Introduction

'The future lies in the hands and the enthusiasms of the children of today. They will in due course take over the torch of progress and become the leaders of tomorrow'.

<div align="right">Chauncey J. Hamlin (cited in Russell, 1956: v)</div>

The above statement by Chauncey J. Hamlin, Former President of Buffalo Museum of Science, American Alliance of Museums (formerly American Association of Museums), and International Council of Museums, highlights the significance of children in any society. From this springs the need for museums to consider them as one of the significant group of learners.

Museums are visited by a good number of people for varied purposes including education. The visitors come in all sizes, abilities and with their own learning goals. They have to cater to the needs of all of them. A significant group of these visitors comprise children who are often a part of the family groups or school groups. In this context, Jeff Kennedy and Marjorie Prager (2008: 888) comment on why parents and caregivers value visiting museums with their children. They state:

> Parents and caregivers like to visit places where they can spend time with their children. They like active rather than passive places that are fun, pleasant, and safe, and where they can socialize with other adults. Museums rank along with great natural settings, theme parks, and shopping malls as parents' favorite places to take their kids.

The authors explain the value museums hold for the society especially for children. Museums not just have a role but a special role to play in the development of children. They offer an invaluable, original and thrilling learning experience and encourage learning at all stages of childhood. As centers of lifelong learning, they have a challenge to design programmes that stimulate children's interest, encourage them to learn and thus contribute to their overall development. By applying theories of education, they are developing appropriate child centred strategies. The museum educators in these museums have realised the importance of the theories by educational psychologists such as Jean Piaget, John Dewey, Howard Gardener, and Lev Vyogotsky, and implemented them in their practices. They are also inspired by the contributions made by other eminent educationists such as John Dewey, Benjamin Bloom, Robert M. Gagne and contemporary museum authorities such as John F. Falk and Lynn Dierking. These museums are thus more inclusive in their approach, employing play-based learning strategies, and laying enormous emphasis on creation of positive and fruitful experiences for children in their spaces.

REVIEW OF RELATED LITERATURE

To understand the thinking and practices that underlie museum education in India, museological literature published in the country was reviewed. It was not feasible to review the entire literature. Hence the reviews include two major journals—Journal of Indian Museums and Studies in Museology published by the Museums Association of India and the Department of Museology, respectively and some other important publications.

Journal of Indian Museums

In the Journal of Indian Museums published by the Museums Association of India (MAI), during the span of twenty seven years from 1945–1972, only two articles are published on education and children. The volume index published by them (MAI) in 1973 which carries the list of journals from Volume 1–28 (Vol. I–XXVIII), the heading 'education' is missing. This reflects the lack of emphasis on educational function of museums in India during that span. However, three articles are included under the heading 'Children's Museum'; two of these articles are reviewed here. The third article—'Children and Museums' by K. Manickyam (1952) could not be accessed and is hence not reviewed.

'The children's museums and its role in education' by V. S. Agarwal (1969–70) discusses the organisation structure of a children's museum. Agarwal insists upon diversification of themes on display in museums and suggests the construction of a 'composite children's museum' or a 'heterogeneous children's museum'. The article further describes a few hypothetical activities which can expand the scope of a museum for children. The activities include promoting ability to: develop models and make charts, prepare images and write descriptive labels, take up field studies; imparting skills to carry on day-to-day activities such as first aid, repairing equipment etc. The author further proposes that such an organisation of a children's museum must be done by children themselves and in the end discusses the potential strengths of museums.

'Children's Museums—New Dimensions', by Iftikhar Alam (1971–72: 63) does commence with a faint reference to the educational potential of museums as an 'informal agenc[y]' but also continues to discuss 'the organization, scope and function of a museum meant entirely for children'. The article further proceeds to discuss the various possibilities which can be introduced to children who hail from different economic backgrounds keeping in mind the then prevalent socio-economic inequality. Alam (1971–72: 67) ends his article with the following recommendations:

(a) There should be a greater effort to organise museums for children at the village level and in small towns where they are most needed.

(b) The children's sections in big museums should be taken more seriously.

(c) It would be a failure on the part of the children's museums, if they are catering to the needs of the rich socio-economic groups only.

(d) The curator of a children's museum should not confine himself within the limited frame work of age-old concepts of a musty museum. He should always be a dynamic leader of a dynamic institution.

The Journal of Indian Museums published after 1972 carry more articles related to children and their education through museums which also included publication of special volumes. In one such special issue published in 1973, C. Sivamurti in his article 'Museum and the Child'

discusses the role museums play in inculcating moral values in children. The author cites numerous examples of ancient Indian fables and epics which embodied moral and ethical stories and have been incorporated in various ancient texts. In the words of Sivamurti (1973: 58): 'If temples, *stupas* and *chaityas* have been great museums for leading the public on the path of ethical values, how much more should the present museums be in this direction'. He further writes about other examples of coins, copper plates and other ancient scriptures which hold narratives that signify moral values. Sivamurti emphasises that such artefacts hold immense scope to be interpreted to children by museums.

The All India Museum's Conference, held in the Department of Museology, The Maharaja Sayajirao University of Baroda from 26th–29th December, 1981, was on 'Role of Museums in Environment Education'. The conference proceedings published in 1985–86 contains a number of articles on the role museums play in environmental education to varied audiences. However, it does not carry a single article with reference to young audiences, which is children.

In 1985 another special issue on the educational role of museums was published by the MAI (Vol. XXXXI). The issue contains proceedings from the MAI's National Annual National Conference held in the same year at the National Museum. It includes thirty one articles on the educational role of museums, in general, as well as with particular reference to children. Some of the topics include: museums in comparison to schools; museums as an adjunct to other educational institutions; classroom museums; school museums; educational facilities

in anthropological museums; role of museums in environmental education; archaeological and anthropological museums in educational institutions; drama—a method of education in museums; museums–dynamic media of education and culture. Out of these thirty one articles, ten articles are with special reference to children.

Among these ten articles, three articles: 'A Study in the Genesis of Class Room Museums' by Arun Ghose; 'School Museums' by S N Pandey; 'Children's Museums in Schools', by Homai Jal Moos, discuss the idea of classroom museums and school museums. They reflect on the concept, significance and relevance of these museums and museums established in other educational institutions such as universities and lay stress on their further promotion.

'A study in the genesis of class room museums' by Arun Ghose (1985) takes a historical perspective. He commences his article with a genesis and development of classroom museums and school museums and further presents ideas of how such museums can be constructed at a low cost within a class room by utilising its walls and other areas creatively. He also discusses the vital role history teachers can play in identifying and collecting arts for the museum. The article concludes with suggestive steps and professional advices that can be taken to develop museums in educational institutions.

S. N. Pandey (1985) in his article 'Children's museums in schools' concentrates on the relevance and need for school museums in education.

He credits the pragmatic approaches adopted by our ancient Indian system of learning for giving birth to great scholars such as Dhanvantari, Kalidasa and Aryabhatta. In this context the author negates the textbook based teaching introduced in Indian schools by the British. Pandey (1985: 34) further reports examples of experiments done with school children to try out various audio-visual aids to find their effect on teaching and learning, and writes: 'it was found that a special exhibition of photagraphs[sic], models, charts, maps, descriptive large labels and suitable guide service had the maximum effect on secondary school students in comparison to other audio-visual aids or teaching with books'.

'Children's Museums in schools', by Homai Jal Moos (1985: 36) further expands the concept and scope of school museums and suggests that 'small museum corners/ units in schools and educational institutions and how the older children could spread knowledge at the grassroot levels'. Referring to museums as 'Ajayabghars' the author suggests including such corners or units in museums too with established links to the school syllabus (curriculum). He further suggests numerous steps that can be taken by the museums and emphasises on initiatives from the government that can extend the scope of learning from museums for children.

'Participatory exhibit design approach in Children's Museums' by Ramesh Kothari (1985) discusses the nuances of a participatory exhibits in a children's museums from a designing perspective. Satisfying children's curiosity and encouraging them to think further, he says, are important elements of participation and therefore insists on use of interrogative approach in labelling through the use of questions in labels

which spark children's interest and curiosity, make them think and investigate the concepts, and in turn deepen their participation in learning.

D. K. Agarwal (1985) in his article 'Museums and education—A new concept' emphasises that a radical change in our education system needs to be made and museums should be developed to impart formal education.

'Drama—a medium of education in museums' by Elizabeth Achar (1985) talks about drama as a medium of communication and highlights use of informal and creative drama in museums. Her article focusses on use of drama in natural history museums.

B. S. Ranga (1985) in his article 'Concept of Children's Museum in India' takes a historical perspective and describes various children's museums in the country and then highlights the basic functions of National Children's Museum.

The article 'Children's Museum, Amreli' by Hiralal Shah (1985) is a case study of the Children's Museum at Amreli. The author describes the purpose, exhibits and activities of the museum.

'Role of Children's Museum in Formal and Non-Formal Education' by Parimal Mandke (1985) is about children's museums as an educational

alternative and talks about loan services, hobby classes, school visits to museums, temporary exhibition etc.

P. K. Bhaumick (1985) writes about hands-on kits and exhibits on various theme related to science in his article 'Science Centres and School Children'.

Studies in Museology

The Studies in Museology is a departmental publication of the Department of Museology, Maharaja Sayajirao University of Baroda. It was first published in 1965 and there have been forty six volumes so far. Out of these forty six volumes, ten volumes contain articles related to museum education and/or related to children.

The first volume issued in 1965, contains one article 'Children's Museum and Education', by Hena Roy which emphasises on the need for creating a children's museum or a junior section in any museum for children. It discusses its nature, role, and other various provisions which can include: workshops or clubs, inclusion of toys, a planetarium, a sales desk for children that provides information to children related to the museum and its collections. Roy lays strong emphasis on the need for effective interpretation and educational programmes and explains the relevance of including 'learning by doing' especially for children. Her article ends with a discussion about the crucial role museums play in imparting moral values to children to build character and responsible adults for future.

The volume IV published in 1968, contains seven articles related to education and/or children:

Kalyan K. Ganguli (1968) in his article 'Museum Education and Cultural Activities', discusses the educational role of museum under five subheadings: 'education through books; education and culture; usefulness of the museum as an instrument of education; museum and the society; museum lectures'. Ganguli explains the relevance of each of the five categories through historical examples, discusses their development and explains how museums can contribute to realise the goals of each of them.

'Recent Trends in Museum Education and Research', by S.T. Satyamurti (1968) discusses about the modern trends in museum education through temporary exhibitions, travelling and mobile exhibitions, the role of specialised museums—Science and Children's Museums, modern museum's contribution to research and ends with suggestions that can strengthen the vital role of museums as a 'keynote to our changing times'.

The three articles: 'Educational Programmes in Science Museums', by A. Bose; 'Education Through Science Museums', by M.S. Chadrasekhar; 'Education Through Science Museums—An Approach' by S. Ramamurthy discuss museum education in the context of science museums.

Bose (1968) discusses the development of science museums in the world and talks about a variety of programmes being offered by them such as those by the: Science Museum, London (UK), Indian Science Museum and Birla Museum, Calcutta (now Kolkata), and Science Fairs in the US.

Chandrasekhar (1968) discusses the educational role of science museums through two disciplines: botany and agriculture and the variety of programmes that are included under each discipline.

Ramamurthy (1968) focusses on the technical aspects of science museums through models, and exhibits, and the scientific principles that can be explained through them.

Hena Roy (1968), in her article: 'Education and Children's Museum' takes an approach similar to the one adopted in her article in Vol. I and discusses the educational role of museums in the context of children. Emphasising on the significance of childhood as an important stage of development in life, she discusses the role of: Bal Bhawans, Children's Museums, Boy's Clubs, Hobby Centres, community centres etc. in addition to schools, and universities to 'lead the children into wider areas of learning'.

The last article in this volume related to education of children—'Education in Art Museums' by M. L. Nigam (1968) focusses on the educational function of art museums. It discusses a variety of means that can be adopted by art museums to fulfil their educational

purpose for varied audiences such as use of labels for art objects, questionnaires, slide's collection, temporary and mobile exhibitions etc. The last part of the article discusses how these museums can supplement and compliment the topics learnt in schools and universities by encouraging children to explore galleries on their own, allowing them to draw sketches and prepare models of objects they like in the museum and how to make the most of the museum's educational resources.

S. T. Satyamurti (1970–72) in his article 'The Children's Gallery of the Madras Government Museum'. It discusses the contents of each of its fourteen exhibits and the possibilities they hold for learning. To name a few—'This Earth is Ours, The Earth's Treasures, Animals of the Past, Birds of the Past, Early Man, The Plant Kingdom, Indian Classical Dances, and Costume Dolls from Foreign Countries'.

'A Look at Children's Museum', by Ronnie Mae Melnick (1973–74), presents a hypothetical viewpoint of a children's museum. The author gathers anecdotes from museums across the world, supports them with definitions from various authorities and illustrates how an idealistic children's museum should be. His article lays ample emphasis on considering the peculiar needs and characteristics of children and formulating a museum based on them. It also assesses the need and significance, aims and objectives, characteristics, and purpose of establishing a children's museum.

'New Vistas in Museum Education for Teachers', by N. Devasahayam (1974–75) explores the possibility of using teachers as a resource for museum interpretation. It uses the example of a day's teacher training programme conducted by the Chandigarh Museum for teachers and suggests a variety of ways in which the museum collection can be utilised for teaching purposes.

V. H. Bedekar (1977–79) in this article 'Display Techniques According to some Special Categories of Visitors' discusses display techniques for three categories of visitors—children, blind people and crippled people. While discussing children as one of the categories, Bedekar addresses the needs to consider their physical characteristics such as their height, and eye level, while designing showcases. He suggests several practically implementable display techniques that can be adopted while designing exhibits for children such as providing 'peep-holes', and longer platforms under dioramas to facilitate children's viewing.

'A Museum Devoted to Environmental Education' by S. M. Nair (1981–91) discusses the educational role of non-formal institutions to sensitise children and young people towards environment. With particular reference to the Natural History Museum in New Delhi, the author describes its various spaces and discusses the role they play in environmental education for children. The article also discusses the range of educational programmes such as their school programmes, temporary exhibitions, and summer programme for various audiences.

Eilean Hooper-Greenhill (1995) in her article 'The Use of Educational Knowledge and Expertise in the Design and Development of Exhibitions in Museums and Galleries' discusses how knowledge of educational theories influence the learning offerings in museums and art galleries. Beginning with an example of Natural History Museum, London, she talks about several other museums particularly in UK and some in America, which have effectively applied theoretical concepts to design their learning offerings. Her article takes a historical approach and explains the various developments and relevance of visitor studies. She further talks about the importance of research and planning, and the need to understand the psychology of learners to improve the impact of educational programmes.

Sunjay Jain, in both of his articles: 'Questioning as a Tool in Museum Education' and 'Questioning: A No-cost Method of Promoting Learning in Museums, published in 1994 and 2003, respectively, discusses the significance of using questions in museum education. In the former article, the author discusses about four different types of questions and exemplifies each of with examples from museums. In the latter article, he cites examples of two museums in Canada—Royal Ontario Museum, for their exhibition 'Inca Earth Sciences'; Canadian Museum of Nature, Ottawa, and the Natural History Museum, London, for their exhibition 'Investigate', which have employed the technique effectively. In the words of Jain (2003: 20), museums in various parts of the world are using questions as an effective means 'for shifting the focus of their strategy for learning from explanation to exploration'.

Jain (2008 & 2009) in another article 'Myopia in Education: Eight Misunderstandings about Museum Education' adopts a critical approach and discusses eight misunderstandings that reflect educational practices common to museums in India. He takes examples of two educational activities by the Maharaja Fatehsinh Museum, Vadodara, and analyses the merits and demerits of each aspect individually by discussing their implications on museum learning. In context of museums in India, in particular, Jain stresses that: 'Museums must understand the changing museum philosophy, education theory, technology and society and take corrective action'.

Besides the journals, reviews of two more publications need to be mentioned here—'Children's Museum in India' by Prataprai G. Mehta', and 'A Children's Museum for India' by Prabha Sahasrabudhe.

Prataprai G. Mehta's small booklet—'Children's Museum in India', published in the year 1953, discusses various aspects related to the planning of a children's museum. It describes the meaning, scope, purpose, location, building, and the four different types of children's museums. It further elaborates the nature and discusses aspects pertaining to each of the four types. The booklet ends with an assessment of the need proposed budget of expenditure involved for setting up a children's museum.

The second publication is—'A Children's Museum in India', published in the year 1965 by the Department of Museology, and authored by Prabha Sahasrabudhe. This booklet is divided in two parts. The first part defines

a children's museum in terms of its roles and responsibilities towards children and education. In light of this definition, her booklet further presents the necessary goals and objectives in terms of actions that can be taken to meet the educational and social purpose of a children's museum. The second part of the publication takes a deeper approach and elaborates the programmes that support the former viewpoint of the author in terms of the nature of collections and exhibitions, in-site and off-site programmes and the staff that can conduct these programmes.

In essence, the articles published in the two major journals—'Journal of Indian Museums' and 'Studies in Museology', and the two publications which are reviewed, broadly cover—history, concept and organisation of a children's museums, informal education, science museums, environment education, natural history museums, art museums and various methods of museum education and interpretation. These publications also describe the various children's museums in the country and present a picture of how an ideal children's museum should be.

The seed for pursuing research on the selected topic was further nurtured through another notable article—'Children's Museum: For a Better Tomorrow' by Sunjay Jain (2007) published in South Korea. Jain discusses the various learning characteristics of young children in light of each of the four stages of Piaget's theory of Cognitive Development. His article takes a stage wise approach and in detail discusses the concepts at each stage of the theory. Each concept is further exemplified with appropriate examples and activities. Besides the principles of Cognitive Development as given by Piaget, Jain also includes concepts

by Dewey and Gardner and presents their implications too. The article ends with description of a range of methods of learning which are particularly effective for children such as: play-based techniques that involve dancing, singing, word games, constructions, etc.; role-playing; imparting moral education, and discusses their value in terms of museum learning.

After reviewing these publications, it was felt that gaps exist in education system in India. Education theories, learning styles and learning characteristics of children are yet to be considered while designing educational programmes in museums of India. As mentioned previously, museum educators in the west acknowledged these aspects long ago and incorporated them into their practices. The kernel of these publications is that there is an intense need to focus on children as one of the target audiences in museums.

Considering the importance of theoretical concepts, their application in museum context, the work done by museums in the past, and the museological literature that was studied, it was decided to pursue research on the topic: 'The Role of Museums in Development of Children: A Study of Museum Education in India'.

The aim of the proposed research is to study and understand and the current educational services of Indian museums, to identify their challenges and limitations, and to suggest appropriate educational strategies for them based on the theories of education and practices followed by museums in the west, particular UK and USA. For this, an

attempt is made to bring together the approaches of museum education in UK (the west) to study their relevance in Indian context and utilize their experience. The scope of present study confines to young children and discusses aspects related to young children from 3–8 years. Children from 0–3 are excluded from this piece of study considering the fact that their physiological needs partake their learning needs and their dependency on adults is high during this stage. This dependency begins to wane as children enter preschool and their interest and curiosity to explore their immediate surroundings begins to take over.

Children from 3–8 years are chosen as this focus group is particularly neglected and some museums are at the initial stage of developing programmes for this age group. It is prudent to understand that childhood is the most important phase of life as what is learnt during this phase has a lifelong impact on the mind and shapes beliefs, perceptions and the role one would play in society. Children, if given appropriate opportunities, respond more distinctively and enthusiastically to learning context. Their learning mode is highly intense and includes playing, singing, dancing and acting as compared to adult museum visitors who may observe, read labels, attend lectures or discuss with others. Because of their unusual, unique, innovative and versatile perceptions and responses, their learning has always been of interest to education psychologists, museum educators and teachers. For this, museums across the world focussing on children, thus have a shared goal 'to focus on their overall development and to make valuable contributions towards making a better future'.

In continuation of defining the scope of the thesis, it is imperative to note that in the current study both the terms 'education' and 'learning' are

used to denote museum education and/ or learning. Though used interchangeably, both are different. In the words of Edward P. Alexander in his book *Museums in Motion* (1979: 195): 'Education . . . connote[s] an authoritarian type of learning with classrooms, textbooks, assigned reading, examinations and grades'. Thus education is perceived to have a formal connotation and describes the nature of schools. It over looks the part played by the learner and emphasises on the dominant role of the educator or teacher. Learning on the other hand is a broader concept which includes learning in all kinds of situations—formal, informal and non-formal. It concentrates on the prominence of the learner in the in a learning situation.

Museums in the west have undergone a paradigm shift. The education departments of these museums prefer functioning under the title 'Learning Departments'. The change in their titles from 'Education' to 'Learning' reflects the psyche and approach of the museum professionals. However, the education departments of the museums in India still continue to function as 'Education Departments'. Considering this prevalent trend in our country and that of the west, and to facilitate a contextual understanding with Indian museums, the term 'Education' is used in Chapter 4 of the thesis which studies the education services of museums in India and 'Learning' in Chapter 5 which studies the practices of UK museums.

With reference to the scope again, though the focus was on children between the ages 3–8, in some case studies, the higher age groups are also taken into consideration because of the practices followed by museum which did not include children between these ages. At times

family programmes are also considered as in the case studies conducted in UK which are included in Chapter 5. This is because these museums include young children and museums and lay profound emphasis on inclusion of families in museums as they consider adults as an important resource.

Further, the study remains confined to selected museums of art and archeology of state national, and international level; excluding science museums and discovery centres for two reasons: one, these museums are already including theoretical concepts as the benchmark for structuring programmes for children and follow established standards for their practices; two, it is practically not feasible to include museums of all varieties and somewhere a line needs to be drawn. Besides, some of the important museums on children in India such as the National Children's Museum, New Delhi and other museums which are gearing to do some work in this direction such as the Chatrapati Shivaji Maharaj Vaastu Sangrahalaya (CSMVS), and Bhau Daji Lad Museum, Mumbai; City Palace, Jaipur; LD Museum, Ahmedabad, also remain outside the scope of the study owing to the failure in receiving response from the museum authorities despite persistent follow-ups through personal visits and reminders through email.

Further, the aspects of the study are discussed under the headings: assumptions, hypothesis, objectives, methodology, referencing system, and chapterisation.

ASSUMPTIONS

The current study is drawn on the following underlying assumptions:

1. Museums can play a vital role in the overall development of children.
2. Educational potential of Indian museums is not yet fully realised and needs to be exploited.
3. The theories given by educational psychologists are important and can be applied in museums.
4. The learning needs of children are very different from adults and need to be taken into consideration while designing learning programmes in museums.
5. The educational practices of museums in the western countries are quite advanced as compared to Indian museums.
6. The responses received through the case studies from the museums are authentic.

HYPOTHESIS

The hypothesis is that by applying the educational theories in museums, designing appropriate child-centred strategies which take into consideration their learning needs, museums can enhance their effectiveness of learning programmes in terms of cognitive, affective and psychomotor gains, and ultimately contribute to overall development of children.

OBJECTIVES OF STUDY

The main objectives of study include:

1. To understand the meaning, nature, principles, domains and contexts of development in light of various theories of development, and to study their implications and relevance in museums.
2. To study the relationship of learning and development, and understand The meaning, nature, principles, domains and contexts of learning on the basis of various theories and study their implications and relevance in museums.
3. To present the practical implications of the theories of development and learning relevant to museums.
4. To suggest learning approaches and strategies for young children in museums.
5. To explore innovative methods of learning in museums.
6. To study the current educational services of museums in India so that challenges faced by them could be identified and suggestions could be made for making programmes relevant to target audiences, particularly the focus group of the thesis.
7. To explore the practices of museums in UK, to understand their level of sophistication and identify educational standards relevant to Indian museums.
8. To make practical implementable suggestions, particularly low-tech methods, for Indian museums to develop educational programmes for children.

METHODOLOGY

The approach towards research is theoretical and practical both as it includes investigating the theories, finding their applicability in museums, researching about the current educational practices and psyche of the educators; all of which influence the design, nature and quality of programmes being offered to children.

The nature of research is descriptive, interpretive, and suggestive. It is descriptive as it describes the current scenario and practices in museums; it is interpretive as it interprets the theories in museum contexts; it is suggestive as it suggests their practical implications in museums.

The study mainly relies on qualitative data and some quantitative data (numerical) to supplement the qualitative data. Some of the qualitative data, is further processed and analysed in quantitative form. Finally both the forms of data are described in percentages for convenience in comprehension and drawing inferences to present results. Moreover, the quantitative data was interpreted to the nearest possible decimal point while converting the data into percentages (%).

Considering the defining factors of the present study—the approach, nature of research and forms of data, the following methods of data collection are employed:

Literature Study: There is abundant literature in education and psychology which present theories on education, development and learning in the context of children. These theories have been developed

by psychologists such as Piaget, Dewey, Vygotsky, and Gardner, on the basis of intense research, clinical observations and years of study and analysis. Some of these theories are already being applied by museums particularly in the western countries. Therefore, to develop a theoretical base for the study, secondary data was collected through printed and online literature. Moreover, the practices of museums are also published in journals, books, or through the museological literature of museums in India and abroad that present their thinking besides their practices.

In the literature of museums of India, a lot of general articles have been published on the topic but there is lack of an in-depth research on children in museum context. Moreover, there is sheer absence of literary evidences which indicate the possibility of considering families as a significant resource. Literature study includes study of other secondary sources of information such as museum's own publications, reports, and other published and unpublished research references by the museums besides the library sources.

Case Studies: The method of case studies was employed on selected museums in India and UK to gain an understanding of the educational programmes being offered to children specifically between age group of 3–8 years. Another purpose of adopting case study as a method to collect primary data was to understand the availability of resources with the museum, the scope of utilising them, and to collect activity specific information such as their type, nature, frequency, range, learning goals; difficulties encountered during implementation, other strategies of educational programming, so on and so forth. These aspects underlie the logistics of museums' educational programming.

The following tools were employed to collect primary data for the thesis:

Questionnaire: To carry out the case studies, a questionnaire (Appendix 1) was prepared and used as the basic tool for data collection. It was designed for collecting information on various aspects related to educational programming. The questionnaire contained 21 questions in all which were both closed and open ended. Closed ended questions were limited in number and included multiple choice, multiple selection and dichotomous questions. In the multiple choice and multiple selection questions, more than three options are given. In response to the former type, the respondents have to choose one answer, while in the latter they can choose more than one or possibly all. Under the third and the last category, the dichotomous questions, which are 'either' or 'or' types, there are two possible options such as 'yes' or 'no' and the respondents has to choose the most appropriate.

Most of the questions were kept open ended. All open ended questions required short response in one to two lines except one which required a lengthy response for describing the activity. Open ended questions were preferred to close ended questions considering the nature of information required and not to influence the answers of respondents by giving clues.

The questionnaire as a tool for data collection was selected so that multiple copies could be sent to various museums simultaneously. Moreover, it allowed museum personnel to take sufficient time to fill the details. Its limitation was its inflexibility as all respondents had to answer

in a designed framework. An attempt was made to overcome this limitation by keeping open ended questions.

The questionnaire was sent to twenty five museums in India. Care was taken so that museums of various types such as national, state, university, municipal corporation and private, are represented. As a follow-up, the museum personnel at these museums were pursued consistently through mails and sometimes telephonically. Wherever the response was passive or the educators were unable to spare out time to share details, visits were made to the museums to make one-to-one interviews with the museum staff and data was recorded in the questionnaire. Besides, information was also collected through observation of learning programmes which were documented in the form of photographs and field notes. Finally, with persistent effort data could be collected from fifteen museums in India which includes case studies of twenty three educational activities for young children, comprising either one or two activities from each museum. Keeping the scope of the thesis in mind, appropriate activities were chosen for case studies. The information collected through the questionnaires and interviews was converted into data in tabular form. While putting information in tables, the grammatical errors were ignored. Wherever possible, corrections were made without changing the context and meaning.

The case studies were also a part of the project with UK museums and for that affiliation was received from the Derby Museums, Derby (Derbyshire, UK), where a major part of the visit was spent. Besides, sometime was also spent in studying the learning programmes of three other museums—Victoria and Albert Museum, V&A Museum of

Childhood and Horniman Museum and Gardens, London. However, considering the scope of the thesis again, nine activities from total 37 are included as case studies in the fifth chapter. The analysis and interpretation of their various aspects is done under various headings under the tables.

Interviews: Interviews of museum educators were carried out on the basis of questionnaires, to obtain information regarding the educational activities at their museums. The questionnaires used in museums of India was used in UK with some modifications. This form of data collection was accompanied with informal interactions with the curators and other members of the education department which were documented in the form of field notes and digitally through photographs. This data was further distilled, cleaned and presented in tabular format and is included under the relevant headings in the five chapters, accompanied with relevant photographs, where ever possible.

Observations: Unobtrusive type of observations were also carried out to observe museum practices. In this method, the investigator does not participate as a member to record what is occurring. The main advantage of this technique is that one examines the real world without influencing the flow of events.

REFERENCING SYSTEM

The Author-date or Harvard system of referencing is adopted for the thesis as followed by the Universities of Britain, particularly University of Leicester. This system of referencing is adopted as it conforms to the

British English Standards which is followed in the thesis. The salient features of this system are:

- To quote texts, single quotation marks denoted by ' ' are used. Double quotation marks denoted by " " are used for direct speech.
- Full name of the authors, followed by the year of publication and page numbers (for direct quotes) are used when it appears for the first time in in-text citations. This is done to avoid confusion between similar surnames of different authors.
- Short quotes comprising 40 words or less are placed within the body of the text and enclosed in single quotation marks.
- Long quotes comprising more than 40 words are included as a separate paragraph using indent.
- All the web references are included within the reference list; no separate webliography is included.
- '*et al*' is used to quote more than four authors.
- Abbreviations—s.l. is used in case where the place of publication was missing; n.d. is written to denote 'no date'.
- For the list of references included at the end of the thesis, when the reference is taken from one page, then a single 'p' is written. Else, if there are more than one pages, then 'pp.' is used, followed by the page numbers.
- [sic] is used to denote an error in the quoted text.
- Ellipsis denoted by . . . is used to denote omitted text. If ellipses are used within a sentence, then 3 periods with four spaces are used, that is, ... However, in case when a full sentence is omitted from the text, then 4 periods with 5 in between spaces are used, that is, ...

- While using secondary sources, only the reference from the secondary source, that is, the text in which the author was found and was directly referred, is only included in the reference list.

The thesis is divided into five chapters:

Chapter 1: Development of Children: Basic Concepts and Principles in Museum Context

Development is a qualitative change that occurs over a period of time owing to biological and environmental factors. The opening chapter of the thesis adopts a theoretical approach explores the concept of 'development', its principles, domains and contexts and discusses them in the context of museums using theoretical concepts given by developmental psychologists. The concluding part of the chapter that includes the contexts of development, describes the informal nature of museum education and their role in the development of children. The concepts discussed in the chapter act as a springboard for the discussions in the following four chapters.

Chapter 2: Learning: Basic Concepts and Principles in Museum Context

This chapter continues to take a theoretical approach and discusses the concept of 'learning'. It explains its role in development and describes its meaning in light of definitions by various authors, using the one given by Robert M. Gagne as the base for exploring various concepts discussed further in the chapter. This brief introduction is followed by:

the five principles or 'laws of learning'; the three domains namely—cognitive, affective and psychomotor with their underlying taxonomies and implications in museums. Then learning is discussed as a means of developing the mental abilities and as a social activity. These dichotomous perspectives are drawn on the theories given by two eminent psychologists—Howard Gardner and Lev Vygotsky, respectively. The chapter further continues to discuss different outcomes of learning, and concludes with an elaborate discussion of the current most view of learning—Constructivism, through the ideas postulated by Professor George E. Hein.

Chapter 3: Development of Children: Learning approaches and Strategies in Museums

The chapter discusses the practical implications of various theoretical concepts related to development and learning of children in museums which were discussed in the first two chapters. It employs the theoretical concepts by Jean Piaget, a Swiss psychologist, and presents various approaches and strategies in the form of games and activities which can be adopted by museums. The games and activities are designed to promote development of life skills and knowledge and understanding of principles of conservation in children. The chapter also includes certain prominent methods of learning which are applied in museums and concludes with John Dewey's account of experiential learning also in museum context.

Chapter 4: Case Studies of Educational Activities of Indian Museums

The penultimate chapter presents case studies of fifteen selected Indian Museums. The data collected through the questionnaire is presented in the form of tables. These tables include aspects such as: the learning and other goals of the activity, resources involved–human, physical and financial, age group and group size, steps in pre-activity planning and pre-activity activities, type of the activity—competition, demonstration and workshop, if there were any inauguration or valedictory functions involved. These aspects are a part of the planning aspect of education programming of Indian Museums. Further, each aspect is analysed and interpreted using theoretical concepts discussed in the previous three chapters.

Chapter 5: Case Studies of Learning Programmes of UK Museums

The last chapter of the thesis presents case studies of four museums in UK. This chapter too adopts the approach adopted in the previous chapter and the data is collected through the same questionnaire but with some modifications. The data is again presented in the form of tables with a slight variation in the table headings which include: the learning and other goals of the activity, resources involved–human, physical and financial, type of the learning activity—school programme and family programmes and age group and group size of both the categories, and steps in pre-activity planning and pre-activity activities. These aspects too are analysed and interpreted on the basis of various theories as discussed in the preceding chapters. The concepts learnt in this chapter

serve as a base to compare the practices of museums in India and to present suggestions in the concluding part of the thesis.

Conclusion

The thesis culminates with a summary of the various theoretical and practical aspects discussed under the five chapters. The essence of case studies discussed in the chapters four and five is presented in a comparative form. Following this are suggestive guidelines that can help Indian museums in realisation of their educational potential. The conclusion of the thesis is followed by a reference list and appendix of literary and online sources cited in the thesis.