear from them (‘right answers’), and distortion effects refer to the researcher listening and interpreting what she wants to hear from the participants (‘bias’). These potential limitations were minimized by keeping a critical perspective grounded in the study’s theoretical framework at all times, both during data collection and data analysis.
Chapter 4: Data and analysis. Five families, five stories: A deeper examination of a sub-sample of cases

The outcomes of this study are organized into two sections. Each section contributes insights to the field of visitor studies from different perspectives, and in particular to the area of family learning in a Mexican socio-cultural context. However, the two sections together account for a richer and dialogic analysis of the data. In this chapter the reader will find five narratives, each one telling the story of one family’s learning experiences and their views or perceptions of their learning processes. These five families were chosen as representative examples of the collection of cases that actually constitute the whole dataset of this study because of their compelling comments and insights surrounding their interactions and collective learning events. These cases serve as illustrative and contextualized references for the theoretically grounded discussion presented in Chapter 5.

By providing a glance into the vast diversity of accounts that take place in Mexico City, the stories of these contrasting family groups set the background for the deeper cross-case analysis presented in the following chapter. Each one of these family cases “embodies” at least one theme considered key in the examination of the role of socio-cultural background in shaping visitors’ learning experiences from a science museum. These themes or issues for discussion emerge directly from the literature reviewed in Chapter 2, particularly the body of research related to Latin American and Latino perspectives on parent-child interactions, childrearing and child education, and family life (e.g., Chavkin & Gonzalez, 1995; García & de Oliveira, 2006; Gracia, 1999; Halgunseth et al., 2006; Hansis, 1997; Langdon & Novak, 1998; Marin, 1993; Stavans, 2001; Valdés, 1996; Valenzuela, 1999). Aspects that relate to the role of the family in the education of children; the role of the extended family in several aspects of family life; the prevalence of socio-cultural values such as respect, discipline and religion in the Mexican society; and the significance of the social outcomes of a museum visit, are illustrated by these five family groups.

A. The Carrillos: In busy times, family comes first – The primary role of the family in the education of children

With four members, mom, dad and two boys (Mario (aged 9) and Juan (aged 10)), the Carrillo family can be described as a mainstream family local to Mexico City. Although used to doing
things together and participating collectively as a family group in activities such as biking, fishing in Xochimilco⁹, going to the movies or playing board games together, the Carrillos live the busy life of the big city. Juan, the oldest child, wishes his parents were not as busy with their jobs, so they could have more time to play together over weekends and school breaks. Nevertheless, the Carrillos are frequent museum visitors, who have been to Universum many times before. The day of the interview, however, only mom and the children are there while dad is at work.

Mrs. Carrillo decides to visit Universum with her boys the day this study is conducted because they have not been to the venue for some time and they appreciate the fact that every time they come, they find new things—new exhibits and new galleries—and with this, new experiences. Besides, they live close to Universum, a condition that provides an immediate motivation to go to the museum. Avoiding long commutes is a priceless treat in places like Mexico City. Juan and Mario have their own reasons for liking Universum. According to Mario, Juan likes chemistry a lot. According to Juan, chemistry is fun and entertaining and he enjoys learning about it. Mario is not as fond of chemistry as his older brother, but he likes conducting experiments and observing the results.

As illustrated above, the Carrillos stand out as a family whose members are extraordinarily aware of each other’s likes and dislikes, learning strategies and inclinations, roles within the family group, and so on. They all acknowledge the leading role that Mario takes on when visiting a place such as Universum. Mario himself is aware of the role he plays in guiding his family’s decisions, movement through the space and the pace of their visit.

AB: When you are in a setting like this, particularly today during your visit, how would you describe your family dynamics? Who assumes the role of the leader? Is there someone who takes on the leader role at all?

Mrs. Carrillo: In our group?

AB: Yeah, amongst you

---

⁹ One of the sixteen districts within the Mexican Federal District. It is located within Mexico City, south of the city center. Xochimilco is better known for its extended series of canals, remains of the ancient Lake Xochimilco. Xochimilco has kept its ancient traditions, even though its proximity to Mexico City has influenced the urbanization of the area. Today, agriculture is an important but minor activity. It was declared a World Heritage site by UNESCO in 1987. The name Xochimilco comes from the Nahuatl, and means "flower field place" (Wikipedia, 2009).
Mario: I do
Mrs. Carrillo: Mario does
AB: You? You are the one who decides where to go, what to do, how much
time to spend in each place and all those kinds of things?
Mario: Yeah, I am
AB: Are you aware that you do that?
Mario: Yes, I am

Sensitive to this, Mrs. Carrillo is also conscious of her role within her family. She
knows her children often overlook exhibits and jump from one to another display without
further attention. That is when she intercedes and calls their attention to certain things, or tries
to make them read the informative text attached. She also acknowledges that having too much
to read can be challenging for two young and energetic boys. However, she considers that with
her assistance, Mario and Juan can focus enough to get the essentials of a number of interesting
displays, and make sense of some of the things they are observing. Juan further concurs with
his mom, that when visiting museum settings, they ought to focus more on the content matters
on display and make an effort to read more.

This family is particularly fascinated by encounters with nature and living animals.
Early in our conversation, Mario states he enjoys fishing because he can keep fish as pets.
Moreover, what they take the most pleasure in during their current visit, are the snakes.

Mario: Oh, the snakes!
AB: You liked the snakes? The large yellow python or which one?
Mario: That one
Mrs. Carrillo: Yeah, that one. He [one of the boys] got very close to the glass, on the
side where she [the snake] was looking. And it was very impressive to
see how her tongue would come out and be moving. We had not seen
that this close, never
AB: Oh, I see
Mrs. Carrillo: Yeah, that was very cool
Also, this family group enjoyed the Teotihuacan\textsuperscript{10} exhibition. Partly because it is new to the museum and so it came as a novelty for these frequent visitors, or partly because a pre-Hispanic Mexican history topic is interesting for them in and of itself, the Carrillos find this exhibition particularly memorable. In fact, it was Mrs. Carrillo’s opinion that she learned new information from that exhibit.

According to Mrs. Carrillo, learning takes place when motivated by personal interest, something one reads or sees connects with prior knowledge and stays with us. Learning is what we retain.

Mrs. Carrillo: Oh, well, I think that [learning] is something we read, something that gets inside of us so to speak, and if we find that interesting, then we process it and we’re like aha, we retain it, right? And I think that is learning. What we retain, right?

Juan does not think twice before saying that he and his little brother learn as the result of spending time with their nuclear family. What they learn, he believes, is how to be a family. Juan also thinks that he learns about Mario’s personality by spending time with him. He feels Mario is a restless boy, but a good person.

AB: What do you learn from one another?
Juan: From our parents that we can be together as a family
AB: Oh, I see
Juan: And how to do some things
AB: Ok. And from your brother?
Juan: I don’t know. That he is restless. He’s good

Mario on the other hand, is not only somewhat hesitant to describe his own learning experience in museum settings, but he is also timid to depict his role as learner within his family group. In his view, there is not much to learn from his older brother. His parents, conversely, teach him that one should go to school and new games.

\textsuperscript{10}Teotihuacan is an enormous archaeological site in the Basin of Mexico, containing some of the largest pyramidal structures built in the pre-Columbian Americas. It is located in what is now the San Juan Teotihuacán municipality in the State of México, Mexico, approximately 40 kilometres (25 mi) northeast of Mexico City. The site is one of the most visited archaeological sites in Mexico.
AB: And what do you learn from your brother [to Mario]?
Mario: Ah, he hits me
AB: He hits you?
Mario: Yeah
AB: And what else?
Mario: Mmh, mmh. Nothing else

In contrast, Mrs. Carrillo believes that Mario’s impulsive personality benefits a lot from Juan, since Juan is a rather analytical person who likes to think about things in deep detail. She considers that when they work together, Mario gains a lot from the interaction with Juan. Apparently, both boys are in agreement with their mother’s perception of them.

Mrs. Carrillo: I think that maybe Mario learns more from Juan because Juan is more analytic, he thinks things more. And he [Mario] is much more impulsive. So I think that for instance, when they try to make something, I don’t know, if they are making an experiment or something like that, then Mario learns because of Juan
AB: Like Mario slows down because of Juan
Mrs. Carrillo: Right
AB: Do you agree with that Juan?
Juan: Yeah
AB: And you, Mario?
Mario: Yep

Reinforcing the notion of collective understanding of each other’s learning personalities and inclinations, Mario grants that his preference is to have his brother read and understand things, so Juan can explain them to him later. Mario acknowledges he is not a keen reader and that he has a difficult time focusing and frequently does not comprehend what he reads. Juan, in contrast, firmly believes his brother understands what he reads, but has a short attention span. Juan also enjoys asking questions to others for clarification, and explaining things to his little brother, although his lack of concentration is often discouraging.
Mario: Mm, most of the times I prefer that he [Juan] explains things to me because I don’t even know what is it that I read

Juan: Yes you know

Mario: No I don’t

AB: And Juan, do you like explaining things to Mario?

Juan: Yes, yes I do, even though sometimes he does not follow. […] There he is, I am explaining things to him and he is lost

The boys’ perceptions of their parents as learners are not as compelling. Overall, Juan and Mario are aware of their parents as active learners, but have difficulties articulating the ways in which they actually learn or how they learn. However, Mrs. Carrillo sees herself as an individual who learns from experience, social interactions and formal instruction. Moreover, Mario and Juan recognize their parents’ role as educators. In Juan’s view, his parents assist his and his brother’s learning by helping them with homework, answering questions and explaining things they have problems understanding. This is something Juan experienced during the Carrillos’ recent visit to Universum. Mrs. Carrillo agrees with her son’s perception of her as educator but acknowledges, though, that being a parent does not imply ‘knowing everything’. On the contrary, what is most important for this mother of two is to teach the children the skills needed to look for the appropriate information in the pertinent places. Places like this museum, where the Carrillo family members’ understanding of each other plays a fundamental role in shaping the outcomes of their collective learning experiences.

B. The Jáureguis: My child is your child – A socio-culturally rooted notion of “family”

Early in the introductory talk, the Jáuregui informed the researcher of their plan to meet with another family in the museum. To the researcher’s surprise, “another family” was no less than three or four of Mr. Jáuregui’s siblings and their children who were there because of Mr. Jáuregui’s sister’s initiative. As a result, the Jáuregui family turned out to be the largest family group to take part in this study. However, the interview accounts only reflect the views and insights of the nuclear family that first consented to participate in this research: Mr and Mrs Jáuregui, and their three children.

The Jáureguis cherish enormously the time they spend together as a larger group. They are actually very used to planning field trips and outings with their extended family, and sharing the responsibilities of looking after 13 young children. They like visiting museums with
the children because of their educational potential, but consider there are not many alternatives for parents with young offspring in Mexico City. For that reason, Universum is one of their preferred destinations. For them, sharing time with family, particularly giving the children the opportunity to spend time with their cousins, is an extremely valuable socialization occasion. In fact, Mr. Jáuregui declared that one of their motivations for visiting Universum that day was to help one of his cousins develop his speech skills by giving him the chance to interact with children of his age.

The Jáureguis are not a model of organization and planning. One might think that taking 13 or so children on a field trip would require a lot of order and scheduling, but things work out in a more spontaneous manner for this family. In their own view, they go with the “flow of things”. Being such a numerous family, the people who take part in the planned activities are not always the same and so every outing or get together has different participants assuming different roles. For their current visit to Universum, Mr. Jáuregui’s sister was not only the planner but the main leader, guiding the large group through galleries and deciding how much time to spend in which exhibit or hall. Lunch time and other logistic decisions are made on-site, with no prior preparation.

According to Mr. Jáuregui, parents’ expectations of an outing like this one are met when they realize the children are having a good time with the other minors in the group. Overall, recreation is a main motivation for this family. Nonetheless, by spending time with the children, adults learn about themselves and their own parents and ultimately comprehend their present role as parents by understanding and valuing their past role as children. At the same time, children recognize the importance of sharing time with their family, which would hopefully have a lifelong effect in them.

Mr. Jáuregui: Well, for instance I learn about how my role as son was and is, and how my parents were about me. You know, like we understand our parents once we become parents ourselves. So it is only then that we realize everything. Their sacrifices, their effort, and the dedication they had for us. We value that enormously and we are grateful for that […] Yeah, I believe and feel that it is fundamental that we spend time with them. That’s how they realize the importance of being with us and I hope that will help them. Something like they will harvest later what we sow in
their childhood. I would love to see my kids grateful to me when they are older.

For Mr. Jáuregui, every situation has the potential to lead to a learning experience. The science museum in particular is seen by him as an opportunity to teach the children about the living creatures on the planet and also about the creation of life and biodiversity, by God’s hand. Explaining, negotiating, and providing concrete age-appropriate answers to all children’s questions are amongst the Jáureguis teaching strategies. For instance, during their visit to Universum, the Jáureguis had a discussion on what is and what is not a transmitter of electricity and put their own bodies to the test. What is more, an outing to public spaces is perceived by Mr. Jáuregui as an opportunity to learn from the teaching strategies and parenting tactics of other parents, and thus implementing explanations or activities that have not occurred to him before.

On the other hand, in his view children learn things from each other although differences and conflict are also to be expected every time the whole group meets. Learning arises as a natural consequence of rivalry amongst children, as an instinctive effort not to stay behind others. And conflicts are solved with adult intervention and explanation, regardless of whose child’s acts are being questioned.

Mr. Jáuregui: [...] Thank God we have the self-assurance that we can call the attention of whoever child, whether ours or not, any child in the group. We as parents have been mature enough to correct the behaviour of our children [...] and not to get angry if they hit each other because those are children’s affairs, not ours.

Mr. Jáuregui’s perceptions of their children as learners are pretty much clear cut. The oldest son, six years old, likes to ask questions to adults. The middle daughter, three years old, also likes to pose questions but the answers she demands are simpler in nature. The youngest son, one year old, learns through his senses and is not yet developmentally ready to learn science. However, it is his opinion that it is part of his role as father to be selective on what his children should and should not learn at this age, and it is his responsibility to enact his decisions in this regard. Both parents, Mr. and Mrs. Jáuregui, have different learning styles and strategies. He likes to read and investigate things on his own, whereas she likes to share points
of view and discuss things with others. As busy as he is during the visit, looking after his own and other’s children, Mr. Jáuregui finds the time to read and satisfy his own curiosity at the museum galleries, particularly at the math hall.

At first sight, the Jáureguis seem like a conventional family that enjoys and treasures the time they spend together and perceive it as particularly relevant in their children’s lives. They hold and relish “traditional” social values such as discipline, respect and religion. However, the Jaureguis are an atypical Mexican family in one but most important aspect. They all have decided to home-school their children. Home-schooling is far from popular in the Mexican society. The children of this family, however, have never been to formal school (not even the oldest cousin who is eight years old). Parents have taken over the teachers’ roles and work their curriculum through a shared philosophy, which emphasises the need to lay moral and intellectual foundations in the young learners:

Mr. Jáuregui: It is interesting because we want to be their own teachers. We may not be able to educate them all the time, all their lives, but at least we’ll give them the experience of growing up in a familiar environment. Not in an ivory tower where nothing ever touches them, because we don’t believe in that, but we think this is the most important thing for them to learn. We believe that children’s learning is like a box where we store objects of different sizes and shapes, and if we put in the small things first, there won’t be enough room for the larger things in the future. So we want to put in the box the large things first, and then the small ones.

Each nuclear family keeps their children at home and follows their own curriculum, but all agree in that fieldtrips are a crucial element in their family’s education, and that the participation of both parents is absolutely necessary for the accomplishment of their educational goals. The Jáureguis view museums not only as an opportunity to bring their children close to science and thus as a worthy educational tool, but also as places where socialization can and must take place, thus confirming the didactic roles of science museums. Having children at home should not prevent them from interacting and spending time with other children. In fact, it is their opinion that an optimal child’s development takes place when they interact with different-age children and not only with others in the same developmental stage. Children learn from older and younger peers, and this helps their cognitive and social
development. Also, it is important, according to the Jáureguis that older children learn to look after younger ones, although such a responsibility is not theirs entirely. Even though they consider their children to be too young to fully understand and assimilate the theoretical contents of the museum, they believe they can gain intellectually from their visits.

Mr. Jáuregui: [...] Many times it has happened to me before that I take them to a place like this one and they have fun and all, and they do not quite understand what they are looking at. But then when we are at home it happens that he asks me a question, my oldest one, the six year old boy, so he asks me something and then I can refer him to what we saw at the museum and tell him, do you remember when we were here or there? Do you remember we saw this and you did this or that? So I talk to him about those moments and he goes like ‘oh, yeah’

AB: He realizes things

Mr. Jáuregui: He realizes things and learns better

Also, they consider each visit to be different since as children grow up, their interests and capacities change and develop. As far as that particular visit went, the educational agenda for their nuclear family included the extinction of dinosaurs and the planets for the oldest boy, and the magnitude of distances and the Universe for the girl. Other nuclear families had their own agendas for the trip. But then again, once in the museum, parents and children intermingle and swap from one group to the other, indistinctly sharing not only disciplinary responsibilities, but experiencing as many different agendas and approaches to education as nuclear families in this large family assemblage.

C. The Aragóns: In command of one’s emotions – Extended family and emotional competence

The Aragóns give the appearance to be a classic nuclear family: Two relatively young adults and one boy. Superficially, it appears this family group comprises mom, dad, and child. It is not until the interview process begins, when things suddenly fall into place. The adults are not the boy’s parents, and the boy, Fernando, is not their child. They are in fact a couple, but the young man is their nephew and lives with his parents and baby brother. The Aragóns live in Mexico City. They are recently married and it is common for them to organize family outings with
Fernando, his baby brother, and their parents. They like to visit parks and take walks as a family group whenever they can. Nonetheless, it is not that often that the Aragóns get to be with Fernando without his parents’ company. In this unique occasion, they have “borrowed” the child with his parents’ permission, and have decided to spend the day together at Universum.

Mrs. and Mr. Aragón enjoy visiting museums together, although in the view of Mr. Aragón, they have not been in one for a while. According to seven year old Fernando, his parents do not take him to museums as often as his aunt and uncle. Mr. Aragón concurs that the boy’s parents are not as fond of visiting museums as they are. This is in fact, this family group’s first visit to Universum. Mr. Aragón is the person behind this visit to the science museum. His motivation for bringing his family here is offering Fernando a new learning experience. In his view, their recent experience in the museum was a positive and educational one for all the members of the family. This family’s choices during the visit were mostly structured by the “order” of galleries and exhibitions. In aiming at not missing anything, adults guided the visit following the architectonic sequence of the museum.

As frequent museum visitors, the Aragóns have an established perception of the role that adults must play to facilitate a learning experience for Fernando while in a venue. Learning, according to Mrs. Aragón, takes place when one is able to repeat a behaviour or experience. For Mr. Aragón learning is the acquisition of new knowledge, based on observations and actions. Explaining is one of the fundamental strategies the Aragóns employ to assist Fernando’s learning, particularly in places that have a lot of text on display, such as Universum.

Mrs. Aragón: We need to explain things to him [Fernando], because there is too much to read and he is just seven years old. So he can read, but it is too much for a seven year old. So we try to explain him things […], we explain him in a quick manner, and using age appropriate language so he can understand and we can move on quickly. ‘Cause he has a lot of energy right now and he cannot spend a lot of time standing up and contemplating something […] And we need to explain things to him, otherwise the point of the visit to a museum is lost. If he does not understand what it is, and just touches and moves everything without understanding, what is the point? So yeah, we explained things to him.
This educational behaviour works out not only from the adults’ perspectives on teaching and learning from a museum visit, but is also in harmony with the minor’s learning preferences and strategies. In Fernando’s own words, he learns when others (i.e., parents, relatives, teachers) explain things to him, as opposed to investigating or finding them out on his own. For Fernando, learning involves knowing how to do things by himself and remembering things. In the child’s adult relatives’ view, Fernando indeed likes the interaction with adults and learns through their guidance and expertise. It is Mrs. and Mr. Aragón’s view that Fernando is a child who enjoys reading books since his early years and is someone who is not afraid of asking questions to adults if in doubt. This behaviour was seen in the museum galleries, although not as frequently as expected by the adult members of this family group. Fernando states that as a result of questioning on his part and explaining on the adults’ one, he learned about animals and bugs, planets, and dinosaurs from his recent visit to Universum. For Mr. and Mrs. Aragón on the other hand, the most significant learning experience took place at the planetarium, where they did not only remember basic scientific concepts and information once learned at school, but actually learned new things about stars and constellations.

The Aragóns believe that by spending time together as a family, which they do on a regular basis, they learn about many different things. In Fernando’s views, he learns from his aunt and uncle what the ‘good things’ are, and he also gets to know different and new places. He learns a lot from his relatives because they are older, more experienced and have knowledge about a lot of things.

Fernando: Oh, a lot of things. Since they have, well, they are older and they know a lot of things, they can tell me what it is, what it is and many other things

AB: Aha

Fernando: They teach me a lot of things

However, in this minor’s opinion, the adult members of his family group do not learn anything from him. When Mr. and Mrs. Aragón express their total disagreement with this idea, Fernando realizes that his older and savvy relatives actually learn from him. In Mr. Aragón’s viewpoint, adults learn a great deal from the child, from child behaviour, to children’s learning abilities. Mrs. Aragón agrees with her husband and further believes that learning about each other and learning to deal with a child, is at the core of their family time. But primarily,
learning from Fernando’s behaviours and responses to situations is essential for her in order to be able to guide him and assist him in the management and understanding of his emotions.

Mrs. Aragón: Well, I think we go back; we have to go back to the time when we were kids ourselves. What and how did you understand things [back then]. He [Fernando] makes me remember my childhood a lot. Because I feel that sometimes when you grow older you forget, there are a lot of people that forget that. And I in particular remember how it was to be a child and I try, every time I am with Fernando I try to observe him a lot and watch his facial expressions and his behaviours. His responses and all of that. That way I know how to orientate him, whether he is upset about something or happy about something. I try to explain him using the best words that I can.

In contrast with Mrs. Aragón’s notion that the central purpose of a museum visit is to gain some cognitive understanding of the topics in display (shown above), she considers that her primary legacy to Fernando is to teach him how to understand and handle his emotions. In her view, knowing and managing one’s emotions is as essential a learning outcome as any other cognitive one.

Mrs. Aragón: We try to orientate him as much as we can, so he can manage his emotions. That if he’s upset, it’s not just a lapse of time, a tantrum, but rather that he has a reason to be upset and he understands it. We try to keep his emotions focused.

AB: You deal with the emotional part then.

Mrs. Aragón: The emotional part, yes. I believe it is even more important than knowledge because if you cannot control your emotions that can preclude you from a lot of things in your life.

Such an emphasis on emotional competence and awareness of one’s emotions seems to be having a significant impact on Fernando’s developing sensitivity. This seven year old considers he will be qualified to teach his baby brother about subject matters such as math, the
human body, plants, bugs, and the planets. He also believes that his baby brother currently teaches him about caring and the meaning of being.

Fernando: Yes. I will teach him all that. Everything about the school, I am going to teach him all about dinosaurs, things, plants, bugs. Everything. A lot of things I will teach him.

AB: And what do you think he could teach you?

Fernando: Well, he teaches me that he is a baby

AB: And how's that?

Fernando: The sensation of looking after him, as if I was his father and things like that. The sensation of hugging him. And being kind to him. Many things

It is interesting to think about a science museum as a place where visitors not only find the space and time to boost their cognitive knowledge on content areas, but also as a place where they attend to their family members' emotional development, since the cognitive and the emotional are often perceived as contradictory goals. Certainly, it can be argued that Mr. and Mrs. Aragón's interest in supporting their nephew's emotional awareness is becoming evident in Fernando’s perceptions of his and other’s roles within his nuclear and extended family groups.

D. The Esparzas: Learning comes in different shapes and colours - The relevance of the social outcomes of a museum visit for family groups

The Esparza family is a bit hesitant to take part in this study at first. However, Mrs. Esparza gives it a second thought and decides to let the family participate. At first sight, the Esparzas appear to be a nuclear family of four. However, Mr. and Mrs. Esparza have only a nine year old daughter, Carolina, and a nine year old niece, Lucía. The Esparza nuclear group reside in Mexico City, whereas Lucía lives in the North-Western city of Tijuana with her parents. She is spending part of her summer vacation in Mexico City with her relatives, for the first time without the presence of her parents.

The Esparzas are frequent museum visitors and also enjoy family activities such as getting out of the city when possible, going to the movies, biking or going out for a walk. This, as expected, is not the first time that the Esparzas visit Universum. They have been here in the past, but not with Lucía. In fact, Carolina has the idea to visit Universum that day, motivated by
the intent of sharing this place with her cousin. Carolina’s special interest in offering Lucía the opportunity to visit Universum resides in her personal impressions of the venue and her particular fascination for chemistry and the planets.

The Esparzas concur that during their most recent visit, Carolina took a leading role, guided by her knowledge of the place and curiosity. Mrs. Esparza further acknowledges that they like to be informed about the opening of any new exhibit or gallery, so they can enjoy novel things every time they visit Universum together. With this purpose, and even though they know the place quite well, they always stop at the front desk for guidance at the start of their visit.

The Esparzas value enormously the time they spend together as a family, and the quality of such shared time, or ‘convivencia’. There does not seem to be an accurate translation for this Spanish word in English, but it is certainly a concept deeply valued by the Esparzas. It is more than just sharing time and space. It involves knowledge and appreciation for each other. It involves quality time, sharing interests and creating history and memories together.

For this family, ‘la convivencia’ and having fun together is a precious outcome of a museum visit. That was the case here at Universum, where they not only enjoy watching the girls play and participate in joint activities, but consider that time together as the foremost outcome of their visit. For the girls, that is also the most worthy upshot of their family visit to Universum.

Additionally, the Esparzas emerge as a clear example that fun or enjoyment and cognitive learning are not opposite. The Esparzas talk about their recently acquired knowledge of scientific topics without difficulty.

Mrs. Esparza: We learned that the stars form from gases and dust
Carolina: Yeah, from dust
AB: Did you learn that here today?
Carolina: Mhm
AB: Anything else?
Mrs. Esparza: About the conduction of electricity […]
Mr. Esparza: No, and the age of an ammonite as well
Carolina: Eh?
Mr. Esparza: The age of the ammonite that we have
Carolina: Oh yeah, that the ammonite is a rock that is 70 million years old
According to Mr. Esparza, learning refers to the new knowledge one gains. For a situation to instil learning, it has to have the following elements: observation and play or interaction. Manipulation on the part of the learner is a requirement, according to him. In Mrs. Esparza’s opinion and experience, learning results when visual elements and support are at hand. Carolina, on the other hand, considers that she learns when she is in command of the situation and she has the opportunity to do things with her own hands. Carolina is also aware that she likes to ask questions when questions arise. Lucía too, thinks that she learns when given the chance to manipulate things. In fact, such inclination played a role in the Esparzas’ museum experience, since in Mr. Esparza’s opinion his appeal and interest in explaining things to the minors is not always welcomed. From Mrs. Esparza’s perspective, these girls are much more interested in observing, exploring, and discovering things by themselves, and often dismiss their parents’ teaching intentions.

Mrs. Esparza: Yeah, yeah. We are really in a space that encourages reading, right? At least for me. For them [the girls], as I told you, kids are only interested in just touching things.

Carolina’s parents believe that their daughter’s perception of her own learning style is accurate since even though she likes to read and reflect on things, she prefers creative and playful activities and frequently takes her learning in her own hands. In Mr. Esparza’s view, this is closely related to the Montessori instruction Carolina has received since her toddler years. In addition, he considers that getting to know their girl’s approaches to learning is the result of a collective process that only takes place when they spend time together. In doing so, parents and child learn about each other’s preferences and facilitate each other’s learning by making use of that knowledge.

Mr. Esparza: Yeah, and it has been also a process of getting to know each other when we spend time together, because she has attended a Montessori since she was three. So her learning process has been just that, play and discovery. So she learns from us and we learn from her too.
Both Carolina and Lucía agree that they learn a lot from each other. However, it is hard for them to articulate or illustrate their statements with concrete examples. For instance, according to Lucía she teaches her cousin gymnastic and acrobatic movements amongst other things. Mrs. and Mr. Esparza agree in that the girls teach one another not only subject matter knowledge, but other social and physical skills.

In Carolina’s and Lucía’s view, they also learn many things from Mrs. and Mr. Esparza. The girls consider that the adults teach them manners and good behaviours. In contrast, Carolina believes that her parents learn from her how to be patient and understanding. Mrs. and Mr. Esparza concur with their daughter’s perceptions, but they further believe that what they learn from the girls is considerably valuable. In their opinion, they learn from them to enjoy life at ease and with fresh eyes. Also, they learn subject matter and concepts.

Mr. Esparza: They report what they learn in school or read in books and we learn from that
Mrs. Esparza: And also that they are very fresh, very creative. They do not have limits yet, they are not corrupted as the adults are. Right? And we learn from them other things as well. For example, now that Carolina just measured her energy, well, we learned that Carolina has more energy than any of us, right?

Carolina: I have lots of energy and they don’t
AB: Ok

Mrs. Esparza: So yeah, spending time with them is nice because they teach us how to be more tolerant

Mrs. Esparza acknowledges the significance of spending time together as a family since ‘la convivencia’ is the only way to actually get to know each family member. She furthermore considers that having the experience to interact with Lucía without her parents’ mediation and interference, has provided them as a family with the unique opportunity to actually get to know and understand Lucía’s likes and dislikes, as well as her developing personality. This episode as aunt and uncle has then given the Esparzas the chance to learn more about their niece’s inner needs and feelings.
Mrs. Esparza: Well, we get to know each other, right? We get to know us. For instance with Lucía. Yeah, we know her since she was a baby but we had never had the chance to have her at home alone. She always comes with her mom and stuff. So this is a different experience for her and for us

AB: Mhm

Mrs. Esparza: We need to use other strategies with her. She teaches us what she likes and what she doesn’t like. Because we think we do everything right, but may be that’s not

AB: That’s not right for her

Mrs. Esparza: That’s not right for her, exactly. So we learn how she feels, right?

All in all, the Esparzas are a family that value learning in all its dimensions. They appreciate the cognitive outcomes of a family outing to places such as Universum, but they cherish their time together mostly because that gives them the possibility to learn about and better understand each other’s personalities and feelings. And also, because sharing as a family is for them, an essential aspect of life.

E. The Berlangas: Teaching from the heart – Grandparents as pillars of family life

The Berlangas are a family group headed by grandparents. However, the two vivacious girls that are together with these two middle-aged adults are not sisters, but cousins. Sandra and Amelia live each with her respective parents in Mexico City. Mr. and Mrs. Berlanga are now retired and live in Mexico City as well. They look after their two granddaughters rather often, given that their parents work full time. Since babies, Sandra and Amelia spend a lot of time together on a daily basis. They give the impression of being sisters. Perhaps more so because interestingly enough, they are ‘two times’ cousins: their mothers are twins married to two brothers.

Mr. and Mrs. Berlanga spend a lot of time with Sandra who is almost six years old, and Amelia who is five years old. They regularly take them out and plan family activities with their two grandchildren. Unsurprisingly, the Berlangas are frequent museum visitors. They have been to virtually every museum in Mexico City, including Universum, which is recognised by the adults as an emblematic site for being part of the top university in Mexico.

Mr. Berlanga is a very outspoken person, whose leading role in the family is evident to all his family members. He actually is the one who suggested coming to Universum the day in
which this study was conducted. He wants the girls to visit the new Evolution gallery, so they start understanding the concept of evolution and the origin of the universe and life. In other words, he is mainly interested in the educational outcomes of the visit, and has evolution as his core agenda. In fact, this specific interest and goal came to light at many points during the post-visit conversation. Mr. Berlanga’s interest in the concept of evolution even led him to question the researcher’s perspective on the matter and its connection with religious beliefs. It is evident that Mr. Berlanga sees a clear conflict between pursuing a professional career focused in biological sciences, and the traditional religious stances on the origin and evolution of life.

According to Mrs. Berlanga, her husband generally adopts a leading role when the family visits a museum setting. In her view, Mr. Berlanga is a knowledgeable person who is well informed and has the skills to guide and provide pertinent explanations for her and the girls. At some points of their field trips, they generally consent to give the girls the opportunity to follow their interests and wishes.

Mrs. Berlanga: It depends on the place. Generally Gabriel, my husband, is who does it [take the lead of the group] because he has read a lot and so he guides us. Look at this or that, he calls our attention to the surprising things he finds. And he directs the girls, too. When it is about the girls, we let them free and we follow them where they lead us

Mr. Berlanga concurs with his wife and acknowledges his leading part, but is also aware that his family members’ mutual trust and reliance permits the girls to call the adults’ attention whenever they find something they believe is interesting or astonishing.

Mr. Berlanga takes his role as educator very seriously and tries hard to instil content knowledge in Sandra and Amelia. His active participation in the girls’ education and development is clear even when Sandra and Amelia are in the centre of the conversation.

AB: What did you like most, Sandra?
Sandra: Mm, many things
Mr. Berlanga: One, say just one […] You know that, Amelia? […] What can you say? I told you many things in there
Sandra: The stars and the dinosaur bones
AB: Ok, and you?
Amelia: Me too
Sandra: And the planets
Amelia: Me too
Mr. Berlanga: Oh, but of course

[...]
Sandra: And the hominids
Mr. Berlanga: The hominids. They just start to get what that means, but they know it now

Mrs. Berlanga’s personal interests are different. She is interested in the Universe, planets and asteroids, and she regrets she did not have more time to read the information on display. The girls on the other hand, enjoy both the educational and the recreational experiences they have with their grandparents at this and other settings. Again, Mr. Berlanga’s proactive and caring role as Sandra’s and Amelia’s educator is noticeable when the girls struggle to articulate their learning experiences with their grandparents.

AB: [...] Do you think you learn new things when you are with them?
Mr. Berlanga: Oh my
Sandra: Yeah
Amelia: Yeah
AB: Like what?
Sandra: Mm, mm
Mr. Berlanga: Not so much, please [...] Answer the question, please, what do we talk about? [...] Ok, look, what song is this? [whistles melody]
Sandra: The Swan Lake

Mr. Berlanga proudly takes credit in his granddaughters’ musical education. As a result of his efforts, he says, one of the girls is a good dance student in an important academy in Mexico. The other, is good in sports. Sandra and Amelia, the Berlangas agree, have different abilities and inclinations and it is their task as educators, to foster and cultivate their innate skills. Mr. Berlanga’s warm and amorous dedication to his granddaughters fulfills him. He also teaches them art, literature, and science though books and constant fieldtrips. Sandra and
Amelia consider that they not only learn from their grandparents, they also learn different things from one another; from games and sports, to literacy and social skills.

Mr. Berlanga: I have the honour, that these girls at the age of two and a half and three, I gave them an animal encyclopedia this thick, and they looked at it page by page, all the animals. They are in touch with books. She [Sandra] is learning to read and has read complete stories on her own. And this girl [Amelia] is now starting to guess what they say

The Berlangas are very much aware of their granddaughters’ personalities and learning preferences. They agree that both Sandra and Amelia are good observers and like to notice the smallest aspects of things. This understanding of the girls helps Mrs. and Mr. Berlanga assist their learning experiences in places like Universum, by calling their attention to the details of animals and plants, for instance.

Mrs. Berlanga: You see, they get amazed with what they find. Sandra is very watchful and she goes to the backyard of ‘your house’, there’s a small garden there, and she is picking up leaves, and she is touching and watching everything she finds and she is calling her cousin constantly. Look at its colour, look at its shape. And Amelia loves inspecting spiders and flies, she chases them. And then she shows us everything, same as her cousin. Look at its legs, etcetera

[...]

Mr. Berlanga: When we come with them to a museum, we come at their level. So when I can explain things to them, I do so. And I go when they call me, or they come when I call them. That’s the way it is

[...]

Mrs. Berlanga: Like today, for instance, there are butterflies and tarantulas. They were staggered looking at them up close and we were like look, you can look at them better like this, you can do this or that, and so on

11 Colloquial way to indicate empathy to others: “my house is your house”.
Sandra and Amelia concur with their grandparents’ perceptions of them as learners, and both agree that they like to observe and discover the world on their own. However, they also appreciate explanations and input from adults to expand their understanding of things. Mrs. Berlanga on the other hand, is a person who finds pleasure in reading, challenging other’s opinions and exchanging ideas. She learns a lot from the interaction with others. Mr. Berlanga is some one who enjoys reading and learning new things, as much as bringing about argumentation and debate.

Mr. Berlanga: Discussion comes in second place, because I need first to learn something in order to discuss it. Either with her [wife] or with other family members […]

AB: I think you love to discuss things

Mrs. Berlanga: Oh yeah, he loves that. He’s an instigator, an experienced instigator

Mr. Berlanga: Exactly. Thanks to critique and instigation, the best has been achieved.

For instance, with these girls right here

The Berlangas’ passion for their grandchildren emanates from their conversation and their interactions as a family group. They put their hearts in everything they do together. This family’s mutual trust and love is there for anyone to see and respect.

F. End note
The five stories presented above represent a fraction of the total number of cases that conform the data set of this research study. All 20 cases are considered in the analysis of outcomes presented in Chapter 5. However, by providing a deeper description of a sub-sample of cases (i.e., demographic composition, types of interactions, and so on), the narratives offered here give a contextualized account of participants’ perceptions on some of the issues that will be further explored in Chapter 5:

A. Carrillos – The role of the family in the education of children; particularities of the urban family; the accentuation of Mexican identity through symbols represented by history.

B. Jáureguis – The prevalence of socio-cultural values such as respect, discipline and religion in the Mexican society; a socio-culturally embedded definition of family; shared responsibilities within the family assemblage.
C. Aragóns — Participation of extended family in the education of children; the value associated to emotions in the Mexican society; children’s partaking in family life.

D. Esparzas — The family as socialization milieu and the importance of getting close to one’s kin; the significance of the social outcomes of a museum visit; the multidimensional nature of learning from museum experiences.

E. Berlangas — The central role of extended family, grandparents in particular, in every aspect of family life including children’s education; affect as a central aspect of childrearing; Universum-UNAM as an emblematic site in the Mexican context.

Frequent mention of these five cases is employed in Chapter 5, as they are used as exemplar and concrete references that highlight some of the outcomes of the study, and that contribute to the understanding of the socio-cultural elements that shape the learning experiences of Mexican family groups visiting a science museum.
Chapter 5: Data and analysis. Family learning in the museum context

In this chapter several topics that concurrently depict the nature of the learning experiences that the members of the participant family groups underwent during their visit to Universum, Museo de las Ciencias, are discussed. The topics and themes explored in this chapter are drawn from current perspectives in the fields of museum learning, families in the museum setting, parent-child interactions and learning, and Latin American and Latino perspectives on family and learning. Some emergent themes are also discussed.

This chapter is organized into four larger sections, each one containing a number of themes and issues that play a part in the collective construction of understandings about the world, while also contributing to the formation and reaffirmation of participants’ socio-cultural identity. In the first section, a broad description of participants’ museum experience is provided, based on emergent and theory-driven themes, such as general impressions, motivations for visiting, family dynamics, and cognitive outcomes of the visit. In the second section, a discussion of the concept of “family” within the Mexican socio-cultural milieu, as defined in context by participant family groups is provided. Issues of extended family members’ roles, the nature of interpersonal relationships at the core of a family group, gender roles, parental involvement in child rearing, and participation of children in family life, are discussed here.

The third section includes an exploration of the concept of “educación”12 (Valdés, 1996). The fourth one discusses issues that relate to education and learning within the family core. These last two sections ought not to be read as independent or detached, but rather as overlapping and complementary. It is acknowledged that it is hard to draw a clear line between “educación” and education since one cannot exist without the other, and both are essential aspects of the dense net of social interactions that take place at the heart of a family.

5.1 Description of participants’ museum experience

As the particular cases described in the previous chapter illustrate, participants of this study declared to have had a positive family experience in Universum. On the whole, people perceived their recent visit as a fun and educational experience for all family members, as well as an opportunity to learn about each other and about their own family dynamics and

---

12 For a discussion on the notions of “educación” and education see Chapter 2, section 2.4.2.
interactions. Supporting the Esparzas’ standpoint and also discussed in detail later in this chapter, other adult participants also expressed contentment due to the fact that they had spent time together as a family. In general, participant adults and children concurred that the contents of the museum and the way they are presented are interesting to them and, that visiting Universum is an excellent opportunity to learn and understand science. See, for instance, Mr. Jáuregui’s remark:

Mr. Jáuregui: In fact this is part of what we want to teach them [the children]. Not only at home with books or films. We try to bring them to places where things are more tangible, and where they can be in direct contact with the information, and they can actually feel it, touch it or play with science objects. Even though they are still young, but we believe they can learn here

However, many families, including the Aragóns and the Esparzas expressed barriers to learning related to the discomfort around the amount of information in the museum displays. In these participants’ opinion there is far too much text than children can read or can allow an adult to read while maintaining the required social management of the family unit.

On the other hand, the display of living creatures had a particular positive emotional impact on visitors, as the Carrillo family exemplify. Children were particularly fascinated by live animals and considered those encounters as particularly vivid, interesting and exciting. This finding corroborates Briseño-Garzon, Anderson & Anderson’s (2007a) and Myers, Saunders & Berjulin’s (2004) claim that the contact with living creatures can elicit strong emotional and affective outcomes in visitors.

Furthermore, people offered positive comments about Universum’s shows and activities, and some declared to be especially pleased with the explanations and demonstrations the personnel of the museum provided. Both children and adults also were eager to talk about their favorite moments during their family visit:

Mr. Lara: I liked a lot the math hall, the images and all that
AB: The mirrors and stuff?
Mr. Lara: The mirrors and kaleidoscopes and all of that. And also the earthquake exhibit, where the floor moves. And that huge image, the huge map where you can walk over the city, the kids loved that one.

Collective amusement was also perceived as one of the most memorable outcomes of their recent visit to the museum by some participant family groups, including the Esparzas. The museum served as a context for relaxed family interactions and funny anecdotes that are cherished by family members as some of their most valuable outcomes of the visit.

AB: Is there any special moment you take home with you today?
Mrs. Tapia: We had a hilarious experience, hilarious. We entered the wrong washroom.

Javier: [Laughter]
Blanca: [Laughter]
Mrs. Tapia: [Laughter] And as soon as we realized that we stepped out really fast.
[Laughter]
Mr. Tapia: [Laughter]

5.1.1 Motivations and agendas
All participant family groups’ choice to visit Universum the day they were interviewed arose from one family member’s drive and interest in the museum. There were families where parents or guardians had the initiative for visiting Universum, such as the Berlangas and the Aragóns, and there were others where the children were the promoters of their family trip, like in the case of the Esparza family. This suggests that parents and guardians play an important role as decision makers, yet children’s wishes and requests are also influential in family decisions and actions. This outcome is in harmony with Hansis’ (1997) and Figueroa-Moseley et al.’s (2006) claim that in Latin American families, children’s voices are respected and taken into account.

Additionally, the “intellectual authors” of the visit had a lot to say about their particular motivations for encouraging other family members to visit a science museum together. However, some of the categories of motivations that have been previously described for Anglo audiences (Briseño-Garzón, Anderson & Anderson, 2007b; Combs, 1999; Moussouri, 1997) seem to be subtly different when dealing with Mexican visitors. For instance, while education...
(i.e., gaining information or knowledge, expanding understandings, appreciation, offering others a learning experience) and recreation motivations (i.e., escape from everyday life, relaxation, entertainment, amusement) seem to be valued in both socio-cultural contexts in a rather similar way, the value assigned to the social aspect of the visit does seem to be cherished in particular ways in the Mexican context, as will be discussed below.

Mr. Aragón: I had been told about Universum and everything you could learn here. For the children, mainly. So I invited Fernando, with the permission of his parents, to come so he could know the museum

The literature on family learning in museums undertaken in Anglo contexts (Briseño-Garzón, Anderson & Anderson, 2007b; Combs, 1999; Moussouri, 1997; Pekarik, Doering & Karns, 1999) has described the social aspect of a visit rather centered on treasuring spending quality time with one’s nuclear family and creating memories as a family unit. Nonetheless, visiting Universum was perceived by participant families such as the Jáureguis and three more groups, as an opportunity to foster interpersonal relationships with the nuclear and extended family members, and friends. Such social aspect of the visit represented a motivation for visiting in and of itself.

Mrs. Ramírez: It was my idea. We planned on meeting here with some friends that had not been here before

AB: So you came here today to show them around?

Mrs. Ramírez: That’s right, to spend the day with them

This outcome supports the notion that family in the Latin American context not only involves nuclear family members, but blood relatives and many persons undertaken by marriage, Godparenting and friendship (Marin, 1993). They also lend support to previous claims that Latin American and Latino families tend to develop high levels of family cohesion amongst members (Halgunseth et al., 2006).

Moreover, the life cycle category of motivations for museum visitation (Moussouri, 1997) also seems to be shaped by socio-culturally defined components, since according to the outcomes of this study, life cycle not only involves reproducing past experiences (Briseño-Garzón, Anderson & Anderson, 2007b; Combs, 1999; Moussouri, 1997; Pekarik et al., 1999),
but assigning a meaning and context to those past experiences derived from socio-culturally relevant elements. For instance a number of adult participants, including the Berlangas, declared they were enthusiastic about visiting or returning to the National University of Mexico, an emblematic and academically significant site for the Mexican people. As mentioned earlier, Universum is not only a jurisdiction of UNAM, but it is actually located on UNAM’s campus. For other family groups, simply coming back to UNAM after some time of not being on campus, or giving their children a chance to know the place where they had studied years ago, represented a motivation to visit Universum. Thus, parents’ history as university students seems to have influenced their current interests.

AB: So why did you decide to come here today?
Mrs. Palma: Well, I studied here at UNAM, I was born here [in Mexico City]. And yes, I have lived in Querétaro for many years now, but they [the children] did not know UNAM, let alone Universum.

In several family groups children’s eagerness to visit Universum with their families was what brought the whole family to the site. In contrast with adult’s motives for visiting, children’s motivations were more self-centered or based on intrinsic interest in the museum setting and its contents (Csikszentmihalyi & Hermanson, 1995).

Javier: Because it’s been a long time since I was here for the last time, so I wanted to come because I like it here
AB: You like it here. What do you like the most?
Javier: The planets

An analysis of children’s responses indicates that their reasons for visiting can be classified in terms of recreation, education, social life, life cycle, and introspection (recalling past experiences, feeling connections, imagining places). Again, social life in the view of children involved the presence of extended family and friends and an inherent desire to share

---

13 The National Autonomous University of Mexico (Universidad Nacional Autónoma de México, UNAM) is a public university based primarily in Mexico City and considered to be the largest university in Latin America in terms of student population. Besides being one of the most recognized universities in Latin America, it is one of the most artistically detailed. Its main campus was designed by some of Mexico’s best-known architects of the 20th century. Murals in the main campus were painted by some of the most recognized artists in Mexican history, such as Diego Rivera and David Alfaro Siqueiros.
moments with them and create a family history together, as illustrated previously with the Esparza family case. The following quote gives another example from a different family group:

Mr. Suárez: They saw some publicity and that was what caught their attention, it reminded them of the existence of this museum. The boy was the one who had the idea to come here today
Esteban: I wanted to show it to my cousin and I wanted to remember what I had seen four years ago
Mr. Suárez: He has a special interest in planets and Chemistry, so he wanted to come back
Esteban: A long time ago, like when I was five years old I came here, and I wanted to remember it and show it to him [his cousin]

Overall, this study supports the claim that families are inclined to visit museums based on multiple reasons or motivations, thus confirming Borun’s (2002), Falk, Moussouri, & Coulson’s (1998), McManus’ (1994), and Prentice, Davies, and Beeho’s (1997) conclusions that when visiting a museum, family groups look for both collective enjoyment and an educational or informative experience. Hilke’s (1987) assertion that families visit museums for primarily social and recreational reasons seems to hold particularly true, especially when children initiate the visit.

Additionally, participants’ agendas predominantly dealt with their interest in seeing or attending particular exhibits, galleries, or activities at Universum. Such agendas were constructed around adults’ and children’s appeal or curiosity about particular scientific topics (e.g., telescopes and planets, biodiversity and evolution, dinosaurs, chemistry, or physics and math). Activities in participants’ agendas included attending the planetarium show times and spending time at the young children’s area for families with children under six years of age, like the large Jauregui family group.

5.1.2 Mexican families and museum visitation
Participant families, represented by the Aragóns, the Berlangas, and the Carrillos, declared to be fond of visiting museums in their leisure time, amongst other activities they enjoy sharing as a family group. In general terms, their tendency for visiting museums did not only include science museums, but the many kinds of museums and informal settings that can be found in
Mexico City and surrounding areas. These include art, history, and technology museums, archaeological sites, parks and historical buildings.

Mrs. Badillo: So we regularly go to places like the Chapultepec amusement park, the Natural History Museum that is close by, or the Teotihuacan pyramids, and Universum itself. I mean, activities that can be educating for them [grandchildren] and fun at the same time

This finding contradicts previous assertions based on Latino populations, which claim that Latinos are not regular museum visitors (García-Luis, 2007; Garibay, 2009). It is to be expected that the people interviewed in this study enjoy visiting museums since they were recruited in one; besides, participants were educated people who not surprisingly find value in visiting museums with their families. However, what is worth noting is the prevalence of positive comments related to museums in Mexico City, their diversity and quality, and their perceived value in society, along with the fact that most families were frequent visitors to Universum.

Mrs. Ramírez: We like doing physical things, like games or sports. And we love visiting museums. We have been to many museums actually. We visit Universum regularly, since they [her children] were very little

AB: Are you frequent museum visitors?

Mrs. Ramírez: Oh yeah. Even when we go out of town, we love visiting museums

This implies that there is a sector in the Mexican society, which the participant families portray, who truly value and make use of museum resources. Actually, issues related to museum accessibility in the Mexican context came up during the interviewing process. For instance, some parents expressed concerns about there not being very many venues appropriate for visiting with young children, as did, for example, the Jáureguis. The other is a reflection of historical conditions which traditionally have led to a marked centralization of material, human and economic resources (Acosta, 2005; Sanguinetti & Garré, 2001; Zavala, 2006). Participants visiting Universum from cities other than Mexico City, the capital city, expressed concerns about the existing lack of museums in other cities in the country. In some cases parents
conveyed their wishes for governmental action in favour of accessibility opportunities in every region in the nation.

Mr. Fregoso: The other point is that hopefully all of this [Universum] could be transferred, or taken, maybe not to all the corners in the nation, but to the states that are not even the smallest, but the ones that have had the least opportunities. I think that would be very helpful for everyone

5.1.3 Family dynamics
In this section an overview of the kinds of interactions amongst family members that took place during participants’ visit to the science museum is offered, based both on field notes and people’s own reports on this matter.

In general terms, the family groups that took part in this study behaved rather cohesively and remained together during the whole duration of the visit. In fact, some adults revealed this to be an explicit purpose for them.

Mrs. Durán: Well, we have to be very organized so we do not split, because her and his interests [daughter’s and son’s] are completely different

For families consisting of two adults and two children, it was usual that one adult stood close to one child while the other focused on the other one; dyad composition changed as the visit progressed so both children were taken care of by both adults. This was the case, for instance, of the Berlanga family. For larger families it was common to see the group split in subgroups of at least two people at some points of the visit, and then mingle after some time. If this was the case, as with the Jáuregui family, children were never left unattended.

Playing around, laughing and notably enjoying their time together was also a widespread observation in every participant family. This not only included children interacting with siblings and cousins, but also adults. Loud voices and overt laughing were part of family members’ natural interactions, even during the exit interview. Particular examples of this point are the Carrillo and Berlanga families. Affectionate physical contact among adults, among children, and among adults and children was repeatedly observed in all participant family groups. Such warmth in interpersonal relationships has been pointed out as a characteristic socio-cultural trait in the Latin American context (Carlson & Harwood, 2003; Hansis, 1997;
Marin, 1993). Holding hands, hugging, kissing, teasing, walking around joining hands, or passing one’s arm around another person’s shoulders were amongst the most usual forms of observed physical contact. These kinds of physical contact have been described by Carlson and Hardwood (2003) as more frequent in parent-child interactions within the Latino socio-cultural context, than within the Anglo context.

While it was frequent that a whole family group interacted with one exhibit at the same time, it was also observed that adults read or interacted on their own, motivated by their individual interests, while other adults looked after and attended children’s needs and curiosity. This was the case of Mrs. Jáuregui, for instance, and other participant adults.

AB: Were there any moments in which you read prompted by personal interest and not only to explain things to them [the children]?

Mrs. Holguín: Yeah

Mr. Holguín: Yeah

Mrs. Holguín: For instance, the exhibit on Carl Linnaeus really caught my attention. Just because they started calling me I stopped reading, but that was really interesting to me.

In fewer cases, adults seemed not to get too involved in the family dynamics or museum experience, and would step back and wait for the rest to get going and follow them.

Children repeatedly took the lead in their families. Adults would follow them around and move about in the museum at the children’s pace; consider for instance, Mrs. Carrillo’s case. Extremely curious and active, children would often touch things and run to the nearest exhibit, not always determined to read the information presented, or ultimately understand what any given exhibit wanted to portray or demonstrate. However, children were also observed explaining things or aiding other children in the manipulation of exhibits. In other cases, minors showed adults how to operate displays or explicitly asked for assistance. Many times adults let the children conduct their visit as they pleased and manipulate exhibits at their will, whereas at other points adults took the lead in their groups and decided what to do and where to go, like Mr. and Mrs. Aragón. This was particularly true in family groups with young children.

AB: So, you the adults decided where to go and when

Mr. Lara: Yes, of course
AB: The kids just followed you
Mr. Lara: Yeah, yeah. They’re just three years old, so they do not have a preferred gallery yet

5.1.4 Cognitive outcomes of the visit
All participants declared to have gained cognitively as a result of their recent visit to Universum. Overall, both adults’ and children’s accounts can be better described as mainly factual or declarative in nature (Tennyson, 1992; Wellington, 1990). This finding is coherent with prior research on adult visitors, which has concluded that adults are likely to learn and recall facts as a result of a museum experience as well as show greater awareness and general knowledge on museum related topics (Adelman et al., 2000; Boggs, 1977; Briseño-Garzón, Anderson & Anderson, 2007a; Wellington, 1990). Moreover, the outcomes of this study indicate that children are as prone as their guardians to develop new factual or declarative understandings of scientific topics as a result of a visit to a science museum.

Juan Carlos: Well, that in the leaves there is not just what I thought was inside a leaf
AB: Oh
Juan Carlos: There’s more. There is DNA, glands and things like that

Also, it must be said that learning more than scientific facts and figures actually took place as a result of their visit to Universum, since the outcomes of this study suggest that in some cases synthesis and analysis were also components of adults’ and children’s cognitive outcomes:

Mrs. Holguín: For instance I didn’t know about Carl Linnaeus and I found his work very interesting. The way we divide the animal types. And that thanks to his work we can classify everything we see. And about museums, right? That he set the grounds so we can now have scientific names that are international
Mr. Holguín: Scientific names, yeah
Mrs. Holguín: I didn’t know any of that. How they came to a global agreement, so to speak. All of that. I found it interesting
Overall, this study provides some evidence of the development of synthesis skills on the part of adult and child visitors, as a result of a family visit to a science museum.

Ricardo: That if you call a different country, the energy you send to the satellite bounces back so it can reach other antennae and they can then leave a message or call to that person

AB: Oh, I see. Very cool. You learned all that here at Universum or had you read about this stuff before?

Ricardo: I had read some things, but I did not quite know it

It can be argued then, that the cognitive outcomes of the participants of this study facilitated some level of understanding of the phenomena under revision on the part of adult and child visitors.

5.1.5 Summary
Although the adults and children that took part in this study showed evidence of factual cognitive gains and synthesis skills as a result of their recent visit to Universum in a diversity of content areas and scientific topics, it can be argued that visitors to a science museum are exposed to a broad diversity of vivid learning experiences that go beyond the scientific concepts, demonstrations, and living creatures displayed in the galleries. The richness of a museum experience is such that sometimes the most memorable outcomes are not about the scientific content of the museum, but about the social components that surround the event of the visit. A family day at the museum also offers families the opportunity to learn about each member of the family group, as well as gain a better understanding of their customary dynamics and inter-personal relationships.

Visitors’ motivations to visit museums are diverse and fundamentally idiosyncratic. The outcomes of this study highlight the value of children’s voices in their families’ decisions as well as their leading roles within their families. This study further shows that Mexican families value and have expectations for meeting extended family members and/or friends at the venue, who in turn form part of a family’s social event. Also socio-culturally rooted is the outcome of the display of evident and prevalent physical contact amongst family members in the public space of the museum.
5.2 "Family" defined in/with action

The purpose of this section is to construct a definition of "family" that reflects not only the observations made on the museum floor of the interactions and characteristics of the participant families, but one that also incorporates participants' views and perceptions of themselves as family units and individuals connected by kin relationships. The goal then is to draw a bottom-up characterization of Mexican kinship within the context of a museum visit.

5.2.1 More than just the people

Evident not only to the unobtrusive observer is the fact that for Mexicans, family is more than spouse and children, from the adults' perspective, or parents and siblings, from the children's standpoint. It is clear that "family" means a lot more. Take the Jáureguis as an example. This was a group where multiple nuclear families of three or four interacted together as one enormous crowd. According to Mr. Jáuregui, both adults and children members of this group have no doubts in considering each other as family. Any observer could attest to that. Family members constantly mingle around; adults look after and discipline each other's children; children look to any adult for reference and protection. They share not only blood, but trust and affection.

Mr. Jáuregui: We are very prone to look after each others' children. For instance, she is now looking after two children that are not hers, but at the same time her son is being looked after somewhere else

Other cases further corroborate the assertion that in the Mexican socio-cultural context, one's intimate family grouping includes also relatives and close friends. Consider the Berlangas, for instance: grandparents looking after, educating and caring for their two granddaughters; cousins that look and relate as if they were siblings. Or other participant family groups such as the Palmas comprising mom, grandmother, uncle, daughter and niece. Or the Laras, who presented an interesting arrangement that included, dad, son, godson, nanny, and nanny's niece.

The floor observations corroborate former assertions that Latin American and Latino families tend to be large in numbers (Gracia, 1999; Hansis, 1997; Marin, 1993). It was not uncommon to see gigantic family assemblages entering Universum, consisting of for instance, eight adults, three young children, two teenagers; or two adults, three teenagers and seven
young children; or three adults and nine children. It has to be acknowledged though, that the
time of the year when the study was conducted may have had some direct implications on these
observations, since schools were on vacation and most adults were not.

Arguably, family is not just about numbers of people. It is about their mutual reliance
and inter-relationships, as illustrated with the five cases depicted in the previous chapter. It is
about their cohesiveness and their unique intrafamilial culture resulting from the joy of
"convivir"\textsuperscript{14}. All of which is reflected in their behaviours in both private and public spaces,
such as the museum.

Mrs. Suárez: We always, always try to be supportive. If one has to do homework, we
all come to the museum. If one has to do whatever, we all go together

Such cohesiveness shows when visiting families walk around holding hands or stick
together as a compact group for the most part of their visits, or when they exhibit any of the
other forms of interactions detailed in section 5.1.3.

Mrs. Tapia: One focuses the other. For instance, we were somewhere and we
discovered something interesting and quickly we ran to tell the others,

come here, come here, come, look at this. Right? Where you could
change the faces of people, how they were first bones and you could add
the muscles and all that. Javier discovered that one. And other things she
[daughter] discovered, the same thing, she called us all. So we stayed
together. All the time

Moreover, family is also history and stories; a shared past and a shared future. Families
constantly reinforce their collective identity and understanding of things. Actually, Hilke
(1987) points out that family conversations at exhibits tend to involve associations and
comparisons to past events and individual experiences, and that these conversations may

\footnote{\textsuperscript{14} There does not seem to exist an accurate translation to English of the Spanish substantive "convivencia", or verb
"convivir", which refer to the quality and quantity of time people spend together creating a shared history as a cultural group. "Convivir" involves the everyday building and maintaining cohesion within the family. This speaks
to the value that customary social interactions have in the Mexican socio-cultural context. Such interactions are
highly cherished from both an affective (e.g., love, trust, support) and practical (e.g., help with children) standpoints.}
reinforce past episodes as well as family history. Similar findings arose in this study, as the following quote illustrates:

AB: And what did you talk about at that point [exhibit]?
Alfonso: That they [parents] used to play games when they were children
AB: So they told you about their past, about when they were little? They told you about those things?
Alfonso: Yeah, they always tell me where they used to live. That there was a river there
AB: Have you been there?
Alfonso: Yes we have

One particularity that stands out as culturally relevant is the role that affection and its multiple manifestations play in the way family members interrelate. Affection not only manifests as physical contact, which is certainly a prevailing socio-cultural characteristic, but also as verbal expressions that translate in affectionate ways of addressing one another, or in the use of tender and sometimes unique nicknames. Interestingly, this observation not only applies to family groups, but for other groups of visitors, including peer groups and summer camp groups. Likely, this is the case also with school groups. In these non-family groups, tender words and nicknames (e.g., “mi amor” – my love, “mijo/a” – my son/daughter, “corazón” – sweetheart, etc.) are also largely used to address children. Hugging and other forms of physical contact are also not only common, but natural amongst guardians, teachers or instructors, and the children under their supervision.

Langdon and Novak (1998), Purcell-Gates (in press), and Valdés (1996) suggest that this form of affection has direct educational implications within the formal instructional setting (i.e., schools). Thus, it could be argued that family interactions that involve the use of such affectionate elements of interpersonal communication, have comparable effects on the learning experiences that family members have as a result of a museum visit.

Moreover, Csikszentmihalyi and Hermanson (1995) and Wellington (1990) assert that advancing the affective domain could have a great influence on higher-order cognitive outcomes. Falk and Dierking (2000) and Wellington (1990) further posit that informal environments have been acknowledged for their potential to make major contributions to the affective domain of learning, such as the development of interest, enthusiasm, motivation,
eagerness to learn, awareness, and general openness and alertness. These authors have also concluded that people’s recollections about events are not only embedded within physical and social settings, but are often associated with feelings and attitudes.

5.2.2 Nuclear and extended families
This study supports prior claims that indicate the salient and supportive role that extended family has in Latin American socio-cultural contexts (Coohey, 2001; Marin, 1993; Romero et al., 2004; Sarkisian et al., 2006). Also, the outcomes are in harmony with Sarkisian et al.’s (2006) assertion that Latino families are likely to live close to or share household with their extended kin. The cohesive nature and the roles of the extended family in the Latin American and Latino cultures have been described in previous research (Coohey, 2001; Knight et al., 1993; Marin, 1993; Romero et al., 2004), and have been referred to as “familismo”. Not only is the frequency with which relatives were physically present during the visit to Universum worth attention, but also their active involvement and partaking not only in the general performance of their family groups, but in the learning experiences of its members.

Mrs. Palma: We teach them how to make us part of their lives, how to appreciate things and adapt them to their lives
AB: How to incorporate their experiences, yeah
Mrs. Trueba [grandmother]: At least we try
AB: Mhm
Mrs. Trueba [grandmother]: And how to assign value to things
Mrs. Palma: That they value. That they value a lot of things, and how their acts have repercussions in the world

Grandparents and other adult relatives, not only offer support in childcare/discipline tasks, but carry out essential educative roles. From bringing their minors to the museum and leading the visit, to mentoring functions inside and outside the venue, extended family is certain to offer invaluable sources of assorted support to their kin.

Mr. Badillo: We learn from each other. I feel that people never stop learning until the very day of their death. And then they learn how death is. But children teach so many things to their grandparents and even to their parents, that
“convivencia” is extremely important. And then they learn, the kids, they learn from what one gives and tells them, they believe everything we say, and also from the experiences they live. And we learn how to treat them, how they are and we learn with them what we must have done with our sons and daughters. And now we don’t have that economic responsibility. As a grandparent we just have to enjoy them. And until now we actually learn what does it mean to be a child [...] And we are dedicated to orientate them responsively. And to be honest, I feel one loves grandchildren even more than our own children, because we “convivimos” more with them and we are devoted to them.

Partly due to rooted cultural tradition, partly promoted by the harshness of a modern economy that calls middle aged adults to work full time while older people are out of the labor market, grandparents are often left with the responsibility of looking after their grandchildren. In Mrs. Berlanga’s words:

Mrs. Berlanga: People of certain age don’t find jobs. That is why there are so many grandparents looking after grandchildren. The current situation of this country obliges parents to work full day and grandparents to take care of the children.

All in all, adult relatives represent authority to children. Extended kin (i.e., grandparents, uncles, aunts) is entitled to exert disciplinary measures and “educar” the children as they deem appropriate. Thus, it was common to observe grandparents or uncles/aunts controlling children’s behaviors in the museum galleries.

AB: So you believe that disciplining is part of your roles as grandparents?
Mr. Badillo: Yeah, yeah. Yes, absolutely. That’s right. Because since their parents are our children, the parents of our grandchildren are our children, then obviously the last thing we want is to cause our children problems. So we always find the opportunity to orientate our grandchildren in regards to the respect they owe to their parents.
Also, during interviews, grandparents did not hesitate to show their authority, as Mr. Berlanga and Mrs. Juárez illustrate.

Mrs. Juárez: Oh, creature, truly. You stay here with your grandma [herself], and answer the question, ok?

On the other hand, the “convivencia” with cousins, that is, with other children in most cases, is also treasured amongst Mexican families, as Halgunseth et al. (2006) assert. This means that the significance of the extended kin not only resides on the elder and more experienced adults and on the respect they instill in the young. Young relatives are further seen and appreciated as socialization agents that offer one’s children the opportunity to interact with others of their age and interests. Like the Jáureguis, other participant family groups also acknowledged this as an inherent importance of the extended family.

Mrs. Suárez: It is extremely important for us that he [Esteban] “conviva” with his cousins because that is when he behaves as a kid. He runs around, laughs and becomes a kid. When we are alone he becomes a bit like us, he behaves more like an adult, or like an older kid than what he really is. He is just nine years old, but mentally and emotionally he acts like a 15 year old. So the time he spends with his cousins is crucial to us.

This is not to say that the nuclear family plays no particularly important role in the Mexican context. It does, as demonstrated by the families in this study. It actually could be argued that in urban areas, the nuclear family alone has a very salient function, as in the Carrillo family’s case. Life in the big city can be very stressful, busy and isolating even when commonly, extended family members live in the same city. In some cases, everyday activities can allow or rather require frequent “convivencia” with and support from extended family members, while in others the nuclear family operates alone for most of the time. Such was also the case of the Esparza and many other participant families. What is important to remark is that also in these cases the extended family is very likely to have a significant presence in different aspects of family life, particularly those associated with leisure and spare time, on weekends and holidays when people have less tight schedules.
5.2.3 Gender roles and parental involvement in child rearing

The prominent role of female family members was evidenced by this study, thus supporting Hansis’s (1997) and García and de Oliviera’s (2006) claims that in Latin American culture, the maternal figure is central in all aspects of family life. In this study, females not only stand out as the individuals who are mainly in charge of attending to the children, but also as crucial decision makers in their groups. Overall, it was observed that in groups containing both adult males and females, it was mothers/grandmothers who mainly volunteered their families to take part in the study. Many of them led the interview process as well. Mrs. Medina, for instance, declared she is the person who regularly plans family outings and vacations with the children during school breaks. She decides where, when, what to do for all family members.

Furthermore, the fact that more adult females than males took part in this study also serves as an indicator of the roles that women play in family life in the Mexican socio-cultural context. As described earlier, this study was conducted during school summer break, meaning that children were in need of adult care and supervision over weekends and weekdays. To have more participant family groups headed by females-only than groups led only by males\(^\text{15}\), could denote what could be called a traditional division of labor, where females take care of the children, whereas males go to work. Floor observations also revealed that particularly on weekdays, when family groups were commonly controlled by women or groups of women (e.g., mothers, grandmothers, aunts, female friends, etc.). These observations are in harmony with Chaumier’s (1999) and Daignault’s (2003) reports on families visiting, respectively, la Cité des Sciences et de l’Industrie, Paris and the Musée de la Civilisation, Québec.

However, it is questionable to claim that the outcomes of this study substantiate the view that conventional gender roles are currently prevalent in the Mexican society. Once customary amongst the average Mexican citizen, traditional gender roles, represented by the Badillo family, have changed over the years. These grandparents provide a window to the socially constructed gender roles that dominated the past generations:

**AB:** And what role did your wife play in this visit?

**Mr. Badillo:** She also took part of this. Although she does not have any professional or college degree. But she of course adores her grandchildren and she knows that everything they learn is good for them [...] In the case of my

\(^{15}\) Not including single-mother families.
children, my wife did commit herself to their care in soul and body because two weeks before we got married I took her out of her job, so she was completely devoted to our children [...] And she never went back to work. Even in our worst crisis. I always took full responsibility of all the economic issues. And so she enjoyed the children from A to Z [...] For instance, today is Tuesday and I have been here all morning, with no worries whatsoever of what's going on out there. I don't care anymore. I am retired and thus I can do with my life whatever I want. I have decided to keep working anyways, but that is on my own

In fact and in accordance with García and de Oliviera (2006), the outcomes of this study indicate that gender roles have changed and that current male participation in family life and childcare duties is escalating, while female participation in the job market is rather widespread at least in the urban milieu. Most of the adult women that took part in this study held university degrees in diverse areas such as Psychology, History or Economics. Also, most of them were economically active. One of them was retired, and a couple of them were entirely dedicated to their homes and families.

Mrs. Vázquez: For instance, I work right? So I don’t spend as much time with them as I’d love to

The following quote further illustrates how the busy life in the city affects work and family life of its residents regardless of their gender, and how both parents struggle nowadays to find a balance between work and family:

Mrs. Orozco: I believe that we become closer [when doing activities like a museum visit]. Because often we both are busy working, we are in a hurry all week, or doing homework. So we don’t have much left for “convivir”. We are doing what we have to do, schoolwork, housework

AB: And then all over again

Mrs. Orozco: Laundry, bath time, bedtime and the next day it’s the same. We are very busy with our chores and this is the time we have to talk, sing or tell stories. This is when we break the routine at home a bit [...] but yeah,
right now we are very busy with our jobs, I only have the time to read stuff for my job [...] we do not have option, we both need to work a lot

The roles that males played during their families’ visits to Universum ranged from “accompanying” their families in a rather non-participative manner, to a complete involvement in the supervision and “educación” of the children. The cases presented in the previous chapter illustrate the latter. Females’ roles, on the other hand, while diverse, were always pro-active and involved engagement with others.

Organization and logistics still seems to mostly fall to women. Again, reinforcing the claim of women’s central role in family life. The Jáureguis provide a clear example of how gender roles are changing and male participation in childrearing is becoming stronger, whereas at the same time, female contribution in family organization and orderliness is still well established in the Mexican socio-cultural context. While Mr. Jáuregui and other male adults in his family group are evidently involved in the minors’ rearing, according to him, it is females who are in control of assigning duties to each family member, making decisions regarding meals, and coordinating and managing the visit to Universum.

5.2.4 Participation of children in family life and sibling relations

In this section some of the roles that children play within their family groups are discussed, as evidenced by their actions and comments both during their visit to Universum and during the post-visit interview session.

Besides taking leadership and decision making roles during their family’s museum visit, it became evident that children’s involvement in family life in the museum and elsewhere is important for the participant families. Actually, parents considered the teaching of such household duties and responsibilities as one of their obligations as parents.

Mr. Lara: [...] And all the basic stuff too, right? You try to teach him to wash his hands, to wash the dishes, to cook. And he cooks for him

AB: At three years of age?

Mr. Lara: Yeah, yeah. He does actually. Everyone says it’s kind of wild, but he cooks for him
The outcomes of this study corroborate prior assertions that in the Latin American tradition, children often carry out chores and tasks related to the maintenance of home and family (Knight et al., 1993; Hansis, 1997).

AB: Does he [her five year-old son] help you at home?
Mrs. Orozco: Yeah. I ask him to cook, and he makes his bed, he does his homework, picks up his clothes and his toys

Children’s participation in the economic support of their families was also evidenced by this study, with a family from a rural setting in southern Mexico. Mr. Yáñez shared during the interview, that during his childhood he worked as a fisherman in order to help provide for his family. Although it would be naive to deny that child labor takes place in the urban environments of contemporary Mexico, it is fair to say that this situation is more prevalent in rural areas, where as Hansis (1997) asserts, children are often considered as an economic asset and help for in-home tasks.

Also, this study supports the claim that Latin American children are frequently actively involved in taking care of younger siblings (Hansis, 1997). Remember Fernando from the Aragón family, who was able to clearly articulate his feelings about taking care of and protecting his baby brother. What is interesting here is the remark that children themselves openly acknowledge their participation in household duties as important and customary. The following quote, taken from an interview with an eleven year-old boy, provides another example:

Gustavo: And cooking
AB: Do you like to cook? Who teaches you to cook?
Gustavo: My mom helps me, and my dad

Examining siblings’ or cousins’ interactions in the museum galleries provides a rich picture of the nature of children-children interactions within their families. While siblings recurrently showed supportive and joint behaviors amongst them while interacting with museum exhibits, like the Berlanga girls, it was also common to see older siblings taking the lead or control over their younger counterparts, like in the case of Mario and Juan, from the Carrillo family. Even though some older siblings had difficulty articulating what they learn
from their younger counterparts, overall, older and younger siblings overtly recognized they learn a diversity of things and activities from each other.

Gustavo: But at home I am just there and Verónica comes in just to see what I’m doing
Mrs. Guerrero: Well, that is natural, you are the oldest
AB: Do you ever follow her around?
Gustavo: I don’t
Mrs. Guerrero: Of course you do
Gustavo: Of course not [...] 
AB: So Gustavo, you think Verónica learns things from you?
Gustavo: She rather copies me
AB: She copies you. And do you think you learn anything from her? Does she teach you anything?
Gustavo: I don’t think so

Amongst other things, children like Carolina and Lucía from the Esparzas, mentioned they learn about music, sports, school contents, manners, and about their siblings’ personalities as a result of their “convivencia”.

Javier: She [older sister] teaches me how to defend myself
AB: She teaches you self-defense? What else?
Javier: A lot of things
AB: Could you give me an example?
Javier: About science

However, younger children frequently perceived their older siblings as more capable, more knowledgeable or wiser than themselves.

Leonardo: I am hyperactive
AB: [Laughing] and your brother?
Leonardo: He is a wise person
5.2.5 Summary

In the Mexican socio-cultural context, “family” is a difficult concept to define. Generally, relatives and close friends are considered as part of one’s intimate family. For this reason, family groups are frequently large in numbers. However, family is not just the people, but their relationships and mutual support framed by affection and trust. The fundamental presence as well as the key undertakings that extended family play in the general routines and everyday functioning of the Mexican family are evidenced in this study. Also, the findings of this study corroborate the notion that although traditional gender roles are continuously changing and male participation in child rearing and household duties is on the rise, in the contemporary Mexican society females still play a central role in providing family cohesion and supporting family activities, as García and de Oliviera (2006) indicate.

Children are central characters in their family groups. Thus, the nature of their interactions and the conceptions they have about one another have a significant impact on the ways in which all family members interact in their daily activities and in spaces like a museum setting.

5.3 “Educación” y familia

The family has been described (Baer & Schmirz, 2007; De Gaetano, 2007; Gadsden & Hall, 1996) as the foremost important socializing agent for children. The Mexican socio-cultural context is no exception. The family plays a fundamental role in people’s development of societal skills and the generational transmission of traditions, values, and knowledge. Furthermore, as Paz (2001) and Stavans (2001) indicate, Latin Americans have a particular appreciation for unity, collectivity, permanence and traditions, thus appealing to traditional moral values that emphasize a strong respect for the traditional family. Drawing on the concept of “educación” that Valenzuela discusses in her 1999 book, in this section some of the elements that are key in the “educación” of children (and adults) are discussed, in the context of participants’ visit to Universum.

5.3.1 Social outcomes of the visit

The social outcomes of a museum visit are so diverse that it is almost impossible to talk about them in one constrained section of this document. “The social” encompasses practically all aspects of “educación” and education. As Halgunseth et al. (2006) claim, in the Mexican socio-cultural context, social skills are considered as or even more important for children’s
development than cognitive skills. The social outcomes for the participants’ are discussed in detail in the remaining sections of this thesis. Consequently, it is important to provide a brief discussion on the overall social experience of the participant families, as it is within this social experience that learning occurs.

It is at this point that the concept of “convivencia” takes a singular value, since it is in this “convivencia” that “educación” actually takes place. Adults and children openly concurred that their “convivencia” as a family group is essential in order to get to know each other and in order to learn to relate amongst family members. They also acknowledged the role of the family as an invaluable socialization milieu across contexts such as the home and the museum. Whether having a meal together, playing, cooking, doing homework, or at bedtime, adults and children agreed that it is during everyday activities when they learn the most from each other, themselves and others around them.

Blanca: He [her brother] teaches me how to relate to other boys. I don’t like to hang out in the park with them
AB: With the boys?
Blanca: Mhm. Only with the girls. But I wouldn’t have learned to adapt to other boys without him [Javier]

The social outcomes of a family visit to a museum, as discussed throughout this chapter, are wide, diverse, and idiosyncratic in nature. They range from sharing fun and entertaining anecdotes, to learning about each others’ personalities and deepening of their interpersonal bonds.

Mr. Suárez: Well, inside the planetarium there is one person, a girl, who gives out a didactic explanation. So people learn. And the moment that caught my attention was when she made a question and the only one who knew the answer was him [his son], and everyone cheered him in the dark
AB: Oh, cool
Mr. Suárez: I felt very proud
AB: Of course
Mr. Suárez: He knows about astronomy now
However, the social outcomes of a family visit may also relate to the wellbeing and development of its members. As can be recalled, the Jáuregui family identified this museum visit and likely other family outings, as an opportunity to enhance and aid their children’s social life. Moreover, in their view, providing one of the children with the social experience of interacting with other minors in a stimulating environment such as Universum, would assist him in the improvement of his speech and communicative skills.

Mr. Jáuregui: Well, one of the kids has speech problems. Not one of my kids, but one of the others

AB: The cousins

Mr. Jáuregui: Yeah. Well, he’s having a lot of speech problems so we basically want to help him socialize and interact with other kids of his age, so he can start to speak better

All in all, family activities that break their every day routine are perceived by their members as special and stress-free occasions where members learn to interrelate in dissimilar contexts and activities.

Mr. Suárez: The time we share. That is the most valuable thing. I think that the time we share in the same place, without hurries, without worries, and enjoying ourselves

This is perhaps particularly true within the context of the busy life of Mexico City. It can be argued that the “convivencia” with other family members is extremely valued in the Mexican socio-cultural context in general, as a means to strengthening and stretching their bonds, getting closer as a family, and boosting the development of children’s social skills. From this perspective, interactions and socialization with cousins and grandparents, is as important and indispensable for children, as their regular contact with their parents and siblings.

5.3.2 Parents and observation of discipline and ‘good behaviour’

Parents, males and females alike, were observed at all points of their family visits to Universum disciplining their children and directing their conducts through actions that ranged from
somewhat harsh to subtle. According to Drekker (2001), parents’ intervention is essential in modeling aspects such as discipline, responsibility, organization and ways of interacting with authority figures. In the Mexican socio-cultural context, it might be said, the disciplining of children in public spaces through actions that in the Anglo context could be considered as harsh and severe, is frequent and commonly perceived by the society as normal and customary (Bronstein, 1994). Of course, within reasonable limits set by the respect and love for the other in a subordinate position. Still, raising the voice and using restrictive physical interactions are not seen as violent or aggressive, but as part of a parent’s endeavor to “educar” the children. Unsurprisingly, several disciplining episodes took place during the participant family groups’ visits to the museum, including their post-visit interview session.

Mr. Berlanga: Come, come here please. Answer the question here. Come here, please.

The “maestra”\textsuperscript{16} is talking to you

From parents’ view, it is their responsibility to teach or guide their children to behave properly and to conduct themselves in a correct manner. This responsibility that translates into authority, falls to whichever adult is in charge of looking after the children. Or in the Jáuregui case, to any adult in the group.

Mrs. Medina: I must teach them to behave and to know how to conduct themselves. I guide them, right?

On the other hand, children concurred with their parents that it is the adults’ role to direct their behaviours. In terms of discipline, parents teach them for instance, to be respectful and pass on to them “good manners” such as listening when someone talks to them and answering if they have been asked a question. The girls of the Esparza family, Carolina and Lucía, provide an example of children’s perceptions of their parents’ contribution to their “educación”.

AB: What do you learn from them [her parents]?

\textsuperscript{16} In Mexico, people commonly show deference to others by acknowledging them by their academic titles. In this case “maestra” refers to the researcher’s MA degree, not that she is a school teacher. It is a common way of showing respect for any college degree attained, thus conferring authority of some sort to the person being addressed in such way.
The outcomes of this study also seem to support the claim that Latin American parents teach children to be obedient and acquiescent. These, according to Larrain (2000) and Stavans (2001), are valued qualities in the Mexican socio-cultural context. Such characteristics have been used by different authors to describe and portray the Latin American and Latino identity (Bronstein, 1994; Langdon & Novak, 1998).

5.3.3 Parents as transmitters of values and morals
Besides discipline in the strictest sense of the word, parents play a fundamental role in the “educación” of their children by promoting and passing on values and morals that relate to the individual and collective identities in the context of the family and the society at large (Lopez, 2001; Valenzuela, 1999). In this sense, it is genuine when children assert that they learn “everything” from their parents. Parents not only convey to their children values such as respect and love for others, particularly other family members (e.g., parents, siblings, grandparents, cousins, etc.). They also transmit values to children that relate to caring for the environment and the respect for any form of life. According to Valdés (1996), respect for others and respecting the role of each family member, are in fact some of the most treasured and distinguishing principles or ideals amid Latin American and Latino communities.

Also, parents teach their children a sense of duty and responsibility towards themselves and others around them. Children in fact, not only adults, supported this perception. Moreover, both adults and children in this study claimed that parents teach the minors to share and be kind and generous with others, as well as tolerant, patient, and honest. All of these attributes can be defined as mediators of a social well-being and contribute to a harmonious “convivencia” with others. Such aspects, also shape people’s development and understanding of the norms of the socio-cultural context in which they grow and learn. What is more, parents expressed their interest and keenness in instilling in their children a sense of no-competition or rivalry with other children. This is characteristic amongst Latin American and Latino populations, where
according to Halgunseth et al. (2006) and Figueroa-Moseley et al. (2006), childrearing does not promote features praised in the Anglo culture such as competition and individualism.

Mr. Lara: [...] Above all what we are trying to instill on him or where we focus everything we try to teach him is this notion of no-competition. Better said, what we are not trying to teach him is the competition. Not to compete, right? That is the pillar of all the “educación” we try to give him. And it rather looks like “anti-educación”, because he goes to his cousins’ and they’re like I won, I won, I won. All the time. Very annoying [...] From our perspective that is very annoying [...] So we try to un-teach those things

In resonance with Bronfenbrenner’s (1979) ecological systems theory, family members intuitively recognize and attach importance to the family as the most immediate sphere whose roles, norms and values shape any individual’s development. The family is central for any individual’s development as a person and as a member of a society. Such family context, referred to by Bronfenbrenner as the ‘microsystem’, is nested in other societal spheres such as the larger socio-cultural context or ‘macrosystem’. Consequently, in acknowledging their crucial role in this sense, family members assume and perform a primary role as transmitters of the values and rules they consider important to build and perpetuate. In so doing, families develop a collective or shared identity that permeates other levels of human development and interaction. In the Mexican case, all of these are infused with aspects that promote the collective and the “convivencia”, such as the ones previously mentioned.

Mrs. Durán: [...] Specially with time, with practice, one learns right? One becomes family, and human being, and anything else

The construction of a shared identity amid family members is further enhanced by the dissemination of personal history and past experiences, within and without the museum setting. As Borun (2002) claims, each family brings its unique culture, shared knowledge, values, and experiences to the museum. Commonly, the elder communicate to the younger aspects of their lives that they consider relevant elements for the consolidation of their family groups and the development of their members. Adults perceive sharing anecdotes and personal history as a
valuable teaching tool that gives sound and trusted guidance to children and provides them with the means to strive and succeed in life by themselves.

Mr. Badillo: [...] The issue of experience is key. Experience is what I try to transmit them. I tell them as often as I can about the things that happened to me when I was a kid or I was young. My goal is that when I tell them my stories, they understand them, learn them, and they do not make the same mistakes I made, which cost me a lot of disappointments or reprimands and stuff like that, right?

The following quote further illustrates the point:

Mr. Yáñez: We always “convivimos”. But what we try to do is that they later in life, they have to choose where they want to go with their lives. What they want to do when they grow up. So the most important thing is that they know part of the things we like. I have always told them, right? In order to be someone, you need to have some things. First of all, respect, be a good son, and earn things rightfully.

It could be argued that the family itself is considered as a value in the Mexican socio-cultural context. The Jáuregui family represents this line of thought. Parents and other adults in the family incessantly transmit the notion that the family has a primordial significance in one’s life, and that constant and everyday effort is needed in order to create a positive environment that allows children to develop and learn, and become morally sound individuals that one day will transmit this invaluable appreciation to their offspring.

5.3.4 Maintenance of traditions and culture: Language and religion

Of the myriad elements and features that could be considered as constituents of anyone’s socio-cultural heritage, language and religion stand out as probably the most ingrained or deeply-rooted. Language and religion unify and seem to promote a sense of collectiveness. Arguably, when talking about a “Latin American identity” the essential role of these two aspects becomes evident. Language and religion are at the core of Latin America’s regional distinctiveness. Language is directly connected to the formation and maintenance of one’s socio-cultural
identity (Baer & Schmitz, 2007). In fact, the Spanish tongue unites Latin America’s and Latino peoples, allowing for a common dialogue and instant connection. It has been asserted that Latinos are extremely loyal to their mother tongue, cherishing it as a unifying and resilient force (Figueroa-Moseley et al., 2006; Romero de Terreros, 2004; Stavans, 2001). Figueroa-Moseley et al. (2006), Gracia (1999), and Larrain (2000) on the other hand, have emphasized the salient role that religion plays as a unifying force in the Latin American and Latino communities. It is not surprising then, that without specifically or explicitly asking participants about these themes, language and religion came up as topics of casual conversation during at least seven of the interviews.

For these parents, an important part of their children’s “educación” is the acquisition of grammatically proper Spanish language skills. In their view, it is their task, particularly in the early years, to transmit this knowledge and teach their children the rightness of the Spanish tongue on a day to day basis and across contexts. Figueroa-Moseley et al. (2006) argue in fact, that the nature of parental interactions are positively correlated to children’s social, linguistic and cognitive outcomes.

Mr. Lara: See, what I find really difficult is the language. He has, I guess all kids do, but he has this ability to play with words, so we worry that those kinds of things don’t stay there forever, right? […] So the correctness of the language, yes, yes. I mean, if he says [wrong verb tense], I won’t go mad about it, I correct him and that’s it. But if he goes ‘porfis’17, ‘porfis’ I don’t understand, right? So, those kinds of things

Language arose as a central element of the Guerrero family’s collective identity that symbolizes their particular history and tradition. Interestingly, the children’s initial responses about their perceptions of their mother as educator revolved around Mrs. Guerrero’s German ancestry.

Verónica: Well, I learn German with my mom

Mrs. Guerrero: [Laughing]

AB: You learn German with your mom?

17 Colloquial spoken version of ‘por favor’, which translates to English as ‘thank you’.
Moreover, religion came also as a spontaneous theme in many interviews. Without probing for it at all, people would share with the researcher religion-related comments unexpectedly. Some, like the Berlangas and Jáureguis, would directly bring up the issue of religion or openly talk about their beliefs and spiritual practices. In contrast to the Berlangas, who brought up religion and evolution as issues for discussion and argumentation, other family groups, such as the Jáureguis and the Tapias openly talked about themselves as spiritual people, their activities in this regard, and the role that their beliefs play in the “educación” of their children and their everyday interfamilial interactions.

Mr. Tapia: A moment ago I mentioned that we study the bible because we believe in God. And apparently many of the concepts regarding what God says are very clear, but that is not always the case. I mean, everything is an explanation. We have the concept that what science does is to describe things that are already done, and that it can transform some things, but not create them. And those concepts are what we pass on to our children. […] I believe the faith is the most important thing [they as parents teach their children], because we have learned as a couple, as spouses, that there are many differences many times, and sometimes those differences are also transmitted to them. However, when we harmonize in aspects like those, it allows us to achieve integrity, right? Integrity as a family

Language and religion play a central role in shaping people’s socio-cultural background, both at the individual and the social levels (Baer & Schmitz, 2007; Larrain, 2000). The fact that language and religion were openly and spontaneously brought up by participants in their comments and remarks, speaks to the standing of such elements at the core of the Mexican socio-cultural tradition.

5.3.5 Emotional competence
Represented by the Aragón family, emotional competence came up also as an aspect of children’s “educación”. Adults perceived teaching children to understand, manage and
“suitably” express their emotions as a share of their role as educators. In Mexico, for a person to be “bien educado” amongst other things it implies to know when to show or not show one’s emotions, following the implicit parameters of what is right and what is not. Such parameters, often a result of stereotyping beliefs, are defined by socio-culturally embedded understandings of gender, age, place, and time, to name a few. In Mrs. Ramírez’ words, for example girls are naturally more sensible, social and communicative than boys.

In fact, it has been asserted that children’s emotional competence develops as a result of family interactions and experiences (Cervantes, 2002). Also, it has been claimed that in the Latin American and Latino context, families promote family cohesion and wellbeing through an emphasis on children’s expression of affection (Zayas & Solari, 1994), an assertion that was corroborated by the outcomes of this study.

5.3.6 Summary
There is so much more than science going on in a museum visit. All guardians however, coincidently acknowledged their irreplaceable roles as educators, in the Latin American sense of “educación”, thus involving not only instruction and teaching in the cognitive sense, but also the transmission of values and morals, and the observation of discipline and socio-culturally defined “appropriate behaviours” in both the public and the private spaces. Amongst others, the transmission and enhancement of language skills, religious beliefs and emotional competence are particularly valued in the Mexican socio-cultural context.

According to participants’ opinion “educación” is an ongoing endeavor that is constantly carried out in any given context of family life, such as a museum visit. Parents bestow a sense of belonging to their children, through conveying values such as respect and love for others, as well as a personal and collective sense of duty, generosity and integrity.

5.4 Education and family
It is difficult and almost inappropriate to talk about “educación” and education as two different and bounded concepts, since “educación” also encompasses the Anglo notion of education, which has a more “cognitive” connotation (Valdés, 1996). This section however, although apparently detached from the previous one, must in fact be considered as a continuation of the preceding discussion.
5.4.1 Learning defined in context

People's concept of learning significantly influences and ultimately shapes their actions and decisions around the education of their family members. In this section the notions that the participant family members held about what it means to learn and how they put in practice such notions and insights are briefly discussed.

It became clear that for most parents “learning” has a cognitive connotation. Also for most of them, learning is a process that occurs in all sorts of situations, it takes place constantly in life, and has a long lasting impact on individuals.

Mrs. Trueba: Learning? That is an everyday thing, and you modify your behaviours towards the environment, towards your life, right? Based on what you see, what you experience and what you say

Adults associated learning with an interest in knowing something, giving rise to self-motivated inquiries, solving problems, reaffirming/remembering/acquiring knowledge and information, being able to repeat a behaviour or experience, understanding and gaining ownership of the outside world, and having fun.

Mr. Lara: Learning. The way in which you make things yours, but not in the material sense, right? Like these keys are mine. No. But rather how do I understand these keys. To me that is learning. How the human beings own things with their minds, in an abstract way. Not materially, but the idea that they have about things

All in all, the most prevalent notion of learning amid adults had to do with experience. Learning is living and coming in direct contact with the world.

Mr. Badillo: Learning? Learning. I would call it experience. To me learning is a matter of experience, basically, because books cannot tell you everything that actually exists. It’s rather impossible to put in books all the knowledge […]. And learning, one practically feeds on it since the crib, because it is the experience that makes you learn
Under this empirical notion of learning, parents considered the museum visit as a perfect fit for their children's education, since the experience would provide them with first-hand encounters with content knowledge in a diversity of forms and modalities, as well as vivid social interactions with their significant others. Learning, furthermore, can take place in many different domains of human existence, namely, the cognitive, the affective, and the social (Merriam & Heuer, 1996; Schauble et al., 2002). This multi-dimensionality is represented by the conjunction of the notions of “educación” and education discussed in this study.

All family members, children and adults, were observed displaying teaching and learning behaviours (Borun et al., 1996; Diamond, 1986; Hilke & Balling, 1989) as part of their natural interactions during the course of their social outing in Universum. As will be discussed in detail below, parents and children are aware that they learn plenty of different things from one another. And even though children in general are not so prone to admit their role as “teachers”, parents are clearly conscious of the diversity of learning they gain from their children.

Mr. Jáuregui: My learning is just like that, right? From everything that happens around me I take something. And the kids themselves teach us so many things

5.4.2 Parents as educators

Parents aided their children’s learning experience at the museum by, for instance, helping them manipulate exhibits, showing, telling, playing, providing explanations, answering/asking questions, reading aloud, trying to instill interest in the minors by calling their attention to something, or helping them make connections between the museum contents and things they already know. At times, adults also showed a more passive or monitoring role, by letting their children discover things by themselves with no direct adult intervention in the process. However, parents’ roles as educators imply more than teaching strategies or concrete acts of coaching or instruction such as the ones identified by Borun et al., (1996), when in the museum setting, or others such as supervising schoolwork, reading books, or watching films when at home.

Mr. Suárez: Everything. Kids are a mirror of their parents. They reproduce the good and the bad things. They replicate and reflect everything
Parents, like the Jáureguis and Aragóns, are sensitive to the importance of providing children with constant supervision and support, as well as diverse learning opportunities and first-hand experiences as often and varied as possible (e.g., field trips, playground time, and museum visits). Having the initiative of coming to the science museum to spend the day as a family group, thus, is one example of parents’ undertakings as educators. As Mrs. Juárez explained:

Mrs. Juárez: [...] And so I was thinking, well, my daughter, her, she has a huge and specific interest in getting her children interested in these types of things [science]. She strongly opposes TV instruction. She is a fierce enemy of TV

AB: Oh, I see

Mrs. Juárez: Fierce, fierce enemy of that. So yeah, she is always looking for interesting things for the children, so they can grow intellectually. So they have an integral education, right? [...] And find a balance for the crap they watch on TV, really nasty. Harmful, I’d say. So try to compensate for that

In fact, overtly expressing interest in avoiding contact with TV programming as much as possible was a recurrent topic amongst the participant family groups. On the other hand, parents also expressed their interest in promoting a holistic development in their children, which considers different domains, such as the cognitive, the social, the motor, the emotional, and the artistic, as in the case of the Berlanga family. The following quote also illustrates this idea:

Mrs. Orozco: What I love to see is, I mean, that they develop in all domains, right? Because I think that takes them to a different level. Because they do play and they develop certain areas, but for instance, I would love them to develop an interest in science. That science does not become something mandatory, or difficult for them

As can be inferred by the quote above, visiting Universum is an important piece of this mother’s educative intentions of engaging her children with science. For others, including the
Berlangas and the Carrillos, visiting a museum represents a highly valued opportunity to promote independent reading and learning amid their children. Also, parents like Mrs. Carrillo, consider that museums offer the possibility to encourage children to research the topics that they find interesting and to become skilled and self-sufficient researchers.

Mrs. Holguín: Here we try to make them read. They ask, for example the youngest one, mum what is this, I don’t understand it. And I say, well, read. Read it. And when they’re forced to read, they understand it. So we try to make them read, that they get used to it. Mainly because if they don’t have time to read at home for whatever reason, at least they can read small fragments here and they can get used to, to a, they can be independent learners and don’t need to be tied to us. And the other thing is that they get used to reading and researching.

Parents declared that they consciously direct their actions as educators and carefully choose the language they use to address their children, based on the knowledge they have about them. According to them, parents intentionally select what to say and what not to say and how to say it, based on their understanding of their children’s learning stages and capacities; they foster the development of their children natural talents and aptitudes. Knowledgeable of their children’s preferences and differences in interests and skills, parents’ roles as educators often includes negotiation and conciliation tasks. The Carrillos and the Berlangas represent a sound example of this. The Tapia family also illustrates this point:

Mrs. Tapia: He [son] prefers to manipulate things and she [daughter] prefers to ask
AB: Aha. And is that something you saw here today?
Mrs. Tapia: Yeah. She asked us, and then she went to verify whatever we had told her
Mr. Tapia: It is different with each one of them, because they have different learning styles and we know that. So for example, Javier goes and touches the things that are very attractive and he calls me dad, come, come, come here. And once there, his interests are the colours, shapes, transformations, and so on. But when I am with him I explain things and so he gets more interested, so I nourish his understanding.
The Jáuregui family represents a particular case of parents as educators. Here, parents and extended kin have taken over not only the traditional parenting roles expected in the Mexican urban context, but have assumed schooling and instructional tasks that regularly fall to teachers and schools. This is a particularly interesting and contrasting family, since home-schooling is not a widespread practice in the Mexican socio-cultural context.

Mr. Jáuregui: Yes, it is that much tiring, but we want to give ourselves in soul and body to our children

For them, the line between education and “educación” is even more blurred than for the average Mexican family. The Jáureguis child rearing practices and decisions are shaped by and embedded in their particular philosophy of learning and teaching which considers, for instance, that children’s learning is enhanced when in constant contact with children of different ages.

It is not surprising that on the whole, children consider their parents teach them a lot of different things. Although in some cases it was difficult for them to actually verbalize what is it that they learn from their parents other than “a lot of things”, like with Sandra and Amelia from the Berlangas, children acknowledged and were certain that they learn a great deal from their parents.

AB: And you Verónica, what do you learn from your mom?
Verónica: Well, all the things I don’t understand

What is remarkable is that most of the children’s comments in relation to their parents’ roles as teachers or educators have to do with their “educación”, rather than content-based education (section 5.3). On the instructional side, children mentioned they learn different things from their parents such as new concepts, new places, new games, different languages (e.g., German and English), or the love for reading, as with the Carrillo children. Children also mentioned they understand things better thanks to their parents’ explanations and their greater experience in life.

Fernando: Well, everything that is good, because we always go together, seeing everything
AB: They show you new and different places?
Fernando: Yeah. And they take me to the park, and then we can play something or see something all together. Something of interest to us [...] and many things too. Because well, they're, well, they are older and they know more things [...] 

Children’s perceptions of their parents as educators were, in most cases, reaffirmed in their recent visit to Universum. Children mentioned their parents helped them understand better certain concepts, or manipulate exhibits at some points of their visit. Furthermore, children like Juan and Mario from the Carrillo family, recognized their parents’ monitoring roles in school-related tasks that take place within the home setting.

Juan: Well, sometimes they are very hard on us with our homework and stuff, but they do help us with the things we don’t know, or we don’t understand

5.4.3 Parents as learners
Parallel to their multiple roles as educators, the adult members of the participant family groups displayed various learning behaviours, such as reading and manipulating exhibits alone (i.e., not in the presence of children). When asked about their roles as learners, adults had a lot to say about their perceptions of themselves as life-long and active learners. This study corroborates the notion that adults visiting museums as part of a family group learn from their social experience (Briseño-Garzón, Anderson & Anderson, 2007a).

In general, parents hold a clear perception of themselves as learners, their personal learning styles and preferred learning strategies or practices. They were also eager to talk about their spouses’ learning habits, and they were able to describe them as learners rather clearly. What is more, many adults, Mrs. Carrillo amongst them, were not reluctant to claim that in their adulthood, they are as keen everyday-learners as ever before and that there are many things that are outside of their current understandings.

Many adults asserted that a first hand experience in life is what triggers their learning most efficiently. Others claimed that visual input and graphic support is what facilitates their learning experiences the most, like Mr. Esparza, or that they find it inspiring to engage in informed discussions and debates, like Mrs. Berlanga. Additionally, most of the participating
adults described themselves as people who like and enjoy reading. In fact, many of them further affirmed that silent reading is their preferred learning strategy when dealing with content matter. Reading was actually a prevalent learning behaviour amongst adults, during their family visit to Universum. On the other hand, all participants mentioned that the “convivencia” with their family members is what leads them to learn about them and to learn how to care about them. Mrs. Carrillos’ comment serves to illustrate the above:

Mrs. Carrillo: Well, it depends on the context. For instance, if it’s about the children, then “conviviendo” with them is how you learn the most. If it’s about content, then reading or paying attention to the teacher. That is how you learn things, right? […] And that is me. I love reading although sometimes I find it hard to comprehend what I read

Parents related their learning strategies to their recent visit to Universum and reported on their cognitive learning outcomes of the visit (see section 5.1.4). In addition, parents learned to manipulate exhibits, often with their children’s guidance. Also, their family visit to Universum granted parents an occasion to realize and better understand their children’s personalities and developing learning abilities and interests, as well as their likes and dislikes. Particularly for recurrent visitors like the Jáureguis, the Carrillos, and the Esparza, their subsequent visits to the museum provide a window to their children’s current skill level and how they have grown and advanced over time. This social outcome is highly appreciated amongst family groups.

Mr. Suárez: Of course. We learn information, and we learn about ourselves. The first time we came here he was five years old and he stormed around like a tornado. And now it’s different. He pays more attention to things, he reads. They’re much more receptive. Some things he knows already from experience or school, and you can tell that in comparison with the last time we were here

Parents also declared they learn many different things from their children. In some cases, children were actually surprised to hear this, since they were not aware of the fact that parents could learn something from them. Parents declared they learn concrete things from their
children, like for instance operating electronic devices and computers or specific school material, but overall, parents’ learning around their children could be described as abstract in nature, or related to the appreciation of life.

Mrs. Orozco: Well, as a mother, oh boy, I believe that what I learn the most from them is to be surprised, because there are things that I see and do not catch my attention anymore. But then I see them, how they discover things and they find something interesting and they get all excited. And so I see things that didn’t look too, that didn’t seem astonishing to me, and then I find them surprising again.

In parents’ opinion, they learn from their children to keep up their interest in learning new things, about their children’s developing personalities, needs, interests, and learning styles. The museum, according to some parents, provides them with a rich context in which to find out about their children’s own curiosity and skills.

Mrs. Guerrero: Well, I learned that Gustavo likes the health gallery, and also that
AB: You didn’t know that before visiting Universum today?
Mrs. Guerrero: Not completely. Well, with Universum I started to realize what things call their attention.

Adults also mentioned that as a result of this and other museum-type experiences they have learned to communicate better with their children, to understand them better, and to negotiate interests and points of view.

Mrs. Guerrero: […] Other thing we learn is to reach agreement
AB: Negotiate
Mrs. Guerrero: One wants to go here, the other one wants to go there, so we have to learn to be in agreement. And where we go first and where next. Right?

In addition, parents learn about themselves through their children, as Mr. Jáuregui pointed out, and also learn social skills from their continuing interaction with them. In Mrs. Esparza’s words, they learn to be more tolerant as a result of “convivir” with the minors of their
family group. Additionally, it was frequently mentioned that parents learn from their children to preserve the ability to be surprised by the ordinary and small things of life, and to find joy in everything.

Children, on the other hand, have in general a blurry perception of their parents as active learners. In fact, many children had difficulties picturing their parents as learners and even more so, as learners learning from them, presumably less experienced and knowledgeable persons. Fernando from the Aragón family is one of them. Other children were prompt to assert that their parents learn a lot of things, although they were not able to provide any concrete examples of the kinds of things their parents learn or how they learn them.

AB: And so you think your parents learn things from you?
Enrique: Right
AB: Yes? What kinds of things do they learn from you?
Enrique: I don’t know, but I think they learn
Leonardo: Yeah
AB: So you two believe your parents still learn things?
Leonardo: Yes

When asked how they believe their parents learn, children mentioned watching TV, reading magazines and books, and closely observing things. During their visit to the museum, parents were actually observed reading, examining, and interacting with exhibits. Mario, from the Carrillo family, however, has a particular view of how it is that his parents learn:

AB: And how do you think that your parents learn?
Mario: Mm, with their moms and dads
AB: With their moms and dads, just like yourselves? And you Juan?
Juan: Can you repeat the question?
AB: How do you think that your parents learn?
Mario: With our grandparents

Amongst other things, children mentioned that their parents learn from them to have fun and laugh. Carolina, from the Esparza family, believes her parents learn from her patience and serenity. Other children concurred with their parents in that the adults learn content matter
related to school-work, the operation of electronic devices and appliances (e.g., video games, cell phones and computers), and new games and tricks from them.

AB: And do you think your mom learns from you?
Gustavo: Obviously
AB: Obviously?
Mrs. Guerrero: [Laughing]
AB: What does she learn from you, Gustavo?
Gustavo: To play Wii and many things about computers that she doesn’t know
Mrs. Guerrero: [Laughing] Exactly

Also, children consider adults not only learn from, but about them. From the children’s viewpoint, their “convivencia” as a family leads parents to learn about their personalities and how to relate to and look after them.

Claudia: Well, also what’s of our liking and what’s not, and how to communicate with us
AB: Mhm
Claudia: And to “convivir” with us
Laura: I don’t know about that

As can be construed from the quotes cited in this section, children in general were able to convey short ideas in regard of the learning role that parents play within their family groups. However, only in a few cases, were children able to expand further on their ideas and perceptions, or speak about their parents as individual learners not part of a family group.

5.4.4 Children as learners
The outcomes of this study indicate that besides considering that learning can take place in any situation and that children are fast learners, a perspective held by many of the participant parents, the adults that took part in this study hold a well articulated view and understanding of their children as individual and social learners. Moreover, they acknowledge that interpersonal relationships have a significant impact on children’s development and learning, and that learning has a long lasting effect.
Mr. Badillo: [...] and what they learn, like any other child, they don’t forget it. The little ones are like sponges. And the good and bad they learn, they never forget that

AB: Right

Mr. Badillo: Those impressions stay with them forever

Parents, like the Aragóns, the Carrillos and the Esparzas, articulated an understanding of their children’s personalities in relation to their learning styles and preferences. They declared to have corroborated these perceptions during their recent visit to Universum. In regard to their learning, parents described their own children as analytic, curious, sensitive, impulsive, self-motivated, extrovert/introvert, good/bad reader, restless/quiet, kinesthetic, persistent, practical, creative, etc. Also, parents were able to define their children’s learning strategies. Exploring/discovering, touching, asking questions, observing, imitating, reading, playing, and listening to others were amongst the learning strategies mentioned by the participating adults.

Mr. Holguín: The older one reads more. The young one is lazier and he learns better playing [...]

Mrs. Holguín: He is so restless

Mr. Holguín: Very much so

Mrs. Holguín: They are water and oil. While the young one is very impatient, very hyperactive and stuff, the old one is very calm. He spends the time, what he does is to read and read and read. He reads a lot. He is very thoughtful

In fact, children were noticed observing, touching, manipulating/interacting with exhibits, asking questions, talking about what they were looking at, reading, listening to explanations/answers to questions, and imitating other members of their families throughout their stay at Universum.

In general, parents appreciate the major effect of siblings’ relationships on individual growth and development of understanding and learning skills. Contrary to many older siblings’ perception that there is not much to learn from the youngest of the family, parents consider that
every child learns from the others. The Jáuregui family is a representative example of this
notion:

Mr. Jáuregui: So when one of them knows how to read and the other doesn’t, by nature
they feel challenged and say, no, I have to make an effort and learn to
read. Or for instance, some of them study music and so when one knows
how to play a piece, the others push themselves to learn it. That is how
they learn

It is clear then, that parents are aware that children learn from each other not only
concrete concepts or information, or the mastering of certain tasks (e.g., manipulation of a
computer, sports, or games), but also behaviours and skills that parents, like the Berlangas and
the Carrillos, consider valuable. Such behaviours and skills include literacy skills and habits,
providing explanations to others, sharing interests and information, and so on. Furthermore,
children imitate each other and in so doing, they adopt and learn skills such as curiosity,
patience, courage to try new things, and social competence to relate to others.

Mrs. Ramírez: The thing is that because they have different abilities, they help each
other a lot. Eduardo is very analytic about things, and also because he is
the oldest one, he transmits the experience he has to his sister, of course.
And Carmela is more outgoing, and so tends to be more communicative,
right? And so she teaches Eduardo that. And she is also more sensitive to
certain things, as a female. So they transmit things to each other from
different perspectives

According to their parents, siblings supported each other’s learning experiences in the
museum galleries in multiple ways. The Tapia family illustrates one of them:

Mrs. Tapia: In the butterfly section, where the insects are and well, in all the animal
galleries, but what interests him [Javier] the most are the insects, he
called Blanca. Look at this, look at this, look at the wings and the colors.
And she with the butterflies, pay attention Javier, how the colors, how
they have been arranged from the lightest to the darkest one, and look at the wings too. This one has pointy wings

It was evident that parents are aware of the current developmental stages of their children, as well as the changes that the minors have gone through as they get older and the corresponding changes in their learning skills and interests, as discussed in section 5.4.3. What is important to note, is the influence that the knowledge that parents hold about their children as learners has in shaping the very nature of the parent-child interactions that occur in all the different contexts in which parents and children interrelate (i.e., "conviven"). For instance, such understandings and perceptions influence a parent’s preferences for using certain teaching strategies over others, or their choice of activities for their children in relation to formal instruction and hobbies (e.g., tennis classes vs. music lessons).

Children, on the other hand, although with fewer details than their parents, were also able to talk about their most favored learning strategies and techniques. Remember Juan and Mario’s dialogue or Carolina’s and Lucía’s comments in the previous chapter. Children’s comments on their own personal learning practices were direct, plain and unambiguous, and in some cases made reference to their developmental stages and associated skill level.

Gustavo: Asking and asking
Mrs. Guerrero: Yeah, reading is another story
Gustavo: Yeah, it’s not for me
AB: Not for you. And how about you Verónica?
Verónica: I ask [...] 
Gustavo: I rather have someone explain things to me
AB: And you Verónica?
Verónica: Me too 
Gustavo: If I read I get bored in five minutes

In regard to their learning personalities, children described themselves as thoughtful, shy, restless, or wise. Children also mentioned they enjoy learning and actually learn when they get/provide concrete oral or written explanations (i.e., “to the point”), listen to stories, make/see drawings/art, read, play, ask questions, engage in discussions and exchange ideas and view points, observe things, manipulate things, get help from adults, or discover things by
themselves. The following quote provides an example of children’s insights into their own learning:

AB: So you don’t like to ask questions? How do you solve your questions then? On your own?
Diana: With my brains
AB: With your brains? You like to think about the answers
Diana: Right
AB: And do you like to ask questions?
Alfonso: I do
AB: If something is not clear for you?
Alfonso: Right

In many cases, these learning skills and approaches were put into practice during the museum visit, according to both parents and children. Nonetheless, the outcomes of this study suggest that there is a somewhat prevalent perception amongst children that they do not know much about anything. For some, their self-awareness as knowledgeable persons and competent learners was not always manifested, at least in the context of this study.

AB: And how do you like to learn new things?
Alfonso: No, I only know how to play
AB: You know many things, I assure you that
Alfonso: I don’t
Diana: The letters and the numbers
Alfonso: No, not that

5.4.5 Summary
For participants of this study, the concept of “learning” is loaded with cognitive meaning. However, learning as observed in the context of the museum visit ought to be characterized as a multi-directional and multi-dimensional process comprising of a strong social component. Parents are aware of the responsibility to educate a child; they not only recognize that children learn constantly from everything they experience, but they mirror what they see in their parents and extended family.
Parents consider themselves as individuals with lifelong learning interests and skills, although in general terms, children, are challenged by this revelation. Parents' roles as educators, on the other hand, are clearly acknowledged by children. As educators, parents hold a rather clear image of their children as learners: their abilities and skills, strengths and weaknesses, as well as their developmental stages and learning styles and preferences. Parents' perceptions of their children as learners are relevant because these shape the way parents and children interact and learn from each other.
Chapter 6: Conclusions and implications

Chapters 4 and 5 provide the results and analysis of the data gathered as part of this study. In this chapter, the key findings of the research are summarized and discussed, and the conclusions resulting from the data analysis are highlighted. Then, implications and recommendations for practice, for both researchers and museum educators and developers are outlined. Also the limitations of this study are examined and issues and questions that could be addressed in future research are provided.

6.1 Key outcomes

The influence of cultural context and cultural background is an important, yet mostly missing, ingredient in the field of visitor research. This research, conducted in the Mexican socio-cultural context offers some significant contributions to the field by addressing some of the issues that had been missing. The key outcomes of the study are thematically synthesized in this section.

6.1.1 Participants' museum experience

This study indicates not only that the Mexican families that took part in this study are eager museum visitors, but that they do not see a conflict between having an entertaining and educational experience as a result of a museum visit. It also highlights the intrinsic value that the family has in the Mexican socio-cultural context. For instance, the museum outing is recognized by the participants as a valuable opportunity to learn about other family members and to collectively construct a shared identity. What is more, collective amusement is also perceived as one of the most salient outcomes of their museum visit. Thus, these Mexican families seem to place a great value on the collective or social aspect of the visit, being even considered more significant than the cognitive experience itself.

This conclusion is further corroborated by the finding that in this socio-cultural context, visitors' motivations for visiting a museum are likely to include a strong and socio-culturally specific component. Amongst the participating family groups, the opportunity to spend quality time with one’s nuclear family is considered a strong motivation for visiting a museum. These Mexican families are also motivated by the occasion to foster interpersonal relationships with extended family and friends.
Cognitive gains resulting from the museum visit could be better described as factual or declarative in nature for both participant adults and children, although there is evidence to suggest that some level of analysis and synthesis also takes place as a result of a museum visit. The newly acquired knowledge is diverse amongst visitors, and is likely to be related to their prior interests and understandings on certain topics or subject matter, which in the case of the participant families is closely related to, for instance, their own academic and professional backgrounds.

The outcomes of this study also indicate a shared sense of appreciation towards a local academic institution, in a sector of the Mexican society represented by the participant families. As well educated middle-class individuals with personal connections to the National University of Mexico, many participant adults were motivated to visit Universum because of the emblematic and personal and national meaning that UNAM has for them. This unique motivation for visiting Universum could be described as socio-culturally relevant, for the particular segment of the population that participants typify.

In the Mexican context, adult family members are important decision makers. Children, on the other hand, play crucial roles in shaping the participant adults' final decisions and actions. In fact, the roles of children in family life are evidenced in this study. It appears that within these families, children's voices are, in general terms, respected and taken under consideration.

Families with Mexican socio-cultural backgrounds have a tendency to behave cohesively and remain together during their museum visit, as the participant families exemplify. They also tend to publicly display signs of warm affection and confidence, such as loud voices, laughter, and a wide collection of physical interactions.

The diverse social outcomes of a museum visit can be better described as idiosyncratic in nature. In general terms, they range from fun and amusing collective experiences, to acquiring a deeper understanding of other's personalities and learning and cognitive skills. A visit to a museum serves as an inviting context for families to achieve such outcomes. Museums were also perceived by the families as places to foster children's development though socialization with other children and exposure to novel and unique stimuli. What is more, urban participant families from this Mexican socio-cultural context appreciate museums as retreats from the busy and stressful life they face everyday.
6.1.2 Membership and roles. What is ‘family’?

Defining ‘family’ requires a socio-cultural approach because many nuances of this concept exist, clearly shaped by people’s identity. In the case of the Mexican socio-cultural context, the notion of family is loaded with emotional and affective connotations. The family not only encompasses people, but a complex network of social interactions, implicit agreements, trust, affection, and shared culture.

The analysis of the data confirms that in the Mexican socio-cultural context, an individual’s intimate family group includes not only nuclear family members, but also relatives and friends. Children grow up and develop within this tight web of social relationships and emotions, thus acquiring a socio-culturally shaped conception of ‘family’. On the other hand, prior assertions (e.g., Hansis, 1997; Marin, 1993) that in the Latin American context families tend to be large in numbers are not definitely supported by the outcomes of this study, since most participating family groups were rather small in number of family members.

This study points to the salient role that the extended family plays in the Mexican socio-cultural context. The active involvement of grandparents and other adult relatives in the rearing, education and ‘educación’ of children stands out as one important attribute in many of the participant families. Also, young relatives (i.e., cousins) are commonly valued as important socializing agents whose company and ‘convivencia’ are valued, in for instance, the context of a museum visit.

The role of affection in the way family members interrelate and ultimately learn collectively and individually is also evidenced in this study. Constant physical and verbal manifestations of affection set a welcoming and loving family environment, where learning is fostered and supported.

What is more, the significance of the female figure in family life within the Mexican socio-cultural context is further evident in this study. Amid participant families, females are not only the main caregivers, but essential contributors to the family’s decision making. However, the outcomes of this study also support García and de Oliveira’s (2006) claim that traditional gender roles are currently changing with a resulting increased involvement of males in family duties and childrearing and an overwhelming participation of females in the work market.

The multiple roles that children play in the family are somewhat evidenced by this study. Participants’ comments suggest that children are leaders, decision-makers and are also involved in diverse aspects of family life. It could be said that ultimately, the roles that children play in their families, as well as their particular child to child interactions, characterize not only
the family and its dynamics, but also the ways in which family members learn with and about each other in situations like a museum visit.

6.1.3 ‘Educación’, a broader concept

The Latin American notion of ‘educación’ is a broad, multi-domain concept that encompasses not only the cognitive, but social, moral, emotional and other cultural aspects.

Recognizing that ‘convivencia’ is an extremely valued resource amongst families is important because it is within such ‘convivencia’ that ‘educación’, as understood from a Latin American socio-cultural perspective, takes place. Everyday interactions set the grounds for better learning about other family members and for passing on values, traditions and ways of seeing the world, that ultimately define an individual’s socio-cultural identity. In the Mexican case, such identity is permeated with a strong sense of the collective.

An essential component of the ‘educación’ of the children is doubtlessly instilling a sense of discipline and appropriate behavior. It is not surprising then, that participant families display disciplining behaviors in public spaces such as the museum, since parents consider that teaching correct manners and conducts is their responsibility as educators. Authority in these groups then, falls to the adult in charge, being it a parent, grandparent, or any other relative or trusted friend.

Passing on values and morals that promote and perpetuate individual and collective socio-cultural identities is also a parental task, according to participant adults. Conveying a sense of respect and love for other family members and their roles within the group can be highlighted as one of the main goals of the family in terms of ‘educación’. The notion that the family is at the core of any person’s life is a message constantly conveyed by adults to children. Evidence of this collective-centered approach to childrearing, is the teaching of values such as responsibility, tolerance, generosity, patience and honesty confirmed by this study. Of particular interest is the cultivation of a sense of no-competition, which is in contrast with the traditional Anglo perspectives on education.

Participant families constantly and continuously develop a sense of shared identity amongst members. They bring that shared culture with them to the museum setting. The museum, on the other hand, serves as an alternative context for this process to develop, and for the emergence of novel experiences, as Hilke (1987) asserts. The exposure to diverse and engaging activities during a museum visit is also likely to evoke personal stories that are then shared with family members thus further strengthening their sense of common history.
Language and religion stand out as two crucial elements that define an individual’s socio-cultural identity (Baer & Schmitz, 2007; Figueroa-Moseley et al., 2006; Gracia, 1999; Larrain, 2000). In the Latin American socio-cultural context, this seems to be particularly true, since it is these two aspects that could be said to unify and promote a sense of collectiveness at both the national and the regional levels. In this context, language and religion are also essential elements of the ‘educación’ that participant parents and other adult caregivers provide for their offspring.

Also, emotional competence is considered as a valuable legacy by some of the participant families. Such competence implies being able to show or not show emotions, according to the context and situation. Such standards of appropriateness are soundly grounded on culture. As part of their ‘educación’, participant children learn these implicit rules and norms through their everyday interaction with family and friends.

All in all, ‘educación’ is an ongoing venture that takes place in the many contexts of family life, including a museum visit.

6.1.4 Education

The way in which people understand ‘learning’ shapes the actions and decisions they take in regard to the education of their family members. For the parents that took part in this study, learning has cognitive connotations, and is generally perceived as a lifelong process that depends on experience. Under this perception, adult members of the participant family groups view a museum visit as a rich and unique opportunity to learn, for both their children and themselves. Additionally, the museum experience is recognized by families for its contributions not only to domains such as the cognitive and the social, but also the affective, aesthetic and motor.

Participants also hold a rather clear notion of their own and their family members’ learning. Both children and adults are capable of articulating what is it that they learn from one another as well as describing their personal learning strategies and those of the other members of the family. However, participant children in general tend to have difficulty locating themselves as educators, or persons from whom adults can learn something. Adults on the other hand, do not seem to have difficulties in describing themselves as active learners within their family groups.
Learning, as observed in the context of a museum visit, is to be understood as a multi-dimensional and multi-directional process where all actors of the social experience learn from each other about a wide range of things.

Children and adult members of the Mexican family groups who took part in this study display teaching and learning behaviours that have been previously described for Anglo audiences (Borun et al., 1996; Diamond, 1986). Mexican parents' roles as educators encompass diverse actions and strategies. Also, parents tend to give their children the opportunity to explore and discover things at their own speed. Providing supervision and support are also amongst parental duties as educators.

This study suggests that parents’ knowledge and understanding of their children as learners prompts them to employ age-appropriate strategies. The museum serves as context for parents to evaluate their current strategies and to identify developmental and cognitive changes in their children that may call for an adjustment in their teaching strategies. A visit to a museum is an opportunity for parents to realize and understand their children’s personalities and developing skills and needs as learners, and also to learn how to negotiate the interests of all family members.

Participant children’s perceptions of their parents as educators are closely linked to the Latin American notion of ‘educación’. These perceptions are reaffirmed during a museum visit.

Parents of the families that took part in this study have a clear perception of themselves as learners, their overall learning styles and preferred strategies. For many of them, silent reading is one of their preferred learning strategies and actually, reading is one of the most salient learning behaviours adult members of the family groups displayed during their museum visit. Other learning behaviour participant parents displayed in the museum gallery include manipulating exhibits of particular interest to them (i.e., not in the presence of a child). Mexican parents have a lot to say about themselves as active learners, and acknowledge the learning value of a museum experience with their families. Also, they acknowledge the diversity of things they learn from their children as a result of their daily ‘convivencia’ and as result of a day at the museum: from school content and technology-related matters to the appreciation of life and all its details. Parents also learn about themselves and their tasks as educators as a result of spending a family day at the museum.

Upfront, participant children tend not to have a clear notion of their parents as learners. And even more troubling for them is the perception of themselves as educators. However, after giving them the opportunity to reflect on these issues, some children are likely to recognize
things they believe their parents learn from them. For instance, children who took part in this study acknowledge their parents learn from them attitudes such as patience and serenity, a more relaxed appreciation of life, or content matter and motor skills.

Adult members of the participant family groups have a well articulated view and understanding of their children as individual and social learners. A visit to a museum offers parents the opportunity to corroborate their perceptions and/or to develop new and updated understandings around their children as learners. Parents are capable of describing their children as learners as well as their learning styles rather effortlessly and making use of adjectives such as analytic, curious, creative, and so forth.

Participant children are more likely to articulate their perceptions of themselves as learners, when compared to their notions of their parents as learners. However, some of the participant children have trouble recognizing themselves as knowledgeable people and competent learners.

The role of siblings in the learning experiences of their offspring is also well realized and valued by participant adults. Parents agree that children learn a lot about many different things from other children. By tapping into this knowledge, they are able to offer diverse learning opportunities for their children both within and without the museum setting.

6.2 Implications and recommendations
Socio-cultural perspectives and considerations have important implications for research and museum policy (e.g., design, pedagogy and evaluation). Taking into account that different cultures have different patterns of sociability and learning, understanding how these patterns of learning can be accounted for becomes critical for formal and informal education. In this section some implications and recommendations are outlined, both for research and practice. These emanate directly from the key outcomes of this study.

Museums, it has been widely acknowledged, play important and unique roles in our current societies. However, little has been said about the roles that these institutions could play as contexts for researchers to better comprehend the intricate socio-cultural patterns and childrearing habits that are at work during parent-child interactions, and which significantly shape a child’s cognitive and emotional development (Ochoa & Sharifzadeh, 1994). These insights could help us understand the multiplicity of events that take place during a museum visit, and thus enrich the development of optimal educational opportunities informed by how people learn.
The museum is also to be considered as an environment where a variety of interactions and outcomes take place. Not only are museums spaces with cognitive and affective effects, but are also contexts where the co-construction and reaffirmation of socio-cultural identities occur. Enculturation involves developing identity as a part of a community, and the museum is one of the contexts where this process takes place. Outcomes of this study suggest that museums, amongst other institutions are places for building and affirming identity. In fact, families are a clear example of how visitors use museums as tools to establish and negotiate their identity, and how such a process is a valued outcome amongst family groups. Families are learning institutions themselves, who draw upon museums as one of many tools and contexts they have to build a collective and individual identity for their members.

In fact, the family in the Mexican socio-cultural context is particularly valued as the foundation of the larger society. As Ellenbogen et al. (2007) claim, family interactions are an essential element of the ways in which family members come to make meaning from experience. There is a lot we can learn from exploring the dynamics that go on in visiting family groups.

Museums are places where a variety of interactions and learning events occur. Not only learning of concepts that relate to the contents of the museum is in play. In the Mexican socio-cultural context, aspects of ‘educación’ and education are constantly developing during family museum visits. Such opportunities are highly appreciated and employed by family groups to assist them in their roles as educators and active learners.

In general terms, it could be argued that the current Anglo-centered theories on family learning in informal settings that compose the current body of literature hold true for families in the Mexican socio-cultural context. Behavioural aspects that relate to learning as well as those that relate to agendas and motivations are corroborated by this study. However, important differences exist in the more conceptual levels of what family is and the intimate dynamics that take place amid family members in the private and public space. These differences are likely to have an impact for both research and practice. Recommendations are made accordingly in the following sections.

Despite the significant efforts that are being made, we still do not fully understand the diverse impact of museums. This study highlights the importance and prevalence of outcomes from a museum experience that are salient in visitors’ daily lives. These outcomes are more likely to be concerned with behavioural and attitudinal changes, opinions, and understanding of other family member’s actions and development. In other words, this study emphasizes that
impacts of a visit are unique and individual, and that such outcomes are important to a better understanding the big picture about how informal learning institutions have an impact on the lives of the public. As Rennie and Johnston (2007) argue, until we have more data about the range of individual outcomes, we are likely to understate the impact of a museum visit.

6.2.1 Recommendations for research

a) Revealing the nature of the learning processes and products that take place as a result of museum visitation requires a socio-cultural perspective. Such a perspective not only focuses on the immediate experiences of visitors, but on the ways in which they are situated within a larger social and cultural context (Ellenbogen et al., 2007). By so doing, issues that relate to shared meanings, processes, symbols, and identities will provide a more complete picture of the learning that results from museum visits.

b) Given the significance of social interactions for the learning that takes place as result of a museum visit, it is suggested that, when possible, researchers consider groups of visitors as the unit of analysis and not individuals. It has been established that even for solitary visitors, the social experiences visitors encounter during a museum visit are powerful mediators of learning. Thus, research that focuses on the group rather than on the individual is likely to better capture the scope of the museum experience.

c) The field of visitor studies in Latin America requires appropriation and development on the part of local museums and other institutions, such as universities and research centres. The tendency to adopt external lines of action without contextualised adaptation is not enough to align with local audiences’ perspectives, desires and expectations. Contributions made to the field by Latin American museum specialists conducting research in local venues, are needed in order to increase and deepen our understandings of the impact of museum experiences on people’s learning.

d) Researchers should understand learning in a broader and multi-faceted sense. Taking into consideration not only the cognitive, but other domains of human experience is crucial for making sense of visitors’ learning outcomes.

e) The presence of native researchers is recommended when conducting research in the Mexican socio-cultural context. This will ease the establishment of rapport with participants, as well as provide insider perspectives that could be helpful in the event of unexpected challenges.
f) Conducting research in the field of family learning in alternative socio-cultural contexts, such as the Mexican context, demands a revision of the concept of 'family'. Different contexts may require the use of a socio-culturally adequate notion of family, which in the case of Mexico should include extended family and friends. Not doing so could result in misleading conclusions.

g) Mexican families are easily approachable and eager to share their perspectives on issues that relate to learning and family life, when enthusiastic about participating in a research study. However, there seems to be a socio-culturally rooted tendency on the part of potential participants, not to declare such conviction in an up-front, clear manner. Researchers should take this into consideration when working with participants with Mexican socio-cultural backgrounds to prevent frustration and disappointment.

h) Researchers are encouraged to consider the salient role of females in Mexican family life. Although gender roles are changing and the outcomes of this study shows evidence of the active participation of males in family life, females are crucial decision makers. Researchers should not underestimate the hegemony of females in the Mexican context, as in general, their voice is crucial for their families’ participation in activities including research studies.

i) Researchers should capitalize on the knowledge family members have about themselves in order to adequately understand visitors’ learning experiences. According to Falk (2007), it is necessary to learn something about a visitors’ prior experiences, prior learning, stage of intellectual, physical and emotional development, cultural and social history, and interests and expectations in the particular situation of the visit, in order to better comprehend what and how visitors learn from museums. Given the deep understanding that family members have about each other, families can be considered as very useful resources in achieving this goal.

j) Researchers and museum educators should not overlook or underestimate the significance of emotions and affect as mediators and outcomes from a family museum visit. Prior work has highlighted the role that emotions, feelings and attitudes play in visitor learning and behaviour (Csikszentmihalyi & Hermanson, 1995; Falk & Dierking, 2000). This research indicates that for Mexican family groups, emotions and affect in its many manifestations, are powerful mediators of the collective learning experience and that in the context of this study, emotional outcomes are strongly appreciated and actually pursued by all family members.
k) Researchers are encouraged to consider the salient role that non-verbal interactions play in the learning dynamics of families with Mexican socio-cultural backgrounds. Physical contact, for instance, stands out as a prevalent non-verbal mediator of the interpersonal relationships that take place within a family, and as a factor that sets the atmosphere of trust and harmony in which any learning can take place.

l) Researchers should be prepared to confront a very insightful yet challenging process when conducting research from a socio-cultural perspective. Conducting research of this nature is an inquiry process not only to the personal world of others, but of one self’s.

m) A strong connection between research and practice is further recommended in order to enhance and optimize the learning experiences of visitors. Museum programs and exhibits that take into consideration the outcomes of local research are likely to offer enhanced learning opportunities to all audiences. Alternatively, research that addresses specific issues raised by museum educators and programmers is expected to generate valuable and useful recommendations for practice.

6.2.2 Recommendations for museum practice

a) Museums need to understand the communities’ needs, interests, and identities in order to capitalize on their visitors.

b) It is suggested that museums should not be hesitant to make use of self-report methods as tools for evaluation or research. Participants who took part in this study overtly expressed a sense of satisfaction resulting from their participation in the study. Engaging visitors in activities where they are asked to reflect on their experiences as learners in the museum, provides them with a unique opportunity to evaluate and appreciate their learning experiences.

c) Museums are encouraged to tackle topics of local or regional relevance in order to accomplish the role of becoming an integral part of society and to acknowledge themselves as places that offer visitors lifelong learning experiences which bring visitors close to the topics in display in a locally contextualized manner. In these times of globalization and homogenization of culture and values around the world, a local adaptation of global concepts and trends becomes critical in the promotion and maintenance of local identity.
d) Family groups are social milieus where countless socialization events take place across contexts. Museums ought to be aware of the roles they play as contexts for families to foster such socialization initiatives, and the value that families assign to them in this respect. By recognising their potential not only in the cognitive, but in the social domain, museums would be better able to capitalise on and appreciate their roles in society.

e) Programs and exhibits that consider the voices and expectations of children are likely to have an impact on family visitors. In the Mexican context, the participation of children in family life and decisions is significant, thus considering adults members of family groups as ultimate decision makers, and children as central in shaping the decision process of family groups, is highly recommended.

f) It is necessary that museums recognise and accommodate the resources and agendas families bring with them, in order to create a successful family learning context for all members.

g) Informal settings are encouraged to test exhibit concepts and operation with both children and adults of diverse age groups. Mexican family groups are diverse in composition and size and include people of all ages. Both children and adults have different interests, motivations and skills, and they are aware of their mutual differences and their personal preferences.

h) Museums should design for group accessibility, collaboration, and conversation, and enhance efforts to embed socially mediated notions of learning into the design process. Regardless of their structure, Mexican families appreciate and value opportunities to interact and engage in collaborative experiences. They have a tendency to behave cohesively during museum visits. Creating inviting exhibits that are appealing to children and adults of all ages, and that explicitly motivate and facilitate interaction, cooperation and conversation, promises to be of benefit for this sector of the museum public.

i) Text should be easy to share and easily linkable to daily life. It is suggested that labels and text panels are designed to be read aloud since this is a common practice amongst family visitors. Text should be accessible to all age groups, from beginner readers to grandparents. The presence of grandparents in Mexican museums is significant; on the other hand, siblings are likely to assist each other while at the museum. Also, families appreciate it if a clear link to personal and familiar life events is made for them.
j) It is recommended that museum and informal settings offer family activities and programs besides regular exhibitions and galleries. Providing families with multiple resources is likely to appeal to family groups with young children. Particularly, in the context of large cities such as Mexico City, where families constantly struggle to find activities for their youngsters that give the opportunity to interact, share quality time, build memories, and forget about the demands of life for a while. Families are in search of engaging activities for all group ages such as workshops, demonstrations, family trips, and family nights.

k) Museums should consider home-schoolers among their public. Although not a prevalent audience, home-schooled children and their families are visiting Mexican museums. Investigating their particular needs and expectations could help in the design of resources that fit their educational requirements.

6.3 Limitations of the study

The intersecting perspectives of socio-cultural theory and social constructivism provide a sound theoretical framework for researching the nuances of learning in socio-culturally diverse contexts. This study begins to shed some light into issues of culture and identity that had not been explored before, by researching Mexican visitors’ learning experiences in a Mexican science museum. Although some interesting contributions can be made to the fields of museum education and visitor studies, there are some limitations of this study inherent to the methodology employed. Such limitations will be discussed in this section.

Perhaps one of the most significant points to address is the issue of generalisability of findings. Although the goal of case studies is not to produce generalisable outcomes, but to expand our knowledge and understanding of the human experiences in the context of, for instance, a museum visit (Section 3.7.2), it is also the aim of the researcher to emit recommendations with some degree of applicability. Such applicability demands the transferability of outcomes. A guiding argument throughout this thesis is the point that, with caution, by researching Mexican cases a point for the larger Latin American socio-cultural context can be made. However, this research is limited in that by exploring a limited number of cases in the context of urban Mexico, such recommendations are to be taken with caution.

This research is also limited in that the cases presented, represent a delimited small fraction of the Mexico City population: middle class, working, educated families. So, not only the Latin American population is under-represented in this study: so are many other social
spheres that constitute the vast mosaic of peoples who currently live within the limits of what we call Mexico. Issues of class and socio-economic status are inherently playing a role in the outcomes of this study. However, by not exploring in detail the impact of class and education on people’s ways of learning, this research is limited because it could be read as oversimplifying a much more complex phenomenon, as is the influence of socio-cultural aspects on people’s ways of understanding and making sense of the world.

At any rate, readers are encouraged to discern the issues that resonate with them, and to decide for themselves if the outcomes of this study can be applied or not to other settings and contexts. This study describes and analyses the experiences of a set of families visiting Universum, Museo de las Ciencias, and the outcomes are a result of the identities of the participant family groups, and the specifics of the setting at the moment of data collection.

Another weak point of this research is that it does not address issues that relate to the longitudinal effects of a museum visit. It is well recognised that the learning that results from a museum experience changes over time and is likely to increase in sophistication and interconnectedness with other experiences and contexts in visitors’ lives in a rather idiosyncratic way (Adelman et al., 2000; Anderson, 2003; Anderson et al., 2007). Thus, by not including a longitudinal perspective, this study offers a partial picture of participants’ museum experience.

It is acknowledged that interpretive case studies are reliant on what participants have and want to say in a particular moment and circumstances, and are also subject to the researcher’s personal and professional judgements, understandings, criteria, and sensitivity. Expectancy and distortion effects (Bernard, 1994) are always a risk when employing self-report methods as principal tools of inquiry (Section 3.10). Also a potential of reactivity during the data collection process, or the possibility that participants’ comments and behaviours could have been prompted or influenced by the research process itself, is further acknowledged as one limiting factor.

It is further recognized that issues of translation may represent limiting factors in this study. The fact that all interviews were originally conducted and recorded in Spanish, and yet the final thesis is presented in English could have some limitations in terms of fully and accurately transmitting participants’ meanings and feelings.

Finally, it is also granted that the language of the final products of the inquiry process says a lot about the body of theoretical knowledge to which such research intends to contribute. Reporting in languages other than English could contribute to an alternative body of research.
(e.g., Mexico and other Latin American countries) in a more culturally specific way (i.e., in Spanish). However, this thesis is presented in English in compliance with the requirements of the University of British Columbia, and limitations in this regard are recognized.

6.4 Issues for future research

This study provides new perspectives and insights to the field of family learning in informal settings. However, it also has set the foundations for future research in the field. As some questions are addressed, many others emerge. In this section, possible lines for future research are discussed.

A central issue that should be addressed in future research in the Mexican context is how to engage audiences other than middle-class, educated families. The perspectives and insights from other sectors of the society (e.g., rural, urban non-visitors, urban visitors with different socio-economic status) are missing in this study, thus representing an interesting and required field of inquiry. The inclusion of other sectors of the society would allow discerning class and economic issues, for instance, from socio-cultural elements. As well, conducting research in other countries in the Latin American region is important in order to validate and enrich the findings herein presented.

Given the incipient nature of the field of family learning in the Latin American context, researching from multiple approaches is necessary to provide a clearer picture of the nature and character of the learning outcomes of a family visit to a museum. Case study research offered a valuable tool for the exploration of the perspectives of a rather reduced number of participants, but designs and methodologies that call for larger samples and data of different kinds and characteristics would greatly add to our understanding of the issues under examination.

An element missing from this study is the contents of visitors’ conversations during their museum visit. Future research could address conversations as another tool for better comprehending the learning that takes place during a social outing to a Mexican science museum.

Future research could also focus on investigating the process of collaborative construction of scientific concepts from a socio-cultural perspective, in the Mexican context. Understanding how family members co-facilitate and assist each other in the understanding of scientific content could positively inform the development of exhibits and programs with optimum cognitive learning potential.
In order to be able to accurately and thoroughly describe how people with Latin American socio-cultural backgrounds learn from a museum experience, role of affect on learning requires further investigation. The outcomes of this study indicate the saliency of emotions and affect as mediators of the social experience. However, the links between the emotional and the cognitive are yet to be understood.

The focus of this study was not on gender roles and their influence in family learning. However, it appears to be an interesting area of research since a body of Anglo research exists on this topic, and the contributions from research conducted in alternative socio-cultural contexts, such as the Mexican, could add interesting and new perspectives.

Finally, the long term impact of a museum visit for Mexican families remains as an exciting area of future research. Investigating the way in which a museum visit develops, transforms and connects with other experiences and contexts relevant in visitors’ lives would expand the scope of this study.
References

Acevedo-Polakovick, I.D., Reynaga-Abiko, G., Garriott, P.O., Dereflndo, K.J., Wimsatt, M.K.,
considerations in the psychological assessment of U.S. Latina/os. *Professional


Paper presented at the Conference Interactive Learning in Museum of Art and Design,

Centre for Applied Research in Education, University of East Anglia, pp.45-61.


children’s field trips to museums. Unpublished manuscript. *Curator*.


museum experiences. In: *In principle, in practice: Museums as learning institutions* (J.
Falk, L.D. Dierking, S. Foutz, Eds.). Plymouth, UK: Altamira Press..


Institute for Studies in Education. Canada.


DiMaggio, P., & Ostrower, F. (1987). Race, ethnicity and participation in the arts: Patterns of participation in Black, Hispanic, and White Americans in selected activities from the


Voluntary participants needed for a study on:

"Understanding family learning in Mexican science museums"

YOUR PARTICIPATION WILL MAKE UNIVERSUM A BETTER PLACE FOR YOUR FAMILY!

Upon consent of participation, you will be compensated with a FREE issue of ¿Cómo ves? Magazine.

We are looking for families with children who would like to share with us their experiences at Universum, during a 30 min. interview at the end of the visit.

Interested? Ask for details at the front door!
Participant Consent Form for the Study:
"Understanding family learning in Mexican science museums"
(Parents)

Principal Investigator
Dr. Ann Anderson
Department of Curriculum Studies, University of British Columbia
PH (604) 822 5298, F (604) 822 4714
ann.anderson@ubc.ca

Co-Investigator
Adriana Briseño, PhD Candidate
Department of Curriculum Studies, University of British Columbia
PH (604) 822 2302
adrianab@interchange.ubc.ca

This research study is part of the Co-Investigator's graduate program, and the data obtained will be used for her thesis.

Purpose of the Study
The overall purpose of this study is to gain some understanding of the experiences of Mexican family groups that visit science museums. Particularly, with this study we aim at better comprehending the social and cultural mechanisms that are in play during such visit, as well as their impact on the resulting outcomes.

Data Collection Procedures
You and your family have been invited to participate in this study because you meet the criteria of inclusion previously defined (Mexican families with children up to 18 years of age). Data collection in relation to your family will consist of a 30 min. face-to-face interview at the end of your visit to the museum. Such interview will discuss your recent experiences at Universum, and will be audio recorded for future analysis. You will be unobtrusively observed at some points of your visit in order to investigate group interactions and behaviours. Observations will not interfere with your visit in any manner.

Potential Risks
By participating in this study, you and your family will not be subject to any social or psychological harm. Furthermore, your identity will be protected by means of pseudonyms.

Potential Benefits
You and your family may find that the opportunity to reflect on your recent visit, may deepen and enrich your appreciation of your family's experiences at a science museum. Also, if you would like to learn about the outcomes of the study, please provide a mailing or email address at the bottom of this form, so we can share the final documents with you.

Confidentiality
Original data collected in this study will only be examined by the principal investigator and the co-investigator. Anonymized material and/or final reports will be released to Universum, in case they solicit access to the data. You will have the opportunity to review the transcripts of your interviews and field notes from the observations. After doing so, you can choose not to accept
the inclusion of all or some of the data involving your family in this study, with no negative consequences for you or your family. When results of the study are published and disseminated we will ensure that data collected from you and your family remains anonymous. However, we may use some of your verbatim comments to elucidate the findings of the study in forums such as scholarly conferences, journal articles and a graduate thesis. In all cases your identity will be concealed by use of a pseudonym. Data will be kept in a locked cabinet and in a password protected computer, to further ensure privacy.

**Remuneration/Compensation**

In order to thank you and your family for your time and effort, in case you decide to participate in this study, you and your family will receive free issues of the ¿Cómo ves? magazine.

**Inquiries**

Questions related to this study are welcome at any time. Please direct them to Dr. Ann Anderson (Principal Investigator), Department of Curriculum Studies, University of British Columbia, 2125 Main Mall, Vancouver BC V6T 1Z4, Canada. PH (604) 822 5298, F (604) 822 4714, e-mail ann.anderson@ubc.ca. Or, Adriana Briseño, PhD Candidate (Co-Investigator), Department of Curriculum Studies, University of British Columbia, 2125 Main Mall, Vancouver BC V6T 1Z4, Canada. PH (604) 822 2302, e-mail adrianab@interchancie.ubc.ca

**Contact for concerns about the rights of research subjects**

If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598 or if long distance e-mail to RSlL@ors.ubc.ca.

**Consent**

Your and your family's participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without jeopardy to you or your family.

Your signature below indicates that you have received a copy of this consent form for your own records.

Your signature also indicates that you consent to participate in this study. Please specify whether you consent that your children take part in the study as well.

I consent/I do not consent (circle one) to my child's participation in this study.

__________________________________________  _____________________________
Signature                                             Date
(Parent or Guardian)

Printed Name of the Parent or Guardian signing above

If interested in receiving a copy of the final product of this study, please fill in:

Mailing address/Email address:
## Appendix C - Participants' demographic information

<table>
<thead>
<tr>
<th>Family</th>
<th>Composition</th>
<th>Adult</th>
<th>Minors</th>
<th>Age and gender</th>
<th>Relationship</th>
<th>Place of residence</th>
<th>First time visitors</th>
<th>Place of parents' education</th>
<th>Place of work life*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aragón</td>
<td>2s</td>
<td>1</td>
<td>1</td>
<td>Uncles, nephew</td>
<td>Uncle, nephew</td>
<td>Mexico City</td>
<td>Yes</td>
<td>PhD in biomedical sciences; works</td>
<td></td>
</tr>
<tr>
<td>Badillo</td>
<td>2s</td>
<td>1</td>
<td>1</td>
<td>Grandparents, grandchild</td>
<td>Grandparents, (grandparents); Jalisco, (granddaughter)</td>
<td>Mexico City</td>
<td>No</td>
<td>Economy and Industrial Engineering (retired); Grandmother: Housewife</td>
<td></td>
</tr>
<tr>
<td>Berianga</td>
<td>2s</td>
<td>2</td>
<td>2</td>
<td>Grandparents, grandchildren (cousins)</td>
<td>Grandparents, children</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>Grandmother: Degree in History (retired)</td>
<td>Both work</td>
</tr>
<tr>
<td>Berianga</td>
<td>2s</td>
<td>2</td>
<td>2</td>
<td>Grandparents, grandchildren (cousins)</td>
<td>Grandparents, children</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>Grandmother: Degree in History (retired)</td>
<td>Both work</td>
</tr>
<tr>
<td>Carrillo</td>
<td>1s</td>
<td>2</td>
<td>2</td>
<td>Mother, children</td>
<td>Parents, child, niece</td>
<td>Mexico City</td>
<td>No</td>
<td>Unknown</td>
<td>Both work</td>
</tr>
<tr>
<td>Durán</td>
<td>1s</td>
<td>2</td>
<td>2</td>
<td>Mother, children</td>
<td>Parents, child, niece</td>
<td>Mexico City</td>
<td>Yes</td>
<td>Unknown</td>
<td>Father works</td>
</tr>
<tr>
<td>Esparza</td>
<td>2s</td>
<td>2</td>
<td>2</td>
<td>Parents, child, niece</td>
<td>Parents, child</td>
<td>Mexico City</td>
<td>No</td>
<td>Unknown</td>
<td>Both work</td>
</tr>
<tr>
<td>Fregoso</td>
<td>2s</td>
<td>2</td>
<td>2</td>
<td>Parents, child</td>
<td>Parents, child</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>False</td>
<td>Both work</td>
</tr>
<tr>
<td>Guerrero</td>
<td>1s</td>
<td>2</td>
<td>2</td>
<td>Mother, children</td>
<td>Parents, child</td>
<td>Mexico City</td>
<td>Yes</td>
<td>False</td>
<td>Mother: University degree, works</td>
</tr>
<tr>
<td>Holguín</td>
<td>2s</td>
<td>2</td>
<td>3</td>
<td>Parents and children</td>
<td>Parents and children</td>
<td>Mexico City</td>
<td>No</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Jáuregui</td>
<td>2s</td>
<td>2</td>
<td>3</td>
<td>Parents and children</td>
<td>Parents and children</td>
<td>Mexico City</td>
<td>No</td>
<td>False</td>
<td>False</td>
</tr>
<tr>
<td>Name</td>
<td>Gender</td>
<td>Children</td>
<td>Mother, Father</td>
<td>City</td>
<td>Education</td>
<td>Father's Degree</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------</td>
<td>----------------</td>
<td>----------------</td>
<td>-------------</td>
<td>-----------</td>
<td>----------------</td>
<td>------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juárez</td>
<td>2</td>
<td>2</td>
<td>Mother, grandmother, children</td>
<td>Oscar (6 yrs)</td>
<td>Los Cabos, Baja California</td>
<td>Yes</td>
<td>Unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lara</td>
<td>2</td>
<td>3</td>
<td>Father, nanny, son, nephew, nanny's daughter</td>
<td>Bruno (3 yrs)</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>Father: University degree; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medina</td>
<td>1</td>
<td>2</td>
<td>Mother, children</td>
<td>Hugo (5 yrs)</td>
<td>Mexico City</td>
<td>No</td>
<td>Mother: University degree; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orozco</td>
<td>2</td>
<td>2</td>
<td>Parents and children</td>
<td>Daniel (3 yrs)</td>
<td>Mexico City</td>
<td>No</td>
<td>Mother: Degree in Psychology; Both work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palma/Trueba</td>
<td>3</td>
<td>2</td>
<td>Mother, uncle, grandmother, child, niece</td>
<td>Laura (9 yrs)</td>
<td>Querétaro, Querétaro</td>
<td>Yes</td>
<td>Mother: University degree; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ramírez</td>
<td>1</td>
<td>2</td>
<td>Mother, children</td>
<td>Carmela (8 yrs)</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>Mother: University degree; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suárez</td>
<td>2</td>
<td>2</td>
<td>Parents, child, nephew</td>
<td>Esteban (9 yrs)</td>
<td>Mexico City</td>
<td>No</td>
<td>Father: Degree in Economics; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tapia</td>
<td>2</td>
<td>2</td>
<td>Parents, children</td>
<td>Blanca (12 yrs)</td>
<td>Mexico City</td>
<td>No (F)</td>
<td>Father: University degree; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vázquez</td>
<td>1</td>
<td>2</td>
<td>Mother, children</td>
<td>Juan Carlos (3 yrs)</td>
<td>Mexico City</td>
<td>No</td>
<td>Mother: Degree in Economics; works</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yáñez</td>
<td>2</td>
<td>4</td>
<td>Parents, children, niece</td>
<td>Arturo (6 six)</td>
<td>Tuxtla Gutiérrez, Chiapas</td>
<td>Yes</td>
<td>Both work</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The information related to parents' education and work life came up casually during the interview process. It did not form part of the interview protocol. Alas, in some cases the information is unknown, whereas in other cases further details are missing.*

(F): Frequent visitors.
Appendix D – Interview protocol (Spanish version used for data collection)

Background questions (for adults):

- Where did you grow up? (rural, urban, suburban area)
- How many family members live in your house?
- How many children do you have? Boys or girls? What is the age of those who are here today?

Reflective questions (for all family members):

a) Family history
- What kinds of places or things do you like to visit or do as a family? What do you like about them? How often do you visit museums? Have you been to Universum before?

b) Motivations/Expectations
- Why have you chosen to come here today? (Probe: What was your prime motivation, entertainment/learning?)

c) Family dynamics (roles)
- How would you describe your family dynamics? When you go out to a place like this? (Probe: Who leads most regularly? How do you decide where to go/what to do in a weekend or holiday? How did you decide what to do/where to go here today? Who suggested today’s trip?)
- Can you describe the roles that each of the family members plays in the group? What were your roles during the visit?
- FROM OBSERVATIONS: I noticed that you were having a discussion at some point of your visit. Tell me about that incident. Who was doing/saying what?

d) Highlights of the visit
- Were there any special moments for you? As individuals? As a group? Why was that special?
- What do you take home with you from today’s visit? What did you like best/less? Would you like to come back?
- What do you think you have learned today?

e) Family learning
- Tell me how you would define ‘learning’. What makes an experience a learning experience for you and for others in your family?
- Do you think you learn as a result of spending time together? Why/why not?
- FOR ADULTS: Do the kids teach one another? Do the kids teach you? How do they do this? Do you teach the kids? How do you do this?
- FOR CHILDREN: Do you agree with what your parents just said? Why/why not?
- FOR ADULTS: Tell me about your children as learners. How would you describe your children as learners? (Probe: What are their learning strategies? When can you say they have learned something? Do you think they have learned anything new today at the museum?)
• FOR ADULTS: How do you use this knowledge about your children? When would you say you are helping your children to learn? Could you give me an example based on your recent experience here at the museum?
• FOR CHILDREN: Tell me about the ways in which you learn. How do you think you learn most effectively? How do you use this knowledge of yourselves in places like this? Do you think you have learned anything new today?
• FOR CHILDREN: Tell me about the ways your parents assist your learning. Do you think they assisted your learning today at the museum? In what ways? Can you give me an example?
• FOR ADULTS: Tell me about your roles as learners. Do you see yourselves as learners even though you do not attend school anymore? What are your learning strategies/preferences? What do you enjoy learning about? Would you say you have learned anything today at the museum?
• FOR CHILDREN: Do you think your parents learn? Do you think you know how your parents learn?
• How would you envision assisting each other’s learning? What would you do to teach something to other members of your family in a science museum? What would be needed for you to say that you have actually learned something here today?
Appendix E – UBC behavioural research ethics board certificate of approval

The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road, Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR: Ann G. Anderson
INSTITUTION / DEPARTMENT: UBC/Education/Curriculum Studies
UBC BREB NUMBER: H08-01163

INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Other locations where the research will be conducted:
Universum, Museo de las Ciencias (Mexico City)

CO-INVESTIGATOR(S):
Adriana Briseno-Garzon; David Anderson

SPONSORING AGENCIES:
N/A

PROJECT TITLE:
"Understanding family learning in Mexican science museums"

REB MEETING DATE: June 26, 2008
CERTIFICATE EXPIRY DATE: June 26, 2009

DOCUMENTS INCLUDED IN THIS APPROVAL:

<table>
<thead>
<tr>
<th>Document Name Description</th>
<th>Version</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consent Forms:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consent form_English</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Consent form_Spanish</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Assent Forms:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assent form_English</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Assent form_Spanish</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Advertisements:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advertisement_English</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Poster_Spanish</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Poster_English</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Advertisement_Spanish</td>
<td>2</td>
<td>July 9, 2008</td>
</tr>
<tr>
<td>Questionnaire, Questionnaire Cover Letter, Tests:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interview protocol_English</td>
<td>1</td>
<td>June 13, 2008</td>
</tr>
<tr>
<td>Interview protocol_Spanish</td>
<td>1</td>
<td>June 13, 2008</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n/a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair

174