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A study to increase educational interaction between the adult/ child within the Treehouse at the Philadelphia Zoo

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A STUDY TO INCREASE EDUCATIONAL INTERACTION

BETWEEN THE ADULT/CHILD WITHIN THE TREEHOUSE

AT THE PHILADELPHIA ZOO

by
Jennifer L. Studley

A THESIS

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree in the Graduate Division of Rowan College of New Jersey
Spring 1996

Approved by
                                  Professor

Date Approved ___5/ 1/ 96___

ABSTRACT

Jennifer L. Studley

A Study to Increase Educational Interaction Between
the Adult/Child Within the TREEHOUSE
at the Philadelphia Zoo.

1996

F. Gary Patterson - Graduate Program Advisor

Master of Arts
Environmental Education and Conservation

The purpose of this project was to conduct a study assessing adult/child interaction in the TREEHOUSE that will yield a series of recommendations to assist in meeting the educational objectives of the TREEHOUSE.

The author conducted a naturalistic study employing adult/child observations and interviews. The groups studied consisted of between two and five individuals, including one adult and one child. Twenty two groups were observed and eleven groups were interviewed, four of which were both observed and interviewed. Data was recorded and analyzed. Major findings were presented in the form of text, graphs and charts.

Interaction between adults and children did occur in the TREEHOUSE, but the observations did not support that it was educational interaction. Findings also indicated that interaction was initiated by the child over fifty percent of the time as opposed to a quarter of the time by the adults.

MINI-ABSTRACT

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the Adult/Child Within the TREEHOUSE
at the Philadelphia Zoo.

1996

F. Gary Patterson - Graduate Program Advisor

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According to Paul Taylor, Director of the TREEHOUSE, there is not a study in progress nor has there been a study focusing on how to increase educational interaction between adults and children in the TREEHOUSE at the Philadelphia Zoo.

At the conclusion of this study, findings indicated that there was interaction between the adults and children taking place in the TREEHOUSE, but the observations did not support that it was educational interaction.

ACKNOWLEDGEMENTS·

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CHAPTER ONE

PURPOSE OF THE STUDY

Environmental Education is the buzz word around many educational settings these days. Although environmental education is slowly making its way into school curriculums, it is in the non-formal settings that environmental education and the family is being studied and explored.

Within many of our museums, education is of utmost importance. The American Association of Museums defines a museum as: "an organized and permanent nonprofit institution. essentially educational or esthetic in purpose, with professional staff, which owns and utilizes tangible objects, cares for them and exhibits them to the public on some regular schedule" (Fitzgerald, 1973, p.8). Getting people to visit a museum may be a challenge, but educating them while they are there is most important. "There is a tendency to undervalue the influence museums have upon those who come through their doors." (Butler and Sussman, 1989, p4).

STATEMENT OF THE PROBLEM

According to Paul Taylor, Director of the TREEHOUSE, there is not a

study in progress nor has there been a study focusing on how to increase education interaction between adults and children in the TREEHOUSE (Taylor Interview, 1995).

STATEMENT OF THE PURPOSE

The purpose of this project will be to conduct a study assessing adult/child interaction in the TREEHOUSE that will yield a series of recommendations to assist in meeting the educational objectives of the TREEHOUSE.

SIGNIFICANCE OF THE STUDY .

In 1985, the Philadelphia Zoo opened the George D. Widener Memorial Treehouse, an indoor discovery center. Taking nearly four years to complete, . the TREEHOUSE is a place where children and adults alike can learn about the natural environment and not be scared to touch, climb and play. Mary-Scott Cebul, Director of Planning for the Philadelphia Zoo, developed the concept for the TREEHOUSE. In the development, Cebul was looking for a way to get visitors to feel a closeness or empathy with nature ("On The 1,444th Day", 1985). The TREEHOUSE contains seven larger-than-life habitats - a milkweed meadow, a Florida Everglades, a prehistoric swamp, a beaver pond, a honeycomb, a thicket and a ficus tree - which is built to withstand the day to day wear and tear of approximately 300,000 visitors each year. In exploring each habitat, the visitor becomes one of its inhabitants and is invited to use their senses and imagination to enhance their learning experiences.

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The TREEHOUSE is part of the Education and Training department of the Philadelphia Zoo. The educational objectives of TREEHOUSE are: to provide an opportunity for adults and children to discover together features of the natural world through play exploration in simulated habitats, to provide the visitor with positive experiences that foster empathy and appreciation for the lives of animals in their natural habitats, to provide an environment which rewards personal discovery, encourages observation using all the senses, including imagination, and leads to improved observation skills in other settings and to provide the opportunity for an active experience in the otherwise mainly passive setting of the Zoo (Harms, 1987).

Upon observation of children and adults in the TREEHOUSE, it has been seen that the average length of stay is 30 minutes (Harms, 1987). Paul Taylor, Director of the TREEHOUSE, has posed the question: "How can we get the adults more involved with their children in the TREEHOUSE?". The most typical behaviors of the adults are to drop the children off at the door and then sit down and talk to their friends and rest, or they display inappropriate behavior, such as running around the habitats making outrageous noises and trying to scare the children. These behaviors are not detrimental to learning but observing more education interaction between the adults and their children would be more appropriate (Taylor Interview, 1995).

The author will conduct a study that will consist of extensive observations of adult/child interaction followed by interview questionnaires directed towards the adults. This study will provide valuable information and recommendations to the TREEHOUSE staff to assist in increasing educational adult/child interaction, enhancing the all around educational experience for the whole family and successfully achieving the TREEHOUSE educational objectives.

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ASSUMPTIONS

It is assumed that:

1. The author possesses adequate experience and knowledge to conduct such a study.

2. The author has full support from the TREEHOUSE staff for this project.

3. The study conducted by the author will be useful to the TREEHOUSE.

LIMITATIONS

Limitations to the project:

1. The study is targeting children ages 4 - 11 and the adults that enter the TREEHOUSE with them.

2. The study will be designed to fit the TREEHOUSE specifically.

3. The study must be administered during the working hours of the TREEHOUSE.

4. The study will be limited to visitors of the TREEHOUSE.

5. The study will be one that necessary background information must be available to the person administrating the study.

6. There must be access to relevant research data.

DEFINITION OF TERMS

Curriculum - the school experiences, both planned and unplanned, that enhance (and sometimes impede) the education and growth of students (Parkay and Stanford, 1992).

Educational Interaction - knowledge and skills resulting from instruction and training, with reciprocal action or influence (New Illustrated Webster's Dictionary, 1992).

Environmental Education - a process aimed at producing a citizenry that is 1) knowledgeable about the biophysical and sociocultural environments of which man is part 2) aware of environmental problems and management alternatives of use in solving those problems and 3) motivated to act responsibly in developing diverse environments that are optimal for living a quality life (O'Hearn, 1982).

Habitat - a place or type of place where an organism or a population of organisms live (Miller, 1995).

Museum - an organized and permanent non-profit institution, essentially educational or esthetic in purpose, with professional staff, which owns and utilizes tangible objects, cares for them and exhibits them to the public on some regular schedule (Fitzgerald, 1973).

Naturalistic Study- unobstrusive behavioral oberservation or technique designed to illiminate or minimize effects of the observer on the object being observed (Forthman, 1996).

Zoological Park - a permanent cultural institution which owns and maintains captive wild animals that represent more than a token collection and, under the direction of a professional staff, provides its collection with appropriate care and exhibits them in an aesthetic manner to the public on a regularly scheduled basis. They shall further be defined as having as their primary business the exhibition, conservation and preservation of the earth's fauna in an educational and scientific manner (American Zoo and Aquarium Association, 1995).

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter, the author has reviewed literature pertaining to increasing adult/child interaction in an educational setting. The purpose of this thesis is to conduct a study assessing adult/child interaction in the TREEHOUSE, located within the Philadelphia Zoo, that will yield a series of recommendations to assist in meeting the educational objectives of the TREEHOUSE. Since this literature review is extensive, the chapter has been divided into the following six sections in order to present a comprehensive picture of the related literature:

1. Museums: A Place To Educate The Family

2. Family Learning in Non-Formal Settings

3. Adult and Child Interaction Within The Learning Environment

4. Interactive Activities, Models and Instructional Aids

5. Adult and Parent Education

6. Local Museums and Their Approach To Adult/Child Interaction.

Museums: A Place To Educate The Family

Environmental education has been a much studied field of education in the past decade. Many non-formal educational institutions such as museums,

which include zoos, botanical gardens and science centers, are utilizing their facilities as teaching grounds for environmental awareness. "Museologist Theodore Low pointed out that the most significant contribution America has made to the concept of the museum is in the field of education, witnessing the transformation from the recognition that education is a function of the museum to the realization that education has become the function of the museum" (Wolins, 1989, p9). Education within a museum environment can be defined as including "observation, perception, satisfying curiosity, making sense out of one's observation or experiences, incidental learning and, of course, direct efforts to collect or offer information" (Wolf and Tymitz, 1979, p17).

In discussing museums and education, much has been written on the importance of reaching the family. Educators such as Sussman, Wolins and Leichter discuss the importance of family interaction in the museum setting. Sussman says, from a sociological perspective, enriching life by enabling the family members to expand their intellectual and aesthetic horizons is a function of the educational process (Sussman, 1974). Wolin adds, "it has become characteristic throughout history that all types of families function with varied degrees of proficiency in facilitation and mediating learning for its members" (Wolins, 1989, p7). He even takes it back to primitive society pointing out that when there was no such thing as "formal schooling", children were educated by their family through family situations, activities and direct observation (Wolins, 1989).

Galinsky and Hughes remind us that, "The complexity of contemporary life has certainly not diminished the importance of the teaching functions of the family, but it has added the need for many types of instruction which require specialized educational organizations and institutions" (Galinsky and Hughes,

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1987, p8). We must ask ourselves some important questions when deciding on educational programs in these institutions: "How can the museum environment be used to its greatest advantage?" and "How can we get the entire family involved?" Leichter, Hensel and Larsen explain that a basic necessity for museum educators attempting to create enabling contexts for family education is to understand the ways in which families interact, teach and learn from each other (Leichter et al., 1989).

Inside the museums, many types of educational approaches are utilized. In deciding which materials and educational learning techniques work best for each program, many factors come into play, such as the make up the audience and the materials that are available. It is important to recognize the differences in museums and families and realize that each program will not work for everyone. Wolins sums it up when she says, "Learning is enriched when museum services, programs and activities offer experiences that become part of the family's conversation at home and may be applied to other 'real world' experiences beyond the museum (Wolins, 1989, p10).

Our museums offer an unlimited amount of educational opportunities. It is possible to teach environmental education to all ages and very important that the educators in these museums realize this, making conscious efforts not only to educate the children but the entire family. According to Dixon, Courtney and Bailey (1974), the typical museum visitors are more likely to be in the upper education, occupation and income groups. These same visitors are usually relatively young and active in community and leisure activities.

Family Learning in Non-formal Settings

In the past ten years, there have been several studies relating to family

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learning in all types of museum settings. In their study of how families learn during a museum visit, Marcia Kropf and Inez Wolins define family as "any group of individuals that includes adults and children who have a strong and continuing relationship that goes beyond the museum visit" (Kropf and Wolins, 1989, p75). Research indicates that the number one reason for family visits to museums is for social interaction, although there tends to be some indication that learning may take place (Hood 1989, Rosenfeld 1982).

In particular, when adults were asked why they visited the zoo, they commented that it was a place where they could do things together as a family with their children. (Rosenfeld, 1979). "Anything families do together that they enjoy helps bind them together and family members who have shared good times can approach thorny problems in a different light. It seems possible that this method of recreational learning is being neglected in our society" (Gennaro et al., 1980, p295).

"The role of the museum as a site for social interaction in no way contradicts its primary educational purpose. On the contrary, it is only by education that the museum takes on its extended significance as a social setting (Wolins, 1989. p9).

In a poll conducted by the National Research Center of the Arts, results find that 60 percent of museum goers indicate that their interest in museums was influenced by a family member, whereas only 3 percent credited school trips for their interests in museums (Wolins, 1989). Watson Laetsch characterized the family museum audience as: family members who freely choose to come to the museum; they need no prerequisites or credentials; they are heterogeneous learner groups with respect to age, background, and interests and attach great importance to social interaction as an ingredient of

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their visit (Laetsch et al., 1980).

According to Kropf and Wolins (1989), museums have the ability to tap into the background knowledge of the independent family visitors by engaging them in activities and educational programs that take place within the museum. By doing this, the visitors will be able to relate their own personal experiences, reinforcing what they are learning at the museum. "One of the purposes of designing educational activities for family audiences in museums should be to help prepare them to experience the museum as a learning resource on their own" (Kropf and Wolins, 1989, p76).

Museum educators play a very important role in creating an environment conducive for family learning. Leichter, Hensel and Larsen (1989), in their study of families and museums believe that museum educators must study the way families learn, including the processes of education in the family. By increasing their knowledge, the museum educators can develop a learning environment that will yield activities and learning aids that will encourage families to teach and learn form each other.

Ann Lewin (1989) has done research specifically on children's museums as a structure for family learning. Children's museums, and museums alike, are considered settings in which informal education takes place. Museums differ from a classroom because they are set up according to space, whereas classes in classrooms are set up according to time. In the informal setting, visitors are able to explore the areas of interest to them for as long as they desire. In the classroom, the students are regulated by time periods and the ringing of bells as a reminder to change classes.

Within a children's museum, the presentation of the exhibits are of utmost importance. "One of the most effective modes of presentation in children's

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museums is the coupling of a realistic setting with the use of objects which belong in that setting and therefore can be experienced in contextually relevant ways. These settings are built to a child's scale and offer dramatic mini-worlds in which to ponder, wander, explore, try and even taste" (Lewin, 1989, p.53). A prime example of a setting that exhibits these qualities is the TREEHOUSE at the Philadelphia Zoo, with its incredible seven larger-than-life habitats.

The presence of first-rate exhibits in museums should be able to stimulate a child's emotions, encouraging their imaginations to run wild while they explore and learn at the same time. "Exhibits in children's museums are excellent aids to stimulate direct experience. These aids may be the vehicle for a parent to help a child or for children themselves to break through conceptually, to experience him or herself as a competent learner, or to grasp the principle behind a common phenomenon" (Lewin, 1989, p.63).

In a study by Koran et al., (1988), at the Florida State Museum, the use of modeling was tested and how it effects visitor behavior. Two studies were conducted using live models to encourage the visitors to feel comfortable in touching the objects and promote utilization of the learning aids made available to them. What they found was that from all the visitors present in the non-formal educational setting, children were more likely to be less inhibited with the hands-on learning aids than were the adults. Additionally, children were more apt to ignore the behavior of an adult model and follow the actions of the significant adult with them, encouraging the significant adult to become more attentive in what they are doing. "Adults appeared to be more receptive to models, since their initial behavior with novel objects is cautious; they looked around to see what children and other adults were doing. They watched and subsequently imitated" (Koran et al., 1988, p40-41).

In today's society, the concept of "family" is changing in their structures and lifestyles. Non-formal educational centers will have to display their familiarity with these changes in the definition and composition of the family. They will also need to prove their capability to find new and exciting ways of accommodating the family in these settings while at the same time incorporating education into their efforts.

Adult and Child Interaction Within the Learning Environment

According to Richards and Menninger "the notion that interaction makes for effective learning is not new; Socratic questioning and hands-on activities are standard components of most museum teacher repertoires" (Richards and Menninger, 1993, p6). As stated earlier in Rosenfeld's study (1979) of informal learning in zoos, upon interviewing 32 groups visiting the San Francisco Zoo, he found that the majority of the adults responded that the zoo was a place that they could interact with their children.

There have not been many studies that specifically deal with how to increase adult/child interaction in informal settings. Most literature suggests the development and implementation of learning aids and models for child and adults to utilize together. Because most families visit these informal education settings for social interaction, museum educators must also incorporate the social aspect into their environments.

In Judy Diamond's study "The Behavior of Family Groups in Science Museums" (1986), she studied the actions of family groups throughout their entire museum visit, including the interactions among group members and the nature of their responses to the exhibits. Adults and children were compared with one another across family groups to determine how their behaviors differed

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and how they influenced each other's behavior. The study was conducted at the Exploratorium and the Lawrence Hall of Science, where both attempt to create a playful, unstructured environment in which people can explore and investigate objects and natural phenomena and bring to life their own learning styles and experiences.

In conclusion to Diamonds study (1986), she found that "not only does teaching provide information about the exhibits, but it also influences the attitudes of people as they interact with and ultimately learn from the objects and phenomena. Social interaction in the museum occurs as a reciprocal activity, and all parties appear to benefit from it. The nature of the information conveyed, however, may vary greatly. Family members communicate in different ways and also experience objects in the environment differently. Adults read graphics more and also tend to convey more symbolic information. Children manipulate exhibits more and tend to transmit information about the location, operation and description of the exhibit phenomena. This mutual exchange of information is an important aspect of the learning process in the science museum and should be investigated further" (Diamond, 1986, p152-153).

When museum educators are creating contexts for familial education, it is important that they understand the ways in which families interact, teach and learn from one another. It is imperative that the educator be aware of the diversity of the museum and the families it comes in contact with rather than to assume one program will meet the needs of all types of families. This holds true for the different types of interactive learning aids present throughout the museum.

"Interpretation that offers hands-on participation, includes humor and

whimsy, provokes curiosity, and stimulates creative thinking in novel ways is far more likely to capture the imagination of children and be an effective teaching tool than is a standard presentation with little or no recognition of audience leisure criteria. Museums that want to develop audiences of adults with young children must offer more of the values and experiences this group expects in leisure: more social interaction and active participation opportunities and less emphasis on learning" (Hood, 1989, p162-163).

Marilyn Hood, in her study "Leisure Criteria of Family Participation and Nonparticipation in Museums" (1989), feels that when you put too much emphasis on the learning aspect in a non-formal educational setting, it intimidates the adults and children who are visiting for the leisure activities and social interaction. "If museum offerings emphasize discovery, exploration, active participation where possible, and interaction with family members in a festival, workshop or demonstration, learning will occur - while visitors are enjoying themselves. The family that participates together in a pleasurable experience feels comfortable and at ease in its surroundings" (Hood, 1989, p165).

Research has shown that family visitors to museums prefer to manipulate models and learning aids that are interactive and offer hands-on experiences (Kropf and Wolins, 1989). These learning tools are very important, but even more important is that both the adult and child be able to use them, enabling families to interact with each other and discuss the exhibit together. To achieve this, additional guidance may be necessary, assuming that not all visitors have background knowledge to accompany the subject matter covered. "Interactive museums present opportunities for adults to behave in different ways with children, to enter into new situations with them, to act as interpreter

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rather than presenter, and to be a learner alongside the child rather than a teacher" (Lewin, 1989, p67).

In another of Judy Diamond's studies "California Academy of Sciences Discovery Room"(1988), along with A. Smith and A. Bond, observations of the visitors movements and interactions within the California Academy of Sciences Discovery Room were recorded. Results indicated that a child exploring the room alone was more likely to look but not touch. The presence of another individual greatly influenced the child's exploration. If the child was with another individual, the child remained with the objects three times longer. Adults tended to read graphics aloud to the children and gave suggestions of how objects could be manipulated. The adults were found to influence a child's exploration in two ways: the presence of an adult helped the child feel more confident in the task they were undertaking, and with the adult present, the child tended to slow down in their quest for something to catch their eye long enough to develop an interest in an object that would have otherwise been passed over.

Interactive Activities, Models and Learning Aids

According to D.D. Hilke in his paper "The Family As A Learning System", he suggests that "if families are to learn from museum exhibits, then the information presentation methods employed by the museum and the information acquisition strategies used by families must complement one another" (Hilke,1989, pgs107-108).

Examples of the information presentation methods mentioned above would be exhibit graphics, interactive learning aids and instructional models. In some exhibits, these educational tools are essential for learning to occur. The

presentation format is limitless and almost any object or material can be used for learning if it is developed with clear intent and purpose. Inez Wolins, in her article "Educating Family Audiences", urges museum educators to "design family activities that minimize simple information-giving and replace it with visual stimuli and situations that encourage human interaction" (Wolins,1982, p2).

Not only are instructional aids for children, but also for the adults. "Children's museums rarely connect the adult directly to the designer/educator, model how to use exhibits as props for mediation, or help adults extend the interest which exhibits may pique in their children. They have not developed ways to help adults learn how to use the museums to enhance the intellectual, emotional, physical, and/or social development of their children. And, the museums, while rich in potential, will not come fully into their own until they do so" (Lewin, 1989, p71).

In a non-formal educational setting, control over what the visitors see and interact with is limited as they are usually free to move around the institution at their own will and concentrate only on those areas that catch their attention. In developing instructional aids in this type of setting, museum educators must rely on the visitor's ability to interpret and conceptualize to a considerable degree (Leichter, et al., 1989).

A great deal of consideration must be taken when developing these instructional aids. "For print explanations and descriptions of displays, decisions must be made about the age level and eye level of the materials and questions about literacy in families arise - who reads to whom, how is the information read by one person transmitted to others and what style of graphics appeals to mixed age groups" (Leichter et al,. 1989, p17).

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In Judy Diamond's study "The Behavior of Family Groups In Science Museums" (1986), the analysis of data found that adults appeared to make use of the exhibit graphics for teaching purposes, especially to supplement their own knowledge of the exhibit. This was seen in the tendency of adults to read the graphics and in particular, to read the graphics aloud to their children.

Sherman Rosenfeld, in his study "A Naturalistic Study of Visitors at an Interactive Mini-Zoo" (1982), asked the question "How might zoos provide more stimulating and educationally effective experiences for their visitors?" He has rendered two recommendations based on the outcome of his study. First, people interested in education should study the social context of the casual visit to the zoo, and develop experienced-based, multisensory activities that fit this context. Secondly, zoo educators should adapt what they see as appropriate educational goals to the social context of the family visit to the zoo, utilizing interactive activities which seem to be well adapted to this context. Rosenfeld points out that one major obstacle was the time and effort it took visitors to understand the instruction, which tends to be an obstacle for many interactive aids and models. He suggests three possible solutions if available: simplified graphics, trained docents and micro-computers.

The zoo is an excellent opportunity to reach families for it has been estimated that over 115 million people visit American Zoos every year which is more than the yearly attendance at all major professional sporting events combined (Gilbert, 1975).

Koran et al.(1988), conclude in their study, "Using Modeling to Direct Attention", that "models can direct visitor attention and prompt behaviors that increase the number of sensory channels observers use when confronted with a novel stimulus. Models for every stimulus may be impractical, written models

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could be made inexpensively and accompany some of the exhibits, maybe before or when visitors enter the specialized exhibit area, permitting the models to act as a cuing or prompting device pointing to a wide variety of behaviors and to increase the number of perceptual channels visitors use" (Koran, et al., 1988, p41).

Marcia Brumit Kropf and Inez Wolins (1989), supply us with suggested guidelines to follow when developing educational activities that are specially designed with the family in mind: "provide the group with problems to solve or activities to do together. Too often in museums, the children take part in an activity and the adults watch or take on the role of readers (Benton, 1979), promote conversation and discussion, provide an open-ended situation which can be explored by families who come to the museum with varying degrees of knowledge, and begin with content that may be most familiar to the family, providing a link between what may be familiar and what may not be familiar" (Kropf, Wolins, 1989. p79-80).

When visitors feel comfortable in these non-formal educational settings where they can take advantage of the instructional aids and not feel intimidated because they may not have the background knowledge of the information being covered, they will stay longer, manipulate the models/objects and take in new information and concepts that will enhance their well-being (Wolins, 1982).

Adult and Parent Education

How do we get the parents more actively involved with their children when visiting a non-formal educational setting? That is the main purpose of this thesis. Although this subject has not been the purpose of many studies, it has been integrated into several studies. Adults play a very important part in their

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child's learning process, this includes when they visit educational settings outside of the classroom. According to Wolins, "The importance of the adult role of parenting directly affects the teaching of values and decision-making responsibilities in the family. This education implies learning new roles as well as new knowledge"(Wolins, 1989. p8). In the field of education it has been long understood that adult role models, especially those within the family unit, have a profound influence over the development and learning of children (Kropf and Wolins, 1989).

Research has indicated that one reason parents may not get involved with their children in the museum setting is because they do not understand or are not familiar with the information being presented. In Deborah Benton's study, "Intergenerational Interaction in Museums", she found that "when parents take their children on a museum outing, they do not want to appear unknowledgeable. Therefore when an exhibit is inadequately labeled or the label is too erudite for them to understand, parents make up an explanation, usually erroneous, so as not to lose face with their children" (Benton, 1979, p56). Benton also discusses the fact that a setting described as an "educational setting" sends off a negative connotation to the less educated parents, making them feel that they may not be able to keep up with their children, a feeling many parents try to avoid. What happens in most cases is "rather than be embarrassed by their lack of background, and unable to find adequate, easy-to-read labels, wall panels or handouts, these parents will avoid leisure places that are too intellectually challenging" (Hood, 1989, p165).

Malcolm Knowles has written many books and articles concerning adult education. More recently he has written on the subject of helping adults learn, what he calls "andragogy." In his research, he found that "adults view learning

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as a process of active inquiry rather than as the reception of a set body of knowledge." "Active inquiry is the best way to get adults to invest emotionally in an educational experience. Equally important to adult learning are self-direction and independence" (Richards, Menninger, 1993, p7). Knowles further explains that for the adult to really get involved with the learning experiences within the educational setting, the learning must be "life centered" instead of "subject centered." They need to be able to take the information learned today and apply it to living more effectively in the future (Knowles, 1980).

Malcolm Knowles, in his book the Adult Learner: A Neglected Species (1978), reviews the work of Eduard C. Lindeman, who laid the foundation for a systematic theory about adult learning. Lindeman identifies several key assumptions about adult learners, which has been supported by further research and that constitute the foundation stones of modern adult learning theory:

1. Adults are more motivated to learn as they experience needs and interests that learning will satisfy; therefore, these are the appropriate starting points for organizing adult learning activities.

2. Adults' orientation to learning is life-centered; therefore the appropriate units for organizing adult learning are life situations, not subjects.

3. Experience is the richest resource for adults' learning; therefore, the core methodology of adult education is the analysis of experience.

4. Adults have a deep need to be self-directing; therefore, the role of the teacher is to engage in a process of mutual inquiry with them rather than to transmit his or her knowledge to them and then evaluate their conformity to it.

5. Individual differences among people increase with age; therefore, adult education must make optimal provision for differences in style, time, place and place of learning (Knowles, 1978, p31).

Richards and Menninger (1993) conducted a study within the Interactive Gallery located in the J. Paul Getty Museum in Los Angeles, California, evaluating whether or not the purpose of the gallery (helping visitors learn about materials and manufacture, function and context, and conservation through hands-on activities and informal conversations with staff or docent teachers) was achieved. Throughout the study, data indicated that by developing and distributing a written instructional guide leading the visitors to different areas in the museum and providing them with interesting bits of information to further their knowledge, the average adult visit was extended.

Local Museums and Their Approach To Adult/Child Interaction

The author contacted five museums in the Delaware Valley: The Garden State Discovery Museum in Cherry Hill, New Jersey, The Please Touch Museum in Philadelphia, The Philadelphia Zoo, The Franklin Institute Science Museum in Philadelphia, Pennsylvania and the New Jersey State Aquarium at Camden in New Jersey. The main objective to this research was to gather information on whether or not the museums had addressed the concept of adult/child interaction and if they had, what was it that they were doing and what type of effect was it having on increasing adult/child interaction.

Marzy Sykes, Education Director of the Please Touch Museum, replied that the issue of adult/child interaction is an issue that she would like to get more involved with within the museum. Years ago, the museum tried to address this issue by developing brochures explaining interaction opportunities within

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the museum. She found that the brochures did not seem to be making any significant impact and is no longer utilizing them. The museum also contains signage, including special messages to adults, and as research has indicated, Ms. Sykes has not found that the signage makes much of a difference. She estimated that approximately 15% of the adults read the signs (Sykes Interview, 1995).

The Garden State Discovery Museum consists of 10 interactive exhibit areas with a great emphasis on hands-on learning for children. Sara Orleans, Director of the Discovery Museum, expressed a great interest in the subject of adult/child interaction within the museum. She indicated that the different exhibit areas in the Discovery Museum are all set up to encourage the parents and/or adults to get involved with their children and feel comfortable doing it. She gave an example of potential adult/child interaction using their Diner Exhibit. The adult sits at the counter while the child explores the behind-the-scenes preparation at a Diner, giving out menus, pretending to prepare the food, and serving the meal. Ms. Orleans hopes the familiarity with the atmosphere will encourage the adults to get involved. There is also guided written information available to the adults and the museum does have graphics which are geared towards both the children and adults (Orleans Interview, 1995).

Ms. Orleans also indicated an interest in trying to find that "teachable moment" for the adults where they will pass on the information they have gained to their children. She is very interested in creating more opportunities for adults to get involved and is a supporter of this project (Orleans Interview,1995).

The Philadelphia Zoo, The Franklin Institute Science Museum and the New Jersey State Aquarium at Camden (along with the Academy of Natural

Sciences) are currently involved in the Philadlephia-Camden Informal Science Education Collaborative (PISEC) in support of the PISEC Family Science Learning Project.

This is a three year project funded by the National Science Foundation. The primary goal of this project is to foster science literacy by encouraging families to adopt successful learning strategies at the museums. One of the questions this project will be addressing is: How can we change programs and exhibits to enhance or promote opportunities for family learning? (PISEC Annual Report, 1995).

The first phase of the project was baseline research. This was completed in the early part of 1995. Each institution is now involved in phase two, the modification of one exhibit within each museum to try and stimulate more family learning and interaction with the addition of informational kits, direct modeling or video/audio aides. Each institution will be conducting the phase two research in 1996 (Wagner Interview, 1995).

Kathy Wagner, Vice President of Education for the Philadelphia Zoo, stated that the zoo will be conducting research at the Naked Mole Rat exhibit for the second phase of the PISEC project using direct modeling. They will be bringing in actors and using prepared scripts taken from conversations overheard during their baseline research to try and encourage adults and children to take advantage of the educational opportunities present at the exhibit. (Wagner Interview, 1995).

The Philadelphia Zoo implements additional instructional aids in different locations throughout the zoo to encourage adult/child interaction. Examples include the offering of family workshops, highlighting activities for the entire family, which was added in the Fall of 1995, and elephant keys that are used in

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thirty seven talking storybooks located around the zoo that unlock interesting facts about the animals, exhibits and conservation. The zoo also has an extensive docent program that ensures there will be volunteers available to answer visitor questions and help interpret the exhibits (Wagner Interview, 1995).

With grant support from the National Science Foundation, the zoo has developed zoo activity kits that will be able to be purchased during a visit to the zoo. These activity kits are made to be used at home and at the zoo and have been extensively evaluated and tested by adults and children. The zoo found that families do work together with the kits and on the average spend more time at the exhibits if they have the kits than if they do not (Wagner Interview, 1995).

Minda Borun, the Director of Research and Evaluation at the Franklin Institute Science Museum, has been actively involved with the PISEC project. Although the Franklin Institute Science Museum is a very interactive museum, there has not been research that has specifically addressed adult/child interaction until now (Borun Interview, 1995).

There are graphics throughout the Franklin Institute and observations indicate that a small percentage of the adult population take advantage of them. The PISEC research being carried out now should give the educators a better understanding of what can be done to increase family interaction. Ms. Borun has participated in brainstorming sessions with other museums on this subject and continues the search for additional ideas to implement in the exhibits (Borun Interview, 1995).

The New Jersey State Aquarium at Camden is also busy with their phase two of the PISEC project. Julie Johnson, the Director of Education at the aquarium, along with her staff, will be designing carrying kits that will be used

by families as extensions of the aquariums barrier beach exhibit. This will allow the adults and children to explore the barrier beach exhibit further (Johnson Interview, 1995).

As for adult/child interaction, the aquarium has made a conscious effort to try and increase interaction by having staff work the exhibits as facilitators and interacting with the families, along with being available for exhibit interpretation. The aquarium does have signage throughout the exhibit areas and it is written at a fifth grade level. The use of photographic panels that are descriptive and explanatory are used in hopes to attract the attention of both adults and children for further knowledge (Johnson Interview, 1995).

CHAPTER THREE
DESIGN OF THE STUDY

The purpose of this chapter is to outline the procedures employed in conducting a naturalistic study assessing adult/child interaction in the TREEHOUSE at the Philadelphia Zoo, yielding a series of recommendations assisting in meeting the educational objectives of the TREEHOUSE.

Planning for the Study

The author began working at the TREEHOUSE in March of 1995 as an overnight instructor for their Night Flight program. During her work there, she noticed a majority of the family visits consisted of the children exploring and playing in the habitats and the adults sitting down watching. The author discussed her observations with Paul Taylor, the Director of the TREEHOUSE. He expressed a desire to get the adults more involved with the children, taking advantage of the limitless educational opportunities within the discovery center. The author discussed the prospect of conducting a study to observe the adult /child interaction currently taking place, questioning why some adults were not interacting with the children during the visit and what if anything could be done to change this lack of interaction.

Sources of Information

The author did an extensive literature search on the topic of adult/child interaction, with an emphasis on non-formal settings. This included reviewing a bibliography listing from the Philadelphia Zoo's PISEC project, addressing family learning in informal education settings. Research was also conducted at the Franklin Institute Library, the Philadelphia Zoo Library, Gloucester County Library, and the Savitz Library at Rowan College of New Jersey.

The author visited and/or interviewed several education directors of informal educational institutes, including The Franklin Institute in Philadelphia, Pennsylvania and The Garden State Discovery Museum in Cherry Hill, New Jersey, inquiring as to the adult/child interaction taking place in their institutions and what, if any, measures are taken to promote this concept. The author used this information to help conduct her study and make recommendations for the TREEHOUSE. The author also reviewed many papers and dissertations relevant to her proposed study.

Criteria of the Study and Its Components

The author chose to conduct a naturalistic study to assess the adult/child interaction in the TREEHOUSE. The study was modeled after Sherman Rosenfeld's 1982 study, "A Naturalistic Study of Visitors at an Interactive Mini-Zoo".

Format of the Study

The study was conducted on two weekdays and two weekend days during February of 1996. The groups studied consisted of between two and five individuals, including one adult and one child. Twenty two groups were

observed and eleven were interviewed, four of which were both observed and interviewed. The author was assisted in conducting the study by Patty Madden, a senior undergraduate psychology student.

The groups chosen to be part of the study were casual visitors to the TREEHOUSE. Once a group had been observed and/or interviewed and exited the TREEHOUSE, the very next group that entered the TREEHOUSE was observed.

Format of Observations and Interviews

The observations and interviews documented the behaviors, dialogue and anything else deemed important by the author during the groups visit to the TREEHOUSE. The author followed the adult/child group from the time they entered the TREEHOUSE until the time they left, concentrating on the actions of the adults and their role in the visit. During that time, the following observations were recorded on the data sheet (see appendix A):

1. A description of the group.

2. The first actions of the adult/child group upon entering the TREEHOUSE.

3. Level of interaction of the adult with the child. The levels were recorded continuously, as follows:

   1 = sitting down, no visual contact
   2 = sitting down, visual contact
   3 = walking around with child, limited verbal usage
   4 = walking around with child, limited interaction
   5 = active participation in habitats with children
   6 = overactive participation, scaring the child
   7 = adult touring habitats by themselves

4. Total time of adult interaction with child

5. Total time in TREEHOUSE

6. Person who initiated adult's participation (adult or child)

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7. Verbal comments between the members of the groups (relevant to study)

When the opportunity presented itself, several observed groups were interviewed at the end of their visit along with several family groups that were not observed. The interviews took place directly outside of the TREEHOUSE and took approximately 5 minutes. The interview questions were read to the adults and the answers written down on the interview questionnaire (see appendix B). The interview was designed to gain the following information:

   a) did the group have a membership to the Philadelphia Zoo
   b) had the group been to the TREEHOUSE before; if so, how many times
   c) reason for visit; expectations
   d) how familiar were the adults with the habitats in the exhibit and did this at all influence their rate of participation
   e) the adults view on adult/child interaction in non-formal educational settings
   f) do the adults view the TREEHOUSE as a place to gain educational information
   g) during the visit, do the adults try to rely educational information to their children
   h) suggestions to make the exhibit more adult friendly

A summary of the collected data is presented in Chapter four, utilizing text, tables and graphs to fully comprehend the significance of the research. The author discussed and interpreted the results of her study in light of her professional background, yielding recommendations from the data received.

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Jennifer L. Studley

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>
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> Philadelphia Zoo TREEHOUSE
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>
> Zoo Atlanta volunteer in observational research with Drills, Mona
>> Monkeys and Orangutans.
>
> Project Wild, Project Learning Tree and Project Aquatic
>
> Member African Wildlife Federation, National Audubon Society and
>> World Wildlife Federation
>
> Member of AZA (American Zoo and Aquarium Association)

CHAPTER IV

A STUDY TO INCREASE EDUCATIONAL INTERACTION BETWEEN THE
ADULT/CHILD WITHIN THE TREEHOUSE AT THE PHILADELPHIA ZOO

Introduction

In this chapter the author presented data collected from her study
designed to assess the present adult/child educational interaction in the
TREEHOUSE at the Philadelphia Zoo. The author introduced major findings
prominent in the data in the form of text, tables and graphs. Recommendations
were then made in an effort to increase adult/child educational interaction within
the TREEHOUSE.

The TREEHOUSE was built in 1985 as a place where children and
adults alike could learn about the natural environment and not be scared to
touch, climb and play. Taking nearly four years to build, the indoor discovery
center contains seven larger-than-life habitats which are built to withstand the
day to day wear and tear of approximately 300,000 visitors each year. In
exploring each habitat, the visitor becomes one of its inhabitants and is invited
to use their senses and imagination to enhance their learning experiences.

The TREEHOUSE is part of the Education and Training department of the

Philadelphia Zoo. One of the educational objectives of the TREEHOUSE is to provide an opportunity for adults and children to discover together features of the natural world through play exploration in simulated habitats. The Director of the TREEHOUSE, Paul Taylor, posed the question, "What can be done to increase the adult/child educational interaction within the TREEHOUSE?" This thesis focused on the assessment of the present adult/child educational interaction and through observations and questionnaires, developed recommendations to assist in the answering of that question.

Presentation of Data

Observational Study

There were 22 groups observed throughout the study. Of these 22 groups, 20 groups were Caucasian, 1 group was of Asian descent and 1 group was of Middle Eastern descent. The breakdown of sex and approximate age of the observed groups were as follows:

	Male	Female
Preschool (ages 1-5)	18	9
Primary School (ages 6-10)	8	3
Secondary School (ages 11-15)	1	1
Children (total)	27	13
Adults (total)	9	23

From the observations of the 22 groups, the average length of time spent in the TREEHOUSE was 26 minutes and 14 seconds. The interaction between the adults and children was initiated primarily by the child. The children initiated interaction 55% of the time, as opposed to 23% by adults and the remaining 22% by both children and adults or neither.

Included in the study was that on the average, adults and children interacted during three quarters of their visit (this is not educational interaction). Graph 1 illustrates the breakdown of groups to the amount of time they interacted together. Out of the 22 groups, 10 groups interacted together their entire visit. Over 70% of the the groups spent at least half of their visit interacting together.

Graph 2 illustrates the level of interaction between the adult/child groups in regards to the actions of the adults. A listing and description of the levels of interaction can be reviewed in chapter three and appendix A. By far, level five (37.3%) - active participation in habitats with children - was the prominent behavior observed in the adults. This was followed by level 4 (26.1%) - walking around with child, limited interaction - and level 2 (20.3%) - sitting down, visual contact with child.

Interview Study

The interview section of the study enabled the author to find out valuable information from the adults perspective. The questions were addressed to and answered by adults only. Of the eleven groups interviewed, four groups had been both observed and interviewed for this study, leaving seven groups that were only interviewed. Seven of the groups were members of the Philadelphia Zoo. Eight of the eleven groups had been to the TREEHOUSE prior to that visit,

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GRAPH 1

Average Time of Adult/Child Interaction During TREEHOUSE Visit
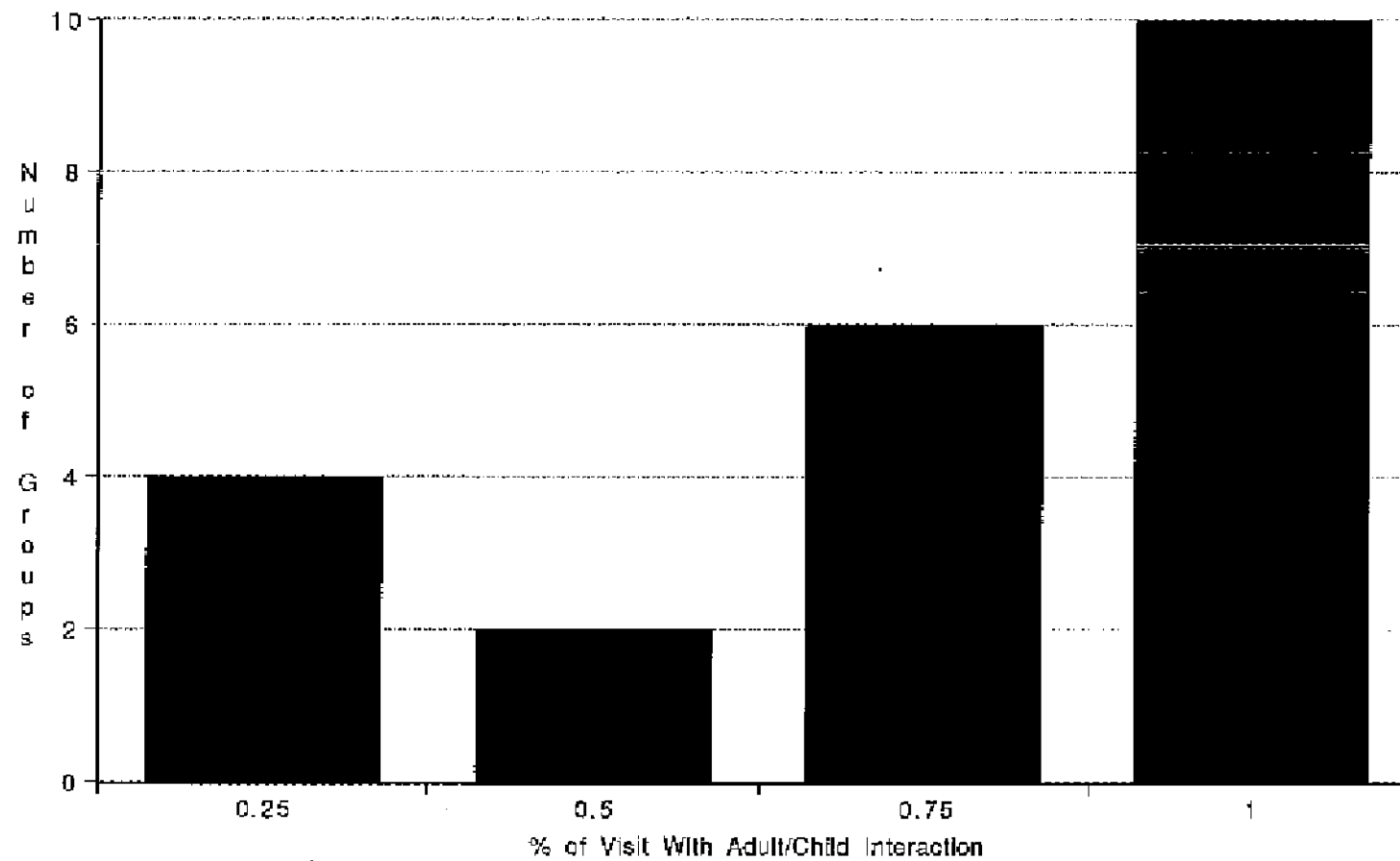
GRAPH 2

Level of Interaction Between Adult/Child Groups in TREEHOUSE
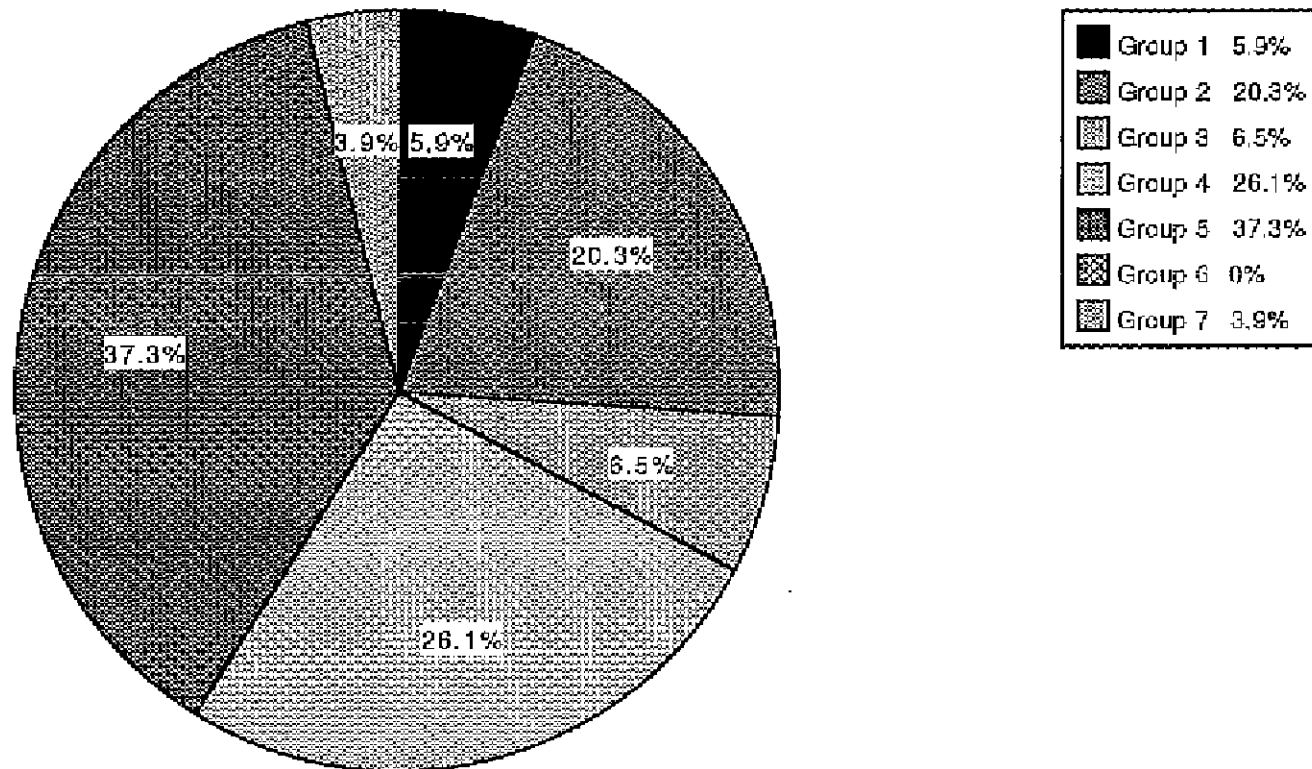
5.9% 20.3% 6.5% 26.1% 37.3% 3.9%

Group 1 5.9%
Group 2 20.3%
Group 3 6.5%
Group 4 26.1%
Group 5 37.3%
Group 6 0%
Group 7 3.9%

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two groups had never been to the zoo and one group had only been to the TREEHOUSE for a birthday party. The groups that were members of the zoo indicated that they had visited the TREEHOUSE on numerous occasions as part of their visit to the zoo. It was also implied that the decision to visit the TREEHOUSE was child-oriented. Most groups indicated that they were there because "their children wanted to visit" and "the TREEHOUSE is a place for the children to have fun."

Responses to several of the interview questions have been compiled into Table 2. The author found that the majority of the groups interviewed had no problem being interviewed and gave well thought out responses.

Educational Interaction

On the whole, the author observed very little educational interaction taking place during the time the study was being conducted. In Table 1, a listing was comprised of the educational comments recorded during the groups visits. The majority of the comments are very basic as in "Look at the butterfly" or "It's a butterfly!," and does not follow up with any further information. It was not possible through this study to conclude why there was only limited educational interaction between the adults and children.

Two surprisingly popular sites for both children and adults in the TREEHOUSE were the growing flower display and the water exhibit with a waterfall, both located in the Beaver pond habitat. Children were intrigued with the hand cranks that made the flowers grow. The hands-on aspect of this display seemed to grab the children's attention and led them to seek for more.

The second site to grab the attention of the children and adults was the water exhibit in the beaver pond habitat. An impressive 64% of the observed

Table 1. Recorded educational comments made by observed groups

I. Statements

Here's an alligator

There's a butterfly (pointing to the Monarch butterfly)

It's a butterfly!

II. Commands

Look at the bee!

Look at the frog!

Look at the egg, you can climb into it!

Look at the flower, you can crank it!

Look at the waterfall, where are the fish?

Look at the bee, whoo...

Go into the log, there are bugs in there!

III. Questions

Want to go on the dinosaur?

Want to climb into the log?

Do you want to sit where the caterpillar comes out of? (chrysalis)

See the beehive and see the bee in the honeycomb?

IV. Explanations

Adult explained log in thicket exhibit.

Adult pointed out animals on Everglades mural.

Adult explained how alligators eat.

Table 2 . Examples of responses to questions asked to groups during interview

I. Were you familiar with the habitats in the TREEHOUSE upon entrance?

"knew what they were but did not know specifics"

"yes, because I have been visiting the TREEHOUSE for awhile"

"yes, got additional information on the habitats during prior visit"

"yes, basically"

"medium knowledge, would like more offered"

"not very familiar - just here for kids to have fun"

"some, would ask if I had questions"

"very familiar"

"somewhat familiar but do not know details. More information would
    help, (i.e. signage)"

II. What are your views on adult/child educational interaction in non-formal
education settings?

"very important, it is how children learn because they will not take
    initiative and stop and learn themselves"

"very important to stay with children throughout exhibit"

"it is important to play with kids and explain things to them"

"important for older children but younger children just need to have fun"

"very important but hard to relay information here when it is not available"

III. Do you have any suggestions to make the TREEHOUSE more adult
friendly?

"signage"

"fix buttons on the interactive exhibits that are not working"

"lockers, so I do not have to always worry about my things and I can
    concentrate more on my children"

"key boxes, like what is found around the zoo"

"explanations of exhibits would be nice"

"good as is, see it safe for children and allows them to play"

"no, because it is for kids and it is already child friendly"

groups spent time watching the waterfall and looking in the "pond".

Both of the above mentioned areas would be ideal places to encourage educational interaction between the child and adult. Unfortunately, neither area has any interpretive information available to the groups for general information pertaining to the area.

Analysis and Discussion

The TREEHOUSE is a very popular place in the zoo for adults and children, averaging close to 300,000 visitors a year. This makes the TREEHOUSE a prime opportunity for adult/child interaction with a glimmer of hope for some educational experiences. Unfortunately, the author's study did not convincingly indicate this.

From the responses in the interview study, most every adult considered the TREEHOUSE educational, but from the perspective of the author, there was very little evidence of education taking place. The TREEHOUSE is seen by most visitors as a place for children to run around and have fun. One advantage to this is that children do not miss much. From the observations, most children walked up to and touched almost every exhibit in the TREEHOUSE but more likely than not, if the children were not familiar with what the exhibit was, could not understand how to play on it or it did not attract their attention immediately, they quickly moved on to another exhibit, rarely returning to that exhibit.

Although the observations indicated that the adults were with the children an average of 75% of their total visit, during most of that time the children and adults engaged in limited verbal exchange and/or interaction, especially the groups containing secondary-aged school children (see graph 2). As one adult

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put it, "The TREEHOUSE has potential but I see so many people using it as a drop off place for children. If parents took more initiative with their children, there could be more interaction." Unfortunately, this view was a minority among those interviewed. Most of the adults commented that they visit for the fun it gives their children. One adult actually said, "I see the TREEHOUSE as a place for fun and running around. The zoo itself seems more for education."

Recommendations

In 1985, the TREEHOUSE first opened its doors after four years of planning and preparation. Not only were the habitats in place and looking more life-like than ever, but a state-of-the-art sound system was playing rainforest and animal sounds and interpretive aids were awaiting the touch of small hands.

Since the TREEHOUSE is part of the Education and Training department of the zoo, education is seen as an important aspect of this facility. The following recommendations are those of the author and based on the authors experience with this study, her work in the TREEHOUSE as a part-time instructor and her professional background.

When the TREEHOUSE first opened, there were the larger-than-life-habitats to be explored and hand cranks that would make flowers grow and a mechanical bee perform the "waggle dance". There were also "magic rings" given to each child to activate slide viewers and other sound and sight devices discovered by flashing lights that were located throughout the TREEHOUSE. These slide viewers revealed such happenings as an alligator hatching or the life history of a frog (On the 1,444th.., 1985).

All of the above are great examples of educational and interactive opportunities for children and adults. Unfortunately, the rings are no longer

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distributed, with the slide viewers being activated with the use of the visitor's finger, and only the flower hand cranks are operational. According to Paul Taylor, Director of the TREEHOUSE, interactive efficiency on these devices has not gone below 30% at any one time and the hope is to stay well above that figure.

The author's first recommendation is the fixing of the existing exhibits and/or the installation of additional interactive models and learning aids. Marcia Brumit Kropf and Inez Wolins (1989) suggest the following guidelines when developing educational activities that are specially designed with family interaction in mind: "provide the group with problems to solve or activities to do together, promote conversation and discussion, provide an open-ended situation which can be explored by families who come to the museum with varying degrees of knowledge, and begin with content that may be most familiar to the family, providing a link between what may be familiar and what may not be familiar" (Kropf, Wolins, 1989. p79-80).

A second recommendation would be to develop additional props to be used throughout the TREEHOUSE. The author found that the adults and children were drawn to the oversized leaves that were located near the thicket habitat. There seemed to be a lot of interaction, mostly play, between the adult and child in regard to the leaves. The author believes these leaves were popular because they were oversized, lightweight and portable. The children would take them to the enormous eggs in the Everglades habitat and use them as covering or sometimes padding. Suggestions for props are costumes the children could wear that would correspond with animals or objects found in that particular habitat. Puppets could be developed for the children and adults to use in their play exploration of the habitats. Props would enhance the visitors

experience, which could lead to a greater understanding of what they see and a feeling of wanting to share this experience with someone else.

A third recommendation is the development of some type of "user friendly" graphics. As the interview study indicated, most adults had some idea of what the habitats were and maybe knew a few basic things about them but voiced a desire to know more. Although research has stated that only a small percentage of people read signs the author feels there was enough requests for additional information on the habitats to validate the effort.

The TREEHOUSE encourages children and adults to become one with the habitats. The visitor is to envision themselves as the bee in the beehive and become the caterpillar that emerges into the beautiful monarch butterfly in the milkweed meadow exhibit. This is a great concept and it encourages the children to use their imaginations but the author found that this sort of play exploration rarely took place. The question is whether or not the adults and children know to this alternative of play.

If the TREEHOUSE is to develop graphics, they need to be constructed on a level that could be understood by secondary school children and adults. Observations have shown that most secondary school children and older are usually unsupervised while exploring the TREEHOUSE. "For print explanations and descriptions of displays, decisions must be made about the age level and eye level of the materials and questions about literacy in families arise - who reads to whom, how is the information read by one person transmitted to others and what style of graphics appeals to mixed age groups" (Leichter et al. 1989, p17). These graphics should include easy to understand facts and suggestions on how to fully utilize the exhibits to their fullest capacity (i.e. games to play, situational roles to act out and/or amazing facts about the habitat).

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According to the TREEHOUSE: past, present and future (1987), Rosemary Harms, former Director of the TREEHOUSE, had listed several projects in planning for the TREEHOUSE. Among those projects was a TREEHOUSE guide to assist adults in understanding the concept of TREEHOUSE. The author sees this as a very positive measure and recommends this project be reevaluated and carried through.

Marilyn Hood, 1989, found in her research that in most cases if the adults are not comfortable with their knowledge in a specific area and are not able to find easy-to-read labels, handouts or wall panels, the adult will more than likely avoid the exhibit for fear of embarrassment on their part. Through graphics and/or handouts, this type of situation can be avoided and the chance for educational interaction between the child and adult could increase.

A fourth recommendation from the author is to utilize the beaver pond exhibit more. The author's observations clearly indicated a fascination with the water areas in the habitat. The beaver pond habitat is one of the seven larger-than-life habitats that is not obvious what it is when you look at it. This makes the habitat an ideal place to insert educational opportunities. Identification of the different aspects of the beaver pond would be favorable. Letting the children know that where they stand is a beaver dam and by ducking under the dam they are entering the beaver lodge is the type of information needed for the visitors to fully explore the habitat, truly becoming one of its inhabitants.

The water areas in the beaver pond habitat caught the attention of 64% of the observed groups. Within the beaver pond habitat is a room-sized aquarium not being used that seizes the attention of almost all the children and adults pass by. There is also a small "beaver pond" area that contains water and some coins but no aquatic life. A small waterfall splashes into this beaver

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pond. These areas are nicely exhibited but offer no explanation of what they are or if there is anything to be looking for.

The last recommendation is one that the author picked up on her hours of observations that could ultimately increase adult/child interaction: lockers. Although there is not a lot of room in the TREEHOUSE to install another huge exhibit, these lockers do not have to be big and could also be put outside or on the wall near the men's bathroom.

The author observed many of the adults preoccupied with carrying around all of the "stuff" that goes along with bringing children to the zoo, especially on the weekends when the attendance was triple of that on the weekdays. It appeared that the adults were more reluctant to climb up the ficus tree because of all the jackets and bags they had in their hands.

During the interview study, several adults mentioned lockers when asked how to make the TREEHOUSE more "adult friendly". If money is a factor, the lockers could be the type that you have to insert a quarter to be able to use them. In the long run, especially during the busy months, the cost could be recovered. Ultimately, giving the adults a safe place to put their belongings would free them up to be more active with their children.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

The purpose of this project was to conduct a study to assess the present adult/child educational interaction in the TREEHOUSE at the Philadelphia Zoo. To develop the study, the author did an extensive literature review and decided upon conducting a naturalistic study. The study itself took place over a four day period and went very smoothly. The author observed groups from the time they entered the TREEHOUSE until the time they left. These observations sometimes lasted over one hour, an aspect of the study the author did anticipate. At this point, the author found a senior psychology college student to assist with the observations. Surprisingly, not one of the groups being observed approached the author to ask what she was doing. The author was successful in her quest to be inconspicuous, an important aspect of a naturalistic study.

The author also implemented an interview questionnaire into the study. The interviews yielded the acquisition of valuable information. The interviewees seemed very willing to take the time to respond to the questions with thought out answers. The main obstacle encountered during the interviews

was with the children in the group. The questionnaire was directed toward the adults, not the children. At times, it was difficult to conduct an interview because the children were restless and ready to move into the zoo. In the end, the interview questionnaires proved to be a successful and beneficial aspect of the study.

Summary of the Problem

The TREEHOUSE at the Philadelphia Zoo was built in 1985 as a place where children and adults alike can learn about the natural environment and not be scared to touch, climb and play. One of the TREEHOUSE educational objectives reads, "to provide an opportunity for adults and children to discover together features of the natural world through play exploration in simulated habitats (Harms, 1987, p3).

According to Paul Taylor, Director of the TREEHOUSE, preliminary observations indicated that the adult/child educational interaction was not taking place at the level it should be. Prior to the completion of this study, there were no other studies in progress nor had there been studies focused on how to increase the adult/child educational interaction in the TREEHOUSE.

Summary of the Procedure

The author did an extensive literature search on the topic of adult/child educational interaction, along with interviewing several education directors of informal education institutes around the Philadelphia area. This information helped the author develop her study and make the recommendations found in chapter four.

The author chose to conduct a naturalistic study to assess the adult/child

educational interaction in the TREEHOUSE. For four days (two weekdays and two weekend days) the author observed 20 visiting adult/child groups that entered the TREEHOUSE, coding behaviors on a data sheet. Upon leaving the TREEHOUSE, the author interviewed 11 adult/child groups (only 4 of those groups had been observed by the author). The interview questions gathered pertinent information of adult views of the TREEHOUSE and additional useful information.

Recommendations for Further Research

The author's study to increase adult/child educational interaction set a basis for many more studies of its kind. Adult/child interaction in non-formal educational settings is a topic of interest that should continue to be explored in many ways. One recommendation for further study would be to take this study one step further by implementing some or all of the authors recommendations found in chapter four. This post-study would allow the researcher to evaluate the significance of the recommendations made by the author and to assess the effect they would have, if any, with increasing adult/child educational interaction in the TREEHOUSE.

A second area of further study could involve the TREEHOUSE Theatre Troupe. This theatrical troupe performs educational shows daily in the TREEHOUSE at preselected times. There is an interest to see how receptive the adults and children are to these programs and follow-up on whether or not the audience does, in fact, walk away having gained further knowledge.

An additional area of interest to conduct further research in the TREEHOUSE is to conduct a study to measure the effect each habitat has on interaction. For example: which habitat grabs the attention of the adults and

children the most, what is it that attracts their attention and could this discovery be added to the other habitats to make them more conducive to adult/child interaction.

Findings and Conclusions

The value of this study lies in the utilization of the findings and recommendations by the administrators of the TREEHOUSE and the Philadelphia Zoo. The author discovered several principal findings during her study that can be of help to increase adult/child educational interaction. Such findings indicate that there is interaction between the adults and children taking place in the TREEHOUSE but the observations do not support that it is educational interaction. Findings also indicate that 55% of the time, interaction is initiated by the child, as compared to 23% initiation by adults. Upon interviewing adults, the majority said that the TREEHOUSE was a place for children but would welcome additional information on the habitats and/or graphics.

There is a growing need for adults to get involved in the education of children. This involvement should not be limited to the classroom only but carry over into non-formal education settings. Education in a non-formal setting like the TREEHOUSE should not be seen as a place for children only. These educational settings have an unlimited amount of opportunities to offer everyone of all ages.

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ADULT/CHILD INTERACTIONS
Treehouse study

Group # _____

Date: _____

Time in: _____   Time out: _____

Group Description:

_____

_____

Record level of interaction between the adult and child using following scale:

> 1 = sitting down, no visual contact
> 2 = sitting down, visual contact
> 3 = walking around with child, limited verbal usage
> 4 = walking around with child, limited interaction
> 5 = active participation in habitats with children
> 6 = overactive participation, scaring the child
> 7 = adult touring habitats by themselves

behavior code   explanation (if needed)

1. _____   _____

2. _____   _____

3. _____   _____

4. _____   _____

5. _____   _____

6. _____   _____

7. _____   _____

8. _____   _____

9. _____   _____

10. _____   _____

ADULT/CHILD INTERACTION
Treehouse Study

1. Record first actions of the adult/child group upon entering the TREEHOUSE:

   _____

   _____

2. Total time of adult interaction with child:

   _____

3. Total time in TREEHOUSE:

   _____

4. Person who initiated adult's participation: adult or child

5. Verbal comments between members of the groups (relevant to study):

   _____

   _____

   _____

   _____

   _____

Additional Comments:

APPENDIX B

ADULT/CHILD INTERACTIONS
Interview Questionairre

Group # _____

      This questionairre has been developed to help collect data for a study conducted by myself, Jennifer Studley, for completion of my master's thesis in Environmental Education and Conservation at Rowan College. The interview will not take up very much of your time and will be very helpful. Please answer the following questions to the best of your ability:

1. Are you members of the Philidelphia Zoo?

2. Have you been to the Treehouse before?
      If yes, approximately how many times?
      If no, what were expectations?

3. What made you visit the TREEHOUSE today?

4. How familiar were you with the habitats in the exhibit and did influence the level of participation you had with your child?

5. What are your views on adult/child educational interaction in non-formal education settings? How do you think it affects learning?

6. Do you view the TREEHOUSE as a place to gain educational information?

7. When you visit, do you try and relay educational information to your children?

8. Do you have any sugestions to make the exhibit more adult friendly? (ex. graphics, hands-on interactive learning aids)

Thank You!!