

PART 1
INTRODUCTION



PROLOGUE

Museums and Children is a guide for all museums. It is not limited to places with "children" in the title, because the boundaries between children's museums, science centers, other museums catering to families, and the more traditional art, history, and natural history museums diminish.

More than guiding design for children, it is a guide for design that stimulates the child in all of us. The lessons learned from every museum type have much to offer to the others.

The spirit inherent in children's museums is an excellent catalyst for the design of all museums. Their goals, image, form, and organization are closer to the museum of the future than those of the conventional, traditional museums of the past.

Yet there is an accumulation of knowledge and wisdom that is imbedded in the design of many historical and recent high museums that can enhance the Children's Museum experience.

This guide is a selective synthesis of the best of all: lessons from old museums and new, a bridge between the natural child and the practicing adult.

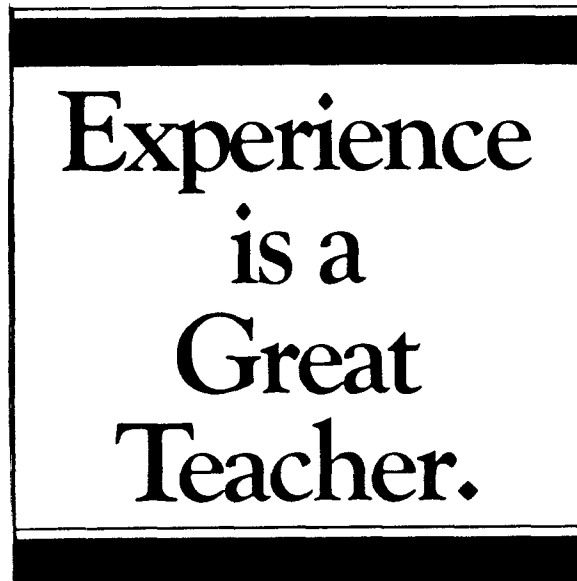
This book is intended to stimulate and inform those who conceive, program, plan and design museums of all types for all people. It is selective, not comprehensive, addressing some of the more important, or the more overlooked issues and concepts. It presents an abundance of examples so that the readers can learn, compare and select concepts which are appropriate for their own situation.

THE CONTEXT

Children's and youth-oriented museums are an emerging and growing trend. While their diversity defies a "standard" description, some of the prevailing spirit and features common to all are described in the following pages.

The spirit, mood, and activities of new and contemporary museums have a lot in common with children's museums.

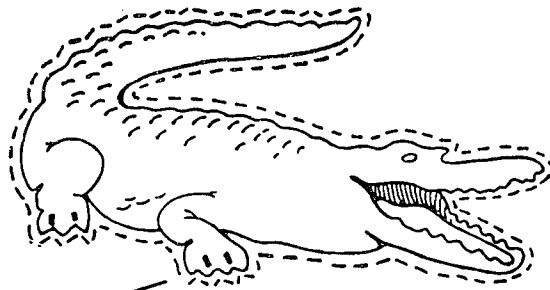
This shared territory is the context of this study.



A bold manifesto on a brochure for the Colorado Science Center.

Over leaf:

A composite of descriptions, goal statements and manifestos of selected children's museums.



Color, cut out and wear on your shirt. (Two alligators are better than one.)



Ontario Science Centre Toronto, Canada

We started with the idea that science and technology should be fun, so we devised exhibits and demonstrations to involve you in your world and yourself. We've designed games that test your perception... your memory... your agility and responses... and to show you how we can trick your eye and fool your inner ear. We want you to ask questions, that's why our young hosts are there to help you if you're puzzled about anything or lost. Watch for their white coats. They're very friendly and very knowledgeable. Try them. At the Science Centre you'll find an opportunity to do everything... to simulate a moon-landing, to try using mechanical hands, to ride a gyro platform... come once and you'll come back again and again.

CAPITAL CHILDREN'S MUSEUM

CCM is an exciting experience for all ages. Large scale props stretch your senses and challenge your mind. Three major areas—International Hall, Changing Environments and Communication—combine arts, sciences, humanities, and new technologies.

Paint with a computer... bake a tortilla... launch a satellite... crawl through a manhole... print your own poster... ride a police motor cycle... read an electronic newspaper. ENJOY! You can fill an entire day, but even an hour's visit is worthwhile.

CCM "is a world of magic... as captivating to adults as to children." (New York Times, April, 1981). Each year a quarter million visitors of all ages touch, taste, test, try on and talk to our exhibits.

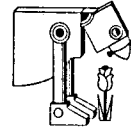
The Staten Island Children's Museum

is:

- an incredible journey through a 60' long boy to learn about the world's most amazing machine—the human body,
- a maze of colorful surprises about art and vision,
- an excursion through four centuries of history from an American Indian village to a turn-of-the-century arcade.

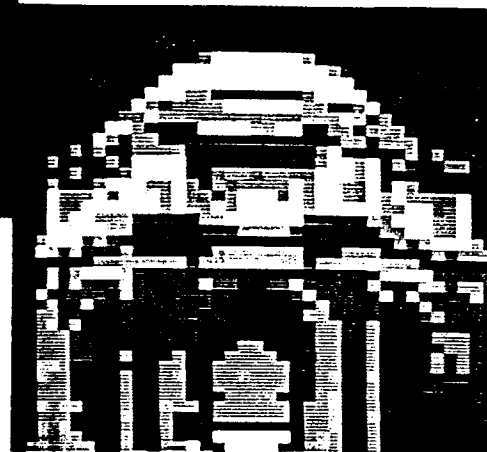
The High Museum of Art proudly presents SENSATION, a multi-sensory participatory exhibition. A music, art and state-of-the-art environment, SENSATION demonstrates our experience of the world around us through the five senses: how they work, how different experiences affect our perceptions today and in other cultures, how the arts enlarge our senses, and how technology acts as the senses' extension.

SENSATION is a unique and unprecedented fun-learning experience for people of all ages. Co-sponsored by Rich's and Izod, with The High Museum Members Guild, Heery & Heery Architects & Engineers, Inc., and many others. "Come to your senses. See, hear, touch, taste and smell the world around you. You are the sensation."



The Brooklyn Children's Museum collects, maintains, and makes accessible to children objects of lasting value and interest which reflect man's material culture and his natural world. Utilizing its collections primarily for teaching purposes, the Museum advocates a learning process predicated upon a high degree of visitor involvement with museum objects and resource persons.

Founded in 1899, The Brooklyn Children's Museum is the world's first children's museum. It has served as a model for other children's museums and has continued to initiate, explore and develop new ways in which to serve children.



"The Exploratorium was conceived to communicate a conviction that nature and people can be both understandable and full of newly discovered magic. It therefore provides experiential opportunities for learning that are difficult, if not impossible to achieve through school classrooms, books or television programs. The Exploratorium is not a substitute for other vehicles for learning, but it provides a fascination with learning that cannot be found elsewhere and which facilitates traditional teaching at all levels."

CHILDREN'S MUSEUMS

"MY KIDS LOVE IT," HE SAID, "BUT I DON'T KNOW WHAT THE EXPERTS THINK ABOUT IT." (Hall, 1984. p. 76)

Educators, child psychologists and environmental psychologists have promoted hand-eye manipulation, multiple gross-motor and fine-motor muscle movement, and multiple sensorial experiences in the exploration of the environment as enriching experiences for the physical and mental development of the young child.

Museums are natural places for child development because of the value of objects over writing and especially over words for children is their multi-dimensional, multisensory attributes. The communication inherent in the objects is thicker, often quicker, and individually interpreted, rather than abstracted and distilled through words by someone else. (Wittlin, 1970)

"Long before manipulative activities and the process of discovery were acclaimed by psychologists as motivations to learning . . . junior museums kept children in rapt attention while handling rocks, calling forth rhythms from African drums, and conducting simple experiments with magnets or inoffensive chemicals." (Wittlin, 1970, p. 235)

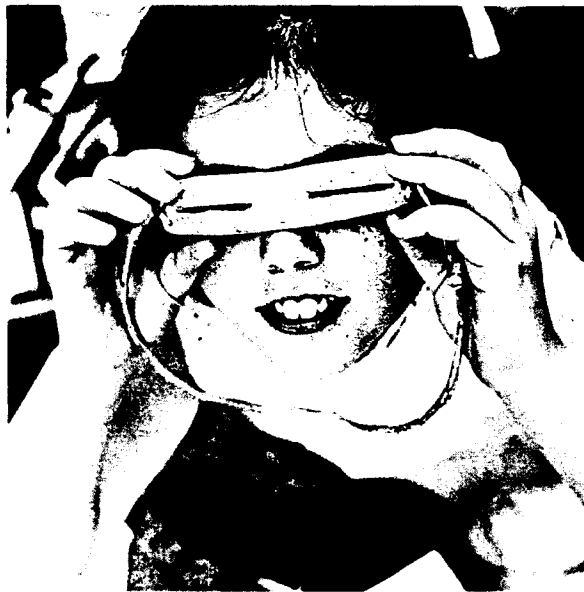
A common goal of children's museums is education through delightful play and hands-on experience. The preschool museum stresses the stimulation of the mental, physical, and social development of children through mediums that establish conceptual frameworks for more traditional learning later. Music, art, dance, role playing, and just playing in special environments and with special exhibits are employed to communicate, stimulate, and educate.

"Children are probably the best experts. They are smart enough and uninhibited enough to realize just how glorious science can be when you can leave fingerprints all over its lessons." (Hall, 1984, p. 76)

The notion of participatory exhibits in museums is based on the philosophy which stresses individualized and experiential learning. Its premises are that people learn what interests them, at their own pace, while using their own preferred learning style: some learn by reading, others learn by visual experience, and others yet learn through manipulative contact with objects and activity (Gurian and Kamien, n.d.).

People's natural curiosity makes them want to touch and interact with things. Handling objects is known as a developmentally important part of children's learning. It adds also to adults' positive experience of events and objects. Limiting this part of human experience in the museum is to limit the museum experience.

There are situations and objects that can't be understood without 'hands on' experience. One wonderful example is described by Gurian and Kamien:



"The best loved example...from our museum is the hand's on display of Eskimo snow goggles. It is difficult to understand how these wooden goggles can cut down the glare of the snow without trying them on; therefore, snow goggles are to look through not look at." (Gurian and Kamien, n.d., p. 3)

The value of social contact for preschool children who are in an intensely developing stage cannot be overstated. Often the children are isolated in homes with only a younger sibling for interaction. Even for children in nursery schools, the expanded range of stimulating activity and objects with which to play and share provide opportunities to practice social skills as well. The quality and amount of these experiences in the early years affect dramatically the physical and mental development of children. (Downs and Stea, 1977)

POTENTIALS AND CRITICISM OF CHILDREN'S MUSEUMS

The museums provide very young children with basic information about themselves and the social and physical work around them. As they grow, it allows them to experience the integration of science, technology, the humanities and the arts.

Although the main goal of children's museums is the physical and mental development of children through hands-on experience and interactive activities, the opportunity for learning and development is not limited to the children. Most encourage or actively promote the involvement of parents. The interaction of children, staff, docents, and students of child behavior is an opportunity for personal growth, to accomplish research, and explore the qualities of alternative communication and education. The children's museum is a user-friendly lab for everyone.

As we become less capable of accumulating and interpreting all the information that is increasingly necessary to survive, the techniques of the children's museum and science and technology centers can offer an alternative to the overly directive, interpreted and digested information that is processed through the more traditional sources -- television, newspapers, etc.

A criticism of the new interactive, informal spaces is their informal image. The popularity of the deserk, fleamarket facilities are in the freedom they allow. Children will play anywhere.

However, from the outside looking in, for the adult used to the traditional museum, the children's museum is anarchy -- a place crammed full of stuff and odd places within places where people are free to explore, touch, manipulate, and wear out the exhibits.

Do children learn anything at the museum or are they just having fun?

The qualitative measurements are not in. The wear and tear on the exhibits is high. A full-program museum must maintain a minimum, qualitative developmental threshold to maintain credibility within the museum field and with those professionals and the sectors of the public that provide support.

Image and standards are important because the need to become self-supporting, to be popular, to have a large headcount can lead to losing sight of the primary goals.

Quality can be further compromised by a dependence upon large school groups and especially the dependence upon the support of a school system's funding. The autonomy and the uniqueness of the museum experience can be lost, the creativity and flexibility stifled by the constraints imposed when dealing with school systems.

This does not mean that every children's museum must be a full-fledged museum, covering every aspect of life to its fullest. One theme, one narrow subject can integrate gross motor skills, hand-eye coordination, historical and social significance, science, technology, economics and humane themes, artistic display and artistic human expression. The simple theme may well do better.

THE NEW MUSEUM

Through a desire to be more relevant, to communicate more effectively, through questioning their value to the public in education and general enrichment, and to ensure their own survival, the "new museum" has developed a more democratic, open, multiple-service spirit. The visitor is as important as the objects housed.

Education: As our lives have become more complex, segmented, and specialized, as our known world has expanded, objects and events in the museum setting are a special form of learning and communication, for they connect aspirations, technology, aesthetics, trade and economics, environments, and processes, developments, histories. They are tangible symbols of complex relationships and abstractions.

"Adult education is the fastest-growing type of education today, and education is the most common adult discretionary time activity outside of the home." (Bloom, 1984. P. 25)

The unique learning experiences offered in an experiential context are valuable for people of all ages. The nonverbal way of communicating is a barrier-free approach to education. People can choose what they want and advance at their own pace without fear of failure. Culture, educational level, age, and language to not limit the learner as they do in the traditional learning environment. The broader-based children's museums, science and technology centers, history and natural history museums use the hands-on approach to learning as a part of their exhibit design. Besides:

"In a museum sense, there are some differences between children and adults. There are many more similarities. We have confused the differences and failed to note the similarities . . . I am invariably asked whether children

get something special from the tactile experiences provided in many children's museums. And who doesn't? Could you possibly believe that I want only to look at a piece of pumice?" (Pulliam as cited in Pitman-Gelles, 1981)

In support of the hands-on educational philosophy, other functions and services have been expanded, added, and redefined. Together, they have transformed the ritual of the museum visit and its image.

Historically, art museums have been the preservers of the high culture. The new ones are more transparent and friendlier. They provide educational programs and areas geared to children and special exhibits that are less pedantic and more fun.

The new programs are changing the shape and configuration of the museums. Entries and adjacencies, circulation paths and galleries have all undergone a reassessment as to their functions.

The restaurants, secluded courtyards, and events set within the shelter of the museum ambience take on a special quality.

Increasingly, the local and regional museum has become a symbol of civic pride, providing a sense of place and belonging. They are places to take the out-of-town visitor, a gathering place to celebrate a community event.

The East Wing of the National Gallery of Art is a mini-university. The Dallas Museum of Art and The Atlanta High Art museum are more than civic icons; a visit is designed to be a delightful event. In a search for service and relevancy, the Portland Museum of Art, Oakland Museum, and the Miami-Dade County Cultural Center provide retreats and settings for public events. Each of these places represents some of the "new-museum" spirit.

THE PROBLEM

Although there is abundance of studies about visitor behavior, lighting methods, exhibition techniques and the like (Screven, 1979), the most common complaint by all professionals involved in museums and design is that there is not enough information which is usable for application (Smith, 1969).

The core of the problem is the lack of tradition -- in the design disciplines -- of planning and design guidance which is based on a systematic and critical analysis.

The lack of analysis applies both to the examination of basic issues in the museum environment, which require physical solutions, and to potential and actual design responses.

Part of the problem can also be explained by the newness of the phenomena -- children's museums, the new museum, and their emerging trends.

The development of the theoretical and conceptual base for planning and design of children's museums is still in its infancy. In our survey of two hundred children's museums, most respondents did not recognize the potential of the physical environment to act as a primary force in their program. The typical perception of the building is of a mere shelter, an envelope to protect a series of displays and contain the utilitarian services necessary for the functioning of the museum.

The contents of design and museum literature is an indication of the state-of-the-art: most of the professional publications, books and articles in journals such as Museum News address the topic of exhibitions and their design at the micro-level. Some publications (e.g. Brawne, 1965; Brawne, 1982; selected articles in Museum News) address technical aspects of the museum's architecture, e.g. circulation, adaptive re-use, lighting, security, and only a few abstract issues such as image and relations to the surrounding community. There is only one significant book and few articles about children and museums (Pitman-Gelles, 1981) and even these deal mainly with activity programs, design of exhibits, and related issues.

CHALLENGES IN DESIGN: THE ROLE OF THE PHYSICAL ENVIRONMENT IN THE MUSEUM EXPERIENCE

A comprehensive design solution can express an attitude and a philosophy about the way the museum should be experienced. It is within the power of a designer to create a symbolic as well as concrete and tangible statement that is central to the life and activities of the museum.

The primary challenge before the designer is to relate the building to the goals of the museum, its activities, and its contents. The place can and should be more than a neutral box, more than just an envelope for a set of displays. For after all, the quality of the museum experience is of primary concern.

This experience begins long before the front door, on the way to the museum. Some of the major factors that will determine the quality of this experience included:

- * The location and accessibility of the building
- * The form of the building and image it conveys
- * The organization of paths and circulation
- * The distribution of functions and their mutual connections
- * The relationship of indoor spaces to near and distant outdoor spaces

Consideration of these and similar factors must lead towards purposeful and qualitative directions. The designer must take a conceptual standpoint, and through the design process ask -- and answer -- questions such as the following:

Do the building's envelope and its interiors express the museum's purpose?:

Does the structure demonstrate or enhance what is being displayed and experienced?

Does the distribution of functions and their clusters contribute to a better understanding of the building and its internal logic?

Do circulation patterns create quality spaces for retreat, spontaneous meetings, variety and change?

The design principles and concepts that are developed in this book address these issues and they offer a wide range of options. Adopting the appropriate principles for a conceptual framework, a parti for a quality solution, remains the challenge of the designer.

OBJECTIVE AND RESEARCH PROCEDURE

OBJECTIVE

The objective of this book was shaped by the problems identified earlier -- the gaps in applied research, the lack of design guidance, and the need for evocative concepts and fresh approaches for the planning of children's -- and other -- museums.

Therefore the objective was to develop a selective planning and design guide for museums. The design guidance consists of user-oriented and process-relevant design principles. These principles are based upon research findings, and cumulative field experience.

RESEARCH PROCEDURE

The research process included seven basic steps:

1. Field Research and General Survey:

At an early phase of the project selected museums were visited. The field work employed techniques of post-occupancy evaluation (Reizenstein and Zimring, 1980). A sample of selected museums was identified from a national survey of children's museums conducted by the author in 1982. General museums were visited as well. Observations, interviews and other data gathering activities were conducted on each site.

2. Identification of Behaviorally-Based and Process-Based Design-Relevant Issues:

Sources included the research literature, field observations and on-site interviews, previous research experience of the principals, and consultants. Examples for issues were "way-finding in complex environments," or "image enhancement to increase visibility and accessibility."

3. Consolidation of the List of Issues into Three Significant Topics -- Image, Path, Display and Activities:

This process was accomplished through several iterations of natural clustering collapsing a long list into the most central superordinate topics.

Each topic covers a range of issues most relevant to this topic, e.g. "way finding" is analyzed in PATH.

The discussion is directional and makes the connection between the problem, e.g. "way finding," and a design principle which might reduce or solve this problem, e.g. circulation which overlooks.

4. Analysis of the Literature and Other Data: Information was Assembled for Each Issue and Subordinate Issues. A review of the literature included publications from the disciplines of design, museums, and related fields. Visitor surveys, behavioral studies, experimental research and evaluation studies regarding museum use and museum visitors were reviewed.

We did not attempt to be comprehensive and to cover every aspect of museum design. Rather we concentrated on selected issues which were identified in phase one as more significant.

The design literature and case studies were culled for examples of particular situations which represented alternative solutions for identified issues.

5. Generation of Design Principles:

Research findings and other conclusive information were used as the starting point in proposing general solutions -- design principles -- to the various issues. Some principles could be deduced directly from existing empirical research while other principles had to be arrived at inductively (working hypotheses) using selected examples of existing solutions to respond to the stated issues.

This process is further described in Cohen, McGinty and Moore (1978) and Cohen, Moore and McGinty (1979). (See Also: Design Principles--An Approach for Programming and Design).

6. Development of the Text, Approaches for Design, and Selected Examples for Each Design Principle.

The output from this process is a set of 15 design principles with supporting evidence, examples, and introductory materials.

7. Testing the Tentative Design Principles on a Real Design-Case-Study to Gain Further Insight and Receive Critical Feedback.

The Cleveland Children's Museum was used as a testing ground for most design principles. The facility which was in the process of programming and initial design development was consulted by the project's staff, and in return the museum director and architects provided a valuable feedback.