ART FOR THE VISUALLY IMPAIRED AND BLIND: A CASE STUDY OF ONE ARTIST’S SOLUTION

Dissertation

Presented in Partial Fulfillment of the Requirements for
The Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

Lauri Lydy Reidmiller, B.F.A., M.A.

*****

The Ohio State University
2003

Dissertation Committee:
Dr. Patricia Stuhr, Adviser
Dr. Vesta Daniel
Dr. Arthur Efland
Dr. Christine Ballengee Morris

Approved by

_________________________________________
Adviser
Department of Art Education
Copyright by
Lauri Lydy Reidmiller
2003
ABSTRACT

How can visual, cultural art experiences be made accessible to individuals who are visually impaired or blind? This case study examined how a local artist, Queen Brooks, met this challenge by creating an art exhibition for the visually impaired and blind. Using guidance supplied by a group of junior high students who attended the Ohio State School for the Blind, Ms. Brooks created artwork designed to be experienced through touch, smell, sight, hearing, and movement. The show was intended to be open and accessible to everyone.

Data was gathered through a review of pertinent literature, documents, field notes, observations, and semi-structured interviews. The outcomes of the study contribute new information to the field of art education and to the education of blind and visually impaired individuals by providing educators with pragmatic tools and strategies to use in their classrooms and schools that will facilitate learning by students with visual impairments. This study also supplies a conceptual framework for artists, museum personnel, and gallery owners to implement when fostering cultural art opportunities designed to be accessible for all members of the community, including individuals who are visually impaired or blind.
DEDICATED TO THE LOVING MEMORY OF

David Lydy

and

Leslie “Dusty” Brooks
ACKNOWLEDGMENTS

I would like to extend my thanks to the many individuals who have helped in the creation of this dissertation. I wish to express sincere appreciation to Dr. Patricia Stuhr for her academic support and guidance throughout the writing of this dissertation. I also wish to thank the other members of my committee: Dr. Vesta Daniel, for your eternal words of wisdom, Dr. Arthur Efland, for your unending knowledge, and Dr. Christine Ballengee Morris, for your amazing positive energy.

Thanks are especially due to my husband, Dave, who has been there every step of the way. You have always supported, encouraged, and inspired me as an artist, teacher, and scholar. This could not have happened without your unselfish and abiding love and faith you have in me.

I would also like to thank my Mom for her daily phone calls and the loving support she has always given me. You always knew I would make it even when I doubted myself. There just aren’t enough words to convey how much you and Dave mean to me.
This research would not have been possible without the giving heart of Queen Brooks who graciously allowed me to document this amazing journey. You are an incredible person, a talented and gifted artist, and a true friend. I cannot express all of the ways you have enriched my life.

I have also been fortunate to meet many wonderful people at the Ohio State School for the Blind. A very special note of gratitude is extended to Diane Tilton-Mauer, a gifted and compassionate teacher, who allowed us into her classroom. Thank you Diane for your insights and guidance. I would like to offer my appreciation to Gerald Marcum, one of the most supportive and accommodating principals I know. Thank you for always making us feel welcome. I would also like to thank the students involved in this study. It was a privilege to work with all of you.

I wish to express a special thanks to my family and friends for their patience and understanding. Special thanks must be extended to Charles and Vivian Reidmiller, Don and Carolyn Laird, and Margaret Wienholts for your love and support. I look forward to spending more time with all of you. I would especially like to thank Dr. Patty Kahn who spent many hours reading for me. You’ve inspired me ever since the first day I met you.

Finally, my debt must be acknowledged to my support team, on campus Leslie Simon, Savenda Fulton, and Holly Longfellow. I am grateful for your continued encouragement and friendship.
VITA

1988 ..................... B.F.A. Graphic Design and Illustration, 
                      Miami University, 
                      Oxford, Ohio.

1989 – 1991 .............. Graduate Teaching Assistant, 
                      Department of Art Education, 
                      Miami University, Oxford, Ohio.

1991 ..................... M.A. Art Education, Miami University, 
                      Oxford, Ohio.

1991 – 1993 .............. Art Instructor, 
                      Mason City Schools, 
                      Mason, Ohio.

1993 – 1996 .............. Art Instructor, 
                      West Carrollton City Schools, 
                      Dayton, Ohio.

1996 - present ............ Graduate Teaching Associate and 
                      Lecturer, Department of Art Education, 
                      The Ohio State University, 
                      Columbus, Ohio.

FIELD OF STUDY

Major Field: Art Education.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract ................................................... ii</td>
</tr>
<tr>
<td>Dedication ................................................. iii</td>
</tr>
<tr>
<td>Acknowledgments ............................................ iv</td>
</tr>
<tr>
<td>Vita ....................................................... vi</td>
</tr>
<tr>
<td>List of Tables ............................................. xi</td>
</tr>
<tr>
<td>List of Figures ............................................ xii</td>
</tr>
</tbody>
</table>

### Chapters:

1. Introduction ............................................... 1
   - Statement of the problem .................................. 6
   - Literature review ......................................... 7
   - Purpose of the study ...................................... 13
   - Methodology ............................................. 15
   - Methods of data collection ............................. 16
   - Methods of data analysis ................................ 17
   - Significance of the study .............................. 18

2. Review of related literature ............................. 21
   - Definitions ............................................. 22
     - Legal definition ...................................... 23
     - Educational definition ............................... 26
   - Public policy and legislation .......................... 29
     - Individuals with Disabilities Act (IDEA) ... 30
   - Education for the blind ................................ 32
   - Art education for the blind ............................. 41
   - Collaboration ............................................ 44
   - Touch museums ......................................... 46
   - Types of perception theories ......................... 49
     - Haptic perception .................................... 51
     - Visual perception ................................. 53
   - Active and passive touch theory ..................... 54
   - Textural perception theory ............................ 57
   - Conclusion ............................................... 59
3. Methodology .................................................. 60

| Qualitative research                      | 60 |
| Case study                               | 61 |
| Location of research                     | 62 |
| Queen Brooks’s studio                    | 63 |
| The Ohio State School for the Blind      | 63 |
| Diagnostic evaluation services           | 64 |
| Academic curriculum                      | 66 |
| Residential program                      | 67 |
| Teacher training program                 | 68 |
| Diane Tilton-Mauer’s classroom           | 69 |
| Worthington Arts Council Gallery         | 70 |
| The Barth Galleries                      | 70 |
| Participants                             | 71 |
| Queen Brooks                             | 71 |
| The students                             | 72 |
| Limitations                              | 73 |
| Diane Tilton-Mauer                       | 73 |
| Methods of data collection               | 74 |
| Documents                                | 74 |
| Observation                              | 75 |
| Interview                                | 77 |
| Field notes                              | 79 |
| Slides and photographs                   | 79 |
| Videotape recordings                     | 80 |
| Audio recordings                         | 80 |
| Safeguard participants                   | 81 |
| Subjectivity of researcher               | 82 |
| Methods of data analysis                 | 83 |
| Content analysis                         | 83 |
| Nud*ist computer program                 | 86 |
| Content analysis and Nud*ist technique   | 89 |
| Validity                                 | 90 |
| Conclusion                               | 91 |

4. Presentation and analysis of the process .......... 92

| Process                                  | 93 |
| Initial visit                            | 94 |
| Sharing artwork                          | 105 |
| Spirit stick workshop                    | 113 |
| Production                               | 120 |
| Materials                                | 120 |
| Sketches                                 | 125 |
| Assemblages                              | 125 |
| Media                                    | 133 |
| Thermoform technique                     | 137 |
| Texture                                  | 140 |
| Color                                    | 143 |

viii
Dimensions ........................................ 147
Construction ....................................... 148
Intended audience ................................ 151
Collaboration ...................................... 153
Display ................................................ 158
Hands On opening .................................. 160
Conclusion .......................................... 167

5. Presentation and analysis of the students’ experiences .. 168

Preparations ........................................ 169
Intended audience ................................ 174
Gallery orientation .............................. 175
Practical experience ............................. 177
Critique of orientation aid .................... 183
Field trip to the Barth Galleries ............... 185
Initial response ................................... 186
Visual exploration ............................... 190
Haptic exploration ............................... 191
Tactile perception ............................... 195
Texture ............................................. 196
Temperature ....................................... 198
Auditory perception ............................. 200
Olfactory perception ............................. 202
Duration .......................................... 203
Sighted students ............................... 203
Blind students ................................... 205
Proximity .......................................... 207
Critiques .......................................... 209
Description ....................................... 210
Interpretation ..................................... 212
Evaluation ......................................... 214
Conclusion .......................................... 218

6. Implications and recommendations of the study .......... 220

Insights ............................................ 221
Pedagogy .......................................... 226
Teachers ........................................... 227
Artist in the classroom ......................... 227
Investigating resources ....................... 229
Individual Education Programs .............. 232
Auditory approaches ........................... 233
Tactile approaches .............................. 236
Demonstration techniques ..................... 240
Multi-sensory approaches ..................... 242
Art programs .................................... 243
Technology ....................................... 246
Guidelines for artists ......................... 249
Suggestions for art museums and galleries .... 251
<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>277</td>
</tr>
</tbody>
</table>

Index tree
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Timberland</td>
<td>280</td>
</tr>
<tr>
<td>2</td>
<td>Jingleman</td>
<td>281</td>
</tr>
<tr>
<td>3</td>
<td>Celestial Sundial</td>
<td>282</td>
</tr>
<tr>
<td>4</td>
<td>Mask of My Familiar</td>
<td>283</td>
</tr>
<tr>
<td>5</td>
<td>Conjurer Woman</td>
<td>284</td>
</tr>
<tr>
<td>6</td>
<td>Labyrinth</td>
<td>285</td>
</tr>
<tr>
<td>7</td>
<td>Soft Touch</td>
<td>286</td>
</tr>
<tr>
<td>8</td>
<td>Sleeping Serpent I</td>
<td>287</td>
</tr>
<tr>
<td>9</td>
<td>Sleeping Serpent II</td>
<td>287</td>
</tr>
<tr>
<td>10</td>
<td>Shaman Stick</td>
<td>288</td>
</tr>
<tr>
<td>11</td>
<td>Spirit Stick</td>
<td>289</td>
</tr>
<tr>
<td>12</td>
<td>Sleepy Head</td>
<td>290</td>
</tr>
<tr>
<td>13</td>
<td>Gentle Wind I</td>
<td>291</td>
</tr>
<tr>
<td>14</td>
<td>Gentle Wind II</td>
<td>292</td>
</tr>
<tr>
<td>15</td>
<td>Three Shell Dancers</td>
<td>293</td>
</tr>
<tr>
<td>16</td>
<td>The Wink I</td>
<td>294</td>
</tr>
<tr>
<td>17</td>
<td>The Wink II</td>
<td>295</td>
</tr>
<tr>
<td>18</td>
<td>Melody’s World</td>
<td>296</td>
</tr>
<tr>
<td>19</td>
<td>Silent Voice</td>
<td>297</td>
</tr>
<tr>
<td>20</td>
<td>Things Unknown</td>
<td>298</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>21</td>
<td><em>Sunfish</em></td>
<td>299</td>
</tr>
<tr>
<td>22</td>
<td><em>Party Memories</em></td>
<td>300</td>
</tr>
<tr>
<td>23</td>
<td><em>The Embrace</em></td>
<td>301</td>
</tr>
<tr>
<td>24</td>
<td><em>Mother Remembering</em></td>
<td>302</td>
</tr>
<tr>
<td>25</td>
<td><em>Queen Brooks Working on Timberland</em></td>
<td>303</td>
</tr>
</tbody>
</table>
"A loss or lack of vision does not deny an individual of all aesthetic pleasures since vision is only one of the senses through which any of us perceive the world around us" (The American Foundation For the Blind, 1972).

Most of the artworks in local galleries and art museums are to be viewed visually, and many are protected in display cases or under glass. In order to preserve and protect the original art that is not under glass, museums have established a policy that artwork should be viewed and not touched. “Charged with the preservation of irreplaceable works of art, museums around the world must maintain a no touching policy” (Kokot, 1999, p. 8h).

As an art teacher in the public schools for many years, I was reminded before field trips through letters from the art museum to instruct my students not to touch the artwork. When we would arrive at the museum, the docents would reinforce this rule with a gentle reminder. The signs on the walls would also supply us with visual reminders, including both written and symbolic
signs, as we traveled from gallery to gallery. The explanation that we received made sense to my students: Oil from your fingers could damage the artwork. However, there were times when even I wanted to feel the softness of the woven cloth being displayed or the smooth shape of the Egyptian vessel.

For students who are visually impaired or blind, such field trips offer little or no information beyond verbal descriptions about the appearance, shape, or feel of the actual pieces of art. Students who are blind are at a serious disadvantage in experiencing works of art, due to the fact that they are not allowed to touch them. According to Berthold Lowenfeld (1973), blind students must rely upon the use of their remaining senses to develop and conceptualize a work of art and “touch, kinesthetic experiences, and audition are the most important sensory avenues used for this purpose” (p. 34). They experience the world primarily through their sense of touch. A blind individual “can gain a knowledge of the spatial qualities of objects only by touch observations” and, in order to do so, “direct contact must be made with the object to be observed” (Lowenfeld, 1973, p. 35). He further explained that the sense of touch not only conveys spatial form but also “surface quality, texture, resilience, temperature, weight, and pliability” (p. 35).

It is necessary that there be opportunities for blind students to experience art work in a way that is meaningful to
them. One such opportunity was made available to a group that included junior high students from the Ohio State School for the Blind, a residential school located at 5220 North High Street in Worthington, Ohio, and other visually impaired individuals living in the community. The opportunity was made possible through the efforts of a local Columbus artist, Queen E. Brooks. Ms. Brooks received her Masters in Fine Arts from The Ohio State University. After graduation she became a drawing and painting instructor in the Art Department at The Ohio State University. At present, Ms. Brooks teaches classes in painting and two-dimensional art at Otterbein College and exhibits her own work.

The idea to create an inclusive art exhibit for individuals with visual impairments was first introduced to Queen Brooks during a radio interview in 1992. She was on the show to discuss her Masters of Fine Arts exhibition. The announcer, who was blind, asked if he could handle any of her artwork. After she granted him permission to touch the art pieces, she made a personal commitment that someday she would create a show for individuals who are visually impaired or blind. Ms. Brooks recalls that “the seed was planted, and I thought it was a good idea but, I didn't jump on it at that time” (Q. E. Brooks, personal communication, November 25, 2001).

Then in 1998, that opportunity presented itself when the Worthington Arts Council offered a grant for their Art Exhibition Program. Applicants were to submit slides of their work for the
competition. Ms. Brooks was selected as the recipient of the award and was commissioned to create an art exhibit for the Art Council. Shortly after receiving the award, Ms. Brooks proposed the idea, to the Visual Arts Project Director for the Worthington Arts Council to create an exhibit for individuals who were visually impaired or blind. She suggested that Ms. Brooks contact the Ohio State School for the Blind. Ms. Brooks called the school and spoke with the Principal, Mr. Gerard Marcom. He suggested that she contact Mrs. Diane Tilton-Mauer, because she was one of the few teachers who used art activities as a teaching tool. Mrs. Tilton-Mauer explained, “I heard about Queen from the Principal and he said she was interested in observing and perhaps working with some of our students” (D. Tilton-Mauer, personal communication, November 11, 1998).

During their initial conversation Ms. Brooks had the opportunity to discuss her ideas about the show with Mrs. Tilton-Mauer. “I met Queen and it sounded like it would be a really workable situation” (D. Tilton-Mauer, personal communication, November 11, 1998). Arrangements were made for Ms. Brooks and myself to work at the school with a small group of Junior High-age students. I received permission from Ms. Brooks, Mrs. Tilton-Mauer, Mr. Marcom, and the parents of the students to record these interactions at the school. In addition, I obtained Ms. Brooks consent to document the processes she used to create the artwork for the show.
Along with her experience at the radio interview, there were two other reasons Ms. Brooks created the show. The first one was the discovery that she had glaucoma and her fear of facing this disease. “I wanted to find out about blindness; having the opportunity to go to the School for the Blind to interview and work with children helped me deal with the possibility of losing my sight” (Q. E. Brooks, personal communication, November 25, 2001). Her fears subsided after she met some of the students at the Ohio State School for the Blind and asked them questions about their visual impairments. “Seeing how positive they were about their condition made me feel a lot better about the possibility of being able to continue to work in some fashion if I did become blind” (Q. E. Brooks, personal communication, November 25, 2001).

During Ms. Brooks’s initial meeting with the students, she introduced herself and explained her plans for the show. Ms. Brooks also discussed her artwork with the students. During this conversation she recalled that the students “told me that they wanted to enjoy and experience the visual arts, and that they really didn't feel like they had experienced it even though they were allowed to go to the museums” (Q. E. Brooks, personal communication, November 25, 2001). The students explained that the trips to the Columbus Art Museum were not very interactive. They were only allowed to touch a few pieces of art with gloves on their hands.
These conversations with the students motivated Ms. Brooks to create an art show for them. "The idea for the show has been brewing for a long time. Now is the time for fruition" (Q. E. Brooks, personal communication, November 1, 1998). Ms. Brooks wanted to give the students some art that they could feel free to touch. "I was just trying to give back to the students the happiness they gave me. I wanted them to know that somebody actually cared about their concern" (Q. E. Brooks, personal communication, November 25, 2001).

The process to create the show involved two to three visits to the Ohio State School for the Blind every month to document Ms. Brooks’s interaction with the students. The meetings averaged 45 minutes to an hour and took place during the period from October 1998 until June 5, 1999. These visits enabled Ms. Brooks to obtain information about her intended audience. This study follows the journey Ms. Brooks took with the group of students from the Ohio State School for the Blind to create the show Hands On that was enlarged and renamed Touching Revisited.

Statement of the Problem

There is a need to create art exhibits that can be experienced meaningfully by visually impaired and blind audiences. These shows should be tactile, auditory, and perhaps even include other sensations. My central research questions are:

1) What are the processes through which Queen Brooks, a sighted artist, conceptualized and created art forms for a group of
junior high students who are visually impaired or blind and attending the Ohio State School for the Blind? 2) How did the students involved in this study, who are visually impaired or blind, use their senses to experience the works of art created for the show Touching Revisited? 3) What insights and information did Ms. Brooks gain through working with the students involved in this study and how might this information be useful to others, especially art educators and artists?

Literature Review

The literature that influenced the development of this dissertation has been organized into six areas: Public Policy and Legislation, Education for the Blind, Art Education for the Blind, Collaboration, Touch Museums, and Perception Theories. In the 1970’s landmark federal laws were passed to help ensure civil rights and education for people with disabilities. In 1973, the Rehabilitation Act was enacted and, according to Wehman (1997), this law prohibits discrimination by an agency or facility receiving federal funds against people with disabilities. This Act guarantees that individuals with disabilities are entitled to receive funds and are entitled assistance in gaining employment, and access to rehabilitation facilities and programs. With the passage on November 29, 1975, of Public Law 94-142, The Education for All Handicapped Children Act, agency and school personnel are required to implement major changes in curriculum and procedures.
The regulations for the Individuals with Disabilities Act (IDEA), also known as PL 101-476, became law in 1990. IDEA was the reauthorization of PL 94-142. IDEA mandated that a child with a disability would receive a free and appropriate education (FAPE). According to IDEA 20 U.S.C. Sec. 1401 [3] [A] [i] [ii] (1997), the term “child with a disability” meant a child with, "mental retardation, hearing impairment, speech or language impairments, visual impairments, serious emotional disturbances, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities and who, by reasons thereof, needs special education and related services."

Susan Rodriguez, an educator (1984), explained the criteria a child must meet in order to obtain educational benefits and services available under Public Law 94-142, Education for All Handicapped Children Act. The child must have one or more disabilities or require special education and related services. According to the National Art Education Association (1989), visually handicapped is defined as “a visual impairment that, even with correction, adversely affects a child's educational performance. The term includes both partially sighted and blind children and meets the criteria established for P.L. 94-142” (p. 12).

Children suspected of having a visual disability undergo a comprehensive assessment of their current abilities and level of functioning by an interdisciplinary team. According to Hallahan
and Kauffman (1986), the committee should consist of an administrator, a specialist with knowledge in the area of the suspected disability, a classroom teacher, and the parent. Following a full evaluation of the child's educational needs, the team determines whether or not the child requires special education and related services.

If the evaluation confirms that the child meets the criteria, then the state and local government must provide a free and appropriate public education for the child. The interdisciplinary team must also develop an Individual Education Program (IEP) for the student. The IEP is a planning tool that documents the educational program that is developed by an interdisciplinary team. The IEP specifies the required goals, objectives, and timeframe necessary to meet the student’s identified needs. These educational goals and standards are adjusted to the student’s ability and are continually evaluated.

The review of literature revealed that art teachers are usually not included in this process. Anderson and Morreau (1984) advise that these teachers should request that they become a member of the interdisciplinary team and participate in the creation of the IEPs. They should also be allowed to include planning and evaluation procedures for art. This would assure that the art program be a vital addition to the student’s overall educational program.
While the Education for All Handicapped Children Act (P.L. 94-142) and Individuals with Disabilities Act (IDEA) remain the major legislation affecting the education of students with disabilities, since the mid-1990s there has been a movement towards eliminating special educational placements and residential schools in favor of complete integration of all children into regular education programs that has led to a heated debate between professionals.

The goal of inclusion schools is not to focus on any particular group of students, but to meet the needs of every student. According to Lieberman (1996), in an inclusive classroom, students are viewed as individuals with their own specific needs, interests, and capabilities. Johnson & Pugach (1996) identified inclusion education as an opportunity to support individual diversity, including a range of disabilities.

A review of literature on the area of collaboration was also investigated because it was necessary to examine how the students at the Ohio State School for the Blind and Ms. Brooks established a working relationship. Mattessich & Monsey (1992) define collaboration as a process that allows one or more individuals to reach goals that otherwise may not be achieved as effectively separately. This partnership includes sharing responsibilities, resources, time, and rewards. The members must be accountable for their own involvement in the process. Westmeyer (1988) identifies the importance of communication in a
collaborative partnership. She advises that a safe working environment must be established in order to achieve a free exchange of ideas among members of the group.

Since the show was displayed in a public gallery space setting, it was important to examine the programs available in museums and other public art spaces. The review of literature examined the opportunities and experiences that exist to meet the needs of individuals who are blind or visually impaired. It also presents the adaptive materials and environmental modifications that museums have implemented to meet the needs of this population.

It was also important to examine theories of perception because the artwork for the show was designed to be experienced through the sense of touch. Michael (1983) defines the term perception “as becoming mentally aware of something” (p. 73). Margaret W. Matlin (1983), a professor from State University of New York, defines touch as the “sensations produced by deformation of the skin” (p. 204). Kenshalo (1978) defines touch as “a single indentation” and vibration as “a repeated skin indentation” (cited in Matlin, 1983).

To help guide my understanding of touch perception, I investigated the following three areas: Haptic Theory, Active and Passive Touch Theory, and Textural Perception Theory. According to Matlin (1983) “the perception of objects by touching them is called haptic perception” (p. 210). She introduces two types of
touch, “passive” and “active.” Passive touch occurs when an object is placed on the skin of a person. According to J.J. Gibson (1962), during passive touch the hand stays stationary and makes no voluntary movements. In order for the sense of touch to convey messages to the brain, Dr. Natalie Barraga (1973), a professional in the vision field, confirms that the skin must either be in contact with the stimuli or movement must occur in the body. Katz (1925) notes that this contact allows an individual to detect properties about that object.

Active touch consists of “self-produced movement that allows an individual to obtain objective information about the world” (Gibson, 1966, p. 7). This movement involves the stimulation and manipulation of the receptor systems in the muscles, tendons, and joints. According to Gibson (1962) active touch provides valuable information about objects in the world and offers individuals who are blind with alternatives to visual information. Without active touch our “Haptic world would lose its characteristics objectivity and its manifoldness, and the blind would be deprived of their perceptual ability” (cited in Revesz, 1950, p. 64).

Textural perception was another theory I examined during my literature review. Susan Lederman (1982), a professor of psychology, defines textural perception theory as “experiencing any number of surface qualities, for example roughness, smoothness, hardness, stickiness, slipperiness, oiliness,
coarseness, and graininess” (p. 131). Lederman looked to David Katz (1925), who was a major figure in the study of the psychology of perception, for the connection between surface texture, or as he termed it, “modifications” and its perception through vibration and motion.

This section presented a brief overview of the literature that influenced the formation of this dissertation. It included information on the public policies and legislation that effect the education for students who are visually impaired or blind. It presented the criteria a student must meet in order to obtain services and benefits available under Public Law 94-142. This section also discussed some of the struggles facing educators in the schools and the controversy surrounding inclusion education. Finally, this section presented information on collaboration, touch museums, and a variety of perception theories.

Purpose of the Study

The purpose of this case study is to explore the process Queen Brooks used to create the show Touching Revisited, from the conceptual stage through the exhibition. The study also investigates and documents the research, techniques, methods, and resources she used to develop the final art forms. It also examines Ms. Brooks’s interaction with a group of junior high students at the Ohio School for the Blind as she developed her ideas for this show.
The show consisted of 24 mixed-media artworks. The pieces ranged in size and varied in shape and texture. The artwork for the show was designed to be experienced through touch, smell, sight, hearing, and movement. The exhibit was on display from May 8, 1999 until June 15, 1999. Arrangements were made for the group of students from the Ohio State School for the Blind, who helped Ms. Brooks, to travel to the gallery. On June 1, 1999, the students took a field trip to the gallery to experience the show for the first time. This study documents the interaction between the artist and the students and between the students and the artwork.

My research aids in filling the existing gap of knowledge in the field of art education dealing with art curriculum for the blind and visually impaired. This study will provide general educators and art educators with a resource that could be utilized in their own classrooms or communities. Through my examination and documentation of how the students involved in the study experienced the art forms, guidelines will be created to aid teachers in developing art lessons, curricula, and techniques to meet the needs of students who are visually impaired or blind.

Through my literature review I have discovered that there is a need for art exhibitions that are either specifically for the blind community (i.e. consisting of art that can be experienced through senses other than sight) or for visual art exhibitions that have been adapted by the addition of auditory or
Braille explanations of the artwork and thus allow the artwork to be “viewed”. My research will provide guidelines to create opportunities to expose students who are visually impaired or blind to actual works of art. Artists and museums can use this research to inspire and develop artwork and art exhibitions that are accessible to this audience.

Methodology

I use qualitative methodology in this study because, according to Merriam (1988), it emphasizes “process, discovery, insight, understanding, and context” and contributes “to the knowledge base and practice of education” (p. 3). Creswell (1994) maintains that in qualitative methodology categories emerge from information rather than from identification “a priori by the researcher” and “this emergence provides rich context-bound information leading to patterns or theories that help explain the phenomenon” (p. 7).

The design of my study is a case study. A case study refers to research that focuses on a single case or issue, or in Creswell’s (1994) words, “explores a single entity or phenomenon bounded by time and activity” (p. 12). He elaborates upon this definition to explain that case study research is also about forming questions rather than finding answers. He goes to say that it is consistent with an “inductive model of thinking,” and that “a theory may emerge during the data collection and analysis phase of the research” (p. 94).
My study is a case study of Queen E. Brooks, a sighted artist, who worked with a group of students from the Ohio State School for the Blind to develop artwork for one specific exhibition. More specifically, the study examines the process Ms. Brooks went through in conceptualizing and creating art forms for a visually impaired and blind audience, and how the students from the Ohio State School for the Blind interacted with the artwork. Since my study examines a specific phenomenon, the creation and exhibition of the show *Touching Revisited*, the case is a single-bound system.

**Methods of Data Collection**

My primary data-gathering method was the interview. My interview technique was closest to that of the semi-structured interview. In semi-structured interviews, the interviewer asks questions about specific topics and allows the conversation to flow and dictate the information that is obtained. According to Reinharz (1992), this form of data collection differs from surveys or structured interviews because it encourages “free interaction between the researcher and interviewee” and offers “opportunities for clarification and discussion” (p. 18).

Interviewing is a method of collecting data through direct verbal interaction between individuals. Cohen and Manion (1980) assert that one advantage to interviewing is that it has the potential to gather more information than any other method of data collection. Along with factual knowledge, interviewing makes
it possible to find out what a person knows and thinks. Reinharz (1992) emphasizes another advantage of interviewing as a method of obtaining access to peoples thoughts and memories, in their own words, rather than the words of the researcher. She also praises semi-structured interviews as a method that distributes the power and control of the process evenly between the interviewee and the researcher.

The information from my interviews was recorded using field notes, videotape, and audiotape. Additional information was obtained from documents and observations. When I interviewed Mrs. Tilton-Mauer, I used a tape recorder and also took notes. I used field notes, slides, and audiotapes when I documented the interaction between Ms. Brooks and the students.

Methods of Data Analysis

I have used content analysis and identified categories, emergent patterns, themes, and issues from the data collected. Good (1966), defines content analysis as a "multipurpose research method useful when describing quantitatively and objectively any kind of verbal data" (p. 268). I used content analysis because my data consists primarily of forms of communication, and according to Stewart and Shamdasani (1998), data used in content analysis includes human speech and various forms of nonverbal speech.

The literature on content analysis provides numerous computer-assisted approaches to the analysis of data. According to Stewart and Shamdasani (1998), computer programs maintain the
formal aspects of content analysis but greatly reduce the cost and time required by the traditional methods (cited in Bickman and Rog, 1998). Many computer programs have the capacity to code, organize, and retrieve large amounts of data. They can also automate the cutting and pasting techniques, which reduces the amount of time needed to organize the data.

Significance of the Study

The implementation of Public Law 94-142 has resulted in a greater number of students in public school classrooms who are totally blind or who have very low vision. According to Anna M. Swenson (1987), a Resource Room teacher of visually impaired students in Fairfax County public schools, these children are often involved in very challenging instructional programs: “They must compete academically with their sighted peers as well as master Braille and motor, mobility, self-help, and social skills” (p. 120).

The goal of educational programs is to teach the students with visual impairments the necessary skills to make the transition from school to a vital member of the community. The educational system has the obligation to prepare all students for maximum personal, social, community, and vocational training. Active citizenship and involvement in the community are also goals of our educational system.

The needs of children who are visually impaired or blind are similar to those of sighted students. The curriculum for all
children should be directed toward helping them attain their maximum potential and realize their own personal objectives. Students with visual impairments have the right to the same educational opportunities as sighted individuals, but many times these students are not given the same exposure to art. Viktor Lowenfeld (1957) commented that blind students' educational programs rarely include a program of art. He wrote

> It is difficult to conceive that during an era in which art education - especially in the elementary classroom - is considered an integral part of the total curriculum, most of the schools for the blind still think of art as a preparatory stage for professional art training and therefore out of the question for the schools for the blind. (p. 431)

Campbell, King, & Robson (1975) stress the importance and need for art in the education of blind and visually impaired children. "Art activities provide one means of enhancing any child's creativity and self-esteem while reinforcing fine motor, perceptual, cognitive, and social skills" (cited in Swenson, 1987, p. 120).

This study is limited in the fact that it examines a unique situation. The focus of my research is on one specific group of students in a residential school setting and the creation of an art exhibit. I realize that the findings from this study cannot be duplicated, but I feel they can provide needed insights for curriculum development and education practice that offer a better educational experience for students who are visually impaired or blind.
I believe that certain generalizations can be made from this case study. I think the use of sensory activities and auditory approaches could produce similar educational benefits in art rooms and regular classrooms. It is my hope that general educators, art educators, artists, and museum and gallery owners will be able to apply this information in developing curricula and exhibitions for visually impaired and blind individuals.

It is also the intention of my research to not only contribute to the written resources about how art can be experienced through the sense of touch, but also to expand on the written resources that are currently available about Queen E. Brooks. I believe that investigating and documenting the development of this show will contribute new information to the field of art education and also to the education of blind and visually impaired students. My own difficulty in finding material on art programs and exhibitions, for students who are visually impaired and blind, indicates that more research on this subject is needed.
CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter presents a review of the literature that influenced the formation of this dissertation. It is organized into seven main areas: Definitions, Public Policy and Legislation, Education for the Blind, Art Education for the Blind, Collaboration, Touch Museums, and types of Perception Theories. The chapter begins with a summary of the most commonly used legal and educational definitions of the terms blind, blindness, and visual impairment. The Public Policy and Legislation section examines information pertaining to the establishment of Public Law 94-142, the Education of All Handicapped Children Act, and Public Law 101-476, the Individuals with Disabilities Act (IDEA).

The section entitled Education for the Blind, describes the issues surrounding inclusion education for students who are identified as exceptional. The Art Education for the Blind portion of this chapter offers a description of some of the obstacles that art teachers may encounter in the public schools.
This section also gives some insight into the difficulties and benefits of including art in a student’s individualized education program (IEP).

The next section of the literature review examines guidelines for establishing working partnerships. It also identifies strategies related to communication, investment, and ownership as they pertain to a collaborative project. The benefits of these partnerships are also included.

The Touch Museums section is devoted to examining the development of museums and exhibitions designed for individuals who are blind. This section presents both an historical and contemporary look at tactile exhibits. It also examines the issues surrounding Section 504 of the Federal Rehabilitation Act of 1973.

The literature review presented in this chapter concludes with an examination of different types of perception. This discussion focuses on the contributions of some select theorists. These include visual and haptic theories and theories focusing on touch and textural perception.

Definitions

This section presents definitions of the terms blindness and visual impairment. These definitions vary according on the discipline or agency providing services. The terms blind, blindness, and visual impairment are generally defined in two ways: legally and educationally.
Legal Definition

In 1975, Public Law 94-142, the Education for All Handicapped Children Act, became law. The purpose of the law was to assure that all handicapped children have available to them free appropriate public education and services. One group identified and served by PL 94-142 includes individuals with sensory impairments.

National, state, and local agencies needed criteria for identifying those individuals entitled to these services. The criteria for the classification of the term blind refer to a person who is without the sense of sight or who has less than 1/10 of normal vision in the more efficient eye when refractive defects are fully corrected by lenses. Some individuals who are blind may have some light perception. Individuals who are blind are usually referred to as legally blind.

According to Scholl (1986), the classification for legal blindness is based on a clinical measurement of the amount of vision. This clinical measurement must follow the guidelines adopted in 1934 by the American Medical Association. The term legal blindness is generally applied to someone who has central visual acuity, with corrective lenses, of 20/200 or less in the better eye, or if there is a visual field defect in which the peripheral field is diminished to no greater than 20 degrees.

A visual acuity of 20/200 means that the eye sees at 20 feet what an eye with normal vision sees at 200 feet. The
American Foundation of the Blind (2001) defined visual acuity as the sharpness of vision determined by a person's ability to discriminate fine details. Visual acuity is measured by using specially devised tests and charts. Scott (1982) identifies one chart that is commonly used for measuring visual acuity, the *Snellen Chart*, which contains letters of the alphabet of increasing sizes arranged in rows. The lowest line on the chart contains the smallest letters and the letter in the top row is the largest. The characters on the bottom line represent 20/20 vision; the single large letter at the top represents 20/200, the threshold of legal blindness (Scholl, 1986). With the *Snellen Chart*, visual acuity is generally measured with a person seated 20 feet away from the chart. Scholl explains that a person who has normal visual acuity has 20/20 vision, which means that at 20 feet the person can see the line of letters that people with normal sight see from 20 feet.

The second part of the definition of legal blindness includes field restriction, which refers to the ability to see peripheral vision. Scott (1982) describes an exercise that demonstrates a normal and restricted field of vision. Individuals with normal peripheral vision with their arms extended out to their sides at shoulder height were able to see their hands or fingers move, although they were facing straight ahead. This is approximately 180-degree field of vision. An individual with a
field of vision no greater than 20 degrees at the widest diameter is considered legally blind. A 20-degree peripheral vision is similar to looking through a tube.

The legal definition of visual impairment is central visual acuity between 20/70 and 20/200 in the better eye with correction or a physical eye condition that affects visual functioning to the extent that special placement, materials, and services are required in an educational setting. The impairment of vision is determined through an eye examination, including assessment by an appropriate vision specialist.

The American Foundation for the Blind (2001) defines the term visual impairment as vision that cannot be fully corrected by ordinary prescription lenses, medical treatment, or surgery. According to Barraga (1983) visual impairment denotes any "medically diagnosable condition in the eye(s) or visual system that affects the structure or functioning of the tissues so that less than normal vision is the result" (p. 23).

This section presented the legal definitions of the terms blind, blindness, and visual impairment. The federal and state governments use these definitions in determining an individual’s eligibility for services. These include medical benefits, tax deductions, transportation, vocational training, financial aid, counseling, rehabilitation, and educational services.
Educational Definition

Many educators have found the legal terminology and classification of the termblind to be inadequate. They argue that measuring visual acuity and peripheral vision does not predict how an individual will function. Scholl (1986) indicates that the legal definition does not take into account variations in visual functioning. In addition, the determination of legal blindness relies only on the measured distance of vision. Barraga and Erin (1992) note that these designations based on measures of visual acuity might have little educational relevance, just as an IQ score will not always be an accurate predictor of academic achievement.

Barraga and Erin (1992) find that for educational purposes, the term blind refers to an individual who has either no vision or at the most some light perception. Individuals who are blind receive so little information through their eyes that they must use their other senses. Canton (1981) agrees that educationally blind children learn without the use of vision and must rely on tactile and auditory materials. According to Anderson (1994), these materials include the use of Braille and aural reading methods.

The federal definition under the regulations of the Individuals with Disabilities Act (IDEA) defines visual impairment for educational services as any condition that exists even with the best correction and treatment, which adversely
affects the individual’s educational performance. Barraga (1983) defines visual impairment as any optically or medically diagnosable disorder of the eye or visual system that causes less than normal vision. The impairment may affect the retina, optical nerve, or central part of the eye. The impairment may be minor and correctable or severe and permanent. She indicated that the term, visually impaired, was also widely used to denote the total group of individuals who have impairments in the structure or functioning of the visual sense organ of the eye. Visually impaired was identified by Barraga and Erin (1992) as individuals who require special educational provisions because they are blind or have low vision.

Corn and Ryser (1989) identifies low vision as severely limited vision even after correction. According to Lewis and Doorlag (1999), teachers must evaluate and assess their student’s visual ability in order to know which approach or materials will be most effective to use with the student’s remaining vision. Corn and Ryser (1989) offer the following approaches to aid students with low vision: They believe that the student’s experience in the classroom could be improved through the use of optical aids, educational materials, or environmental modifications.

Good distance visual acuity is important in moving around the environment, but for most educational instruction near vision is more critical to the student’s performance of certain tasks.
Students with low vision are able to see objects and materials at very close range. These students learn by using their residual vision and can benefit from using convex optical devices such as magnifying glasses, bifocal lenses, and telescopic lenses. Such children are able to use their vision in school situations when assistance is provided in the form of large print books, raised or embossed materials, tape recorders, taped books, or Braille materials. Environmental considerations include providing adequate lighting, placing these students close to the chalkboard, and placing them in close proximity to the teacher. All of these strategies can help students use their remaining vision to its fullest capacity.

Many professionals recognize the limitations of the legal definitions and favor the educational definitions. As educators began to view the legal definitions based on measured visual acuity as less meaningful in planning educational programs, they developed more functional definitions of visual impairment and blindness. They also prefer to use the term visually impaired in the educational setting. Scholl’s (1986) study indicates that most educators prefer to use the term visually impaired instead of legally blind, low vision, or partially-sighted in relation to students.
Public Policy and Legislation

The passage on November 29, 1975, of Public Law 94-142, the Education for All Handicapped Children Act, required agency and school personnel to implement major changes in programming and procedures. The purpose of the law is to assure that all handicapped children have available to them a free, appropriate public education (FAPE). School districts are required by P.L. 94-142 to insure that programs are available to meet the needs of children with disabilities for special education and related services. These laws have resulted in changes in the way services are provided.

Perhaps the most controversial provision of P.L. 94-142 is the requirement that states provide for students with disabilities between the ages of three and twenty-one a free and appropriate education in the least restricted environment (LRE) possible. The rationale for LRE is that students should be placed in educational settings where they can receive schooling in the most appropriate type of learning environment without unnecessary restriction. According to Heward (2000), the least restricted environment (LRE) requires educating children with as few restrictions as possible.

The Joint Organizational Effort Committee (1993) identifies the least restricted environment (LRE) as a principle rather than a physical location. The LRE is an appropriate school setting which matches the needs of the student by providing meaningful,
challenging, and realistic expectations. It should also maximize opportunities for achievement and aid in developing healthy self-esteem. The definition of LRE is left to the discretion of the Principal, educational team, parents or legal guardians, or school district, each with their own opinion and interpretation, which has resulted in a variety of programs. Placement options vary as to the degree of inclusion, and must be determined on an individual basis.

**Individuals with Disabilities Act (IDEA)**

The regulations for the Individuals with Disabilities Act (IDEA), also known as P.L. 101-476, became law in 1990. IDEA was the reauthorization of P.L. 94-142. IDEA mandates that a child with a disability would receive a free and appropriate education (FAPE). Individuals with sensory impairments comprise one of the groups identified and served by P.L. 94-142 and IDEA. Since the passage of these laws, some progress has been made in meeting national goals for developing and implementing effective programs and services for students with visual impairments.

The Individuals with Disabilities Act also requires a comprehensive assessment of the child’s current abilities and level of functioning by an interdisciplinary team. The Individual Education Program (IEP) also includes a list of the related services provided to the student. These services are provided to ensure that students attain the goals and objectives listed on their Individual Education Programs. Examples of related services
include: occupational therapy, physical therapy, psychological services, counseling, social services, and special transportation.

In 1994, the Council of Schools for the Blind (COSB) and the Association for Education and Rehabilitation of the Blind and Visually Impaired (AER) proposed changes to the federal law and regulations. IDEA amended PL 94-142 to include Orientation and Mobility (O&M) services. O&M provides techniques to help individuals who are visual impairments or blind orient themselves and travel independently in their environment. Hill (1986) defines the term orientation as the ability to use one’s senses to establish one’s location in relation to all significant objects in one’s environment. He defines mobility as having the capacity and facility to move about in one’s environment. These services are provided at no cost to parents or students. Another provision of IDEA is in the area of assisted technology devices and services. Under the mandates of IDEA, the government funds assistance in the form of computers and specially designed adaptive equipment that enables students who are visually impaired or blind to function more effectively in the classroom.

Idea also mandates that a continuum of alternative placements (CAP) be made available to the students. Continuum of placements refers to a variety of educational settings in which a child with a disability would receive a free and appropriate
education (FAPE). Alternative placements must include self-contained classrooms, residential schools, and regular classes. In addition, supplementary services, such as itinerant or resource room instruction, must be provided in conjunction with regular class placement.

Before P.L. 94-142, many of these children were either denied access to education or placed in separate schools or institutions. IDEA has been the force behind educating children in the least restricted environment. The mandate of the law has given to individual states and local school districts the power to interpret the LRE clause. Through such efforts many of these students are now being educated in their own neighborhood schools.

Education for the Blind

Both Public Law 94-142 and IDEA have helped establish a movement toward teaching more exceptional students in regular classroom through mainstreaming. Exceptionality is defined by Gollnick and Chinn (1994) as “individuals with disabilities and individuals who are considered gifted” (p. 152). The term exceptional children is defined by Heward and Orlansky (1992) as an inclusive term that refers to children with “learning and/or behavior problems, children with physical disabilities, and children who are intellectually gifted” (cited in Gollnick and Chinn, 1994).
Viktor Lowenfeld, a widely-acknowledged art educator, (1957) offered suggestions for the education of exceptional students. These coincide with the guidelines set forth by the establishment of P.L. 94-142 for the creation of the most supportive and least restrictive environment possible. He maintains that it is the aim of good educational methods to set free all the abilities in an individual and direct these abilities into the most productive channels. This involves removing all barriers that might stand in the way of the individual's development. In his words,

> An essential part of education consists of removing such inhibitions so that the enrichment of knowledge and experience can be achieved with the least possible effort, and is of even greater importance in teaching those who cannot make full use of their senses. (p. 433)

An area of conflict that is highlighted in the literature as it relates to exceptional children is the issue of inclusion. Full inclusion is not a federal or state law, but is rather a philosophical model that reflects the influence of the civil rights movement and the Regular Education Initiative (REI). According to Kauffman (1995), the REI approach emerged as an effort to move beyond the narrow bounds of special education and to explore alternatives for educating all students. This movement intended to merge special education and regular education into one learning environment.
The REI encourages schools to consider restructuring their services for students with disabilities in order to provide assurance of human rights. Inclusion means that students with disabilities attend public schools. In the inclusion approach, educational support services occur in the regular classroom and not in a segregated or self-contained special education classroom. Stainback and Stainback (1996) agree that full inclusion calls for reform of practices that exclude and segregate individuals with disabilities.

Advocates of inclusion maintain that the general education classroom is the most appropriate placement for all students with disabilities. Karagiannis, Stainback, and Stainback (1996) sustain that inclusion works in terms of developing mutually held positive attitudes and friendships, developing community and social skills, preparation for the workforce, and promoting equality. They believe that the benefits of inclusive classrooms involve all students, with or without disabilities.

Placement in the regular classroom gives students a chance to attend school with their neighbors and siblings. Public school placements also give the parents the chance to participate in school activities with other members of the community. Snell (1991) believes that students develop friendships and learn to be sensitive, understanding, and grow to be comfortable and accepting of individuals’ differences and similarities when they are exposed to an inclusive education. Integrated classrooms give
sighted students the opportunity to learn about blindness. Karagiannis, Stainback, and Stainback (1996) concur that biases and prejudices can be reduced, and positive attitudes enforced, in integrated classrooms, when appropriate guidance and direction from teachers are provided.

Inclusive schooling provides persons with disabilities the opportunity to acquire skills to become viable members of the community and the workplace. It provides the students practice in functioning in a sighted world, which they will most likely do as adults. Snell (1991) sustains that individuals with disabilities who are in inclusive programs learn how to function and interact with their peers in a setting similar to the “real” world. Wehman (1990) agrees that the more time students spend in an inclusive setting, the better they do educationally, socially and occupationally. Stainback, Stainback, and Ayres (1996) identify the social value of equality as the most important reason for inclusive schools. They believe that there is a need for schools to promote wider acceptance of all children as valued members of the classroom.

Gollnick and Chinn (1986) advises that federal laws do not mandate mainstreaming for all children with disabilities. They warn that it is neither expected nor feasible that all children with disabilities be placed in regular classrooms. Concerns about full inclusion include: elimination of alternative placements and
services, incomplete Individual Education Programs (IEP),
academic challenges, isolation, parental and teacher concerns,
and budgetary cuts.

Many educational professionals disagree with the assumption
that inclusion is the only appropriate placement for students
with disabilities. Kauffman and Hallahan (1995) fear that
supporters of full inclusion would have their way in abolishing
alternative placements. The results of eliminating placements
would be devastating for students with disabilities. Lieberman
(1996) asserts that there is still a need to provide residential
schools and special services outside the general classroom for
some students when full inclusion is not the least restricted
environment.

Advocates of inclusion take the position that all students
with disabilities must receive their total instruction in the
regular public classroom regardless of individual needs. The
presumption that most parents have is that education in a full
inclusion environment is the best option. They view residential
schools as the most restricted educational placement because the
students do not have regular contact with non-disabled peers.

Many educators and parents believe the attitudes towards
residential schools need to change so that children can have the
benefits of all options. Bina (1995) believes that residential
schools should be “on the menu” so that parents and others who
make decisions can fully consider and ultimately choose the
placement that is in the child’s best interest. Many educators fear that life in an inclusion classroom for students who are blind will be extremely difficult without a solid foundation in life skills, such as Braille and mobility training. These needs are more closely met in the residential setting, where students are fully instructed in all necessary skills. According to national organizations for the blind, residential schools have provided educational preparation programs to several generations of highly successful and independent individuals who are visually impaired.

The Joint Organizational Effort Committee (1993) firmly believes that with proper specialized services provided by appropriately certified teachers, students who are visually impaired can develop skills that will enable them to achieve success and independence. These services must be identified and followed on each student’s Individual Education Program (IEP). Unfortunately, most school districts find it difficult to establish and maintain effective programs for students with sensory disabilities.

Bina (1995) presents the results of a study conducted in 1991, which shows that fifty percent of all students with visual impairments in the public school setting are not receiving all the services specified on their Individual Education Programs (IEP). He also reports that public schools often failed to supply instruction in Braille, orientation and mobility, abacus, or
prescribed optical devices. Organizations for the blind fear that without a solid foundation, students’ potential for future accomplishments will be diminished.

Implementation of P.L. 94-142 has increased the number of children in public school classrooms who are totally blind or who have very low vision. Swenson (1987) warns that these children are often involved in very challenging instructional programs: "They must compete academically with their sighted peers as well as master Braille and motor, mobility, self-help, and social skills" (p. 120). Bina (1995) and Lane (1995) both agree that there is evidence that sensory impaired children in inclusion education are at an academic disadvantage compared to their peers. Rimland (1995) warns that for each child with a disability who adjusts and succeeds in the regular classroom, there are many more who are not as fortunate.

Many students with visual impairments feel isolated in the public school setting. According to Lane (1995) many admit that they pretend to understand the lessons that are presented and avoid asking questions, in order to retain their dignity. They feel excluded from countless activities because they lack many of the same experiences as their sighted peers. Many students with visual impairments feel lonely and isolated; they do not have the opportunity to develop friendships with students who share the
same disability. Interaction between these students may be absent or limited because of the small number of students in the school who are visually impaired.

Concerns also exist on the part of reluctant parents and school districts that fear that policymakers are pushing for inclusion before the regular education staffs are adequately trained. Carr (1995) is disturbed with the lack of progress that has been made to ensure that regular classroom teachers were being trained in effective ways to teach students with disabilities. An effort to require states to require educators to receive even six college credit hours of study has been largely unsuccessful. Lane (1995) cautions that even when qualified instructors are available; many school districts choose to rely on volunteers or non-certified personal due to funding.

School districts and parents continue to struggle with interpretation of the law as it relates to appropriate educational placements. They are apprehensive that the education system cannot meet the heavy demands placed on it to support all students with disabilities. Kauffman and Hallahan (1995) caution, that full inclusion provides only an illusion of support for all children, and that many students with special needs still fall through the cracks. Some parents’ believe that full inclusion in the regular classroom for all students with disabilities,
irrespective of individual needs, is in sharp conflict with the educational goals and procedures established by the Individuals with Disabilities Act (IDEA).

Some argue that there is a more cynical explanation for the sudden inclusion movement, namely budgetary concerns. Many believe that this movement is cost containment; Lipsky and Gartner (1996) concur that it is less expensive to place a child into public schools than to allocate the funds needed for special services. Lane (1995) advises that inclusion should not become a convenient way to justify jeopardizing essential services due to costs. Wehman (1997) cautions that inclusion should not mean dumping students with disabilities into regular classrooms without specialized instruction, equipment, and support.

The Joint Organizational Effort Committee (1993) strongly urge that decision makers carefully consider the impact of reform initiatives on the education of students with disabilities. They warn that caution must be exercised to insure that educational philosophies, such as full inclusion, do not seriously endanger appropriate and specialized services for students who are visually impaired. Many believe that the continuum of services must be preserved and available to all students regardless of their disabilities. If properly implemented, IDEA can provide legal safeguards to insure that all children can achieve independence and success.
Art Education for the Blind

Classroom and special education teachers are not the only ones affected by inclusion. Art teachers and other special area teachers in the public schools are seeing increasing number of students who are visually impaired or blind in their classrooms. According to Guay (1995) a majority of these teachers are in need of technical, human, and moral support and assistance. It is the role of the school administration to provide these services for these teachers.

She describes human support as consultants, in-service providers, volunteers, and paraprofessionals. Their job is to share their expertise and provide assistance and training. They should also aid the teachers in their selection of the most appropriate curriculum material, instructional activities, and assessment devices for students who are visually impaired or blind.

Material resources may include adaptive computers, classroom equipment, and models. These items need to be budgeted and available to the students. She also stresses the importance of providing moral support in the form of scheduling workable class times, facilitating planning times, providing team meeting times, and authorizing release time for staff development and conferences.
A majority of the special area teachers working in the field today do not receive the same services as the regular classroom teacher. Guay (1995) believes that it is the special area teachers’ responsibility to communicate their needs and program goals to the school administrators. These teachers should also become actively involved in creating the students’ IEP in order to receive appropriate support for themselves and their students.

As stated earlier in this chapter, the IEP is a planning tool that documents the required goals, objectives, and timeline for a particular student. These educational goals and standards are adjusted to meet the student’s ability and are continually evaluated. Unfortunately, many special area teachers are still being denied membership to the interdisciplinary team and not given the opportunity to contribute to their students’ individualized education programs (IEP).

Anderson and Morreau (1984) advises that art teachers be proactive and demand that they be included on the interdisciplinary team. They should also insist that all of their required goals, objectives, procedures, assessment, and timeline for art be placed on the IEP. This inclusion will help art to be considered as equally vital as other subject areas.

A problem exists if the art teacher lacks the confidence, skills, or training to participate in the preparation of an IEP. The teacher may be unaware of the time and effort it takes to
prepare an IEP, or unaware of the benefits of IEP’s for their students. Anderson and Morreau (1984) stress that “an individualized education program in art can assure personalized programs for disabled students and elevate the development of basic skills in art, artistic expression, and art appreciation” (p. 11). The absence of these established goals can be detrimental to these students by limiting their exposure to art.

Anna M. Swenson (1987), art educator, stresses the importance of the arts in the education of blind and visually impaired children: “Art activities provide one means of enhancing any child's creativity and self-esteem while reinforcing fine motor, perceptual, cognitive, and social skills” (p. 120). She is in favor of providing “opportunities for creative expression” (p. 121) because unlike other structured tasks, art supplies the student with a creative activity that is not limited to a single answer or solution. Swenson (1987) encourages teachers to select projects that allow variation in movement, material, and general artistic expression. She recommends that teachers avoid programmed art, in which the child is told exactly what to make and how to do it. All these authors encourage art teachers to become actively involved in promoting the benefits that art has to offer to students who are visual impaired or blind.

The literature on inclusion education indicates that even students with visual impairments, who are able to be mainstreamed into a regular classroom in the public schools often do not get
the same opportunities to attend art classes as their sighted peers. Swenson (1987) explains, “[f]requently young children with severe visual impairments fail to receive the same exposure to art as their sighted classmates because the emphasis is on visual art media in most primary classes” (p. 120). They are usually “helped through inappropriate art projects or art is totally omitted from their programs because there isn't time” (p. 120).

Many students attending residential schools face a similar situation. Lowenfeld (1957) states that “the blind student’s educational programs rarely will include a program of art” (p. 34). This is true for the students involved in this study. At the present time, an established art program does not exist at the Ohio State School for the Blind.

Collaboration

The area of collaboration was presented because it was necessary to examine how the students at the Ohio State School for the Blind and Ms. Brooks established a working relationship. Mattessich & Monsey (1992) define collaboration as a well-defined relationship entered into by two or more individuals to achieve a common established goal. They advise that this relationship must be built on mutual trust and respect.

Hord (1986) establishes guidelines for creating collaboration. Hord maintains that collaboration occurs “when two or more individuals or organizations agree to work together on a
project with no expectations of further benefits” (p. 22). Hord identifies the characteristics that are necessary for collaboration as:

A shared need and interest, commitment of time to the process, energetic individuals with the collaborative spirit, on-going and continuous communication, adequate resources, relinquishment of personal control resulting in risk, continual checking of the perceptions of those involved in the collaboration, positive leaders, and personal traits of patience, persistence, and willingness to share. (pp. 24-25)

Taylor (1997) acknowledges issues that are closely related to Hord’s guidelines. The members of a collaborative project must be able to negotiate, settle differences, recognize and respect other individual’s ideas and perspectives, and be able to share power. Individuals involved in a collaborative effort should realize that they might have to relinquish some of their freedom during the process. In addition, the individuals involved are not guaranteed returns on their initial investment of time or resources.

When establishing a collaborative project, Berry (1998) asserts that it is important to “make each partner's goals for the program clear from the beginning so that each knows what outcomes the other hopes to achieve and where goals overlap” (p. 22). Once a program or collaboration is in place, Berry (1998) advises, “collaborators must work to maintain their original enthusiasm for the project, listening to each other's point of view and keeping in mind their joint ownership” (p. 12).
Berry finds that benefits of the collaborative program include creating a stronger sense of community and developing a sense of ownership.

**Touch Museums**

The beginning of the museum movement for the blind may be credited to Johann Wilhelm Klein. In Vienna, from 1804 to 1809, he first utilized and prepared a collection of touchable teaching models for individuals who were blind. The museum that Klein founded developed into a collection of almost "5000 specimens devoted to all phases of the education and history of the blind" (Coon, 1953, p. 10). The museum was destroyed during World War II.

This museum movement for the blind went beyond Vienna. In 1898, a museum in Steglitz, Germany, created a forty-page catalog that included all the objects, which were available for educational purposes. Schools for the blind in Germany, Austria, France, and England, also recognized the importance of tactual experiences and prepared to meet the demand. By 1931 there were thirty-nine museums in Great Britain with special collections for individuals who were blind.

According to Coon (1953) the London Science Museum provided exhibits in a separate gallery for "hand-viewing" only, during the period from 1949 to 1951. The models were arranged in a large, airy room near the museum entrance, on tables at a convenient height, a little below waist-level. Just inside the
door was a “touch-plan” of the exhibition. A small steel block represented each table, with the subject printed beneath in Braille. Notes in Braille were placed to the left of each model (Coon, 1953, p. 10).

Dr. Michael Anagnos, the Director of Perkins’ Institute for the Blind, was the first to attempt to provide a museum collection for the blind in the United States, around the 1850's. This collection was housed at the Institute, and began with an assortment of anatomical models that Anagnos brought with him from Germany. By 1881 the collection had grown to more than 1261 items, mostly in the field of natural history (Coon, 1953).

In 1909 the American Museum of Natural History instituted a series of lectures for blind people (Coon, 1953). A year later through a generous gift, a permanent exhibit was arranged and more lectures were given. Other museums followed suit and began to supply services for the blind. Coon reported that from time to time in Boston, “cooperative experiments enabled students from the Perkins’ Institute to be introduced to the fine arts” (p. 11). During 1932-33 both the Fogg Museum of Art and the Boston Museum of Fine Arts cooperated in an experiment, “making history live through handling art objects with historical and artistic merit” (p. 11).

Such opportunities still exist in the United States due to Section 504 of the Federal Rehabilitation Act of 1973. The Arts Endowment’s 504 Regulations state that no handicapped individual
shall be excluded from participation on the basis of his or her handicap. According to Rodriguez (1984), “This act affects institutions and programs that receive federal funds, which would certainly include museums” (p. 263).

In compliance with Section 504, museums have attempted to create barrier-free environments. Belcher (1991) encourages museums not only to provide access to the exhibits, but also to establish clear routes through museums. Museums have responded by widening the walkways, adjusting the heights of public facilities, adding elevators, handicapped ramps, and additional handicapped parking spaces. Many have also begun offering audio taped tours and Braille or large-print catalogues for individuals who are visually impaired or blind. A 504 coordinator has also been appointed at some museums. The coordinator’s main responsibility is to ensure that the museum follows the guidelines set forth in Section 504. According to Rodriguez (1984), “The coordinator may organize training programs for the museum guides and schedule the tours” (p. 263). Along with training the staff, the coordinator is also responsible to ensure better access to the exhibits.

Tours for individuals with visual impairments may take the form of “a list of touchable objects for the blind” or the museum may offer “a touchable section for blind visitors” (p. 263). At the present, most museums provide arrangements for individuals who are blind or visually impaired in the form of white-glove
tours. These types of organized visits and concepts are not encouraged under Section 504, whose focus is on integration, not segregation. Weisen (1991) warns that these experiences “lack the prospect of being enjoyed independently as everyone else who visits the museum” (p. 84). These opportunities “merely mask the reality of the social segregation that exists” (p. 84). The American Foundation for the Blind (1972) also disapproves of any activity that isolates individuals from the rest of the community. The Foundation feels that such specialized programs reinforce misconceptions and negative stereotypes about blindness.

One environment that encourages inclusion and offers a variety of hands-on experiences is children's museums. Rodriguez (1984) praises the participatory nature of children’s museums: “They invite interaction between their exhibits and their young visitors” (p. 263). These facilities offer educational opportunities that encourage exploration through interaction. Participatory exhibits range from interactive games to computer based displays. Unfortunately, many fail to offer enough adaptations to the exhibits so that individuals who are blind or visually impaired can negotiate them independently.

Types of Perception Theories

Viktor Lowenfeld (1947) identified two types of perceptual experiencing appropriate to a discussion of individuals who are blind or visually impaired through his terms visual and haptic.
These findings were based on experimental and comparative studies of drawings, paintings, and sculptures created by normally-sighted and visually impaired individuals. Lowenfeld observed and documented these two approaches during the fifteen years he worked with the students at the Hohe Warte Institute for the Blind in Vienna. It was during this time, that he initially documented and began building his own set of developmental stages for examining and understanding children’s artwork.

He published his findings in the book Creative and Mental Growth in 1947. In this book Lowenfeld presents his stages of development in a clear and understandable format. These stages include: Scribbling, Pre-schematic, Schematic, Dawning Realism, Pseudo-Realism, and the Period of Decision. They document the developmental stages of children from age two through adolescence. Hatwell (1985) finds that children progress through nearly identical developmental stages, although the span of time to reach each stage is longer for children with visual impairments (cited in Stephens, 1985).

Representing the Period of Decision stage, Lowenfeld (1975) also documents two types of art perception that are “theoretically at opposite ends of the continuum and refer to the mode of perceptual organization and conceptual categorization of the external environment, one is called visual and the other is called haptic” (p. 275). He found that some partially blind individuals would “use the limited sight they had to examine
objects and others would not use their eyes, but preferred to use the sense of touch” (p. 275). This led to his study of individuals with normal sight. Lowenfeld (1957) discovered that they had similar tendencies. The result of an investigation of 1,128 subjects using specifically designed tests for visual and haptic aptitude found that “47% were clearly visual, 23% were haptic, and 30% received a score somewhere in between” (p. 263). This proved that approximately half of the students tested reacted visually and one quarter reacted haptically. These findings coincided with those of a study conducted by W. Grey Walter. He found that two out of four individuals benefited from visual stimuli and only one out of four depended upon subjective reactions such as touch.

Berthold Lowenfeld (1981) indicates that there is some crossover between the two approaches. It is “not a fixed condition but rather a tendency or inclination toward one or the other type” (p. 212). Viktor Lowenfeld (1975) concludes that most people fall somewhere between the two approaches, but have a tendency towards visual or haptic.

Haptic Perception

Lisenco (1971) defines haptic as those sensations received through touch. Lowenfeld and Brittain (1975) indicates that the term haptic comes from the Greek word haptos, meaning, “laying
hold of” (p. 275). Gibson (1966) defines the haptic system as “the sensibility of an individual to the world adjacent to his body by the use of his body” (p. 97).

According to Matlin (1983), “the perception of objects by touching them is called haptic perception” (p. 210). Dr. Natalie Barraga (1973), a professional in the vision field, confirms that in order for the sense of touch to convey messages to the brain, the skin must be in contact with the stimuli or movement must occur in the body. Katz (1925) notes that this contact allows an individual to detect properties of that object.

In the field of haptics the primary impression of form is mostly limited to that part of the object which can be taken in by touch. Revesz (1950) discusses the differences in the structure of surfaces and the recognition of materials for both visually and haptically oriented individuals. He notes that some materials are better and more easily distinguished by the tactile sense than the eye. Haptic recognition of objects usually involves active touch. According to Revesz (1950) these properties can include the detection of the object’s size, shape, and surface texture. The skin also has the capacity to respond to a multitude of stimuli, including mechanical, thermal, electrical, and chemical. Pain and temperature receptors exist all over the body and provide additional information. Echoing Katz’s point on the richness of touch, Kennedy (1978) establishes that touch also provides information on “viscosity, slipperiness,
softness, texture, and elasticity" (p. 294). Kruger (1970) emphasizes that the fingers perceive information on the innards of objects, whereas the eyes remain fixed on the outer surface of the objects (cited in Matlin, 1983).

According to Berthold Lowenfeld (1981), “haptic minded individuals observe everything tactually and kinesthetically, and will use their sight only when touch can not be used” (p. 212). Long and Hill (1997) defines kinesthesia as a sensation and awareness of movements of muscles, tendons, and joints in the body that result from interaction with tactile and environmental stimulus. Viktor Lowenfeld (1957) finds that haptic learners, even with considerable amount of vision, would act as if blind relying on their sense of touch to create. If a haptically minded person, “acquaints himself with an object in complete darkness, he would remain satisfied with his tactile or kinesthetic experiences” (p. 266).

Visual Perception

Barraga (1986) recognizes that visual perception involves “examining an object, distinguishing the essential features, understanding the relationships between the elements and integrating the information into a meaningful whole” (p. 87). Michael (1983) recognizes the visual type as an observer and one who usually approaches things from their appearance. The student has the ability to see the whole and is not aware of the details until further examination. Lowenfeld and Brittain (1975) find
that the visual type “first sees the tree, then the single leaves, the twigs, the branches, the trunk, and finally everything is incorporated into the whole tree” (p. 277).

Berthold Lowenfeld (1981) identifies, “The visual learners as individuals who use their touch senses and kinesthetic experiences only rarely and rely almost completely on what they can perceive visually with whatever little eyesight they have left” (p. 212). According to Barraga (1973), when the visual sense is functioning with a high degree of efficiency, individuals are able to utilize the sense of sight to understand their environment. Lowenfeld and Brittain (1975) indicates that visually minded individuals “acquaint themselves with their environment primarily through their eyes and take on the role of spectator” (p. 275). Viktor Lowenfeld (1957) discovered that “the very visually minded individual would be disturbed and inhibited if he were to be limited to haptic impressions” (p. 275).

Active and Passive Touch Theory

Kenshalo (1978) defines touch as “a single indentation” and vibration as “a repeated skin indentation” (cited in Matlin, 1983). Heller & Schiff (1991) identify touching as “a set of activities yielding various sorts of information regarding the structure, state, and location of surfaces, substances, and objects in the environment” (pp. 1-2). Margaret W. Matlin (1983), a professor at the State University of New York, defines touch as
the “sensations produced by deformation of the skin” (p. 204). Tactile researchers have long been fascinated by the role of movement in perception.

Matlin (1983) introduces two types of touch, “passive and active.” Passive touch occurs when an object is placed on the skin of a person. According to J.J. Gibson (1962), during passive touch the hand stays stationary and makes no voluntary movements. Matlin (1983) notes:

We notice a stimulus as long as its weight moves our skin downward. When the skin movement stops, we no longer notice it. However, when the stimulus is removed, our skin moves upward, and we feel pressure sensation once more. (p. 208)

Thus, the movement of our skin is an important aspect in touch perception.

Active touch occurs when a person actively explores the environment by touching objects. Active touch also involves exploration and manipulation of the skin, which is known as the kinesthetic system. This includes the receptor systems in the muscles, tendons, and joints, which create a complete closed loop system for exploration and manipulation.

In addition to information available from Margaret W. Matlin (1983), James J. Gibson (1962) emphasizes in his work, The Senses Considered as Perceptual Systems (1966) the importance of active touch theory in the development of materials for blind people. Louis Braille, a blind Frenchman who lived in the nineteenth century, developed the best known system of active touch application. Mr. Braille was discouraged by the difficult
task of trying to read the limited number of books that were specially prepared with raised versions of standard letters. The characters in the Braille code are made up of patterns of raised dots to which meaning is assigned. According to Matlin (1983), "most Braille readers can read about 100 words a minute, a speed that is impressive, but considerably slower than the 200 words a minute that sighted people read standard print" (p. 210).

Gibson (1962) asserts, that active touch is also essential because it provides valuable information about objects in the world and offers alternative visual materials to individuals who are blind. Some believe that the sense of touch supplies information that is not perceived by the sense of sight. L. M. Kruger (1970) writes in "Der Aufbau Der Tastwelt" World of Touch: A Synopsis. Perception & Psychophysics (1979),

The fingers, as wielded by the hand, obtain information on the innards of objects, whereas the eye, remaining fixed on the outer surface of objects, plays a lesser role in developing the beliefs in the reality of the external world. (cited in Matlin, 1983)

Active touch involves direct contact with an object. Through exploration one can discover many properties of the object. Gibson (1966) confirms that "active exploratory touch permits both the grasping of an object and a grasp of its meaning" (p. 123). He identifies the properties of tangible objects as: "(1) geometrical variables like shape, dimensions and proportions, slopes and edges, or curves and protuberances; (2)
surface variables like texture, or roughness-smoothness; and (3) material variables like heaviness or mass and rigidity-plasticity” (p. 123).

In reference to active touch, Gibson (1962) coined the apt term “tactile scanning” for the manual processes involved in active touch. R. Hippius divides active touching into four categories. The first, “gliding touch”, involves short back-and-forth motions of the hand, a method Hippius felt was used primarily to obtain information regarding surface variations or texture. His second category of touch is the “sweep.” This method involves scanning by one or more fingers across an object’s surface to obtain information about contours, edges, and geometrical relationships of parts. The third category, “grasping” is similar to the sweep and gliding touch, but introduces the use of the thumb, which provides information about two or more surfaces simultaneously. Data about structure and arrangement of parts of the object become available. The final method is known as the “kinematic grasping” which involves a comprehensive exploration of an object’s features. This method enables one to recognize all the material and formal qualities of an object.

Textural Perception Theory

For my information on textural perception theory, I relied mainly on Susan Lederman (1982), a professor of psychology. She defined textural perception theory as “experiencing any number of
surface qualities, for example roughness, smoothness, hardness, stickiness, slipperiness, oiliness, coarseness, and graininess” (p. 131). Lederman looked to David Katz (1925), who was a major figure in the study of the psychology of perception, for the connection between surface texture, or as he termed it “modifications,” and its perception through vibration and motion.

Krueger (1970) showed that Katz was interested in tactual perception and the internal responses to external stimulus (cited in Schiff & Foulke, 1982).

Katz (1925) argues strongly that vibrations are necessary to perceive texture. He observes that when the finger is stationary on a surface, there is no vibration, which in turn means that there is no perception of the qualities of the surface. He believed that lateral motion is required to perceive roughness and smoothness, and vertical motion is required to perceive hardness and softness. He also considered the contribution of another kind of information, the thermal properties of both skin and surface and their role in perceiving textures. His subjects used heat conductance to identify different materials, such as wood and metal (cited in Schiff & Foulke, 1982). He also examined the effects of hand speed and force on the perception of surface texture. Katz found that perceived roughness increases with increasing force (Lederman, p. 134).
Conclusion

This chapter presented the definitions and information relevant to my study. During my review of the existing literature I have discovered that while there is an abundance of literature that focuses on the general education of students with visual impairments and issues surrounding inclusion in general, there are only a limited number of authors who deal specifically with art education for these students. The guidelines obtained in the area of collaboration furnished practical strategies to follow to create effective partnerships.

The review of literature on tactile art museums and on exhibits that are designed to be experienced though touch was very limited compared to the information pertaining to perception theories. The examination of these theories helped shed light on how the senses are utilized. I was especially interested in the theories that were devoted to the sense of touch.
CHAPTER 3

METHODOLOGY

This chapter presents the methodology utilized in this study, including explanations of case study research. The second section provides detailed descriptions of the locations and the participants involved in the study. The third section examines the methods used to collect the data. The chapter concludes by examining the methods of data analysis that insure the validity of the study.

Qualitative Research

I used qualitative methodology because, according to Merriam (1988), it emphasizes “process, discovery, insight and understanding and context” and contributes “to the knowledge base and practice of education” (p. 3). Creswell (1994) maintains that in qualitative methodology categories emerge from information rather than identification “a priori by the researcher” and “this emergence provides rich context-bound information leading to patterns or theories that help explain the phenomenon” (p. 7).
Merriam (1998) defines two types of research design, experimental and non-experimental. My research was non-experimental, also known as descriptive, because as the researcher, I did not manipulate variables and my research was not based on a cause-and-effect relationship. The aim of descriptive research is to examine and describe the phenomenon. Descriptive case studies are usually inductive in nature because, according to Merriam (1998), “it is impossible to identify all the variables ahead of time” (p. 7).

Case Study

The design of my study was a case study. A case study refers to research that focuses on a single case or issue or, in Creswell’s (1994) words, “explores a single entity or phenomenon bounded by time and activity” (p. 12). Louis Smith (1978), one of the first educational ethnographers, defines a bounded system as a case study that is focused on a specific phenomenon such as a program, an event, a person, process or social group. Creswell (1994) elaborates upon this definition to explain that case study research is also about forming questions rather than finding answers.

My case study research was defined and described from the perspective of the qualitative research paradigm, which according to Merriam (1988) defines the methods and techniques most suitable for research focused on understanding the perspective of those being studied. Creswell (1994) goes on to say that it is
consistent with an “inductive model of thinking” and “a theory may emerge during the data collection and analysis phase of the research” (p. 94). This research offers the greatest potential for making contributions to the knowledge base and practice of education.

My study was a case study of Queen E. Brooks, a sighted artist, who worked with a group of students from the Ohio State School for the Blind to develop artwork for an exhibition. More specifically, the study examined Ms. Brooks’s process in conceptualizing and creating the art forms for a visually impaired and blind audience, as well as how a group of junior high students attending the Ohio State School for the Blind interacted with the artwork. Since my study examined a specific phenomenon, namely, the creation and exhibition of the show Touching Revisited, the case was a single-bounded system. I selected this case because I found it “intrinsically interesting” and I wanted to “achieve a full understanding of the phenomenon” (Merriam, 1998, p. 10).

Location of Research

The study was conducted at four primary sites. These locations include Queen Brooks's studio, Diane Tilton-Mauer's classroom at the Ohio State School for the Blind, the Worthington Arts Council Gallery, and the Barth Galleries in Columbus, Ohio. The information Ms. Brooks gained from the students in this study was obtained during her visits to Diane Tilton-Mauer’s classroom.
Ms. Brooks used this information in her studio to create the artwork that was later displayed at the Worthington Arts Council Gallery and Barth Galleries.

**Queen Brooks's Studio**

Queen Brooks’s studio, located in Columbus, Ohio, was selected because this was where she lived and created her artwork. Her studio and living quarters were located on the first floor in a privately-owned home. The studio occupied part of the large front room. The room had ample storage, high ceilings, and large windows that flooded the room with an abundance of natural light. The walls were painted white and the wooden floor was painted gray to contrast with the walls. The studio had a large, white, wooden picnic table in the center and a wall of shelves to hold her materials. On the wall opposite the shelves was a drafting table where she had her wood burning tools. Connected to the front room was a kitchen that led to the bathroom and living quarters. There was another room in the front of the house that was used for storage. Most of the interviews with Queen have taken place at the studio.

**The Ohio State School for the Blind**

The school selected for this study was the *Ohio State School for the Blind* (OSSB), a local, residential-educational setting for blind and visually impaired students who live in Ohio. It is located at 5220 North High Street in Worthington, a middle-class suburb of Columbus. The *Ohio State School for the*
Blind, which was originally known as the Institution for the Education of the Blind, officially opened on July 4, 1837. It has been in operation for over 160 years. The Ohio State School for the Blind is the first state-supported school for the blind in the United States. The school is part of Ohio’s public school system and is under the supervision of the Ohio Department of Education. The school follows the traditional nine-month school year.

The entire campus is designed, equipped, and staffed to meet the specific needs of students with visual impairments. Mr. Gerard Marcom, the Principal, stated, "Additional services provided at the Ohio State School for the Blind include speech and hearing therapy, physical therapy, psychological counseling, and guidance counseling" (G. Marcom, personal communication, November 11, 1989). Mr. Marcum also explained that the school offers diagnostic evaluation services, an academic curriculum similar to that of the public schools, a residential program, and teacher training.

Diagnostic Evaluation Services

The Ohio State School for the Blind operates an Educational Evaluation Clinic, which provides comprehensive evaluation for those who are seeking admission to the school. According to Diane Tilton-Mauer, a teacher at the Ohio State School for the Blind, "Any individual from age five to twenty-one whose visual impairment adversely affects his or her educational performance
is eligible to attend the Ohio State School for the Blind” (D. Tilton-Mauer, personal communication, November 11, 1989). The superintendent of the school district in which the student resides must recommend assessment. Mr. Marcom stated, “Each prospective student is administered a multi-faceted evaluation that measures: the student’s academic achievement, social and emotional status, general intelligence, speech and hearing, motor skills and abilities, and orientation and mobility” (G. Marcom, personal communication, November 11, 1989). The Ohio State School for the Blind can administer this evaluation at no cost to the student’s parents or the school district. Today the enrollment is just over one hundred students from all over the state of Ohio. Every student at the school is legally blind and some have other disabilities.

The first floor of the main building has an auditorium, offices, library, music rooms, dining rooms, hospital wing, maintenance shop, and industrial shop. The second floor of the main building provides space for academic classrooms, science rooms, a foods laboratory, typewriting and business training, Braille reproducing, and recording and broadcasting. The elementary school wing off the main building provides classrooms for kindergarten through sixth grade and a multipurpose room.

Facilities of this kind offer small classes, which benefit the students by allowing for intensive individualized instruction. The Ohio State School for the Blind also offers the
benefit of a community of individuals who are visually impaired. This community includes students from every grade level and a majority of the teachers. This supplies the students with mentors and role models to emulate.

Academic Curriculum

The Ohio State School for the Blind educational programs follow the same academic curriculum as the regular school programs for sighted students. Tuttle (1986) advises that while the course of study is the same, additional programs need to be in place to aid in developing students’ independence. The personnel at the Ohio State School for the Blind are aware that programs and instructions at the school must focus on preparing their students for the responsibilities that are associated with becoming active members of society. These include instruction in managing personal hygiene, communication, securing and maintaining a job, and independent travel.

Since individuals with visual impairments usually do not acquire these skills through observation or imitation, it is important that these skills be taught. To meet these needs, the school offers instruction in daily living skills, social interactions, prevocational skills, orientation and mobility, and physical education. Students study those subject areas that are identified in their Individual Education Program (IEP). These curriculum programs are adjusted to the student’s ability and are continually evaluated.
Residential Program

Since the school’s initial opening, it has undergone many changes. In 1838, residential accommodations were added for both students and staff. The school offers residential programs to approximately one hundred students during the regular school year. Over half the students use the school’s boarding facilities. Taylor (1973) notes that one difference between the residential school programs that exist today and those of decades ago is the closer relationship parents maintain with their children. Students live at the school during the week, and to ensure continuous contact with their families, they return home on weekends and holidays. The parents are also encouraged to visit the school and participate in all aspects of their child’s educational experience.

According to Mr. Marcom, “The school is equipped with dormitory, cottage, and group home living facilities” (G. Marcom, personal communication, November 11, 1989). The school’s dormitory and cottages are located on the school’s property. Students who utilize these facilities either attend the Ohio State School for the Blind full-time or spend all or part of their education in a local public school placement. Each cottage provides facilities for 24 students, plus living quarters for two house parents. Each of the cottages comes equipped with bedrooms, a kitchenette, a study room, and a large living room for the students.
**Teacher Training Programs**

The school functions as a resource center by supplying instructional materials to public schools. The OSSB functions at both the state and regional levels. According to Lewis and Doorlag (1999), most resource centers supply specialized educational equipment including Braille writers, slate and stylus, magnifiers, Braille and taped editions of books, and closed-circuit television. In addition, the OSSB provides Braille transcriptions and consulting services.

The school offers in-service training programs and summer professional development classes for public school teachers, itinerant teachers, resource teachers, and other education professionals. The staff from the Ohio State School for the Blind serve as instructors and consultants for these teachers by sharing their experience and expertise. According to Heward and Orlansky (1988), the staff at residential schools can aid regular classroom teachers in selecting the most appropriate assessment devices, curriculum material, and instructional activities for students with visual impairments.

The Ohio State School for the Blind is also affiliated with the special education department at The Ohio State University. Through this partnership, the OSSB offers summer workshops in Braille, orientation and mobility, daily living skills, and technology. The instructors for these classes include faculty from the university and the OSSB. Together they have access to
the most current teaching methods, resources, research, and the
newest technological advances in the field of visual impairments.

Diane Tilton-Mauer's Classroom

The interaction between Ms. Brooks and the students took
place in Diane Tilton-Mauer's classroom at the Ohio State School
for the Blind. Diane Tilton-Mauer's classroom was located on the
second floor in the main building. The classroom layout was
simple and uncluttered, with a row of tables and chairs lined up
under the windows along the west wall. The teacher’s desk was
located near the door on the east wall. Also on the east wall
were lockers without doors for students to store their personal
items, a container to hold travel and walking canes, the
classroom sink, and a small storage closet. The north wall
contained cabinets for classroom supplies and the classroom
computer equipment was set up on tables along the south wall.

The room had an ample supply of natural light from the
windows on the west wall and overhead fluorescent lights. The
room was similar in appearance to any other classroom designed
for sighted students. The lower half of the walls were covered
with wood paneling and the exposed wall above the paneling was
painted an off-white color. The bulletin boards were decorated
and posters were hung on the walls. Books and other classroom
supplies were neatly organized on the shelves located below the
windows.
Worthington Arts Council Gallery

The Worthington Arts Council has been in existence for over 21 years. The goal of this organization is to supply cultural activities for the community. Along with the council’s involvement with visual arts exhibits, such as the one that Ms. Brooks was awarded, the council also operates Camp Creativity and a Performance Series program.

The Worthington Arts Council Gallery is located in the Municipal Building at 6550 North High Street, in Worthington, Ohio. The gallery is located on the second floor of the building. The hallways leading to the gallery are narrow and contained a number of silk trees and benches that line the walls. Inside the gallery are numerous chairs and benches arranged in groups in the center and left side of the gallery. An arrangement of buffet tables was placed in the left-hand corner of the gallery and supplied the guests with refreshments during the exhibition.

The Barth Galleries

The fourth location was the Barth Galleries, which is located at 3047 Indianola Avenue in Columbus, Ohio. This location was used for various reasons. It was selected because Ms. Brooks had previously displayed her artwork at the gallery and was familiar with the space. She also knew the gallery would be large enough to hold the show and that it didn’t contain any barriers. Clarke (1988) defines a barrier as a “feature that hinders interaction with objects or people” (p.118).
The show Touching Revisited was on display in a large, long room located in the front of the building. The front of the gallery faces east and consists of a doorway and a large picture window. At the back of the gallery are a small storage area and an entrance into a smaller gallery. Along the south wall, there is an extension of the wall that project one foot out into the room. In front of this wall, were two small exhibition cubes that contained a registration book for the show. The walls are painted white and the floor of the gallery are wood. The gallery is equipped with spotlights.

Participants

The participants involved in this study were Queen Brooks, Diane Tilton-Mauer, and eight students from the Ohio State School for the Blind. Ms. Brooks was the artist participating in the study who worked with the students to develop the show Touching Revisited. Diane Tilton-Mauer was the teacher who permitted Ms. Brooks to work in her classroom with her students.

Queen Brooks

Ms. Brooks is an African-American woman who resides, works, and creates art in Columbus, Ohio. Ms. Brooks was born in Columbus and continues to reside in the city. She earned her Bachelor of Fine Arts in 1990 from The Ohio State University. After she graduated, Ms. Brooks worked as a photographer for five years. She then took a job working as an art teacher at the J. Ashburn Jr. Youth Center. At the center Ms. Brooks taught the
students different kinds of arts and crafts. Some of the equipment available at the center included wood burning tools. Ms. Brooks fell in love with this process and still uses it in her work today.

While working at the center, Ms. Brooks received the Marian English Award from United Way. Receiving this award enabled Ms. Brooks to return to school, where she earned her Masters of Fine Arts Degree in 1992 from The Ohio State University. After graduation she became a drawing and painting instructor in The Ohio State University’s Art Department.

Ms. Brooks is at present an adjunct professor at Otterbein College, located in Westerville, Ohio, and teaches classes in painting and two-dimensional art. At the present time, Ms. Brooks is exhibiting her work in her studio. She has extensively exhibited her work and has received numerous awards. These awards include: The African American Cultural Expressions Award of Excellence, Arts Midwest National Endowment of the Arts Award, “Living the Dream” Artist Award, and the Lila Wallace Reader’s Digest International Artist Fellowship Award.

The Students

The students who participated in this study were a group of eight junior high students from the Ohio State School for the Blind, a residential school setting in Columbus, Ohio. The students ranged in age from twelve to fifteen years old and were in the seventh or eighth grade. They were from all different
areas of Ohio and had different backgrounds and levels of vision. All participants were blind or visually impaired and some had handicaps beyond the loss of vision. Five of the students had no vision at all or limited light perception, of these five students, two could distinguish colors and make out very large letters. All five students relied on Braille for reading. One of these students had some motor coordination difficulties and worked with an occupational therapist. The other three students had some usable vision.

The duration of the project was eight months. The participants in this study attended 45-minute to hour-long sessions with Ms. Brooks from October 1998 until June 1999. The meetings averaged two to three times each month. During these sessions Ms. Brooks shared her artwork, created an art project with the students, brought materials in for the students to examine, and discussed the pieces she was creating for the show.

Limitations

As the researcher I did not have access to information regarding student skill levels. In-depth profiles and medical records on the students were also not available.

**Diane Tilton-Mauer**

Mrs. Tilton-Mauer graduated from The Ohio State University in 1968 and began teaching at the Ohio State School for the Blind. She was also trained in the following areas: daily living skills, identification and placement, and educational procedures.
In addition, she was trained to use the most appropriate technology available for meeting each student’s needs. She taught Braille and French to the seventh and eighth grade students at the school.

Methods of Data Collection

Qualitative data from case studies consists of detailed descriptions of events, people, interactions, and situations. One of the strengths of using case study research is the ability to use multiple methods of data collection. My research benefited from my use of documents, observations, and interviews, which according to Merriam (1998) are the most effective data collection instruments to use for case study research. Denzin (1970) defines the use of multiple methods of collecting data as “triangulation” (p. 301). He argues that the “rationale for this strategy is that the flaws of one method are often the strengths of another, and by combining the methods, researchers can achieve the best of each, while overcoming their deficiencies” (p. 308).

Documents

The term documents refers to written materials in case study research. Broadly defined, documents include public records, reports, personal papers, official records, and biographies. They can aid in uncovering meaning, developing understanding, and discovering insights relevant to the research problem. The documents I used for my research included public documents such as newspaper articles, brochures, and the “artist

Before I used a document to support my research I followed Merriam (1998) advise and first decided if the document was relevant to my study and if the information was complete. Then I had to determine authenticity and accuracy of the document. Determining the credibility of the sources required me to look at the origin, the author, the intended audience, and what resources were used to create the document. Since the documents I used were produced independent of my research study, I also took into consideration the agenda of each document.

**Observation**

The observations took place at all four sites. These locations included Diane Tilton-Mauer's classroom at the Ohio State School for the Blind, the Worthington Arts Council Gallery, the Barth Galleries in Columbus, and Queen Brooks's studio. During these times I took on the role of observer. Merriam (1998) notes that collecting data by observing the phenomenon is commonly referred to as participant observer. She indicates that one of the benefits of using participant observer as a collection method is that it offers a “holistic interpretation when it was combined with interviewing and document analysis” (p. 102). In this role, I was able to collect information first-hand, using
field notes, video recordings, audio recordings, and photography. Observations also allowed me to record behavior as it happened.

I knew going into the classroom, galleries, and studio that I couldn’t observe everything, so I decided to follow the guidelines established by Merriam (1998). I began by observing and taking notes about the physical setting. I then concentrated on the participants at each setting. I described who was at each location and their roles in the phenomenon. The third guideline I followed was to document the activities and interactions between the participants at each location. Frequency and duration is the next step suggested by Merriam (1998), which involves documenting at each location the time when the situation began and its duration.

My visits to the Ohio State School for the Blind acquainted me with the classroom setting and social system of the class. I observed how the students interacted with each other, their teacher, and the artist. I observed in the classroom two to three times a month during my study. Prior to entering the classroom I would check in at the office and obtain a visitor’s badge.

My function in the classroom at the Ohio State School for the Blind was as participant observer because my involvement in classroom activities was secondary to my role as researcher and observer. Gans (1982) defines participant observer as a researcher who participates in the situation, but is only partially involved; the main focus is on data collection. My
participation in activities that occurred in the classroom was initiated by requests by the students, the teacher, or the artist.

My role as participant observer continued during the opening of the show Hands On, and the day the students from the Ohio State School for the Blind visited the exhibit, Touching Revisited. I participated in the shows by guiding some of the students and by answering questions posed by the students, but my main focus was to observe the interaction between the students and the actual art pieces. During my visits to the artist’s studio, it seemed appropriate to help Ms. Brooks when it was needed. When I wasn’t participating I was taking notes, videotaping, audio taping, or taking photographs to document the creation of the artwork.

**Interview**

My primary data-gathering method was the interview. Interviewing allowed me to collect data through direct verbal interaction that occurred between the participants in my study and between the participants and myself. Cohen and Manion (1980) assert that one advantage to interviewing is the potential to gather more information than any other method of data collection. In qualitative case study research Merriam (1998) emphasizes that the main purpose of an interview is to obtain information that cannot be collected through observation. Along with gathering factual knowledge, interviewing is an ideal method for obtaining
information about my subject’s personal feelings, perspective, opinions, and interpretations. Reinharz (1992) emphasizes another advantage of interviewing as a method of obtaining access to an individual’s thoughts and memories in their own words rather than using my own words.

My interviewing technique was closest to that of the semi-structured interview. In this approach, the interviewer asks questions about specific topics and allows the conversation to flow and dictate the information that will be obtained. I approached my interviews with a clear notion of the type of information I desired and a questioning strategy. Prior to each interview I created a list of questions and issues to be explored. According to Merriam (1998) this served two purposes: "it translates the research objectives into specific language and it helps the interviewee share their knowledge of the phenomenon under study" (p. 78).

During the interviews with Diane Tilton-Mauer and Queen Brooks, I did not always follow the exact words or the order of the questions. Merriam (1998) believed that this type of format allows the interviewer to respond to the situation at hand. According to Reinharz (1992), this form of data collection differs from surveys or structured interviews because it encourages “free interaction between the researcher and interviewee” (p. 18). Using semi-structured questions supplied me with the opportunity to check for clarification and probe for
additional information. Reinharz (1992) explains another benefit of using semi-structured interviews, that it is a method that distributes the power and control of the process evenly between the interviewee and the researcher.

The information I obtained from my interviews with Queen Brooks was recorded using field notes, videotape, and audiotape. When I interviewed Diane Tilton-Mauer, I used a tape recorder and field notes. When I documented the interaction between Ms. Brooks and the students, I used field notes, photographic slides, and audiotapes. Follow-up interviews were recorded using field notes and audiotapes.

Field Notes

According to Emerson, Fretz, and Shaw (1995) field notes are accounts that describe experiences and observations that the researcher witnesses first-hand. They describe field notes as a resource for "preserving experience close to the moment of occurrence" (p. 13). This type of data collection involved recording the events as they take place. Merriam (1988) notes that field notes usually include a verbal description of settings and conversations. She advises to leave the margins open for additional comments, reactions, and interpretations.

Slides and Photographs

My camera supplied me with a photographic film record of the events and behaviors of my participants over a period of time. Fetterman (1998) points out that photography might also supply a
researcher with visual details that the fieldworker might have overlooked (cited in Bickman and Rog, 1998). Photography on film also allowed me to document each piece of artwork and the student’s interaction with the art pieces at the show. The slides of the students were taken from a distance, from behind, and in such a way as to preserve the students’ anonymity.

**Videotape Film Recordings**

Videotape recording gave me the opportunity to stop time and watch an event over and over. Videotaping also supplied me with the opportunity to find what Fetterman (1998) describes as “new layers of meaning or nonverbal signals” (cited in Bickman and Rog, 1998, p. 493). I only used the video equipment to document Ms. Brooks working on the artwork for the show.

**Audio Recordings**

Tape recordings were essential to my fieldwork because they allowed me to engage in conversations and capture quotations verbatim. Fetterman (1998) asserts that audiotapes also enable the researcher to concentrate on the interview without the “distraction of manual recording devices” (cited in Bickman and Rog, 1998, p. 491). They also allowed me to listen and analyze the conversations over and over. My function in the classroom were to document using a tape recorder, field notes, and observe the artist’s interaction with the students.
Safeguard Participants

Because my method of data collection was interview, one of my concerns was to safeguard my participants. Rynkiewick and Spradley (1976) refers to The Principles of Professional Responsibility, a set of principles established by the Council of the American Anthropological Association in 1971, as an aid for researchers to “recognize and deal with ethical problems” (p. 50). I used these principles to protect my participants’ “physical, social, and psychological welfare and to honor their dignity and privacy” and to “safeguard their rights, interests, and sensitivities” (p. 184).

One of the principles I followed was to communicate clearly the objectives of my study by providing my participants with a written description of my research prior to obtaining their consent. I began by disclosing the purpose of my study to Queen Brooks and explaining my research in detail. I also filed all the necessary human subject documentation both at The Ohio State University and at the Ohio State School for the Blind. After I received written permission from Ms. Brooks to document her creation of the show, her interaction with the students at the Ohio State School for the Blind, and her participation in my case study I then met and obtained written permission from Diane Tilton-Mauer and Gerard Marcom, the Principal of the Ohio State School for the Blind, to conduct this study. Copies of my
permission slips were sent out to the parents of the students working with this show, and a complete set of the permission slips were placed on file at the Ohio State School for the Blind.

Subjectivity of Researcher

My identity, background, education, experiences, and biases affected my research and influenced how the material was written and understood. According to Peshkin (1988), a researcher’s subjectivity affects every part of the research process. Throughout the process, I must “identify it, examine it, and attend to it in a systematic way” (p. 17). I agree with Peshkin, examining my subjectivity was a necessary part of my research project. Aspects of my identity, ethics, sensitivity, and integrity do affect the research study and must be acknowledged (Merriam, 1988).

My motives for this study were based on my experiences as an art educator in the public schools and as a continuing art educator at the college level. As an educator, I wanted to contribute to the information available to art teachers about the needs and abilities of students who are visually impaired or blind. My perceptions of individuals who are visually impaired or blind have been shaped by my personal experiences with the students in this study. Other than my contact with the students in this study, I did not have prior experience working with individuals with visual impairments. As a trained artist I brought knowledge of design, construction, and other aspects of
artistic knowledge. Due to previous experiences creating and displaying artwork, my experiences as an educator and working as a sighted artist, I bring certain biases to this study. I know I must be “sensitive to the effects” I might have had on the phenomenon and “account for these effects” (Merriam, 1998, p. 96).

Methods of Data Analysis

This section examines the methods used to analyze the data collected from the documents, observations, and interviews. It also includes an examination of content analysis and the Nud*ist computer program. This section also examines the methods utilized to insure the validity of the study.

Content Analysis

According to Good (1966), content analysis has been defined as a “multipurpose research method useful when describing quantitatively and objectively any kind of verbal data” (p. 268). Content analysis is defined by Merriam (1998) as a “systematic procedure for describing the content of communication” (p. 116). I used content analysis because my data consisted primarily of information obtained from interviews, and according to Stewart and Shamdasani (1998) data used in content analysis includes human speech and various forms of nonverbal speech.

Following the advice of Goetz and LeCompte (1984), I began my data analysis by first reexamining my research questions and defining the audience for which my case study was intended. Based
on my research questions, I began the analysis by developing categories for each question. This process helped bring focus to my findings.

Merriam (1988) suggests four levels of analysis for qualitative case studies. Following her first step, I began making sense of my data by acquainting myself with the data itself by listening to the audiotapes from my interviews. As I reviewed the tapes, I took notes about the ideas presented and began to identify variables from the data. After I listened to the tape I then read and reread the transcribed “hard copy” of the information from beginning to end. Making photocopies of the hard copy allowed me to write down my comments, observations, and notes in the margins. I followed the same procedure with my field notes. During that stage I was “virtually holding a conversation with my own data, asking questions of it, making comments” (Merriam, et al., 1988, p. 131).

The second level of analysis involved developing categories, themes, or values that interpreted the meaning of the content. At the beginning I tried to generate as many categories as possible, which reflects what Boulton and Hammersley (1996) refer to as the “exploratory character of the process” (p. 291). This enabled me to see different features of my data. The aim of this initial analysis was to generate categories that related to segments of my data. Using the photocopies of my data, units of data were color-coded based on the categories. According to
Lincoln and Guba (1985), a unit might be a phrase, a sentence, multiple sentences, or even a paragraph. Through this process I discovered that the unit could also be classified under several categories.

The next level I followed was to compare and contrast all the items of data that were assigned to the same category. The aim of this stage of analysis was to clarify the meaning of the categories and to begin identifying sub-categories and relations between them. Merriam (1988) indicates that the final level occurs when categories and their properties are “reduced and refined and eventually linked together by tentative hypothesis” (p. 146). During this level, concepts and themes eventually emerge from the categories. It is at this final stage that the analysis moves toward the development of a theory to explain the data’s meaning.

I found color-coding the mountain of photocopies to be a daunting activity and began to look for a new way to manage my data. One day I came across some literature on content analysis that provided numerous computer-assisted approaches to the analysis of data. According to Stewart and Shamdasani (1998), computer programs maintain the formal aspects of content analysis, but greatly reduce the cost and time required by the traditional methods (cited in Bickman and Rog, 1998). The Nud*ist
software I researched sounded promising so I enrolled in a computer class at The Ohio State University to learn how to use this new technology.

**Nud*ist Computer Program**

This software enabled me to copy, file, code, and print out units of my data. While the program does not analyze the qualitative data, it is designed to manage large amounts of data. The system helped me organize and retrieve my data more efficiently than having to rely completely on the time-consuming process of marking and searching photocopies.

Reid (1992) divides data management into three phases: data preparation, data identification, and data manipulation. These three steps are echoed in Crabtree & Miller (1992) and Huberman & Miles (1994), and are similar in structure to the four levels of analysis of qualitative case studies established by Merriam (1998). All of these authors present data management techniques that correspond to the systematic process established in the Nud*ist software. This software is based on the principles of grounded theory of Glaser & Strauss (1967), but is endorsed as being flexible enough to accommodate other frameworks. The program is designed to manage data documents, create categories, and aid in building theory. Reid (1992) asserts, “The computer has a great capacity for organizing massive amounts of data” (p. 166).
Middleton (1996) compares the Nud*ist indexing system to a family tree. The root of the tree represents the entire project; hanging from the root is the first generation of nodes, or the parents. The next two generations represent the children and grandchildren. Additional generations or subcategories may also be added to the family tree.

In order to use the Nud*ist program, I had to prepare my text data. This included transcribing my remaining interviews, typing field notes, and entering my text data. Crabtree & Miller (1992) define text data as “transcripts from interviews, observations, and field notes” (p. 95). Entering the data onto the computer involved formatting, editing, and saving my data onto disks. Its purpose was to create a project (record) that the Nud*ist software would recognize.

After the data was formatted and input into the program, I began the second phase of analysis, which is known as data identification. This step involved coding the data. Crabtree & Miller (1992) identify three purposes for coding: “to identify chunks of text to facilitate future data retrieval and analysis, to identify key data areas, and to generate initial cultural hypothesis” (p. 96). During this stage the text (data) was divided into “analytically meaningful and easily locatable segments” (Reid, 1992, p. 167). Coding involved labeling passages of the text according to content, so it could be retrieved and assembled with similar categories. Crabtree & Miller (1992)
encourage researchers to create a codebook to serve as a template, which is similar to the node system established in the Nud*ist software program.

In the Nud*ist system the term node is used instead of codes or categories. The nodes not only describe the data but also, to some extent, interpret it. Using the nodes I created in the Nud*ist program, I began the process of classifying units of my data into categories, themes, and types. According to Lincoln and Guba (1985) a unit may be a phrase, a sentence, multiple sentences, or even a paragraph. Formatted data were converted into report documents. These reports supplied hard copies of the data that could be printed. Passages in these documents could then be labeled according to their content and relationships to the established nodes. Through this process I have discovered that text units could also be classified under several categories. After the reports were coded, the information was then transferred onto the computer.

Using the Nud*ist program, I discovered that the nodes I created can be organized and presented in an index tree format. This format supplied me with the first visual picture of my research (see Table 1.1). The index tree changed as the nodes were modified and rearranged. The tree also grew from its original size to encompass additional generations of nodes. The index tree enabled me to continue to the next stage of data manipulation by supplying different perspectives from which I
could examine my data. This allowed me to start making connections and relationships among these abstract categories. The nodes that were used to create the final index tree became the categories used in my written analysis of my data.

The index tree also supplied me with a tool that led me to generate new concepts and a systematic explanation for these observations. This stage is known as theory building or theory emergence, in this stage, I started to explore and make decisions about the concepts and ideas that were developed. "These categories become the findings of the study and when they are linked together by hypothesis the analysis is moving towards developing theory" (Richardson, Class Notes, 2002). The theories that were created from this study are presented in the last chapter.

Content Analysis and Nud*ist Techniques

Each approach, to data management offered many benefits. As stated earlier the Nud*ist program has the capacity to code, organize, and retrieve large amounts of data. The program automates the cutting and pasting techniques, which reduces the amount of time needed to organize the data. One weakness of the software, however, is its inability to edit the data after it has been entered into the program. This drawback was eliminated by incorporating levels of analysis techniques offered by Merriam (1988). This supplied me with the opportunity to edit my documents and allowed me to incorporate my own thoughts into
my analysis. Merriam’s methods encouraged me to become “familiar with my own data” (p. 131). Both techniques are designed to obtain similar goals, data management, and analysis.

Validity

Merriam (1998) defines internal validity as the extent to which the findings from a research study were congruent with reality. There are many strategies a researcher can pursue to ensure internal validity. I followed the model established by Sapsford & Jupp (1996) to access validity. They include triangulation, respondent validation, and reflexivity.

Triangulation is a method used to check on the validity of data. According to Sapsford & Jupp (1996), this is accomplished by “comparing the data produced by different methods” (p. 91). I compared the observable data I documented in my field notes to the data I obtained from my semi-structured interviews.

I also used the respondent validation approach. This approach involves “comparing data from the researchers observations of behaviors with data from the various subjects involved” (Sapsford & Jupp, 1996, p. 91). I accomplished this by discussing my observations with Ms. Brooks and Mrs. Tilton-Mauer prior to leaving the site. Using semi-structured interviews allowed me to ask them if they thought the observations were accurate. I also took this opportunity to ask them to share their
personal perspectives. The advantage of this approach is that I was able to gain additional knowledge about “the behavior under consideration” (Sapsford & Jupp, 1996, p. 91).

The final method I used was reflexivity. Hammersley & Atkinson (1983) defined reflexivity as “the continuous monitoring of reflections on the research process” (cited in Sapsford & Jupp, 1996). This method involves examining my role in the data collection process and “the implication of this for the analysis” (Sapsford & Jupp, 1996). I used my field notes and Xerox copies of my transcripts to record my own interpretations and feelings about the events and behaviors I observed. This process of reflection continued throughout my entire research project.

Conclusion

This chapter presented the methodology utilized in my study, including explanations of case study research. Detailed descriptions of the locations and the participants involved in the study were also provided. Multiple methods of data collection used for my research were explained and presented. The methods I used to safeguard the participants’ privacy in this study were identified and clearly explained. It also included the methods of data analysis that were used including qualitative and content analysis. Triangulation, respondent validation, and reflexivity were used to insure the validity of the study. This chapter also provided me with the opportunity to examine my own subjectivity as it related to my study.
CHAPTER 4

PRESENTATION AND ANALYSIS OF THE PROCESS

This chapter includes a description of the data that was collected through participant observations and through the semi-structured interviews I conducted with my participants. My findings are presented in a narrative format and my personal reflections are included to further enhance this case study. This chapter will focus on my first research question: What are the processes through which Queen Brooks, a sighted artist, conceptualized and created art forms for a group of junior high students who are visually impaired or blind and attending the Ohio State School for the Blind?

I have organized the collected data into three sections: process, production, and display. The first section introduces and describes the process that Ms. Brooks utilized in her search for guidance to create an art show for individuals who are blind or visually impaired. The production section establishes the materials, methods, and art elements that were used to create the pieces of artwork for the show. This section also examines how Ms. Brooks utilized the information and advice she obtained from
the students and from Mrs. Tilton-Mauer to aid her in making these decisions. A discussion of the collaboration aspect of this case study is also included in this section. Finally, the display section refers to the issues that surrounded the actual installation and opening of the show, Hands On, at the Worthington Arts Council’s Gallery. All of the artworks mentioned in this chapter were used in the shows, not unless otherwise noted.

Process

The process of documenting the creation of this show involved approximately two to three visits each month to both the Ohio State School for the Blind and to Queen Brooks’s studio. During my visits to the school I documented the interactions between Ms. Brooks, Mrs. Tilton-Mauer, and the students involved in this study. The meetings at the school averaged 45 minutes to an hour. They began during October 1998 and continued until June 5, 1999. My visits to Ms. Brooks’s studio enabled me to interview her and observe her at work on the pieces of art. This study presents the process Ms. Brooks engaged in with the group of students from the Ohio State School for the Blind to create the show Hands On, which was later enlarged and renamed Touching Revisited.
Initial Visit

After numerous phone conversations with Mr. Gerard Marcom, the Principal of the Ohio State School for the Blind, and Mrs. Tilton-Mauer, one of the teachers at the school, arrangements were made for Ms. Brooks to work with a group of junior high students at the school. I was also granted permission to conduct interviews with Mr. Marcom, Mrs. Tilton-Mauer, and Ms. Brooks and to document the interactions with the students. We arrived at the Ohio State School for the Blind on October 1, 1998. The main academic building was a huge two-story red brick structure. It had the appearance of a traditional, rectangular-shaped building with a flat roof. The main entrance was located to the right of a 40-foot high tower that I later found out was used as a chimney for the heating equipment. This was known as the Carillon Tower. It also housed a set of chimes for the school. Concrete steps lead up onto a patio that directs visitors to the double door entrance.

The first floor of the main building has an auditorium, offices, library, music rooms, dining rooms, hospital wing, maintenance shop and industrial shop. The second floor of the main building provides space for academic classrooms, science rooms, foods laboratory, typewriting and business training, Braille reproducing, recording and broadcasting. The Elementary school wing off the main building provides classrooms for kindergarten through sixth grade and a multipurpose room.
As we entered the large, two-story foyer, we were greeted by Mr. Marcom, who directed us into the office, and introduced us to the secretary. She showed us the protocol for registering at the school and gave us visitor’s badges to wear during our visit. She also notified Mrs. Tilton-Mauer of our arrival and supplied us with directions to the classroom.

Diane Tilton-Mauer's classroom was located on the second floor in the main building. We had to climb two sets of stairs to reach her classroom. As we climbed, we were passed by many students traveling down the stairs. Some of the students were using their canes to help detect the location of each step. We were impressed by the speed at which these students traveled.

Mrs. Diane Tilton-Mauer greeted us at her classroom door with a warm welcome. Our arrival at the classroom occurred during Mrs. Tilton-Mauer’s planning period. This gave us the opportunity to become familiar with the classroom. It was a large rectangular room with a set of windows that ran the length of the west wall. A long row of tables and chairs were arranged in front of the windows, and storage lockers with no doors were located on the east wall. Their usefulness became apparent as students arrived and stuffed their backpacks, books, and belongings into them. Near the door was a container that looked like an umbrella holder, but instead of umbrellas, held the students’ travel and walking canes. Mrs. Tilton-Mauer’s neatly organized desk was located near the door. In the corner of the room were a small
sink and a doorway leading into a small storage closet. The north wall contained cabinets for classroom supplies and the classroom computer equipment was set up on tables along the south wall.

The room was similar in appearance to any other classroom designed for sighted students. The lower half of the walls were covered with wood paneling and the exposed wall above was painted an off-white color. The bulletin boards were decorated with educational materials and posters were displayed on the walls. Books and other classroom supplies were neatly organized on the shelves located below the windows. Ms. Brooks found that, “It looked like any other classroom that was prepared for me to come in to teach and that was surprising. I expected it to be sparse, but it contained tables and desks. It was a really nice space” (Q. E. Brooks, personal communication, November 1, 1998). The tables were cleared and ready for the arrival of the students.

By arriving during Mrs. Tilton-Mauer’s planning period, Ms. Brooks had the opportunity to clearly communicate the intention of this initial visit. Her goal was to meet the students, learn about blindness, and find out if the students would be interested in supplying her with guidance about how to create an art exhibit that they would be able to enjoy.

The conversation was interrupted when the bell rang, indicating that Mrs. Tilton-Mauer’s planning period had ended. Soon the classroom filled with voices as the students began filing into the classroom. Their first task was to put their
possessions into the proper storage areas. Those students with traveling canes deposited them into the container by the door, and backpacks and books were stuffed into the lockers.

After everything was put away, the students went to their seats. They all were able to navigate through the classroom without any difficulty, and became actively engaged in conversations with their classmates. After the second bell rang, Mrs. Tilton-Mauer called the class to order and introduced us to the students. The students had received prior notification of the reasons for our visit to their classroom. They were reminded that Ms. Brooks was there to learn from them and to get their help in creating some artwork for blind and visually impaired individuals to enjoy. They were told that I was a student from The Ohio State University who was there to document their interaction with Ms. Brooks.

Mrs. Tilton-Mauer had the students introduce themselves. After the introductions were complete Ms. Brooks began telling the students about herself. She told them that she lives in Columbus and she makes her living as an artist. The students seemed excited to meet an artist and asked, “Where did you go to school?” “What else do you do?” and “What kind of artwork do you make?”

Ms. Brooks told the students that she graduated from The Ohio State University with a Bachelor of Fine Arts degree in 1990. After she graduated Ms. Brooks worked as a photographer for
five years and then took a job at a youth center working as an art teacher. At the center Ms. Brooks taught the students different kinds of art projects. While working at the center, “I received the Marian English Award from United Way, which allowed me to return to school and get my Masters Degree in Fine Arts” (Q. E. Brooks, personal communication, October 1, 1998). Ms. Brooks received this degree in 1992 from The Ohio State University. She also told the students that she was now an Adjunct Professor at Otterbein College. One student asked, “What does that mean?” and Ms. Brooks explained that she teaches painting and classes in two-dimensional design to college students.

Ms. Brooks asked the students if they had had the opportunity to experience art in a gallery setting. The students explained that they had taken a few field trips to the Columbus Art Museum. The students who were blind expressed that these trips were not very interactive. One student said, “We have to wear gloves and the tour guide only lets us touch certain items.” When Ms. Brooks asked them about the gloves, the students said it was to protect the artwork.

Ms. Brooks also discussed her artwork with the students. She explained that she considers herself a mixed media artist because, “I can’t find one medium that fulfills all my needs” (Q. E. Brooks, personal communication, October 1, 1998). After a moment passed she smiled and clarified that she likes to draw,
paint, and construct artworks from pieces of wood. She also told the students that she likes to use lines and colors to decorate her works of art. “I like using a linear technique in the my pieces. It’s called linear fill and I learned it from one of my art instructors” (Q. E. Brooks, personal communication, October 1, 1998). She explained that linear fill consists of covering the entire surface of a drawing or painting with lines and patterns. She asked the students if they would like her to bring in some of her artwork next time she visits. The students seemed very excited about the prospect of experiencing her artwork.

During this visit, Ms. Brooks also shared her fears about having glaucoma and the possibly of her losing her sight. It was apparent by watching and listening to Ms. Brooks that this was a difficult topic for her to discuss with the students. “I told them that I was afraid of becoming blind and I think that most artists are afraid of being blind” (Q. E. Brooks, personal communication, November, 1, 1998). The students who had lost their vision shared some of the experiences and difficulties they had to overcome. One student explained how hard it was to learn Braille. “It takes so much longer to read a book written in Braille than it was to read a regular book”, the student said. Another student said, “Retrieving something you drop can be very frustrating.”
The students who were born blind said that they didn’t know what it was like to have vision. One student offered, “This is the only way I know.” Ms. Brooks and I agreed that the students we met did not seem sad or hampered by their blindness. Both those students with usable vision and those who were blind were eager to share stories about things and activities they were involved in even though they didn’t have perfect vision. We quickly found out that the Ohio State School for the Blind offers a full program of physical education, including wrestling, swimming, cheerleading, and track and field. The students were also actively involved with academic organizations, including student council, Key Club, Honors Society, and other extra curricular activities including the social committee, bell choir, band, orchestra, and the school choir. They even reported an extensive list of the upcoming holiday concerts, dances, and events.

As it came time for the class to end, Ms. Brooks shared her feelings with the students. “I told them that after being with them and seeing them, if I were to lose my sight I now know that I wouldn’t have to be hopeless or helpless” (Q. E. Brooks, personal communication, November 1, 1998). She later told me with a smile that the students

Gave me a lot of courage that I hope I never have to use, but I know that you can have some joy in life without your eyes, without the visibility that we have, although this is a tremendous blessing. (Q. E. Brooks, personal communication, November 1, 1998)
The students thanked us for visiting their classroom and reminded Ms. Brooks to bring some of her artwork with her for the next visit. The bell rang and I watched as the room came alive with activity. The students quickly gathered their possessions and engaged in conversations with their peers as they exited the classroom. After the students had left, the room got noticeably quieter.

Mrs. Tilton-Mauer, Ms. Brooks, and I sat down at one of the tables to discuss the visit. We all agreed that the students seemed eager to help Ms. Brooks. They also appeared very excited at the possibility of experiencing some of her artwork. Mrs. Tilton-Mauer clarified some of the challenges her students who have lost their sight have had to face. “A person who is born blind will generally read Braille fluently, but for individuals who lose their vision, they find Braille very difficult to learn” (D. Tilton-Mauer, personal communication, October 1, 1998). She told us that most often, traveling and reading are the principal obstacles for these individuals. “It takes a great deal of guidance to learn and adjust to their new situation” (D. Tilton-Mauer, personal communication, October 1, 1998). She also informed us of the educational programs available at the school.

The Daily Living Skills Program focuses on those skills the students will need to acquire in order to live independently. According to Barraga (1983), daily living skills also focus on learning how to care for their own needs, including personal
hygiene, cooking, and home management. Many students with visual impairments have been deprived of many of the basic skills acquired by sighted students through observation. Napier (1973) noted that the Daily Living Skills Program curriculum offers instruction in developing organizational skills, time management, and social interactions.

Another program at the school is the Prevocational Program. The goal of this program is to teach the students with visual impairments the skills necessary to make the transition from school to employment in the community. This program also introduces students to different types of vocations and career options available to them. The students can take courses in computer programming, administration, and other career-oriented areas.

The Orientation and Mobility Program (O&M) trains students in the techniques needed to travel safely and independently. Scott (1982) defines orientation as the ability to identify one’s location in relation to one’s environment. Mobility is the ability to move safely and effectively from one place to another. According to Barraga (1983), acquiring efficient travel skills requires long and intensive attention from a qualified orientation and mobility instructor to students’ physical activities and skills. Heward and Orlansky (1988) believe that specialized instruction, materials, and individualized attention are necessary in order for individuals with visual impairments to
learn to function and travel in their environments. Mrs. Tilton-Mauer told us that students initially receive close guidance to learn a skill, but once that skill is mastered, supervision is decreased. The amount of O&M training that is needed depends upon the student’s vision and his or her ability to use that vision.

During a later interview with Mr. Gerard Marcom, the Principal at the school, I discovered that the entire campus is designed, equipped, and staffed to meet the specific needs of students with visual impairments. He informed me that “Additional services provided at the Ohio State School for the Blind include speech and hearing therapy, physical therapy, psychological counseling, and guidance counseling” (G. Marcom, personal communication, November 11, 1989). Mrs. Tilton-Mauer also told us that the school offers residential facilities, highly trained teachers, and educational programs designed to meet the needs of students with visual impairments.

We thanked Mrs. Tilton-Mauer for allowing us to come to her classroom and made arrangements for our next visit. Then we returned to the main office to sign out and drop off our badges. As we crossed the parking lot, Ms. Brooks told me that she already knew two of the works of art she wanted to bring with her for the next visit. She also shared with me that this visit helped diminish some of her fears of losing her sight to glaucoma. The stories of the students participating in school and community activities really seemed to inspire her.
During an interview back at her studio, Ms. Brooks shared how this visit had impacted her: "Seeing how positive the students were about their condition made me feel a lot better about the possibility of being able to continue to work in some fashion if I did become blind" (Q. E. Brooks, personal communication, November 25, 2001). When I asked Ms. Brooks to comment on her observations of the students during her classroom visit she stated the following:

I noticed that they are similar to visual children in terms of their interactions with each other. Their only limitation is that some of the students can't see their classmates. Otherwise, to me they do as much as any child that has sight, and I'm so glad. (Q. E. Brooks, personal communication, November 22, 1998)

We both agreed that the students acted in a similar fashion to other junior high students we have worked with in the public schools. The social interactions that occurred were reminiscent of behaviors I have witnessed in other students their age. All of the students seemed to have the capacity to be warm and supportive; however without warning, some of them could become outspoken and argumentative with each other. Conflicts among the students were quickly attended to by their peers and usually ended with sincere apologizes. All the students we worked with at the Ohio State School for the Blind appeared to be friendly, pleasant, honest, independent, and self-confident. They initiated conversations, participated in discussions, and always tried to answer all of the questions posed by Ms. Brooks.
This initial visit to the Ohio State School for the Blind gave me the opportunity to meet the students, Mrs. Diane Tilton-Mauer, and Mr. Gerard Marcom. It also acquainted me with the school setting and the layout of the classroom. In addition it gave me the chance to examine the social system of the class, by observing how the students interacted with each other, their teacher, and the artist.

Sharing Artwork

The process of creating the show involved many trips to Diane Tilton-Mauer’s classroom at the Ohio State School for the Blind to interact and work with the students. Anticipating Ms. Brooks’s visit to the school on October 8, 1998, I arrived at the classroom early. This gave me the opportunity to set up my tape recorder. The intent of this visit was to have the students experience examples of Ms. Brooks’s artwork. She recalled, “I took a large piece with a face on it, a leather piece, that I was just starting to make for them to see what they thought about it, and one of my sticks” (Q. E. Brooks, personal communication, November 11, 2001). When I inquired why she selected these pieces she explained, “They were very tactile and I wanted the students to experience a variety of textures and different forms. I thought it was something that they would enjoy” (Q. E. Brooks, personal communication, November 11, 2001).
Ms. Brooks entered the classroom shortly after the bell rang, carrying the three pieces of artwork. The students were already seated and waiting quietly. I watched as she placed them on a table and greeted the teacher and her students. She disclosed how much she had enjoyed meeting them and how she had looked forward to this visit. After Ms. Brooks was settled she told the students that she had brought some of her artwork to share with them. Ms. Brooks retrieved one piece of art at a time, and introduced it to the class. Initially she held up the pieces so that students with sight could see them. Afterwards she placed the pieces on the tables in front of the students. This gave the students a chance to touch the artwork.

Even though all the students were encouraged to touch and explore the artwork, they seemed hesitant. They reminded Ms. Brooks that during their visits to the Columbus Art Museum they were told that they should never touch artwork with their bare hands. After some reassurance from Ms. Brooks, the students seemed to relax and began touching the pieces she had brought for them. I watched as the students without vision ran their fingers across the artwork. They used all their fingers to investigate every detail of the piece. The students with usable vision also handled the artwork, but they seemed to only use a few fingers to touch and explore certain areas of the piece. The students were anxious and excited to see the other pieces Ms. Brooks brought and patiently waited their turn to experience the works of art.
I noticed that the students with sight asked questions relating to the visual aspects of the work. They asked Ms. Brooks about her selection of colors, the design of the piece, and the materials she used. The students who were blind didn’t seem to ask a lot of questions. The few questions they asked focused on the reasons Ms. Brooks created the pieces and what the pieces represented. They asked questions such as, “What is it?” and “Why did you make it?” Ms. Brooks explained that a majority of the pieces she creates are examples of abstract art. The students knew what abstract meant from their field trips to the Columbus Art Museum. Ms. Brooks asked them if they preferred artwork that was abstract or realistic. She recalled, “They answered by preference, which is pretty much like visual people. It didn't matter for some of the students and it did matter for others. I will try to incorporate some recognizable objects into the artwork” (Q. E. Brooks, personal communication, November 22, 1998).

The students seemed to take a particular interest in the large representation of a face. They moved their hands over the artwork, actively exploring the different features. As mentioned earlier, the perception of objects by touching them is called haptic perception (Gibson, 1966). The students without vision were able to locate and identify the eyes, nose, and mouth through haptic exploration. The students also commented that they
liked the feel of the abstract leather piece Ms. Brooks was making for the show. The students without vision spent additional time exploring the folds and creases of the leather.

The students spent a lot of time examining the fabric, yarn, and textures that adorned the stick’s surface. During this examination I watched as the students held the stick in their hands, touched it with their fingers, and rotated the stick. Ms. Brooks shared the following observation,

I noticed one student who was blind really took his time to touch the art. I asked him if he always takes his time, because visual people, they tend to look at art for a very, very short period of time. He said he wanted to take his time and really feel the art. Really see it. (Q. E. Brooks, personal communication, November 1, 1998)

Ms. Brooks told the students that the stick she brought was only one of many sticks she has created over the years. They were surprised that a work of art could be created from a tree branch. The Spirit Stick seemed to be one of their favorite pieces.

The students asked her, “How did you come up with this idea?” “Why did you use a tree branch?” and “When did you make your first stick?” Since the students showed a particular interest in the Spirit Stick, Ms. Brooks decided to share the story of its origin. She told them that she received the Lila Wallace Reader’s Digest International Artist Fellowship Award in 1993 and how it enabled her to travel to the Ivory Coast of West Africa.
She shared with the students her experiences during her three-month stay in the capital city of Abidjan. Ms. Brooks told the students that her visit to this city was the inspiration and origin of her Spirit Sticks. She explained that she found herself lonely during her trip to the Ivory Coast because most of the people who lived in Abidjan spoke French as their first language and did not want to speak to her in English. This barrier in communication caused Ms. Brooks to spend a great deal of time alone. One day she found a stick and, using a pocketknife, she began to whittle it. She adorned it with carvings of symbols and images that she experienced during her trip. These included the head of an elephant, images of faces, and the vegetation. This stick eventually became her first Spirit Stick.

Ms. Brooks told the students, “Since that trip my sticks have taken on a new form” (Q. E. Brooks, personal communication, November, 1, 1998). She clarified that the stick she brought in for them to experience is part of this new series. She shared with the students that she began to wrap the sticks with pieces of cloth shortly after her mother passed. Ms. Brooks recalled telling the students, “This piece represents my family, when my mother passed a few years ago, and she left a lot of clothes that I couldn't throw away. I decided that I would use her clothes and make some art. So, I tied up the pieces and that emerged into my Mom” (Q. E. Brooks, personal communication, February 19, 2000). The strips of fabric that she used were from her mother’s and
other family members’ clothing. “In the process of mourning, Brooks creates a symbolic remembrance of her mother and also evokes her strength and importance to the family and Brooks herself” (Exhibition plaque, Columbus Art Museum, 1997).

It became obvious during this session that the students really liked working with Ms. Brooks. They spent the class period actively engaged in exploring the artwork and interacting with Ms. Brooks. When it came time for the class to end, the students complimented Ms. Brooks and expressed how much they enjoyed touching her artwork. They asked her, “When will we see you again?” and “Will you be able to come next week?” One student even gave her a hug before she left.

After showing the students her artwork, Ms. Brooks decided that she would like to teach the students how to create their own Spirit Sticks. She confessed, “I was excited to find out that the students comprehended the processes I used to alter the branch” (Q. E. Brooks, personal communication, November, 1, 1998). Prior to leaving the school, she received permission from Mrs. Tilton-Mauer to conduct a workshop with the students the following week. Ms. Brooks returned to her studio and began collecting materials for the workshop.

During a visit to her studio on November 1, 1998, I asked her to recall how she felt after the students’ interaction with her artwork. She smiled and replied,
When I came out of that experience I felt like I was in one of those funny movies where people are jumping up and down, kicking their heels, that's what I felt like doing. It felt for the first time in my life that art was really important. That was such a worthwhile feeling because a lot of times I wonder. I see people doing things that are so necessary and I wonder, what is this that I'm doing? Is it doing anything for the world? So, to see those kids touch the art and they were giggling and they were smiling, and they were like . . . anybody would be with a treat. And, it was a treat. They said that they really enjoyed being able to touch the art because they are not allowed or usually they have to have gloves on. So, it made them happy, so it made me very happy. (Q. E. Brooks, personal communication, November 1, 1998)

The students’ positive feedback about the artwork Ms. Brooks had brought to their classroom influenced her to include some of her existing sticks into the show. Ms. Brooks explained, "I think that they fit very well into an exhibition for the blind because they have interesting shapes, textures, and these are things the students seemed to enjoy" (Q. E. Brooks, personal communication, November 1, 1998).

These first two visits also put a smile on my face. I must admit that initially I was a little apprehensive about what to say or do in the classroom. This was the first time I had ever met anyone who was identified as legally blind and I didn’t want to offend anyone, but after these visits I felt very comfortable.

Along with sharing some of the same concerns, Ms. Brooks admitted that she was surprised when she heard the blind students use the term "see." We asked Mrs. Tilton-Mauer during our next visit to the school and she reassured us that it’s normal
practice to use the terms “see” and “look” with individuals who are blind because they live in a sighted world. Ms. Brooks was relieved:

That's good because I think I was going to feel awkward using the term “see” because that's how I live, but I was also thinking it might make them feel bad by me saying, “see,” but it doesn't. It's a part of their life and they understand that. (Q. E. Brooks, personal communication, November 1, 1998)

Ms. Brooks also expressed, "I learned that they loved to experience artwork and that artwork matters to them" (Q. E. Brooks, personal communication, November 1, 1998).

During an interview conducted on November 11, 1998, Mrs. Tilton-Mauer shared the following critique of the artwork Ms. Brooks had shared with students. “The work is very attractive visually, but it's just as interesting and complex to observe by touch. That is something that every student in the class can enjoy and appreciate” (D. Tilton-Mauer, personal communication, November 11, 1998). The artwork that Ms. Brooks had brought to school offered the students a variety of visual and tactile experiences. She continued, “I also like Queen's approach, because the kind of art that she likes to do is very tactile-friendly” (D. Tilton-Mauer, personal communication, November 11, 1998). During our discussion we agreed that Ms. Brooks’s style of art was ideal for all audiences because her pieces contain strong elements of texture, color, and shape.
Spirit Stick Workshop

The straight tree branches Ms. Brooks collected for the workshop ranged in length from 2-3 feet long and 1-2 inches in diameter, which she felt would be a manageable size for the students. She prepared the sticks by removing the smaller branches, sanding rough spots, and painting them white. She also collected materials and supplies with which the students could decorate their sticks. Some of the materials available included: beads, yarn, fabric scraps, feathers, pieces of imitation fur, and felt. She brought all the supplies to the Ohio State School for the Blind on October 15, 1998, two weeks after the initial visit. Ms. Brooks explained that the purpose of the workshop was to have the students create their own Spirit Sticks.

I arranged to meet Ms. Brooks in the parking lot of the school to help her carry the supplies. Upon entering the classroom, Ms. Brooks greeted the students and told them she had a surprise for them. The students with usable sight saw the branches and supplies and quickly put the two and two together. The secret was out; they were going to create Spirit Sticks. The students seemed excited at the prospect of creating their own. Ms. Brooks began the art activity by explaining how she stripped, sanded, and painted the tree branches. She also told the students to be careful with the branches because of their length.
Each student was then given the opportunity to select his or her own stick. After all the students had their branches, Ms. Brooks handed out balls of yarn and instructed them to secure the yarn with a knot at one end of the stick and begin wrapping the yarn around the stick. The students with usable vision searched for their favorite colors, tied an end to their stick, and began wrapping. I noticed that the colors of yarn they selected were very bright.

The students without vision needed some assistance with this initial step. Ms. Brooks and Mrs. Tilton-Mauer helped the students select the colors they desired and knot the yarn to their sticks. I also became actively involved in helping the students at their request. Ms. Brooks recalls, “Sometimes I started it at the top for them so that it would be secure and then they finished it” (Q. E. Brooks, personal communication, November 1, 1998). I watched as a student placed his/her hands on top of Mrs. Tilton-Mauer’s hands as she wrapped the yarn around the stick. Then Mrs. Tilton-Mauer placed the yarn into the student’s hands and helped guide the student’s hands. The student seemed to be learning the wrapping motion. It only took a couple movements before the student began wrapping the yarn without assistance. I learned after class that this teaching strategy is known as the hand-over-hand technique, it is used to demonstrate and teach hand and finger movements.
The workshop enabled Ms. Brooks to watch the students work with the materials. After the initial wrapping instructions, the students were able to work independently. Ms. Brooks noted, "Once you tell them and show them, they got it. I think they really enjoyed making them" (Q. E. Brooks, personal communication, November 1, 1998). I noticed that the students used various methods to wrap their sticks. These techniques included wrapping the yarn in precise even rows, leaving gaps between the rows, and overlapping one row on top of another. Ms. Brooks was impressed with the students’ progress, "I thought they embraced it very quickly and found it to be an interesting sort of art form that they had never experienced, but they didn't care, they seemed to be very open to it" (Q. E. Brooks, personal communication, November 11, 1998).

Ms. Brooks notified the students that they could continue wrapping or they could begin adorning their sticks by gluing and attaching different materials to their own projects. The materials Ms. Brooks brought were placed on the table. Mrs. Tilton-Mauer poured the smaller beads and items into small bowls and containers. The acrylic paint bottles, paint trays, and paintbrushes were positioned at the end of the table. She verbally identified each material and described where she was placing them on the tables. She told me this helps the students without vision locate the items. I noticed that when one student
asked for a certain material, Mrs. Tilton-Mauer gave verbal directions that enabled her to locate it on her own instead of handing it to her.

Ms. Brooks didn’t place any restrictions or limitations on the students. The students were given the freedom to make their own decisions about their Spirit Sticks. I observed that some of the students covered their entire stick with yarn, while others covered only portions of their sticks. Two of the partially sighted students created patterns on their sticks by alternating different colors of yarn as they wrapped their sticks. Some of the students left the original white base coat exposed on their sticks, while other students decided to paint over the white. Ms. Brooks observed, “They had a sense of control about what they were doing and what textures and colors they wanted in their project” (Q. E. Brooks, personal communication, November 25, 2001).

I watched as the students with vision selected the different items on the table. Those items that required further examination were held closer to their eyes. A couple of the students told me they were searching for particular colors or designs they wanted. The students without vision used their hands to search for and locate the different items. Many of the students without vision spent a great deal of time feeling the materials and making careful selections. When they wanted a particular color they would ask us for help. Ms. Brooks observed,
“Some of the students arranged things in terms of recognition of shape, and they alternated the shapes to create patterns” (Q. E. Brooks, personal communication, November 25, 2001). Ms. Brooks and Mrs. Tilton-Mauer spent a majority of their time watching the students work and offering guidance when needed.

I thought that attaching the beads presented a particular challenge for the students who were blind. The beads were small and hard to hold, and the white school glue made them very slippery. It also appeared that the students had difficulty attaching the beads to the three-dimensional surface of the sticks. After I watched them a short time, I decided that the task of gluing these beads could pose similar problems for students with normal vision. At that time Ms. Brooks made two suggestions to the students. The beads could be threaded onto pieces of yarn and then tied onto their sticks, or she could glue their beads directly onto the surface of the stick using the glue gun she had brought from her studio.

The students seemed to have more success attaching the pieces of felt, velvet, and imitation fur to their sticks. It might have been because these materials have the flexibility to conform to the shape of the stick. I watched as the students either applied the white school glue to the stick’s surface or to the back of the material before they wrapped the pieces around their Spirit Sticks. The students used different amounts of glue to attach the materials to their projects. Some students used a
drop or two of glue, while others used an excessive amount. I found these actions similar to the behaviors that commonly occurred with the students with normal vision that I taught in the public schools.

The materials with soft, distinct textures were selected more often than the materials that felt rough to the touch. "I asked what they would like to feel and they said something smooth and something silky" (Q. E. Brooks, personal communication, November 1, 1998). This became apparent when the students selected the pieces of imitation fur, silk ribbons, fleece, velvet, and felt to use on their sticks. The students did not utilize any of the scratchy materials. Ms. Brooks observed that students manipulated the materials: "The textures were important for the visualization of shapes and objects" (Q. E. Brooks, personal communication, November 25, 2001).

The students continued to work until Mrs. Tilton-Mauer told them it was time to clean up. During clean-up, all the students helped organize the materials. Since most of the sticks were still wet from the glue, the students were instructed to leave them on the tables. The entire class appeared pleased with their final projects and actively shared them with each other. They also seemed to seek approval from Ms. Brooks, Mrs. Tilton-Mauer, and me.
As the class came to an end, the students thanked Ms. Brooks for teaching them how to create their own sticks. The bell rang and the students collected their personal items and departed. The only items that remained on the tables were their Spirit Sticks. This gave us the opportunity to examine them more closely. All of them exhibited one or more of the wrapping techniques. The beads and items that were attached by the glue gun appeared to be secure while some the items attached with the white school glue were coming loose. I had a difficult time determining which of the sticks had been created by students with usable vision and which ones by students who were blind. I found all of them to be visually colorful and rich with textures.

Before Ms. Brooks left the classroom, I asked her to compare this Spirit Stick workshop to the ones she conducted with sighted individuals. She told me that the selection and preparation of the tree branches was the same, and the materials she collected were almost identical to items she has used during other workshops. She also thought the process of creating the sticks was very similar between the sighted and unsighted. She explained,

I have seen children who have sight work, and there wasn't really any difference. With both groups you have to supply them with directions to get them started and keep them on course. These kids did as well as the sighted, to me. (Q. E. Brooks, personal communication, November 22, 1998)
Ms. Brooks felt that the skill and craftsmanship of the finished sticks were comparable to the sticks created by students of the same age with normal vision. She continued that, “It was just amazing to watch them get it together; to understand where the yarn was supposed to go” (Q. E. Brooks, personal communication, November 22, 1998). “Each piece was very cohesive and creative. There wasn't any difference. I can't judge the difference in appreciation, but the kids seemed to be as happy as those people who were sighted enjoyed their sticks” (Q. E. Brooks, personal communication, November 22, 1998). Ms. Brooks felt it was a good experience for everyone involved.

Production

This section examines the decisions and struggles that Ms. Brooks faced in selecting the materials and methods that would best meet the needs of her intended audience. Then it describes the issues and challenges surrounding the actual construction of the works of art. This section also presents how Ms. Brooks utilized the information and advice she obtained from the students and from Mrs. Tilton-Mauer in making these decisions. Finally, it presents a discussion of the collaboration aspect of this case study.

Materials

Ms. Brooks continued to bring in a variety of other materials and objects for the students to explore during the rest of her visits to the school. Her intent was to find out which
materials the students preferred. She explained, “I knew that I had to have this show on a certain date, I took notes to determine what materials I was going to use and then I tried to locate as many of them as possible” (Q. E. Brooks, personal communication, November 25, 2001).

These visits helped her to identify the materials the students preferred and eliminate materials because they may cause injury. “I just wanted to get a feel for materials that I could use that would be pleasing to their touch” (Q. E. Brooks, personal communication, November 22, 1998). The students expressed their own personal preference for the materials they liked and disliked. Overall, the students with usable sight and those without vision all seemed to have similar taste. She discovered that “the students told me that they liked the soft, squishy, furry, smooth objects” (Q. E. Brooks, personal communication, November 25, 2001). I watched as the students who were blind stroked and touched the pieces of imitation fur and suede. One student even placed a piece of the fur against her cheek and smiled. They also seemed to enjoy squeezing the small sponges and cotton balls. Ms. Brooks recalled, “They didn't want objects that gave the possibility of being stuck or cut, which makes sense” (Q. E. Brooks, personal communication, November 25, 2001).
Utilizing the lists she created at the school, Ms. Brooks carefully selected which materials to use in her artwork for this show. I have decided to categorize them as traditional and nontraditional materials. The traditional materials I saw Ms. Brooks utilize included wood, metal, and leather. Ms. Brooks told me that she enjoys working with wood because “as a design material it offers versatility and a variety of physical characteristics” (Q. E. Brooks, personal communication, November 22, 1998). She also decided to use wood for most of the pieces of art because the students seemed to enjoy the smell and texture of the wood she brought to their classroom.

Metal was selected because it offers both a visual and textural contrast against the wood. Another reason she used metal was its potential for changing shape because of its tensile strength; metal can be bent, stretched, and shaped. Another traditional material Ms. Brooks used was leather because the students expressed their delight with the piece of artwork she initially brought in for them to touch during her second visit to the school. She expressed, “This organic material offers a variety of unique qualities, including different degrees of flexibility and color” (Q. E. Brooks, personal communication, November 22, 1998).

The nontraditional materials Ms. Brooks selected included glass, plastic, rubber, and other synthetic and natural materials. She also chose a variety of found objects, which the
students recognized during her visits to the school. Balloons, ribbons, buttons, beads, shells, and other common everyday objects were incorporated into the artwork for the show. Ms. Brooks discovered that “Most of these materials are part of their vocabulary” (Q. E. Brooks, personal communication, November 19, 2000). Ms. Brooks used a Compact Disk as a focal point of the piece *Silent Voice* because the students were able to recognize it the moment they touched it (see Figure 19). She even incorporated a set of fake acrylic nails on the fingertips of the woman portrayed in the piece *Conjurer Woman* (see Figure 5).

The students without sight really seemed to take pleasure in guessing the identity of the items and materials Ms. Brooks brought along on her visits. Some of the items compelled the students to share a story or memory. The under inflated balloons reminded a student without vision of the sound they make when you release the air from them. She seemed to get great pleasure mimicking that sound with her mouth. Another student who was blind found a large button that reminded her of the buttons on her favorite winter coat. Sometimes the students with usable vision couldn’t resist the urge and revealed the object’s identity before the students without sight had had the chance to explore them haptically.

Ms. Brooks also brought items that produced a variety of scents. “I have some coffee beans that gave me an idea in terms of a sense of smell” (Q. E. Brooks, personal communication,
November 1, 1998). When she brought in the coffee beans most of the students identified the aroma almost immediately. Ms. Brooks recalled, “Most of the students were able to recognize that they were coffee beans, but there was one child that didn't” (Q. E. Brooks, personal communication, November 22, 1998). Ms. Brooks speculated that perhaps this student hasn’t had a concrete experience with coffee. “I wondered if her family ever had coffee because she didn't recognize the smell” (Q. E. Brooks, personal communication, November 22, 1998). Other items that she brought into the classroom that emitted scent included potpourri, leather, wood, plastic, and rattan.

Some of the items were specifically selected for their potential to produce a sound. “I would like to incorporate the sense of sound in some of the pieces of art” (Q. E. Brooks, personal communication, November 1, 1998). Ms. Brooks brought in little metal bells, shells, wooden and glass beads, and other small items. She hoped that these items would emit sounds when they are touched independently or when they come into contact with other items.

During these visits the students showed particular interest and preference in the softer materials, which included pieces of fabric, suede, cotton, and fabric batting. Ms. Brooks recalled, “The students loved the softness of the feathers and imitation fur” (Q. E. Brooks, personal communication, November 22, 1998). These visits enabled Ms. Brooks to obtain information about her
intended audience. “I became aware of what they enjoyed working with, and I could utilize this information to create the artwork for the show” (Q. E. Brooks, personal communication, November 25, 2001).

**Sketches**

During the visit to the Ohio State School for the Blind on November 11, 1998, one of the sighted students asked Ms. Brooks if she drew out her ideas and designs prior to making a piece of art. Ms. Brooks recalled telling the student, “I'm an intuitive artist and I don't usually draw out things or make sketches. I just start to work and I have an idea in mind and I just visually grab things that would make that idea work” (Q. E. Brooks, personal communication, December 11, 1998).

I asked her about the sketches during a visit to her gallery three months after her initial discussion with the students. “I've tried to do sketches and they turn into miniature drawings and then they're nothing I want to re-do because they have become their own entity” (Q. E. Brooks, personal communication, February 27, 1999). Instead of creating drawings, Ms. Brooks wrote her ideas and thoughts down on paper. She also created lists of materials and supplies she wishes to obtain.

**Assemblages**

During her initial visit to the Ohio State School for the Blind, Ms. Brooks told the students that she considered herself a mixed media artist. Zelanski and Fisher (1987) define the term
mixed media as a work of art created by using combinations of different materials. Ms. Brooks explained, "I can’t find one medium that fulfills all my needs" (Q. E. Brooks, personal communication, October 1, 1998). She clarified that she liked to draw, paint, and construct artwork from pieces of wood.

She further described her artwork during a conversation that occurred a month later. "I create three dimensional assemblages that I prefer to call wall hangings" (Q. E. Brooks, personal communication, November 22, 1998). Bevlin (1984) defines an assemblage as a work of art created by joining together objects or fragments of objects that are intended for other purposes. Manipulating raw materials was the basis of her assemblage style of creating. Ms. Brooks expressed that she prefers to work with raw materials:

I love making wall sculpture with scraps of wood. That's one of my favorite things to do. When I really feel like I have a need to create, and I don't know what to create, I go looking for scraps of wood. Then I find a surface to adhere them to and then the process of adhering wood to a surface, it starts to take on a new meaning or form for me. Then I really enjoy embellishing them. (Q. E. Brooks, personal communication, November 11, 1998)

Through my research, I found that her assemblages are also examples of relief sculptures. According to Katz, Lankford, and Plank (1995) a relief sculpture was only partially enclosed in space and was comprised of sculptural forms that protrude from a flat surface. During a visit to Ms. Brooks’s studio, I observed her utilizing wood as a base for all her assemblages for the show. Ms. Brooks likes to create assemblages because "I can just
use all sorts of things that ordinarily wouldn't be used in the manner that they're being used in. It also helps aid the earth by recycling. You're making something that hasn't been made before" (Q. E. Brooks, personal communication, February 27, 1999). To prevent the assemblages from becoming two-dimensional, Ms. Brooks attached additional materials to the base. Ms. Brooks expressed that it's a challenge "to find creative and diversely different forms so that the pieces would be appealing both visually and by touch" (Q. E. Brooks, personal communication, November 22, 1998).

Ms. Brooks utilized two different approaches to generate her assemblages. They included creating artwork inspired by the actual raw materials or the manipulation of those materials, and inspiration that was derived from outside sources or ideas. Both of these approaches were used to create the pieces of art for the show.

Ms. Brooks told me that it was the shape and texture of the wood that inspired her to create her piece Conjurer Woman (see Figure 5). She expressed, "I just kept looking at the piece of wood and trying to decide what it wanted to be, and I got the feeling that it wanted to be a female figure. So, I started working with this female figure that I saw in it" (Q. E. Brooks, personal communication, February 9, 1999). She continued, "The material influenced me in the sense that I knew or felt that it was supposed to be developed into a piece of art" (Q. E. Brooks, personal communication, February 9, 1999).
Ms. Brooks shared with me that the piece, *Mask of My Familiar*, was also material inspired (see Figure 4). It started out simply as a woven mat that she bent and formed into a curved shape. The mat was made out of a straw-like material that had been woven together. "I have several woven mats that I don't know where they came from, but I keep things because they always tend to be incorporated in some art, or they inspire me to create some art, as is the case with the mask" (Q. E. Brooks, personal communication, November 22, 1998).

The piece *Labyrinth* originated from a large piece of white pine, which was cut in half (see Figure 6). One half was preserved for the base and the other piece was cut into triangular shapes. When I inquired about the creation of this piece, Ms. Brooks told me that it evolved from the manipulation of materials. "I'm working on this piece and I'm not quite sure of how I'm going to rearrange it. I have approximately a dozen or so pieces of wood" (Q. E. Brooks, personal communication, February 2, 1999).

She told me that in order to work on this piece, "I have to put it someplace where I can just play with it at leisure. So, I'm going to take it off the floor and put it on my kitchen table, and the studio extends beyond the boundaries again" (Q. E. Brooks, personal communication, February 2, 1999). Ms. Brooks admitted that this approach helps her to brainstorm ideas. "I start building and when I don't know exactly what to do, I just
start putting wood together. As I put it together, things start
to develop in my head of where those pieces belong” (Q. E.
Brooks, personal communication, November 11, 2000). Only after
she was satisfied with the arrangement would she secure the
materials together into the final work of art.

She revealed that the pieces inspired by the materials the
students liked were difficult to create. "Those pieces are the
pieces that I have to work the hardest at, because I'm looking at
the material and I'm saying, you need to be something” (Q. E.
Brooks, personal communication, November 22, 1998). She expressed
that "This process takes a great deal of time to accomplish,
because it involves a lot of trial and error” (Q. E. Brooks,
personal communication, November 22, 1998).

Some of the pieces for this show were inspired by personal
thoughts or outside sources. She acknowledged that most of the
ideas for the artwork came from her interactions with the
students, from visits to the school, and from the knowledge that
this show was being created to be touched. The piece Jingleman
was inspired by a work of art she shared with the students during
her second visit to the school. It was a large representation of
a face, with distinct three-dimensional features. Ms. Brooks was
impressed that the students without vision were able to locate
and identify the eyes, nose, and mouth through haptic exploration
(see Figure 2).
She admitted that the artworks developed from initial concepts were easier to create because, "Whenever there's an idea, then I just look for the materials that fit that idea" (Q. E. Brooks, personal communication, November 22, 1998). She shared with me her personal inspiration for the snakes found in the pieces, *Sleeping Serpent I* and *II* (see Figures 8 and 9). She explained that the snake represents “Shedding of the old life and taking on a new form. So, I have no problem with putting it in my body of work” (Q. E. Brooks, personal communication, February 4, 1999). She told me she selected this motif because she finds the snake a sign of rebirth and that’s how she feels about her glaucoma. “Talking to the students has helped calm my fears and given me new hope” (Q. E. Brooks, personal communication, February 4, 1999). After she decided on this theme she then searched and obtained colored gravel to represent the scales of the snake.

I discovered during a visit to Ms. Brooks’s studio on February 9, 1999, that some of the pieces that were created for the show came from re-working existing works of art. “A lot of the pieces started out being one thing and ended up being something else that worked better than before” (Q. E. Brooks, personal communication, February 9, 1999). She also shared with me that a couple of the pieces were created prior to this exhibition “The piece, *Shaman Stick*, is not new. It’s an earlier work that I thought would be appropriate for this exhibit because..."
it has feathers and bells and the branch has a unique shape” (Q. E. Brooks, personal communication, February 9, 1999). She also decided to include this piece because the students were already familiar with her Spirit Stick (see Figure 10). Another piece of art that was not specifically made for the visually impaired was the piece Mother Remembering (see Figure 24). This piece was not included in the original Hands On exhibition but was added to the show, Touching Revisited. Ms. Brooks explained that “Mother Remembering seemed to fit into the needs of the show for the blind” (Q. E. Brooks, personal communication, February 19, 2000).

After creating the works of art, Ms. Brooks displayed them on her studio walls. This gave her a chance to view them from a different perspective. It also supplied her with the opportunity to see how the pieces related to one another. “I would like to see a commonality running through it, but I don't see a lot of that happening yet” (Q. E. Brooks, personal communication, February 2, 1999). As the creation of the artwork for the show progressed she expressed,

To me, this show is looking strange because I can't see the continuity of...I mean, there's continuity in a couple, three pieces, but everything looks so different, doesn't it? I mean, that's the way I feel...I can't seem to just...I don't know. I'm not real pleased with that, but then again I have to keep remembering that the continuity is not really visual, but the continuity of touch. (Q. E. Brooks, personal communication, February 2, 1999)

After I examined the finished pieces on the wall, I agreed with her observation. The show visually appeared fragmented, but the link that held the show together, in my opinion, was the
strong elements of texture found in each individual piece. I told her that I thought the students would appreciate the variety of experiences she had created for them.

She thanked me for my reassurance and expressed, “I’m hoping that since I’m using a lot of leather and wood in my pieces, maybe that will be strong enough to pull the show together” (Q. E. Brooks, personal communication, February 2, 1999). When that didn’t seem to work she decided to create three series of artwork for the show in hope of developing stronger connections between the works of art. Ms. Brooks explained, “I wanted to see some of these pieces grow into a collection of works” (Q. E. Brooks, personal communication, February 4, 1999).

Ms. Brooks developed the Sleeping Serpent series by creating an additional piece of art that was a mirror image of the original. She used the same subject matter, color scheme, materials, and techniques, to develop the second work of art. Both pieces shared similar visual and haptic elements (see Figures 8 and 9). The Gentle Wind series consisted of two pieces of art that were created using comparable materials. Ms. Brooks used the same folding and draping technique to arrange pieces of tan colored leather onto the rectangular wooden bases (see Figures 13 and 14). The final work of art that she developed into a series was The Wink. Both pieces utilized the same subject matter (see Figures 16 and 17). The creation of this series is described in the Thermoform Technique section found later in this
chapter. It was Ms. Brooks’s hopes that the addition of these series would, “Produce a commonality running through the entire show” (Q. E. Brooks, personal communication, February 4, 1999).

Ms. Brooks continued to examine and evaluate the show as it developed. Along with creating series of artwork and utilizing the same materials, Ms. Brooks also selected a limited number of art media to decorate and adorn the surfaces of the artwork for the show. It was her hope that all of these approaches would contribute to developing continuity.

**Media**

When selecting which art materials to use for this show, Ms. Brooks decided to use acrylic paint, puff paints, and pastels to decorate the surfaces of the pieces of art. Ms. Brooks’s familiarity with these materials, from her previous works of art, led her to believe they would best suit the needs for this show. Each material supplied its own unique variations of color and texture.

When I asked her why she selected acrylic paints she explained that she prefers to use them because they are water based, quick drying, and come in a wide variety of bold colors. She avoided using oil paints because, “They take too long to dry. I want immediate gratification” (Q. E. Brooks, personal communication, July 5, 1997). Using acrylic paint enabled her to create smooth, flat surfaces by applying the paint with even brush strokes. This application of the paint can be seen in the
piece, *Melody’s World*, and in the black and white checked background in the piece *Sunfish* (see Figures 18 and 21). Ms. Brooks quickly realized that putting a coat of paint over all the surfaces would cause everything to feel exactly alike to the students, who rely on their sense of touch.

She developed two techniques to change the application of the acrylic paints. The first process she utilized to create additional surface texture was to raise the surface of the paint. This was accomplished by applying one layer of paint over a dried layer, using thick uneven brush strokes. The second method Ms. Brooks used was a marbleizing technique. I watched her use this method to embellish the piece *Labyrinth* (see Figure 6).

She began the marbleizing process by painting the entire wooden base with a coat of yellow acrylic paint. After that layer dried, she applied a layer of maroon paint over the entire piece. Before the maroon layer dried, she painted white on top of that layer. Then, using a small, rectangular piece of cardboard into which she had cut slits to create a comb, she brushed the surface of the paint. The comb’s teeth lifted the top layers of the paint and revealed the yellow layer underneath. By experimenting with the amount of pressure to apply to the comb, she was able to reveal the separate layers of paint on the base and shapes. She manipulated the paint in a random fashion to avoid creating a predictable pattern design. After the base was dry, she attached
the random triangular shapes to the base. I watched as she spent a great deal of time duplicating the marbleizing effect on the surface of the triangular shapes.

Acrylic paints were also diluted with water. This caused the paint to become translucent and to have a consistency very similar to watercolors. When Ms. Brooks used these acrylics on a wooden surface, the paint acted as a colored stain and dyed the outer layers. The paint’s translucent properties allowed the grain of the wood and textures underneath to be part of the finished appearance. Ms. Brooks was also able to darken a color by painting over an area or by creating a more concentrated solution. The results of this technique can be seen in the piece of art entitled *The Wink I* (see Figure 16).

Puff paints were another medium Ms. Brooks used to alter the surface of her assemblages. These water-based paints come in small tubes with applicator tips. Applying pressure to the sides of the tubes enabled her to control the amount of paint that was dispensed. The tip allowed Ms. Brooks to draw controlled lines and designs with the paint. She was also able to create dots by holding the tip in one place, applying a drop of paint, and then lifting the paint bottle straight up. This paint is called “puff paint” because it remains raised even after it dries, creating unique dimensional effects.
Ms. Brooks expressed that she liked using these paints because they were ideal for all types of surfaces, including fabric, wood, paper, and even metal. These paints allowed Ms. Brooks to add additional texture to the artwork for the show. In the article “Shared Vision”, Melissa Starker stated, “In her more traditional canvases, Brooks has added something extra with the use of fabric paint. The naturally bumpy properties of the paint are perfect for these purposes” (1999, p. 2). Since these paints are completely opaque, she was able to place them over other painted surfaces. These lines, designs, and dots that Ms. Brooks created using the puff paints remained raised even after the paint dried. This technique was most visible in the pieces Celestial Sundial and Sleepy Head (see Figures 3 and 12).

Ms. Brooks also found a translucent variation of the puff paints. They came in the same size bottles and used the same type of applicator tips as their opaque counterparts. “It's just a certain kind of paint that once it hardens, its appearance is similar to glass” (Q. E. Brooks, personal communication, February 2, 1999). She used this paint to create small, clear, colored beads on the pieces Timberland and Gentle Wind I (see Figures 1 and 13).

Pastels supplied Ms. Brooks with a wide color palette. Oil pastels are similar to crayons but have an oily consistency. They can be layered over painted areas to give definition and contrast. The oil pastels were used in the pieces Sleeping
Serpent I and Sleeping Serpent II to add dimension and movement to the grassy background (see Figures 8 and 9). Oil pastels also have the capacity to be blended. Ms. Brooks was able to mix colors and modify tones using her fingers or a cloth.

My visits to Ms. Brooks’s studio gave me the opportunity to watch her work with the art materials. In addition, these trips gave me the chance to examine the techniques Ms. Brooks used to embellish the surfaces of the artwork. Dimensions of color and unique textures were added to the pieces by using acrylic paints, puff paints, and oil pastels. I discovered that almost every piece of art in the show utilized a combination of these different art media.

**Thermoform Technique**

During a visit to the Ohio State School for the Blind on February 25, 1999, Mrs. Diane Tilton-Mauer showed Ms. Brooks and myself a sheet of Brailon. It was a thin sheet of vinyl that had an image pressed into its surface. She explained that embossed images are created on Brailon using a thermoform machine. Using a pipe cleaner, a couple scraps of textured wallpaper, and a silk flower, she created an image of a flower by arranging and gluing these materials onto a piece of thick paper. She used the silk leaves, a pipe cleaner to represent the stem of the flower, and pieces of wallpaper to create the petals.
After class she brought us down to the library’s storage room to see the machine. I noticed that the American Thermoform Duplicator was about the size of a standard copying machine, but instead of the top flipping up, the upper part of the machine pivoted out of the way. She loaded the machine by placing the master she had created face up on the bottom half of the machine and covering it with a piece of Brailon. The top of the unit was slid back into its original position and secured.

Mrs. Tilton-Mauer explained that the upper section of the machine contains heating elements that soften the vinyl sheet; after the Brailon has been heated, the vacuum unit was activated. The action of the vacuum drew the plastic over the raised materials on the master and created a cast of the original image. She told us that the thermoform machine was usually used to reproduce Braille from a master copy.

Ms. Brooks took a particular interest in the process and asked if an image could be created using cardboard. Mrs. Tilton-Mauer told us that any non-combustible material could be used as long as it was thin enough to fit in the machine and no larger than 11 x 11 ½ inches. Ms. Brooks returned to her studio and created images using pieces of different materials. Utilizing thin pieces of cardboard, Ms. Brooks was able to glue them onto a sheet of heavier weight board to create different relief images.
and designs. She knew from her conversation with Mrs. Tilton-Mauer that the image had to be no more than one-quarter inch thick for it to fit properly in the machine.

One of the illustrations she created, out of pieces of cardboard, a thin layer of plaster, and a shoelace, was an image of a face. Ms. Brooks made sure that all the facial features were included. She was also able to produce the illusion of a wink by cutting the cardboard so that one eye appeared open and the other closed. The other piece of artwork she created was an abstract illustration using cardboard and twine. After she produced these designs, she returned to the Ohio State School for the Blind the following week to have Mrs. Tilton-Mauer reproduce them on Brailon.

The thermoform machine enabled Ms. Brooks to duplicate her original relief images onto a strong plastic resin that was suitable to be touched numerous times. After the thermoform images were created, Ms. Brooks decided that the Brailon of the face was the strongest image to use in the show. This piece became known as *The Wink II* (see Figure 17). It was critiqued by Melissa Starker in the article "Shared Vision", "This is the only piece without additional color; a boxy, abstract portrait is embossed on cream-colored paper" (1999, p. 1). Ms. Brooks added color to the original relief image to create a second work of art. Starker (1999) found, "*The Wink I* is a brightly colored version of the same winking face, this time created from paint,
plaster-infused cast material, handmade paper, and a shoestring” (p. 1). The thermoform machine enabled Ms. Brooks to create an embossed image of the original work of art. These pieces of art were matted, framed without glass, and used in the final exhibition (see Figures 16 and 17).

Learning the thermoform technique allowed Ms. Brooks to incorporate an instructional material, that was commonly used in the classrooms at the Ohio State School for the Blind, into a work of art for the show. We were glad to discover that this technology had the capacity to be used in a creative format. It was Ms. Brooks’s hope that the students would recognize the feel and texture of the Brailon used in the piece Wink II.

Texture

The focus of my visit to Ms. Brooks’s studio on November 24, 1998, was to discuss the element of texture she had incorporated into the artwork for the show. Zelanski and Fisher (1987) define the term texture as the tactile surface characteristics of an object or work of art. Ms. Brooks told me that she had been spending a great deal of time experimenting with different textures. Along with the textures that could be created using acrylic paints, puff paints, and pastels, some of the surfaces of the artwork were also altered physically. Wood burning and carving were two techniques Ms. Brooks utilized to manipulate the surfaces.
During that visit I had the opportunity to watch Ms. Brooks use a wood-burning tool to change the surfaces of the wood and leather on the pieces Gentle Wind I and Gentle Wind II (see Figures 13 and 14). "These pieces are constructed of two pieces of wood and several pieces of leather. Some of the leather pieces are layered on top of each other and some pieces are rolled" (Q. E. Brooks, personal communication, February 2, 1999). Altering the surface of the leather by burning gave Ms. Brooks a greater range of possible textures. "I'm wood burning so that the children will be able to feel the textures that the designs are creating" (Q. E. Brooks, personal communication, February 2, 1999). She told me that this electric device offers a range of temperature settings and tips that allow lines, drawings, and patterns to be burned into the surfaces. Variations in line quality and depth of the burnings could be achieved by utilizing the different tips. A utility knife or chisel was used to carve out deeper lines and designs. The utility knife was also used to etch drawings and shapes into the wood surfaces.

Adjoining materials that already possessed their own texture qualities were also used. Utilizing both traditional and nontraditional materials provided an endless array of textures. Colored gravel, roping, and the woven mats supplied rough surface textures, while the leather, suede, cotton batting, feathers, and yarn added qualities of softness and pliability. Ms. Brooks manipulated soft materials to create different textures through
processes such as wrapping, stuffing, and gluing. Starker (1999) related that, "Soft Touch, a monochromatic collage of fabrics and plush materials, presents many pleasing sensations for the viewer’s eyes and hands, as fluffy white falls beside a slightly steel-woolly gray" (p. 1). Ms. Brooks also glued pieces of red yarn directly to the surface to give the appearance of a yarn painting in the piece, Sunfish (see Figure 21). Rope was applied, using the same technique, to Three Shell Dancers to provide a strong contrast against the soft feathers (see Figure 15).

My visits to Ms. Brooks’s studio gave me the opportunity to witness some of the struggles she faced. When I asked her what has been the biggest challenge in creating this artwork for the show, she replied:

Actually, working with texture, consciously working with texture and always remembering that I can't go off on my own tangent. Sometimes I'm working and I get into it and I'm really liking what's happening visually, and then I have to remember that that won't work for my audience. So, I have to go in another direction. The challenge has been me fighting myself to create this work. (Q. E. Brooks, personal communication, February 9, 1999)

I watched her as she experimented with the arrangements of the materials, placing the smoothness or softness of one material against the roughness of another to create contrast. She confessed, “It was challenging at times to combine textures and materials because I usually don’t have to think so hard about those things” (Q. E. Brooks, personal communication, November 25, 2001).
Ms. Brooks spent a great deal of time and energy selecting materials and applications that would yield the greatest potential for tactile experience. Some of this time was spent struggling between the visual and textural aspects of the works of art. During a visit to her studio on February 2, 1999, she expressed the strain she was feeling from creating this show.

This work has gotten hard for me because I realize how important being visual is for me, and so sometimes when I'm working I get off into that visual, that's familiar to me and I have to bring myself back to not continuing to go that way. I have to remember this is not for a strictly visual audience and so I have to always keep that in mind. The work I'm creating is to be touched and appreciated on another level. So, it's not as easy as I thought it would be. (Q. E. Brooks, personal communication, February 2, 1999)

Color

Ms. Brooks originally planned on using a limited monochromatic palette for the art pieces. "I was going to paint everything black and white, because my first thought was that the blind students didn't know anything about color" (Q. E. Brooks, personal communication, December 11, 1998). Ms. Brooks’s perception about color changed after she became involved with the students from the Ohio State School for the Blind. She discovered that out of the eight students she worked with, three students had some usable vision and the other five students had no vision at all or limited light perception. Ancona (1971) found that, "individuals with only light perception are able to tell dark colors from light, intense colors from pastels" (p. 84).
During a visit to the school on November 5, 1998, Ms. Brooks discovered that the students without light perception developed their own perception of colors. One student expressed a very abstract understanding of colors. Ms. Brooks recalled this conversation "I asked this student, what do you see in your mind; do you have a picture of it? The student responded, no, they're just liquid and they just feel good to me" (Q. E. Brooks, personal communication, November 5, 1998). Another student expressed no concept of color. Ms. Brooks told me, "This student doesn't have a clue as to what colors are and that doesn't bother this student. Or, this student didn't say that it did" (Q. E. Brooks, personal communication, November 22, 1998).

Ms. Brooks discovered that two of the students who had lost their vision at an early age still retained association of colors with concepts. These students related the color green to grass, red with apples, and blue with the sky. These were concepts that these students remembered from when they had their sight. One of these students also expressed an emotional connection to colors. Ms. Brooks felt that this student was very insightful with her perception of human responses to colors. She told us that cool colors evoked feelings of sadness and happy feelings were associated with warm hues.

The other three students who had some usable vision could distinguish bright colors. This became obvious during the Spirit Stick workshop, as they utilized their vision to select their
favorite colors of yarn to use on their sticks. Discovering that many of the students could perceive bold colors influenced Ms. Brooks to change her color palette for the show. "I found out that there are people who are visually impaired who can see bright colors, but who are still considered legally blind" (Q. E. Brooks, personal communication, December 11, 1998). Ancona (1971) suggests that, "Intense, brilliant, and highly contrasting colors best suit the needs of the partially sighted" (p. 84). We discovered, through a discussion with Mrs. Tilton-Mauer, that maximum contrast helps the students optimize the use of their functional vision.

During my next visit to Ms. Brooks’s studio on November 24, 1998, I observed as she painted. Ms. Brooks was following the advice she received from Mrs. Tilton-Mauer, by placing dark colored objects next to light colored objects. "I wanted it to be very bright so the students could discern colors" (Q. E. Brooks, personal communication, November 24, 1998). While she painted, I began looking at some of the artwork she had on display in her studio. Some of these pieces were from previous shows and some were from this show. I noticed that all the pieces had a similar color scheme. They all utilized very bright colors. When I inquired about Ms. Brooks’s use of color she told me that using these colors came naturally because she has always enjoyed using them in her artwork.
She also liked using primary colors because “They attract attention to the work” (Q. E. Brooks, personal communication, November 24, 1998). Blue is usually the dominant color in Ms. Brooks’s artwork. She refers to blue as her “spiritual color” and used it to paint the face, neck, and hands for the work of art entitled *Conjurer Woman* (see Figure 5). Ms. Brooks explained that this female figure represents the “spirit and magic of the show” (Q. E. Brooks, personal communication, February 9, 1999).

In the article, “Shared Vision”, Melissa Starker supplies a descriptive interpretation of some of the colors Ms. Brooks chose to utilize in this show. Starker (1999) observes, “Many of Brooks’s wood pieces also use strong color, as *Conjurer Woman* shows, in royal colors of blue and gold” (p. 2). She continues her critique, “Sleeping Serpent is one of several kid-friendly pieces, with its odd shape and Dr. Seuss colors, while *Sleepy Head* depicts the setting sun, droopy-eyed and slowly slipping below the horizon, in vivid yellows and blues” (p. 2). Ms. Brooks likes to use bright colors because she finds them “aesthetically pleasing and associates bold colors with positive energy” (Q. E. Brooks, personal communication, November 25, 2001). Ms. Brooks hoped that the students with usable vision would be able to distinguish and find pleasure from her color choices. Bright and bold colors were used in almost every piece of artwork Ms. Brooks created for this show. *Wink II* was the only piece that was absent of color (see Figure 17).
Dimensions

In deciding the dimensions of the artwork, Ms. Brooks asked the students, during a visit to their classroom on October 8, 1998, if the size of the artwork mattered. "I told the students that I read something in a book that said that the blind children should have art that they can encircle with their hands" (Q. E. Brooks, personal communication, November 1, 1998). The students without vision reassured Ms. Brooks that they preferred larger pieces of art that they could experience and explore with both of their hands. They warned Ms. Brooks not to make the pieces so large that they would be out of their reach. The students with usable sight told her that the size of the work didn’t really matter to them.

It was obvious, as I viewed the piece Ms. Brooks was working on in her studio on November 22, 1998, that she had followed the students’ suggestions. "I made sure that the pieces were large enough in size for the students to be able to experience and feel the perimeters and the contours of the different elements of each piece" (Q. E. Brooks, personal communication, November 22, 1998). She also expressed that she didn't want the pieces of art to be so small that details would merge together. "I had to take into consideration the students with some vision would experience it a little bit different than the blind. I wanted them to be able to see it on the wall without
any problems” (Q. E. Brooks, personal communication, November 22, 1998). Most of the pieces of art created for the show ranged in diameter from one to four feet large in size.

Construction

Although Ms. Brooks brought in materials for the students to explore and shared ideas with them, all of the actual works of art were constructed and assembled at her studio. Most of the building of the artwork occurred on top of a large wooden picnic table in the middle of her studio. The completed works of art remained at that studio until the shows opened at the Worthington Arts Council’s Gallery and the Barth Galleries. When I asked her if she considered taking the artwork to the Ohio State School for the Blind and having the students help her create the artwork, she told me that she preferred to create the pieces herself. “I want the show to be a surprise for the students, something they can really enjoy” (Q. E. Brooks, personal communication, November 1, 1998).

Assembling, safety, and materials were three issues Ms. Brooks had to reconsider in the construction of the pieces for the show. These issues have always been a consideration, but this was the first time her artwork would be touched by the visitors to the galleries. It was important that the artwork be assembled for safety and durability.
The first challenge she faced was how to fasten the materials together in order for them to be strong enough to withstand being touched numerous times. According to Katz, Lankford, and Plank (1995) assemblages are considered to be an additive method of sculpting because the materials are added together to make sculptural forms. Ms. Brooks told me that “the pieces were difficult to create because I had to always be aware of the placement and the materials I used, and how sturdy it was going to be in terms of securing it” (Q. E. Brooks, personal communication, November 22, 1998).

When I observed the artwork, she had already completed for the show, I could see that some of the pieces were attached using nails and screws. Ms. Brooks showed me the areas where she used epoxy glue to attach the pieces of leather onto the wood base. Upon closer examination, I could detect that a glue gun was used to adhere the cloth onto the assemblages. Ms. Brooks knew that these connections were critical to keeping the artwork stable enough to be handled.

The next challenge Ms. Brooks faced was to insure that pieces would be safe enough to handle. She told me that she spent a considerable amount of time experimenting with ways to cover the nail and screw heads to prevent anyone from getting hurt or cut. She discovered from past experience that wood putty worked best and could be painted when dry. Ms. Brooks also used decorative accents to disguise them. “I covered them with beads
and things” (Q. E. Brooks, personal communication, February 9, 1999). The decision to use these techniques for this show was based on safety issues.

She also expressed her concern with the works of art that had sharp edges or rough surfaces, and shared the two methods of finishing procedures she used to smooth the surfaces. The first approach was to use different degrees of sandpaper to smooth coarse surfaces and remove jagged edges. She started with the roughest grain and worked towards the finest grain of paper. The second method was to cover over the surface with layers of paint, stain, or lacquer. A light coating of varnish not only covered but also functioned as a sealant. Ms. Brooks expressed that she had previously used varnish on other pieces of her artwork.

I first started using varnish when I was studying African art. I discovered that they use shiny materials, such as glass and beads to represent spirit. But, it will be used for protection for the pieces in this show that will be touched. (Q. E. Brooks, personal communication, February 2, 1999)

As Ms. Brooks experimented with some of the softer materials, she discovered that many of them had limitations. She found that some of the materials the students liked were too fragile to use. “It is really difficult to eliminate materials the students liked to feel, but those were the materials that you can't keep touching because they tend to fall apart” (Q. E. Brooks, personal communication, November 22, 1998). One of the first pieces she created never made it to the final exhibition because it wasn’t stable enough to be touched. Joining together
several CD’s and gluing cotton in the middle of each compact disk created this piece. Ms. Brooks hoped it would represent a cloud and that the light reflecting off the CDs would create some type of spectrum. She wanted “The students to get a sense of shape and the feel of the softness that sighted individuals associate with clouds. I want them to experience what we see as clouds” (Q. E. Brooks, personal communication, November 22, 1998).

Unfortunately, the cotton couldn’t withstand being touched. It tended to tear and fall apart very easily.

The durability and safety of the artwork were not as significant an issue for Ms. Brooks’s earlier venues as it was for this show. These previous works were intended to be viewed, not touched, and therefore did not require the same considerations as the show being created for audiences with visual impairments.

Intended Audience

This show marked the first time Ms. Brooks had created for a specific audience. “Normally I create art for myself and it's extremely personal” (Q. E. Brooks, personal communication, February 2, 1999). Ms. Brooks expressed that it was a struggle to create the pieces for this show:

I'm really creating the art for an audience and I'm not doing it in the sense that I'm trying to say anything particularly new or express any really personal feelings. The work is just evolving because the need exists for art to be available and accessible to the blind and the visually impaired. (Q. E. Brooks, personal communication, November 19, 2000)
Since she was creating for a specific audience and not for herself, she had a difficult time finding pieces of her artwork that she really liked. "My work is being created out of that need and it's really difficult because I don't have any particular attachments to any of the pieces" (Q. E. Brooks, personal communication, November 19, 2000).

She sighed as she recalled, "Normally when I create a show I have some feelings about each work as they pertain to a certain feeling or thought that I'm trying to express and the pieces in this show don't particularly do that" (Q. E. Brooks, personal communication, November 19, 2000). Her desire to create the show for the students seemed to outweigh her feelings towards the artwork. As she viewed the artwork on her studio walls she told me, "There's nothing over there that I'm really fond of but, I'm not going to let it bother me or slow me down" (Q. E. Brooks, personal communication, February 2, 1999).

Many of the pieces she created had to be reworked. "It may be visually appealing, but not tactile enough, then I will go back in and make it so" (Q. E. Brooks, personal communication, November 1, 1998). She recalled "I'll have a piece of work and it will look really good to me and it feels really right, and then I'll think that it's not working because it's too visual and it's not going to be what they can appreciate" (Q. E. Brooks, personal communication, November 19, 2000). She also shared with me some of the struggles she faced with having to alter her style of
creating. "I'm not working as intuitively as I normally would. It's really working with thoughts of logical references to texture, form, and shape. It is usually something that I just deal with intuitively and not very logically" (Q. E. Brooks, personal communication, November 19, 2000).

Collaboration

Ms. Brooks wanted to create a show for a specific audience and decided that the best way to achieve that goal was to work with members of that audience. She recalled,

I wanted to do the show for the blind and the visually impaired. I really wanted to start creating work out of my home as what I perceived that the blind would enjoy, what the blind would like to experience. Then I thought, what do I know about being blind, except the fear of being blind? I went to the School for the Blind and I started to work with them. (Q. E. Brooks, personal communication, November 19, 2000)

As I watched the relationship between Ms. Brooks, Mrs. Tilton-Mauer, and the students from the Ohio State School for the Blind grow over the months; I witnessed the characteristics Hord (1986) identifies as being necessary for collaboration. He states that a successful collaborative project is made up of individuals who share a common need or interest. These individuals also maintain ongoing communication, relinquish their personal control, and continue to check the perceptions of those involved in the collaboration.

Another guideline established by Hord (1986) was the dedication of time by all participants. The commitment of time to the process of creating the show was scheduled into meetings
between Ms. Brooks and the students. Mrs. Tilton-Mauer’s contributed by her willingness to allow Ms. Brooks into her classroom and utilize class time. Ms. Brooks devoted additional time preparing the materials and supplies for her visits to the school. She also spent countless hours creating the works of art for the show.

Resources and supplies were also essential factors in the development of this art exhibit. The main contribution to the show was supplied by a grant from the Worthington Art Council. Their Art Exhibition Program funded this contribution. The Council also financed all the promotional flyers and advertisements for the show *Hands On*. Ms. Brooks and Mrs. Tilton-Mauer contributed additional materials and resources that were not covered by the grant.

Mattessich & Monsey (1992) define collaboration as a well-defined relationship entered into by two or more individuals to achieve a common established goal. Ms. Brooks, Mrs. Tilton-Mauer, and the students shared the desire and interest in developing an art show to include audiences who are visually impaired or blind. This common goal was established during Ms. Brooks’s first visit to the Ohio State School for the Blind. Hord (1986) maintains that cooperation occurs “When two or more individuals or organizations agree to work together on a project with no
expectations of further benefits” (p. 22). During this visit Ms. Brooks clearly communicated her objectives and obtained the students’ permission to work with them.

It became apparent during these meetings that all of the members were already exhibiting the energetic spirit and communication necessary for collaboration. This was evident during their interactions. Mrs. Tilton-Mauer observed, “Queen brings a number of interesting abilities to working with students who are visually impaired. First of all, she is a very open person and she is interested in what the students are doing” (D. Tilton-Mauer, personal communication, November 11, 1998). Ms. Brooks always engaged in greeting the students and asking, “How are you doing today?” “What are you working on?” and “Are you having a good day?” I watched as the mood in the classroom would change upon her arrival. Only after the greetings and conversations ended would Ms. Brooks initiate the activity she had planned for the visit.

Ms. Brooks took the time to get to know each student. The Spirit Stick workshop gave her the opportunity to work with them. Ms. Brooks worked one-on-one with the students when she was teaching processes to them. She also gave the students the freedom to make their own decisions about their Spirit Sticks. Mrs. Tilton-Mauer found that “Queen doesn't seem to feel any need
to impose things upon them, but she is there to bring something new into their artistic lives” (D. Tilton-Mauer, personal communication, November 11, 1998).

Ms. Brooks and the students took turns being positive leaders, and acquired a great deal of information from each other. The students actively participated in the discussions and always seemed to try to answer all the questions posed by Ms. Brooks. Mrs. Tilton-Mauer shared, “I think she is learning from observing our students' work and create their own art projects, what they appreciate and what they find meaningful, beautiful, moving, or exciting” (D. Tilton-Mauer, personal communication, November 11, 1998). The students initiated many of the conversations and supplied Ms. Brooks with a wealth of knowledge to help her with the creation of this show.

All the members of the group shared ideas, opinions, personal feelings, and experiences with each other. Ms. Brooks shared her fears of losing her sight to glaucoma during her initial visit to their classroom and the students responded with stories about their own experiences. Ms. Brooks also gained insight into how these students function and perceive their surroundings. The students learned about the joys and struggles of being a working artist, and Ms. Brooks learned about the joys and struggles of being visually impaired. Ms. Brooks also supplied the students with a new way to view sculptures, by
bringing her assemblages to their classroom. This enabled the students to experience examples of this additive method of sculpting.

Ms. Brooks relinquished her personal control over many of the media and materials used in the works of art and continually looked to the students for advice about which materials should and should not be included in the artworks. Ms. Brooks’s selection of textures and colors was based on the students’ preferences and perceptions. She also discovered which materials should be eliminated because they might cause harm. During the creation of this show, Ms. Brooks also gave up some of her artistic freedom. She quickly discovered that she could not work on her artwork as intuitively as she normally would. This artwork had to meet the needs of her intended audience and creating the pieces presented many challenges and struggles for Ms. Brooks.

All the pieces of artwork were constructed and assembled at Ms. Brooks’s studio and remained at that location until the shows opened. It was never Ms. Brooks’s intention to have the students involved in the actual construction of the pieces of art for the show. She always planned on being the primary decision maker in the process, which according to Taylor (1997) attributes to an uneven balance of power.

Ms. Brooks did not intentionally plan on developing a collaborative project, but over the duration of this study, that is exactly what happened. She developed relationships with the
students and Mrs. Tilton-Mauer that were built on mutual trust and respect. When I asked Ms. Brooks what made this experience unique she stated, “Sometimes I do workshops in the public school system and I give all this energy and I don't get anything back. But, with these kids, I feel I give so little and get so much back from them” (Q. E. Brooks, personal communication, November 22, 1998). This effort by all the members seemed to be a key factor in the integration of these students into a community art exhibit. “I really want this show to be good for them” (Q. E. Brooks, personal communication, November 22, 1998).

Display

Accessibility, installation, labeling, and lighting were all issues that had to be addressed in preparing the show. All these considerations were put to the test during the exhibition of the first show, Hands On. The exhibit was held at the Worthington Arts Council Gallery from March 4, 1999 until March 29, 1999. The gallery is located in the Municipal Building at 6550 North High Street, in Worthington, Ohio.

Ms. Brooks went to see an exhibit at the Worthington Arts Council at the end of October 1998. This visit gave her the opportunity to see the gallery. “The space at the Municipal Arts facility where they display their exhibits actually begins in a corridor as you get off from the elevator and continues down the hallway to a large conference room” (Q. E. Brooks, personal communication, November 1, 1998). She discovered that the
conference room actually doubles as a gallery. “I went after the reception and there were benches and a big conference table with chairs all around it in the gallery. So, I wondered how anybody would be able to appreciate the artwork” (Q. E. Brooks, personal communication, March 3, 1999). She discussed her concerns about the available space with the Visual Arts Project Director for the Worthington Arts Council. Ms. Brooks was reassured that the conference table would be moved out of the way for the Hands On show.

Ms. Brooks was also concerned about the display space available in the conference room. Only two walls of the room could be used to hang the artwork, due to the ample number of windows and closets that occupied the other two walls. The Visual Arts Project Director told Ms. Brooks that a majority of her pieces would have to be installed in the hallways leading to the gallery because the gallery wasn’t large enough to hold the entire show.

Ms. Brooks found the hallways narrow and crowded. “At the end of the corridor, I think it's the northeast end, there is a window where people go and transact business. There are benches in the corridor for people to sit while they are waiting their turn” (Q. E. Brooks, personal communication, November 1, 1998). Ms. Brooks was told that the benches could not be moved. “I was
really disappointed that the hallway was so tight, especially with the furniture being between the walls and the participants” (Q. E. Brooks, personal communication, November 25, 2001).

Ms. Brooks expressed her concerns about the narrow hallways and obstacles that were present at the gallery with Mrs. Tilton-Mauer. Ms. Brooks confessed to Mrs. Tilton-Mauer, “I don't know, I just don't like the space for this exhibit” (Q. E. Brooks, personal communication, November 1, 1998). It was decided that the students should wait and see the show when it opened at the Barth Galleries. "The second show provides a big space and there is nothing between the participants and the work" (Q. E. Brooks, personal communication, November 25, 2001). Mrs. Tilton-Mauer informed the students that the show was opening at the Worthington Arts Council Gallery on March 18, 1999. She also told them that they were welcome to attend the opening with their parents or an after-hours counselor from the school, but arrangements would be made for them to take a field trip when the show opened at the Barth Galleries in June 1999.

**Hands On Opening**

The opening reception for the show Hands On was held from 5:00 until 7:00 in the evening on March 18, 1999, at the Worthington Arts Council Gallery. There were about 30 to 40 people in attendance. The guests included friends and family members of Queen Brooks and Diane Tilton-Mauer. Members of the community and the Worthington Arts Council were also in
attendance. An after-hours counselor from the Ohio State School for the Blind accompanied four students from the school, and one student attended the opening with her parents. Out of the five students in attendance, two were involved in this case study. I also attended the opening to observe and document the show.

The works of art for the show were displayed in the gallery and in the hallways leading to the gallery’s entrance. The artwork was hung from the ceiling with thin pieces of clear fishing line. Next to each piece were two labels, one in print and one in Braille that Mrs. Tilton-Mauer had created for the show. The labels were placed low enough on the walls for the students to be able to reach them. Overhead fluorescent lights d in the gallery and in the hallways lit the artwork for the show.

Ms. Brooks’s “artist statement” was posted, on a wall outside the elevator on the second floor, in Braille and in large print. Programs for the show were placed on a table under the piece of art entitled Timberland. Around the corner from the elevator were two programs mounted on the wall, one reproduced in Braille and the second in large print. The hallways were narrow and contained a number of silk trees and benches that lined the walls.

The large conference table in the gallery had been moved to the left hand corner of the room and used as a refreshment table for the guests. There were also a few chairs and benches inside the gallery. They were arranged in groups in the center and to
left side of the room. Classical music played quietly in the
gallery. The Visual Arts Project Director for the Worthington
Arts Council, served as the hostess for the opening. She greeted
guests, collected coats, took photographs, and kept the
refreshment table in order.

Sighted guides became essential when the students without
usable vision wanted some refreshments or to explore the artwork
in the hallways. The counselor from the school had his hands full
as he tried to help the students around the exhibition. I offered
my assistance and served as a sighted guide for one of the
students. According to Hudson (1997), the function of a sighted
guide is to safely guide an individual through an environment. I
found it difficult to guide the student through the crowded
hallways. She also expressed her frustration: “Why are these
branches in the way?” and “I can’t reach this piece.” She also
had some difficulty leaning over the benches to reach the
artwork.

The artwork was hung by fishing line, which allowed the
pieces to move. “The movement of the pieces made the kids
uncomfortable because they didn't know, they were supposed to be
secure on the wall, and then it moved and it startled them” (Q.
E. Brooks, personal communication, November 25, 2001). The
fishing line prevented the students from haptically exploring the
pieces of art thoroughly because the pieces would shift when the
students tried to touch them. The students expressed their
concerns: "I can’t feel this piece because it keeps moving," “Oh, I wish it would stop moving," and “I hope I didn’t break it.” Many of the students said they were afraid that the pieces might fall off the wall. Ms. Brooks expressed, “I did not like how the artwork was hung and that’s a real consideration for the blind that we had not thought about” (Q. E. Brooks, personal communication, November 25, 2001).

Fishing line is often used in galleries to avoid damaging the walls with nails. “Different galleries have to go by different rules of how things are done” (Q. E. Brooks, personal communication, November 19, 2000). Ms. Brooks doesn’t blame the individuals who installed the show. “I don't think that it was a lack of consideration, I just think it was a lack of forethought on all our parts” (Q. E. Brooks, personal communication, November 25, 2001).

Even though there were issues with the opening, the students seemed to have a great time. As with most students they liked the food and refreshments, and were excited at being able to touch the works of art. I think the students also enjoyed seeing Mrs. Diane Tilton-Mauer and their classmates outside of school. The students who were not actively involved in this case study took pleasure in meeting Ms. Brooks. In the midst of smiles I heard the following comments from the students: “Isn’t this the coolest, I love being able to touch the artwork,” “It’s so nice to have something I can touch,” “Wait until we tell the guides at
the museum that we got to touch artwork with our hands. Look no
gloves,” and “Hey, we need to find Ms. Brooks and tell her how
much we like the art.” The gallery was full of laughter,
greeting, questions, and whispers from the moment it opened until
the moment it was over. I can only speculate that the students
whispered at the gallery because of their previous experiences at
the Columbus Art Museum.

This opening allowed Ms. Brooks to evaluate the issues of
accessibility, installation, labeling, and lighting. It also
allowed her to examine the durability of the materials she had
selected to use in the artwork. This show taught us that the
pieces of art have to be accessible to students and visitors.
This meant eliminating all obstacles that prevented contact with
the artwork. Physical items such as chairs, benches, silk trees,
and tables needed to be moved away from the artwork and, when
possible, out of the gallery space, entirely.

The placement and installation of the artwork on the wall
also required additional attention. Hanging the pieces with
fishing line caused problems for the students. “I would have to
specify that all the pieces be firmly attached to the walls so
that they don't move” (Q. E. Brooks, personal communication,
November 25, 2001). It also became apparent during the opening
that the artwork in the hallways were hung too close to the silk
trees, doorframes, and in some instances too close to each other.
We discovered that it was vital to leave enough space around the works of art to allow adequate room for students to experience each of the pieces. The artwork also needed to be hung lower so that students could reach them comfortably as when they experience the pieces through their sense of touch. One student told me, "I couldn’t reach the top of Labyrinth. It was too high for me to reach." Ms. Brooks discovered, "They can't hang the artwork for the visual because we hang them up at eye level, instead they must be lowered without becoming cumbersome or awkward" (Q. E. Brooks, personal communication, November 19, 2000). Moving the artwork lower on the wall would also enable the students with low vision to view the entire piece of art using their remaining sight.

The students who were blind expressed appreciation that the labels, program, and "artist statement" were presented in Braille. They also said that the labels next to the artwork were easy to find because they were located in the same position for all the pieces in the show. The large-print label was always placed above the Braille label, which was to the right of each piece of artwork.

Another consideration for this show was the issue of lighting. In order for students with low vision to utilize their limited vision to the fullest, the artwork had to be properly illuminated. Some of the students with usable vision told me that it was hard to see some of the artwork in the hallways. They said
that either it was too dark or there was too much glare from the
light reflecting off the surfaces of some of the pieces. I think
the glare could have been caused by the limited ceiling space in
the hallways. I think the dimness in certain sections of the
hallway was due to the uneven ratio of lights to artwork. I
observed that in some places, one light was used to illuminate
two pieces of art.

The final consideration for this show was the stability of
the pieces of artwork. This show enabled Ms. Brooks to learn
which materials were durable and which ones needed to be altered
or maintained. She discovered that the gravel on *Sleeping Serpent*
I and II and the feathers on *Silent Voice* and *Melody’s World* all
required minor repairs (see Figures 8, 9, 19, and 18). Pieces of
gravel and a few of the feathers had become dislodged from the
artwork. The piece *Soft Touch* required the most attention of all
the works of art (see Figure 7). “The material looks like cotton,
but it has a different feel to it. We found it is the most
delicate piece because it has the tendency to come apart when it
is touched, but that's okay with me” (Q. E. Brooks, personal
communication, November 19, 2000). The rest of the pieces of
artwork sustained being touched during the month the show was on
exhibit at the Worthington Arts Council Gallery.

Finally, this show supplied Ms. Brooks with some guidelines
that she could utilize when it moved to the Barth Galleries in
June, 1999. These included procedures to assure proper
installation, lighting, spacing, and labeling. These instructions would help enable the gallery to be as accessible as possible for the students from the Ohio State School for the Blind.

Conclusion

This chapter introduced and supplied an in-depth description of the processes Ms. Brooks utilized for guidance to create an art show for individuals who are blind or visually impaired. The production section established the methods, materials, and art elements that were used to create the pieces of artwork for the show. This section also examined the struggles Ms. Brooks faced in creating a show for a specific audience and how a collaborative partnership came to be between Ms. Brooks, Mrs. Tilton-Mauer, and the students from the Ohio State School for the Blind. Finally, the display section presented the issues that surrounded the actual installation and opening of the show, Hands On, at the Worthington Arts Council Gallery.
CHAPTER 5

PRESENTATION AND ANALYSIS OF THE STUDENTS’ EXPERIENCES

This chapter supplies an in-depth analysis of the data that was collected through participant observations and through the semi-structured interviews I conducted with my participants. My personal reflections are included to further illustrate this case. This chapter will focus on my second research question: How did the students involved in this study, who are visually impaired or blind, use their senses to experience the works of art created for the show Touching Revisited?

I have organized this information into the following sections: preparations, gallery orientation, field trip to the Barth Galleries, visual exploration, haptic exploration, tactile perception, auditory perception, olfactory perception, duration, proximity, critique, and impact of the show. The first section describes the processes Ms. Brooks utilized in preparing and expanding the show, Hands On, into Touching Revisited. This section also examines how the guidelines established from the
Worthington Arts Council’s exhibition were employed at the Barth Galleries. The second section provides a description and use of an orientation aid.

The next section introduces and describes the students’ first experiences as they entered the Barth Galleries. The students’ interactions with the artwork are examined in the visual and haptic exploration sections. Tactile perception presents the textural and thermal aspects of the materials found in the artwork. The auditory and olfactory perception sections present a description of the stimuli and sensory experiences the students encountered at the gallery. Duration investigates the length of time the students spent experiencing the artwork. Proximity examines the distance between the student and the actual works of art. The final section presents various critiques of the show, including the students’ response to the artwork.

Preparations

One of the first considerations for Ms. Brooks to attend to before the show opened at the Barth Galleries was to reinforce and repair the pieces of artwork that sustained damage from the first exhibition. She repaired the missing gravel on the pieces *Sleeping Serpent I* and *II* and replaced the feathers on *Silent Voice* and *Melody’s World* that had become dislodged (see Figures 8, 9, 19, and 18). Ms. Brooks expressed:
It’s okay that some of the feathers came off. I have no problem because that's what happens when you touch art, it can get damaged. It doesn't bother me with this show at all. I just have to learn how to make it so it will be more substantial. (Q. E. Brooks, personal communication, March 19, 1999)

The piece, *Soft Touch*, required the most attention of all the works of art (see Figure 7). "We found it is the most delicate piece because it has the tendency to come apart when it is touched, but that's okay with me" (Q. E. Brooks, personal communication, November 19, 2000). Ms. Brooks secured the polyester batting by adding a piece of clear netting over the entire piece. The rest of the pieces of artwork endured being touched during the show at the Worthington Arts Council Gallery, and did not require repairs. In addition to attending to and repairing the works of art, Ms. Brooks also added three new pieces of art to the show.

The pieces *Mother Remembering*, *The Embrace*, and *Party Memories* were not included in the original *Hands On* exhibition, but were added to the show *Touching Revisited*. *Mother Remembering* was a large wooden piece that contained a three-dimensional head. The head and a majority of the piece were adorned with scraps of fabric from Ms. Brooks’s mother’s clothing. Fabric paint was used to cover the edges of the fabric and to secure the material. This added textural effects to the piece (see Figure 24).

*The Embrace* was one of the smaller pieces. It consisted of a piece of wood and piece of a screen. The wood was painted blue and decorated with oil pastels, which contrasted against the gray
hue of the wired screen. Ms. Brooks shared, “That was one of my favorite pieces. It was one of the simplest pieces to create” (Q. E. Brooks, personal communication, March 19, 1999). Ms. Brooks explained that, “This piece just seemed to fit into the needs of the show for the blind” (Q. E. Brooks, personal communication, February 19, 2000). Ms. Brooks’s manipulation and method of attaching the wire mesh to the wooden base resulted in a three-dimensional sculptural effect (see Figure 23).

Party Memories was a rectangular form covered with canvas and adorned with colorful plastic buttons, under inflated balloons, and ribbons. Ms. Brooks used puff paints to add designs on top of the buttons and in-between the balloons. Not only did she cover the front of the piece, but she also extended the decoration onto the sides of the rectangular base (see Figure 22). The materials found on all of the new pieces of art provided a rich variety of textures.

On the day we transported the artwork to the Barth Galleries, Ms. Brooks took the time to explain all the guidelines she had established for the installation of the pieces. These included procedures to assure proper installation, lighting, spacing, and labeling. It was Ms. Brooks’s hope that these instructions would enable the show to be as accessible as possible for the students from the Ohio State School for the Blind.
The first guideline Ms. Brooks addressed was the issue of accessibility. She wanted to make sure that both students and visitors could reach the pieces of art. This meant eliminating as many physical items in the gallery as possible. Fortunately for Ms. Brooks, the gallery was a large, open space that only contained a couple of tall exhibition cubes for displays. She decided to use one of the display cubes for the registration book for the show. Registration books are usually required by most galleries as a way to obtain a list of names and addresses of the patrons for future mailings. Ms. Brooks requested that it be positioned in front of the small section of wall that protruded into the gallery and that none of the artwork be mounted above the cube. She hoped that this placement would not interfere with the students’ participation with the artwork.

The placement and installation of the artwork on the walls of the Barth Galleries also required supervision. Ms. Brooks made sure that the artwork would be "Firmly attached to the walls so that they don't move" (Q. E. Brooks, personal communication, November 25, 2001). It was also important that the artwork be mounted with enough space between them to allow adequate room for students to experience each of the pieces. Ms. Brooks requested that the artwork be mounted low enough so the students could reach them comfortably. She recalled, "I told them that the artwork must be hung lower than eye level" (Q. E. Brooks, personal communication, November 19, 2000). Ms. Brooks knew that
by moving the artwork lower on the wall, students with low vision would be able to view the entire piece of art using their remaining sight.

Ms. Brooks supplied the gallery owners with labels, a program, and an "artist statement" presented in print and Braille. She specified that the labels be placed low and to the right of each piece of artwork. She knew they needed to be in the same position in order to help students locate them. Ms. Brooks also requested that the large-print label be placed above the Braille label.

Another consideration for this show was the issue of lighting the artwork. In order for students with low vision to utilize their limited vision to the fullest, Ms. Brooks specified that each piece of artwork had to be properly illuminated. This was accomplished through the use of spotlights which were located in the ceiling.

This section described the processes Ms. Brooks utilized in preparing and expanding the show, *Hands On*, into *Touching Revisited*. This section also presented the application of the guidelines she developed from the Worthington Art’s Council Exhibition. The purpose of these guidelines was to assure that the show *Touching Revisited* would be as accessible as possible for the students from the Ohio State School for the Blind.
Intended Audience

When I asked Ms. Brooks which audience she was most concerned with she said, "I'm more worried about the blind than the visual, or the visually impaired, and maybe I shouldn't be, but I am. I'm more concerned about their enjoyment" (Q. E. Brooks, personal communication, November 1, 1998). When I asked Ms. Brooks what she would like her audiences to take away from the show, she responded, "I want to give the students who are blind as much involvement with the pieces as possible. I want them to enjoy the artwork by touching and feeling the pieces" (Q. E. Brooks, personal communication, November 1, 1998).

When I asked her what she would like the sighted audience to take away from the show. She replied,

I pretty much want the same thing as always. I hope they will be able to find something that they could connect with and enjoy for whatever reason. They may find something just purely aesthetical, emotional, psychological, or social. I don't care as long as they take something away. It doesn't have to be the whole show. I just hope they find a piece that they particularly like. (Q. E. Brooks, personal communication, February 9, 1999)

She confessed to me, "I don't mind if the visual audience doesn't feel real strong about the show, but I would hate for it to be just mediocre for them" (Q. E. Brooks, personal communication, February 9, 1999).

Before the show opened, I asked Ms. Brooks how she would determine if the show met the needs of the students. She told me that she would ask them during their visit to the gallery. "I just want some honest feedback and I will just ask them what they
thought” (Q. E. Brooks, personal communication, February 9, 1999). She continued, “I think they'll pretty much tell me if there was something that they didn't like or they didn't quite get” (Q. E. Brooks, personal communication, February 9, 1999).

Gallery Orientation

The Barth Galleries is located at 3047 Indianola Avenue in Columbus, Ohio. The front of the gallery faces east and consists of a doorway and a large picture window. At the back of the gallery is a small storage area and an entrance into another small gallery. Along the south wall there is a bump-out with a small exhibition cube that contained a registration book for the show.

The students from the Ohio State School for the Blind visited the Barth Galleries for the first time during a field trip on June 1, 1999. During this time I was enrolled in an Orientation and Mobility class at The Ohio State University, and learned about the benefits of orientation aids. I decided to create an aid for my class project after I consulted and gained permission from Ms. Brooks and Mrs. Tilton-Mauer. The purpose of my aid was to help the students become aware of the necessary spatial concepts and detailed knowledge of the Barth Galleries. The aid that I created was a three-dimensional model of the gallery. I decided to create a model because according Bentzen (1997) a model is an aid of choice for introducing many concepts and characteristics of a built environment. Since the gallery
space was too large for the students to see in detail or encompass through haptic exploration, the model supplied the students with a three dimensional representation of the artworks and a spatial layout of the gallery.

In constructing the model, I knew that the scale had to be as consistent as possible to prevent any distortion in the proportions. I also knew that the model must include doorways, the step leading into the gallery, and changes in the gallery walls. I decided to use foam core board for the construction of the gallery walls, floor, step, and front door because it was more durable than poster board and easier to cut and bend than regular cardboard. A glue gun was used to adhere the walls together, create and secure the step to the front of the model, and anchor the walls to the floor. The overall shape of the model was a long rectangle measuring 25 inches long and 13 inches wide. The walls of the actual model were 10 inches high.

It was also important to include other features of the gallery, including the large picture window located in the front wall. I represented the window with a piece of thin Plexiglas because I thought it would be safer than an actual piece of glass. I also selected this material because it looked and felt like glass. The dimensions of the window for the model were 7 ½ inches wide and 5 inches high.
Practical Experience

I took the completed model to the Ohio State School for the Blind on May 18, 1999. During my visit I talked to the students about the upcoming field trip. I also shared the orientation aid with the students. After all of the students had the opportunity to interact with the model of the gallery; they participated in an open critique to evaluate the orientation aid.

Before I shared the actual model with the students, I discussed the materials I used to create the model. Along with describing the materials, I handed out pieces of foam core to the students while I explained how I constructed the model. This enabled the students to touch and explore the foam core prior to touching the model.

Since I could not create small-scale models of each of the artworks in the show, I used materials found in each work of art as symbols to represent each piece of art. Each symbol was passed around as I identified and described the corresponding work of art. The piece of art entitled Timberland was represented by a piece of fur and small metal bells were wired together to represent Jingleman (see Figures 1 and 2). The same soft, cottony material that was used to create the piece Soft Touch was used to represent this work of art in the model.

Some of the artwork was represented by more than one symbol. A small piece of fur was placed over a larger piece of cloth to denote the piece Conjurer Woman (see Figure 5). Small
twigs were adorned to represent Spirit Stick and Shaman Stick (see Figures 11 and 10). The twig that represented Spirit Stick was wrapped tightly with yarn and the middle portion was covered by a small piece of fur. The piece, Shaman Stick, was depicted by two metal bells that were attached to the twig with a piece of string.

There were three series of artwork displayed in the gallery. Ms. Brooks explained, “I wanted to see some of these works evolve into a series of works, instead of so many individual pieces, because the show was looking too fragmented to me and I'm not real comfortable” (Q. E. Brooks, personal communication, February 4, 1999). These included Sleeping Serpent, Gentle Wind, and The Wink. Each series consisted of two works of art that had similar features. Sleeping Serpent I and II were represented by pieces of the same gravel that was found in the actual works of art (see Figures 8 and 9). Small pieces of suede were used to represent Gentle Wind I and Gentle Wind II (see Figures 13 and 14). The two works of art that produced the Wink series were created using different materials. Small pieces of cardboard and a piece of the thermoform plastic paper were used as the symbols for these works of art (see Figures 16 and 17).

The symbols were mounted on small rectangular pieces of foam core that measured 1 x 1 ¼ inches, to raise them from the surface of the walls. They were also placed more than ¼ to 1 inch
apart to prevent them from being perceived as a single symbol. The students were reminded that the actual pieces of art at the gallery range from the size of a cereal box to the size of a school locker door.

After I finished introducing the different materials used in the model, I introduced the actual model to the students. I began by explaining how I tried to make the scale of the model as accurate as possible. I also told them what they would encounter as they explored the gallery. I used cardinal directions to describe the location of some of the gallery’s features because I wanted to supply the students with a systematic way to orient and aid them in moving about the gallery.

The students took turns looking at and touching the model and the symbols. The students with usable vision viewed the gallery from above. They would look across the model when they wanted to explore a feature on the opposite wall and traveled around the model to view the other walls. These students would reach into the model to touch the features that required additional exploration. I noticed that this was the same way I viewed and interacted with the model.

I quickly discovered that the students without vision explored the model in a different manner. They would reach down into the model and explore the wall closest to them. I noticed that they never reached across the model, but instead skimmed the surface of the walls with their fingertips. Some of the students’
hands traveled around the gallery, exploring the layout of the floor and walls first. They used their fingertips to lightly touch the walls in a tracking motion. Others students ran their hands around the outside exterior walls before they examined the interior of the gallery. I watched, as their fingers seemed to glide effortlessly across the smooth surface of the foam core boards. The haptic exploration of the model sometimes came to a temporary halt when the students’ fingertips encountered the different features of the model. I witnessed a couple of the students as they touched the Plexiglas window. The students that ran their fingertips over the window expressed that they knew it was the window because it felt cool. They continued by explaining that the Plexiglas also felt like glass because it was smooth and slippery to the touch.

When I had initially selected Plexiglas for the model, I was considering the visual and safety aspects of the material. It never occurred to me that I selected a material that emits a similar thermal quality as an actual piece of glass. I was also unaware of the acoustic quality of the Plexiglas until I noticed some of the students tap on it with their fingers. One student expressed that the sound an object produces sometimes assists her in identifying the material. “I can tell the difference between the wood and metal of my desk by the sounds they make.”
Other features of the model that required additional haptic exploration for the students who were blind were the doorways, step, exhibition cube, and the small section of the wall that extended out into the gallery space. When the students without vision encountered the doorways, they experienced a break in the surface of the wall. I watched as they wrapped their fingers over the edge of the foam core. The students would then trail their fingers around the entire interior of the doorway, tracing the rectangular shape, before continuing their exploration. Sometimes, the students would reach through the doorway with their fingers, as if they were trying to touch the negative space.

Once the students discovered the doorway leading into the gallery, many of them seemed to enjoy opening and closing the foam core door. During this interaction, one student with partial vision observed that the model was missing a feature. This student smiled and announced, “Hey, you forgot the doorknobs!” All of the students seemed to get delight from the missing doorknobs. I apologized for the oversight and reassured them that the actual gallery did have doorknobs. The students without vision were mostly interested in the location of the door and the direction in which it swung. Mrs. Tilton-Mauer explained, “Knowing this information will help these students negotiate the doorway leading into the gallery” (D. Tilton-Mauer, personal communication, May 18, 1999).
I observed that as the students without vision explored the small section of the wall that projected out into the gallery space, they used their fingertips in a grasping motion and appeared to wrap their fingers around the edges of the foam core. This same exploration technique was used as the students explored the three-dimensional art symbols. The grasping motion allowed the students to feel the round bells for the piece *Jingleman*, the curve of the shell for *Three Shell Dancers*, and the triangular shape of the wood for *Timberland* (see Figure 2, 15, and 1). The position of their hands changed when they wanted to explore the texture of the symbol. I watched as the students appeared to use their fingertips in a light rubbing motion across the surface of the symbols.

The model was designed to help teach the students the spatial layout of the Barth Galleries. It was also intended to illustrate the order and placement of the different works of art in the gallery. I hoped that presenting the layout of the gallery and its existing landmarks would supply the students with information they could use to orient themselves at the show. According to Hill and Ponder (1976) a landmark is any familiar object, sound, odor, tactile, or visual cue that is constant and permanent within a particular environment. The ultimate goal of the model was to supply the students with a tool that would enable them to travel as independently as possible during their field trip to the gallery.
Critique of Orientation Aid

After all of the students had the opportunity to experience the orientation aid, they were asked to evaluate the model. The students said that they found the model very easy to use and that it gave them a good understanding of the layout of the gallery. Through our discussion I discovered that the students liked the fact that I had glued the symbols onto small rectangles of foam core. One student expressed, “That made it easy to touch not only the front, but also the sides of the symbols.” This discussion also revealed that the symbols were spaced far enough apart for the students to fit their fingers around each one.

The students were able to identify the materials I used to make the symbols, because they were materials Ms. Brooks had brought into the classroom. Some of the comments I heard were, “This is a piece of leather Ms. Brooks used in that first work of art she made for us,” and, “Are these the same metal bells she brought into class?” I explained that the symbols only represented the works of art and that the actual pieces of art were much more detailed and elaborate than the symbols. The students asked questions to confirm their understanding “So, this block of wood represents Timberland?” and, “These bumpy rocks represent both of the Sleeping Serpent pieces?” The students were told that the symbols used in the model might only correspond to one material found in that piece of art.
After experiencing the model, the students were asked if they were able to make connections between the layout of the gallery and the symbols. One student expressed, “I now know how large the room is, and where the door is located. It’s a long room with artwork on all the walls except the wall with the window.” They were able to use cardinal directions to give precise locations of the landmarks, obstacles, and select pieces of artwork. One student recognized that “The exhibition cube is located in-between Timberland and Party Memories on the south wall.” Another student discovered that “Jingleman is located in the southwest corner, opposite the front door of the gallery.”

The students also expressed that the model helped them begin planning their own routes in the gallery. One student expressed, “When I get to the gallery I’m going to look at Jingleman first and then I want to see the Serpents.” By touching the symbols, the students were able to identify the location of each piece as it related to the other works of art and physical features of the gallery. Another student stated, “Ms. Brooks’s Spirit Stick is located on the west wall next to the leather piece. What’s it called? Gentlewind? Yea, that’s the one I want to see.”

It appeared that the students understood the design, construction, and purpose of the model. During this discussion I realized that the model was helping the students without vision learn the spatial layout of the Barth Galleries. They seemed to
be able to distinguish the different materials I used to create the symbols. The students were also able to examine the order of the works of art on the walls of the gallery. One student observed, "Wink I and Wink II are located next to each other." I was glad to see that the model enabled the students to design their own travel routes for the trip to the gallery.

Field Trip to the Barth Galleries

I returned to the school on June 1, 1999 to reintroduce the model to the students before we left on the field trip to the gallery. It was my hope that this visit would help the students transfer their observations to the actual gallery. The trip was similar to field trips I have taken with elementary school students. Along with the eight students were four chaperones. The adults included the driver of the van, the students’ teacher, the Principal, and me. My function on the field trip was as a researcher and a chaperone. My goal as a researcher was to observe and obtain data during the field trip. My responsibility as a chaperone was to help safeguard the students as they traveled to and from the gallery. This included functioning as a sighted guide.

As soon as the students entered the van they began talking among themselves. Mr. Gerard Marcom, the Principal, and Mrs. Tilton-Mauer, the students’ teacher, both became actively involved during the journey. Using the cardinal directions, Mr. Marcom announced the direction and route we were taking. Street
names were given and landmarks were described along the way. "We’ve left the school grounds and will be turning onto High Street. Then we’ll travel south on High Street about two miles.” He also supplied the students with the approximate length of time it would take to travel to the gallery. It took almost twenty minutes to travel from the Ohio State School for the Blind to the Barth Galleries. The trip to the gallery was full of laughter and discussions about school and events of the day.

The actual opening of the show, Touching Revisited, took place during the evening of May 15, 1999 and was accompanied by music, food, and beverages. The students from the Ohio State School for the Blind visited the gallery on June 1, 1999 during school hours. Approximately one hour was scheduled for the gallery visit.

Initial Response

It was a beautiful warm day as we arrived at the Barth Galleries. The students without vision used a sighted guide and their canes to travel from the parking lot to the gallery’s front door. I was selected by one of the students to be her sighted guide. I felt qualified because of the training I had received from Mrs. Tilton-Mauer, the classes I had taken at the Ohio State School for the Blind, my experience at the Worthington Arts Council Gallery, and the Orientation and Mobility class I took at The Ohio State University.
According to Hudson (1997), the function of a sighted guide is to safely guide an individual through an environment. I began by offering my left arm to the student. Using her right hand, she got a secure grip on my arm just above my bent elbow. I knew that to prevent the risk of her tripping on my feet I would have to travel a half step ahead and to the right of the student. This enabled her to feel the motion of my body as I walked. I knew from my discussions with Diane Tilton-Mauer that my duties as a sighted guide also included watching out for obstacles in the pathway. I needed to be aware of the changes in the pavement and alert the student of any low overhanging branches from the trees that lined the parking lot. This experience made me more conscious of the conditions that were present in our environment.

I notified the student when we reached the step that led into the gallery. I also told her that the door swings into the gallery and that the hinges were located on the left. This alerted her that she would also have to help push the door open. It took a moment for my eyes to adjust to the softer light present in the gallery. After my eyes became accustomed to the new lighting situation, I noticed the contrast between the white gallery walls and the artwork. The overhead spotlights illuminated each piece of art and the light passing through the large picture window created a sunlit pool on the shiny checkerboard floor tiles of the gallery.
Soon laughter and the echoes of footsteps broke the silence of the gallery as the other members of our group entered. The students were welcomed by the operator of the gallery and were given instructions from their teacher, Mrs. Tilton-Mauer. She reminded them that the artwork was mounted on the walls about chest high and the two title cards were located to the right of each piece. The large type label was located above the label written in Braille. The students were reminded to be aware of the exhibition cube along the south wall. She also offered to help orient the students without vision by squaring them off so they were facing the west wall and in contact with the south wall. Hill (1986) clarifies that orienting individuals in their environment involves having the individuals come into contact with their surroundings. This contact enabled the students to gain knowledge of the distance and relation between themselves and the gallery wall, which helped them as they traveled.

The students without vision seemed only to require a moment to become oriented and feel comfortable enough to begin exploring. They used their trailing skills to travel throughout the gallery. Hill (1986) explains that the trailing technique involves using the arm closest to the wall in an outstretched forward position. The back of the hand is used to touch the wall in a gliding motion as the student walks. I watched as they used both their trailing skills and lower body protection technique as they traveled in the gallery. Hill (1986) describes the lower
protection as a method that involves holding the free arm out in front of the body just above the waist with the palm facing out. According to Hudson (1997), both methods enable the students to detect obstacles in their path of travel. Trailing also helped the students locate the works of art and labels on the walls. All three students accepted assistance and guidance from their sighted classmates and teacher when reorientation was needed.

Students with usable sight entered the gallery in the same manner as would a sighted visitor. Some of them took a moment to look around the entire gallery and observe their surroundings, while others moved toward the pieces of art that interested them. I heard the students say, “That must be Jingleman, look at all the bells! Let’s go look at it,” and, “This gallery is larger than I thought it would be,” and, “Come on, I want to see that painting with the sun!” They seemed to travel throughout the gallery and negotiate the obstacles and their classmates without any problems.

Soon the gallery became a flurry of activity as the students moved throughout it freely and independently. It appeared that the students were able to locate all the pieces of artwork and title cards without any assistance. The sounds of voices and laughter amplified as the students actively engaged in the show. The students engaged in conversations with their
classmates and the chaperones. I noticed that the students experienced the artwork in a similar manner as students with normal vision.

Visual Exploration

Most individuals with normal vision can see about 180 degrees of their surroundings at a time. Matlin (1983) finds that they are able to encompass spatial relationships, shapes, and colors. They are capable of seeing an entire work of art at a glance without focusing on any particular element. During that time they immediately become aware of the length, shape, and size of the artwork. When they visually scan a work of art they are not looking for anything specific; instead they make spontaneous eye movements in order to explore the work of art. Matlin (1983) identifies these rapid eye movements from one fixed point to another as saccadic movements. Visually scanning the piece enables the individual to determine the content of the picture.

The students with usable vision used their sight to examine the works of art. The students said they were interested in looking at the colors, shapes, and forms Ms. Brooks used to create the pieces of art. The students expressed that they were also examining the overall design of the pieces. They appeared to study and inspect the artwork in a similar fashion as individuals with normal sight.
Differences only became apparent when I spoke to the students. The students with narrow visual fields expressed that they were able to examine only small sections of the artwork at a given time. They told me they could distinguish the shape of the work of art, but it was not clearly in focus. Many of the students were missing the ability to see the details of the artwork. Matlin (1983) believes that the failure to perceive features is caused by static visual acuity. These conditions offered the students only partial visual impressions of the artwork. The students expressed that because of their visual limitations some of the pieces required haptic exploration.

Haptic Exploration

Since all of the artwork was too large for the students without vision to grasp with one hand, it was necessary for the students to explore the artwork using their sense of touch. Gibson (1966) identifies this type of exploration as active touch because the participant actively engages with his or her environment through direct contact with objects. Active touch consists of “self-produced movement that allows an individual to obtain objective information about the world” (Gibson, 1966, p. 7). This movement involves the stimulation and manipulation of the receptor systems in the muscles, tendons, and joints.

According to Gibson (1962), active touch provides valuable information about objects in the world and offers alternatives to visual information to individuals who are blind. He confirms that
using active touch to explore an object facilitates the identification of the object’s properties. These properties include the detection of size, shapes, surface textures, and material substance.

Although the students didn’t consistently use any specific scanning strategy, I will present the methods I observed. These approaches included tracking, tracing, broad sweeps, grasping, and rubbing motions. Some of these methods involved the use of a single finger or several fingers and occupied one or both hands.

The tracking motion encompassed the use of both hands with the one hand trailing behind the other. I noticed that the fingers on both hands moved together as a unit. This exploration usually began on the left side of the piece and moved to the right, and encompassed the entire length of the artwork. The movement appeared deliberate and controlled. It was a tracking action similar to reading Braille. I observed that the primary fingers that were used for gathering information included the index, middle, and ring finger of both hands. Each finger was bent slightly to allow only the fingertips to come into contact with the surface of the artwork. The students told me that this action enabled them to determine the length of the piece of art by measuring the amount of time it took to get from one end to the other. This method of exploration was modified to determine the width of a piece. Both hands were extended upward with one hand positioned slightly above the other.
Another method used to determine the size of a piece was to trace its perimeter. This was accomplished using the index finger and middle finger. When the student’s hand reached the sides of the piece, the fingers would wrap over the edge of the piece and the thumb would remain on the surface. The students used this tracing motion to slide along the outside border of the piece. This method allowed the students to determine the overall shape and size of the artwork. It also helped the students to verify if the piece had a frame.

Along with determining the diameter of the artwork the students would also use the tracking motion to explore the rest of the work of art. This investigation slowed and even stopped when further exploration of an area was needed. Some students investigated the piece by using outstretched hands in a broad sweeping motion. All the fingers were used in this method of exploration. The movements of the hands was slow and cautious as the student appeared to be examining one section at a time. After one section had been explored, the student would move to a new area. In this method, the hands moved independently in a random probing motion.

The students used a grasping motion when they encountered three-dimensional features of the artwork. This systematic approach enabled them to examine the tangible shapes found in the pieces of art. This movement involved wrapping their thumb and fingers around the edges of the shapes.
changing their finger positions as they examined the shapes. The entire hand was used to encompass the smaller shapes, and both hands were utilized for the exploration of larger forms.

I also observed some students using only one finger to examine the different shapes. This method involved the students tracing the outlines of the shapes with their index fingers. This exploration stopped at various points when further inspection of the curves, angles, and contours of the shapes were needed. The grasping and tracing motions supplied the students with the haptic information that helped them recognize and discriminate the different shapes found in the artwork. The grasping and tracing techniques also enabled the students to examine and compare the dimensions and proportions of the three-dimensional features found in the artwork.

All the students without vision explained that they were using haptic exploration to try to perceive the entire piece. Revesz (1950) finds that haptic recognition of objects is not immediate, as it is with vision. “We see the whole, and only then notice the parts. In haptics, the construction of the whole is a cognitive and intellectual process that follows perception of the parts” (p. 84). According to Hill and Blasch (1980) this is especially true when the individual is unable to see the whole picture or unable to touch the entire object because of its size.
After examining each piece of art more thoroughly, these students were able to synthesize these parts into a whole impression of the piece of art.

The students with usable sight also examined the artwork using their hands, but not in the same tracking and sweeping motions as the students without vision. These students used their fingers, but only to touch areas that interested them. They seemed to use the same grasping motion as the students without vision when they explored the shapes and features found in the artwork.

This section has presented the methods of haptic exploration I observed during the field trip to the Barth Galleries. These approaches included tracking, tracing, broad sweeps, grasping, and rubbing motions. All of the students used active touch to explore and identify characteristics of the artwork. Touching enabled the students to detect the proportions, sizes, and shapes used in the creation of the actual works of this show.

Tactile Perception

Many individuals in the field of perception believe that the sense of touch supplies information that is not perceived by the sense of sight. Krueger (1925) explains, "The fingers obtain information on the innards of objects, whereas the eye remains fixed on the outer surface of objects" (p. 2). According to Matlin (1983) active touch is important in identifying the
characteristics of the surface of objects. Katz (1925) believes strongly that the vibrations produced from active touch are necessary for tactile perception. Lederman (1982) echoes Katz’s observations: “When the hand remains on a surface without relative motion, it becomes impossible to determine the qualities of the surface” (p. 33).

They found that movement of the hand over the surface of an object obtains the most accurate information. This motion enabled the students to distinguish and recognize the different surface qualities found in the artwork. These included the perception of texture and temperature.

**Texture**

Susan Lederman (1982) defines textural perception theory as “experiencing any number of surface qualities, for example roughness, smoothness, hardness, stickiness, slipperiness, oiliness, coarseness, and graininess” (p. 131). Katz (1925) called these surface qualities modifications and believed that this perception was only made possible through vibrations and motion. He observed that both lateral and vertical motion were required for the perception of different textures. Gibson (1962) labels these short back and forth motions of the hand as a gliding touch.

I witnessed the students at the show using the same type of rubbing action as they explored the surfaces of the artwork. The investigation of some of the surface textures involved the use of
the index finger alone or in combination with the middle finger. I observed that sometimes the fingers were used as a unit in a rubbing motion. This motion enabled students to detect the surface qualities of the artwork.

The tactile stimuli found in the artwork included materials with diverse surfaces. Coarse textures included the rope and straw woven mat that were used to create the piece *Silent Voice* (see Figure 19). The granular gravel found in the pieces *Sleeping Serpent I* and *II* supplied a rough, bumpy, and uneven surface (see Figures 8 and 9). Softer textures included the poly fill materials that were used to form the piece *Soft Touch* and the imitation fur used in the pieces *Timberland* and *Conjurer Woman* (see Figures 7, 1, and 5). The elastic rubber of the balloons found in *Party Memories* supplied a smooth pliable surface quality (see Figure 22).

As noted earlier, Katz (1925) identified the term microstructure to describe the fine structures of a surface. He found that they reveal qualities that lead to the classification of a material. He also discovered that this identification was consistent even when the material had been bent, shaped, or altered. “The texture or microstructure is independent of the shape, no matter how a piece of wood is carved, for example, it keeps the same grain or texture” (Katz, 1925, p. 8).
Distinguishing these microstructures helped the students identify whether the material found in the artwork was leather, wood, or metal. I found Katz’s results corresponded to the events I witnessed during the field trip. The students were able to identify the material used in the pieces Gentle Wind I and II, even though Ms. Brooks had manipulated the surface by folding and creasing the leather (see Figure 13 and 14). The students were also proficient in recognizing the surfaces of the wood even after they had been cut, carved, or wood burned.

Moving their hands over the artwork enabled the students to distinguish and recognize the different microstructures found in the artwork. Using a rubbing motion to explore the surfaces, they were able to detect and identify the materials Ms. Brooks used in the artwork. This identification was not hindered even when the material had been shaped, bent, or altered by Ms. Brooks.

**Temperature**

This section examines the thermal aspects in the tactile recognition of the materials found in the artwork. According to Katz (1925), every material has its own distinctive temperature relationship. These materials can be grouped according to their similar thermal qualities. This recognition includes identifying surfaces that produce either a cool or warm impression.

Haptic exploration allowed the students without vision the ability to discriminate cooler surfaces from the warmer materials. I discovered that the materials that produced warm
sensations included the imitation fur found in the pieces *Conjurer Woman* and *Timberland* (see Figures 5 and 1). The students told me that the suede used to create *Gentle Wind I* and *II* and the wood used to create *Things Unknown* also produced a warm thermal quality when touched (see Figures 13, 14, and 20).

Katz (1925) found that thermal qualities are capable of revealing attributes that can lead to the recognition of many materials by touch. He proved that under normal conditions, thermal properties produce good recognition of materials. He found that metals feel cold and wools feel warm to the touch.

The conversations I had with the students at the gallery support Katz’s findings. The students expressed that they felt cool sensations when they touched the metal pieces found in the pieces *Celestial Sundial* and *Timberland* (see Figures 3 and 1). One student without vision shared the following information about the piece of slate used in the work of art entitled *Things Unknown* (see Figure 20), "I think it might be a rock because it feels cold and bumpy." Another student thought the beads found in the piece *Labyrinth* also emitted a cool impression (see Figure 6). "Are the beads made out of clay or glass? They felt kind of cold when I touched them."

The students explored each piece of artwork at the gallery with great interest. They seemed to really appreciate the differences in the surface qualities of the materials. Detecting the thermal qualities enabled the students without vision to
identify many of the materials used in the artwork. This recognition included materials that produced either cool or warm sensations.

Auditory Perception

Entering the gallery supplied the students with many auditory experiences. According to Matlin (1983) the auditory stimuli that an individual hears are caused by tiny disturbances in air pressure. These sound waves cause the eardrum to move and vibrate. These vibrations travel to the inner ear, called the cochlea. When the tiny hairs in the cochlea vibrate they send messages to the brain which are interpreted as sound. One of the sounds heard in the gallery included a steady hum emitted by the exhaust system mounted in the ceiling. Other environmental sounds included the sound of the traffic outside and an undistinguishable noise coming from the storage area located in the back of the gallery.

Individuals without vision often rely on these types of environmental sounds to help with orientation and travel. In order for a sound to be utilized, the individual must localize the sound. Barraga (1997) describes the localization of a sound as the ability to identify and determine the location of the source of the sound. Knowing the direction a specific sound is coming from can aid an individual’s travel. The sound of traffic
on the street in front of the gallery helped the students to determine the placement and distance of the front door and window of the gallery relative to their own location.

According to Guth and Rieser (1997), “Many things emit sounds that enable them to be easily identified. These include the sounds of people’s voices, footsteps, automobiles, and other environmental and mechanical noises” (p. 11). Barraga (1986) believes that these sounds only have meaning to an individual who is blind or visually impaired when they are associated with a particular tactile stimulus or experience. The sound producing elements Ms. Brooks included in some of the works of art were items she had brought into the classroom for the students to experience. All of the materials she selected only produced a sound when they were activated by touch. Interaction with the little metal bells on the artworks, Jingleman and Shaman Stick, supplied students with a concrete experience (see Figures 2 and 10). After touching the bells they could correspond the ringing sound with the bells.

Each piece of art had the potential to produce sounds if they were tapped, scratched, or rubbed by the students. The students tended to tap on the surfaces of the materials that were rigid and squeeze the objects that were flexible. The sounds that were produced varied by pitch, tones, and amplitude. A majority of the items Ms. Brooks selected to use in the artwork would emit some type of sound when they came into contact with another
surface. The beads on the pieces *Gentle Wind II* and *Timberland* were capable of creating a sound, but only when they came into contact with the wall of the gallery or with each other (see Figures 14 and 1).

During the field trip, I noticed that many of the students turned their heads and ears towards the source of the sound being produced. Gibson (1966) identifies this intentional movement of the head as overt listening. According to Long and Hill (1997) this movement helps an individual to hear a specific sound. This movement, combined with selective listening skills, enabled the student to hear and identify the sounds produced from their interaction with the artwork and distinguish them from the environmental sounds that were present in the gallery.

**Olfactory Perception**

The detection of odors can be helpful as cues for individuals who are visually impaired or blind, by providing information about their surrounding environment. Guth and Rieser (1997) note, “Odors usually indicate that an individual is in the general vicinity of their source” (p. 13). Knowing the location of a particular scent can aid travelers in locating their destination.

As an artist, I’m aware of the various odors that can be produced by different art media. Most types of paint, pastels, and markers have very distinct odors. I know from experience that many of these smells tend to linger even after the piece of art
has dried. According to Barraga (1997), “Olfactory sensitivity can be useful in making distinctions between materials” (p. 94). Along with using paints and varnish, Ms. Brooks also selected materials that produced a variety of smells. These included using scraps of leather, balloons, straw mats, rope, jute, and different kinds of wood.

Previous experience with a particular odor enabled the students to accurately identify it at the gallery. One student was able to identify a piece Ms. Brooks had wood burned by its distinct odor. “When I stand over here I smell burnt wood; it smells like our fireplace at home.” Using their olfactory sense helped some the students identify the different materials found in the artwork.

Duration

**Sighted Students**

Ms. Brooks has observed over the years that most people with normal vision usually don’t spend a lot of time viewing artwork. “People who are not visually impaired or blind go to an art exhibit, look at it for a couple of minutes, and walk to the next piece” (Q. E. Brooks, personal communication, November 25, 2001). She felt that these individuals “Look at a work of art and think they see everything” (Q. E. Brooks, personal communication, February 9, 1999).
This short span of time might be because most sighted individuals have the ability to determine the outline of an object at a glance. They are also able to visually scan a piece of art without focusing on any particular element. Individuals with visual impairments are unable to examine a work of art comprehensively. They must inspect the work of art in a successive fashion that requires more time.

Ms. Brooks expected that the students with some usable vision would take their time, but after observing the students with the artwork she found that they spent a very short time with the pieces. "It looks like they do about the same thing as visual people do. They look at art for a matter of a few minutes and they have assessed it as far as they are concerned, then they move right on" (Q. E. Brooks, personal communication, November 25, 2001).

I observed that some of these students did spend additional time with the pieces of art. Griffin, Erin, and Hernandez (1997) finds similar results: "Some individuals with visual impairments will process visual information at a different rate than their sighted peers" (p. 310). They explained that this happens because a majority of individuals with visual impairments experience a loss of visual field. During a conversation with Diane Tilton-Mauer, I found that this was true for most of the students involved in this study. When they looked at the works of art, many of them could only view small portions of the artwork at a
time. Examining the artwork using successive visual scans probably contributed to the additional time required by some of the students.

**Blind Students**

Prior to the show Ms. Brooks wondered "If the blind will just touch different spots and think that's enough, or will they take the time to explore the whole piece?" (Q. E. Brooks, personal communication, February 9, 1999). During the show, Ms. Brooks discovered that the students without vision "Approached the pieces like any other person in terms of confronting the piece. Then they were allowed to touch the piece without gloves and they did that. They took their time, which you don't see the visual people doing" (Q. E. Brooks, personal communication, November 25, 2001).

The extended amount of time could have occurred because all three students without vision were faced with the task of haptically scanning each section of the artwork. A haptic scan required more time than a visual scan of the same piece. These students expressed that it was necessary to move their hands slowly across the artwork in a successive fashion to determine the relative location of the parts of the artwork to the whole piece. "I noticed that the students were spending a longer amount of time with the pieces that the visual audience. They really wanted to investigate the whole surface" (Q. E. Brooks, personal communication, November 25, 2001).
They spent less time with textures or materials that were familiar and additional time handling the objects, shapes, and material they did not recognize. I noticed that the period of time needed for *Shaman Stick* and *Spirit Stick* was significantly less than some of the other works of art (see Figures 10 and 11). One student said, “It took less time because I’m familiar with the materials and I made one with Ms. Brooks.” *Wink II* was another piece in which students recognized the material because they use thermoform paper in their classrooms (see Figure 17).

The size and complexity of the artwork affected the amount of time students spent with each piece. The larger pieces of art required exhaustive haptic exploration by the students without vision. Additional time was needed to investigate *Labyrinth*, *Things Unknown*, and *Mother Remembering* because they were three of the largest pieces in the show (see Figures 6, 20, and 24). The complexity of the artwork was another factor that influenced the amount of time devoted to each piece. The details and textures found on *Timberland*, *Celestial Sundial*, *Mask of My Familiar* and *Party Memories* demanded significantly more time for the students without vision to explore haptically (see Figures 1, 3, 4, and 22). The amount of time it took to explore the flat surfaces of *Melody’s World* was considerably shorter than the textured surfaces found in the pieces, *Sleepy Head* and *Sunfish* (see Figures 18, 12, and 21).
This section examined the length of time that students spent exploring the artwork. I discovered that vision allowed students to examine the artwork in a much shorter time than haptic exploration of the same piece. They examined the artwork for approximately the same amount of time as someone with normal vision. I observed that the students without usable vision spent more time with the pieces because they had to haptically scan the artwork one section at a time. The size, materials, and complexity of the artwork greatly affected the amount of time the students spent with each piece. Artwork with numerous angles, edges, and shapes took more time than pieces with smooth curves.

Proximity

Egocentric distance refers to the distance of an object from the viewer (Matlin, 1983). When the students with usable sight approached the artwork, they initially stood about one to two arm lengths away. After finding a work of art that interested them, these students would move closer for further examination. Sometimes they would come within inches of the surface of the artwork. The distance that the students stood from the artwork affected its visibility; for many of these students it was necessary for them to reduce the viewing distance. Moving closer to the artwork enabled the students to visually examine the details of the artwork.
Since the students without vision were using their trailing techniques as they traveled throughout the gallery, they continued to stay in close proximity to the artwork. There appeared to be very little space between the student and the actual pieces of art. I observed that these students remained close to the artwork during the entire show.

This close proximity allowed all of the students to use their other senses to explore the pieces of art. Touching enabled students to detect the proportions, sizes, and shapes used in the artwork. The students were also able to examine and identify the surface textures and thermal qualities by touching the artwork. Interacting and moving the artwork caused some of the materials to move. Many of these movements produced sounds that could only be heard if the listener was close to the source. Being near the art also enabled the students to experience some of the odors that were produced by the materials.

Since the artwork for this show was designed to be touched, I feel the distance between the audience and the artwork was smaller than a show designed only to be viewed. Being close to the artwork enabled the students to interact with the artwork in a way that most visitors to a gallery do not experience. Close proximity to the artwork allowed the students to use their auditory and olfactory senses to experience the artwork in the gallery.
Critiques

This section will focus on the discourse from the students during the field trip to the Barth Galleries on June 1, 1999, a discussion with the students that occurred at the Ohio State School for the Blind after the show, and critiques published in the newspaper, *The Columbus Dispatch* and *AlivewireD* in Columbus Pages. The article in *The Columbus Dispatch* was written by Sharon Kokot and focused on the *Hands On* exhibition at the Worthington Arts Council. The article presented in *AlivewireD* was written by Melissa Starker and centered on the show *Touching Revisited* at the Barth Galleries. This discussion will focus on the artwork that exemplifies the overall opinions of the critics and the students.

Barrett (1996) defines criticism as "Informed discourse about art to increase understanding and appreciation of art" (p. 3). He warns that criticism should not be referred to as an act of negative judgment, but a much wider range of activities including description, interpretation, and evaluation. Art critics have the opportunity to write on a variety of artwork. According to Barrett (1994), many of them find writing about a single piece of art to be limiting and prefer to write about an entire exhibition. Focusing on a collection of artwork enables them to select the pieces they want to write about. I found this
particularly true for the verbal critiques by the students and written reviews by the art critics. They all seemed to focus on particular pieces of artwork.

**Description**

Description is defined as a data-gathering process that includes information about the work of art’s internal information (Barrett, 1996). This information includes subject matter, medium, and form (Barrett, 1994). Critics use description to bring attention to features of the artwork that they feel are most important. Listening to the students, I discovered that those without vision focused on the materials, textures, forms, media, and sensory aspects of the artwork. The students with sight tended to discuss the visual features of the artwork. They described the subject matter and the colors used in the artwork. Subject matter refers to the main idea or theme of the artwork. I found it interesting that the art critics focused on the same internal information when they wrote about the show.

A student with sight stated, “The checked pattern on the snake looks similar to a real snake.” Besides identifying the subject matter, one student without vision described the materials used in the *Sleeping Serpent* series (see Figures 8 and 9). This student said, “I could follow the shape of the snake by feeling the bumpy scales. This must be made out of some type of gravel. The surface is rough and bumpy.” Another student who was blind commented on the texture and thermal qualities of the
artwork, “The snake felt real; it was cold and scaly, it really felt like the skin of the snake. Some of the scales came off when I touched them. It was awesome.” The critiques from these students were based on their haptic exploration of the artwork.

The piece Soft Touch was described by Starker (1999) as “A monochromatic collage of fabrics and plush materials, which presents many pleasing sensations for the viewer, as fluffy white falls beside a slightly steel-wooly gray” (p. 2). This critique supplied a detailed description of the materials, textures, and colors Ms. Brooks used in the piece (see Figure 7). A student without vision described the same piece saying, “It felt like cotton balls; it was very soft.” A student with usable sight expressed the following comments about the piece: “The material was black, gray, and white. It looked like storm clouds.”

A description of Ms. Brooks’s use of the nontraditional materials in the artwork was presented in Kokot’s article. She wrote, “Nearly all of the works contain materials drawn from aspects of everyday life that most Americans have experienced” (p. 8H, 1999). One student with vision found an example of a nontraditional material in Mask of My Familiar (see Figure 4). “Ms. Brooks used a set of those eye goggles to create the eyes for this piece.” The students recognized other objects in the artwork including a compact disk, balloons, buttons, and rope.
Another student with sight noticed that, “The blue woman had jewelry and fake nails. You know those acrylic nails you can buy at the store” (see Figure 5).

Another element that received ample attention from the critics and students with sight was Ms. Brooks’s use of colors in the artwork. Starker (1999) notes that Ms. Brooks’s palette was based on bright colors and bold shapes. She describes these elements in her review, “Rich primary colors prevail in her geometrically shaped paintings” (p. 1). Kokot (1999) describes the colors used in the piece *Mask of My Familiar* “The work is a riot of color with a face of vibrant blue and topped by craft feathers in outlandish shades of fuchsia, acid green, and hot pink” (p. 8H). One of the students with vision described Ms. Brooks’s use of colors in the pieces *Jingleman* and *Sleepy Head*, “I liked the bright stripes of red, yellow, and blue she used in *Jingleman* and the piece with the sun, you know the sun sinking into the ocean. The colors really seemed to sparkle like water.” All of these observations from the students and art critics offer a variety of descriptions of the hues Ms. Brooks used in the artwork.

**Interpretation**

Critics rely on their own views, backgrounds, and knowledge of art to interpret works of art. Barrett (1996) indicates “The act of interpreting a work of art occurs whenever the discussion moves beyond offering information to build meaning” (p. 39). He
found that these interpretations might be very different from the artist’s intent. The following interpretation occurred after a student without vision haptically explored the piece Celestial Sundial (see Figure 3). This student interpreted the round shape and metal apparatuses extending out from the wood in the following manner, “I thought it was a steering wheel on a ship because that’s what it felt like.” A student with vision gave this interpretation of the piece Conjurer Woman: “I think she is painted blue because she is sad about something” (see Figure 5). This interpretation demonstrated this student’s connections between colors and emotions.

Kokot (1999) offers her own interpretation of Ms. Brooks’s intent: “In another amalgamation of influences and ideas, Timberland seems rooted somewhere between Africa, the American Indian Village, and the frozen-food section of the local supermarket” (p. 8H). She also interpreted the piece, Mask of My Familiar, by saying it resembled an “African mask dressed up for a party” (p. 8H). When I asked Ms. Brooks about the review she responded,

The author of the article seemed to really try to tie some of the works as being ethnic and, when I spoke to her, she kept alluding to the fact that some of the work was Native American and some was African, you know, appeared to be African-inspired. I said the only thing that I was consciously concerned with in creating this art was the textures and the form. How it appears, wasn't a real concern in terms of my ethnicity. (Q. E. Brooks, personal communication, March 17, 1999)
The students and art critics used their interpretation as a way to facilitate understanding and appreciation of the artwork. According to Barrett (1996), a wide range of opinions allows viewers the freedom to examine the information and make their own decisions about the meaning of a work of art. He points out that sometimes artwork receives opposing interpretations from a variety of different views. These contradictory interpretations occur because each person has his or her own background and knowledge of art comes into play when examining a work of art.

**Evaluation**

The final method used by both art critics and students to examine the artwork is evaluation. Judgments rely on an individual’s personal preferences or criteria and should be supported by clear reasons (Barrett, 1996). Evaluations of artwork tend to be either positive or negative. I noticed that the students from the Ohio State School for the Blind responded to the artwork in a similar manner as students with normal vision I have brought to galleries. They shared their likes and dislikes and expressed the reasons for these judgments and opinions.

One student without vision told me that her favorite piece was *Labyrinth*. She explained, “It was so much fun to explore all the pathways and it surprised me when I found the beads. It reminded me of a puzzle. I could touch it all day.” Starker’s (1999) critique of this piece stated, “Labyrinth, perhaps the
best combined use of the visual and the tactile, is a three-dimensional hanging in which the hand moves through a maze of bright red and yellow to find a surprise of smooth glass beads” (p. 2). I found it interesting that the sighted critic had a similar reaction to this piece as the student without vision (see Figure 6).

Another work of art the students and art critics shared similar opinions was the piece Jingleman. The students’ responses included, “I liked the way the beard sounded when I rang the bells,” “I like this piece because it’s bright and very colorful,” and, “I liked to play with all the bells and the big nose.” Kokot (1999) agrees with the students: “You have to smile at Jingleman, a mask sporting bright, jazzy stripes, an impish turned-up nose and strings of jingle bells for a beard” (p. 8H). The students liked almost all of the artwork, but the general consensus was that Jingleman was one of their favorite pieces (see Figure 2).

Almost all of the comments and judgments from the students were positive. When asked, only a couple expressed opposing opinions about some of the pieces of artwork. One student without vision expressed some discomfort with the pieces Sleeping Serpent I and II. “I didn’t like the snakes, they felt creepy, just like a real snake.” I felt this student’s judgment might have been based on a negative personal experience with a snake or snakeskin (see Figures 8 and 9).
The constructive comments focused on some of the materials used in the artwork. A student without sight shared the following critique: "I liked the piece with the CD on it, but the rope was too rough to touch." A couple of the students expressed that they didn’t like some of the textures found on the piece *Mask of My Familiar*. When I asked them to clarify their comments, they told me they didn’t like the feel of the rope around the eyes and the beard. "The beard was too scratchy; I liked the beard of bells better."

The critiques from the students reflected their own personal preferences. The sighted students tended to focus on the visual elements, including colors, subject matter, and patterns. The students without vision focused on the materials, media, and textures. All of the students who were blind told me that they enjoyed exploring the folds and layers of the wire mesh found on the piece *The Embrace* (see Figure 23). I found it interesting that the artwork the students liked or disliked coincided with their preferences of the materials they had experienced in their classroom.

Critiques by the art critics presented favorable evaluations of the tactile and visual qualities of Ms. Brooks’s artwork. Kokot (1999) found that "Brooks’s mixed-media pieces have typically had a pronounced tactile quality, but here she has gone all out, appealing to the sense of touch through manipulation of conventional art materials as well as feathers,
fur, leather, slate, beads, aluminum pie pans, and more” (p. 8H). She continued, “While focusing on heightened texture, Brooks has for the most part managed to retain the strong visual qualities characteristic of her work. Most of the objects are as appealing to the eye as to the fingertips” (p. 8H).

The critics tended to base their judgments on the entire show and not on any particular piece. Starker (1999) wrote, “Although the art was made for the blind, the pieces are surprisingly strong on a strictly visual plane” (p. 1). The students with usable vision expressed similar opinions. They told me that they enjoyed the bright colors and designs found in the artwork. Kokot’s (1999) article coincided with Starker’s observations: “Although the exhibition was created especially for blind and visually impaired audiences, it offers a rare experience for anyone who has ever wanted to touch a work of art” (p. 8H).

The intent of criticism, according to Barrett (1996), is to educate or bring attention to particular works of art by providing a wide range of opinions. The critiques presented in this section afforded students and art critics alike the opportunity to point out features and elements of the artwork they felt were most important. These opinions allow other viewers the freedom to examine the information and make their own decisions about the artwork.
Conclusion

We wanted the students to be as self-sufficient as possible as soon as they entered the gallery. The model served to give the students a preview of the gallery space, thus helping to orient them. The model helped to reinforce and facilitate their learning the spatial layout of the Barth Galleries and the order and placement of the different works of art. One student without vision expressed the following about the model I created for the students,

When I walked in, I felt like I had been there before. The cool thing was that I remembered where Jingle Man was and a couple of other ones and that were kind of cool that Lauri said it would be there, and it was. That gave me a good feeling, I liked that.

The model also assisted in identifying the different landmarks of this new surrounding. Learning the layout of the gallery and its existing landmarks supplied the students with information they could use to orient themselves at the show. The goal of the model was to encourage the students to travel throughout the gallery and to explore the artwork on their own.

The fact that each piece of art at the gallery was mounted low and securely on the wall enabled the students to utilize and experience the artwork using their haptic, visual, auditory, and olfactory senses. Haptic exploration allowed the students to perceive the dimensions, shapes, and textures found in the artwork. The students with vision utilized their remaining sight to examine the colors, subject matter, media, and shapes that
were used to create these works of art. The auditory cues combined with active touch aided the students in developing concrete understanding of some of the sounds created by interaction with the artwork. The olfactory sense enabled some students to identify some of the materials Ms. Brooks used to create the artwork. This chapter concluded with a presentation of critiques of the show from the students involved in this study and from local art critics.
CHAPTER 6

IMPLICATIONS AND RECOMMENDATIONS OF THE STUDY

The purpose of this chapter is twofold. First, it presents the findings derived from my third research question: What insights and information did Ms. Brooks gain through working with the students involved in this study and how might this information be useful to others, especially art educators and artists? Second, this chapter also focuses on the implications of this case study for the field of art education and education in general. Suggestions for further research in these areas are also included.

The first section of this chapter examines the insights Ms. Brooks gained from working with the students. This section also presents the impact that this experience, and the creation of this show, has had on Ms. Brooks and her artwork. The pedagogy section offers suggestions and recommendations for classroom and art teachers. The next section offers guidelines for artists, gallery owners, and art museums to aid them in creating cultural experiences accessible to individuals who are visually impaired.
or blind. The final section presents suggestions for further investigation and additional research questions that emerged out of this investigation.

Insights

When Ms. Brooks decided to create a show for the visually impaired and blind, she went beyond what she believed to be true about this population and contacted the Ohio State School for the Blind. Traveling to the school and working with the students and their teacher enabled Ms. Brooks to learn first hand about the students’ visual conditions and educational needs. One lesson Ms. Brooks learned while working with the students was “That blindness is just a challenge. It's like any other challenge and sometimes they are given unnecessary challenges by the visual and other times they are denied experiences that would be easy for them to undertake” (Q. E. Brooks, personal communication, November 25, 2001). She continued that some of the students shared with her that they felt many normally-sighted people considered them to be at a disadvantage just because they were blind. “These students are just as intelligent, or more intelligent and capable, than any visual person. They face a lot of obstacles and they overcome them” (Q. E. Brooks, personal communication, November 25, 2001). She also found that “These kids don't have any hang-ups about their blindness. You can use the word ‘blind’ among them and they don't get bent out of shape or offended in any way” (Q. E. Brooks, personal communication,
November 25, 2001). Ms. Brooks also discovered that using the words "look" and "see" does not bother the students. According to Diane Tilton-Mauer it’s normal practice to use visual terms with individuals who are blind because they live in a sighted world.

Ms. Brooks shared another insight she gained from working with the students. "I learned that the blind and the visually impaired can and want to experience art" (Q. E. Brooks, personal communication, November 19, 2000). It was her hope that the show would benefit the students in a larger scope:

The sighted and general public is uninformed and unaware that the blind and visually impaired want to be contributors as well as participants in the visual arts. It is my earnest desire that this exhibition not only provides the opportunity for them to at least experience the visual arts, but be a wake-up call that there are people out there that enjoy art, or who want to enjoy art, that aren't sighted. (Q. E. Brooks, personal communication, February 9, 1999)

Another expectation Ms. Brooks had for the show was to persuade other artists to create opportunities for individuals who are visually impaired or blind to experience. "I hope this exhibition will encourage other sighted artists and gallery owners to consider the unsighted and visually impaired when producing and presenting the arts" (Q. E. Brooks, personal communication, February 9, 1999). She shared these same feelings almost a year later: "My hope remains that other artists will give the visually impaired and blind access to art. That
galleries and museums will also give them an opportunity to experience art, not only from me, but from other artists” (Q. E. Brooks, personal communication, November 19, 2000).

Through the creation of this show Ms. Brooks discovered a new avenue for her work “It's not only creating art for the visual, but for those that have to experience it in a different manner. I'm now aware that there is another audience out there” (Q. E. Brooks, personal communication, November 19, 2000). She attributed the recognition of this audience to her initial discussion during a radio interview in 1992. She shared,

Nobody is considering them as an audience and I never considered them as an audience until a blind radio talk show host actually said, “The blind would like your work. You ought to make some work for them.” I had not considered it either. I mean, we're visual people, and you do what's comfortable. You do what you know. (Q. E. Brooks, personal communication, November 11, 1998)

Creating this show for her intended audience was a challenge. “Trying to do a show for the blind was not as easy as I thought it would be. But, it was really worth the effort” (Q. E. Brooks, personal communication, November 25, 2001). She shared one of the main struggles she faced,

Since this show is for the unsighted and the visually impaired, I'm having to remind myself of that a lot because I'm a visual, sighted person, so I'm always looking at the aesthetics about what I'm doing. Then if I get off into the direction of what I'm normally about, in terms of color and design, I have to remind myself that this isn't just for the visual audience. (Q. E. Brooks, personal communication, February 9, 1999)
She recalled, “It was challenging at times to combine textures and materials because I usually don’t have to think so hard about those things” (Q. E. Brooks, personal communication, November 25, 2001).

Ms. Brooks never let these struggles stand in her way. “This was a God-given thing in terms of someone placing it in my heart to do this and my willingness and desire and put this show together” (Q. E. Brooks, personal communication, November 11, 1998). She especially enjoyed having the opportunity to witness her intended audience experience the show first-hand. She expressed,

That was the most joyful thing for me. I'm glad to share this experience with anybody, but to be able to share it with the audience that it was intended for is uplifting because the joy that they received from it is what this work is about. (Q. E. Brooks, personal communication, November 19, 2000)

It was Ms. Brooks’s desire that this show would have the opportunity to touch other audiences. “I would love for this show to have as many showings as possible so that others would be able to experience the art and know that there are people out there who are considerate of the blind” (Q. E. Brooks, personal communication, November 19, 2000). She also hoped that the show would reach other members of her intended audience. “I really would like the show to remain together so that it can travel and that as many people that are blind or visually impaired will be able to experience it” (Q. E. Brooks, personal communication, November 11, 1998).
I recalled a conversation I had with Ms. Brooks in her studio when she was working on developing a title for the show. She shared with me the inspiration behind the names *Hands On* and *Touching Revisited*,

This is a touching that not only has to do with the physical, but this is a touching that's a psychological, emotional touching as far as I'm concerned. These kids have definitely touched my heart and I hope I've touched their life or I hope to touch their life in some way. I have a feeling that this is not just an exhibit. This will always be a part of our life. (Q. E. Brooks, personal communication, November 1, 1998)

Prior to the opening of the *Hands On* exhibit, Ms. Brooks shared these feelings with me: “I think my shows will now be open to touch. I just could not go back to doing shows that weren’t inclusive” (Q. E. Brooks, personal communication, November 1, 1998).

These feelings continued to grow and during a conversation with Ms. Brooks after the show *Touching Revisited*, she told me that this was going to be the beginning of something new for her. She expressed, “I'm going to create artwork in my shows that can be touched. There won't be any no touching” (Q. E. Brooks, personal communication, June 3, 1999). She realized that in the future, some of her artwork might not contain the same elements found in the pieces for this show. She admitted, “My artwork probably won't always be textural and there will be some pieces of my work that the blind won't be able to enjoy, but there will always be pieces there for them. So, they won't be left out” (Q. E. Brooks, personal communication, February 9, 1999).
In reflecting on her relationship with the students, Ms. Brooks expressed, “Some people need to be more aware and considerate of the blind. Most art exhibits are not set up for the visually impaired or the blind” (Q. E. Brooks, personal communication, November 22, 1998). Ms. Brooks has taken a proactive approach to this need. “Now, when I go and I talk about my art, I always include the visually impaired and blind so that I'm always able to put out there that this is an audience that needs to be considered” (Q. E. Brooks, personal communication, November 25, 2001). Ms. Brooks found that the kids she worked with had the same needs to experience art as their peers with normal sight.

This section presented the insights Ms. Brooks gained from working with students who attend the Ohio State School for the Blind. It provided a description of the lessons Ms. Brooks learned from this experience. It also examined how creating the show has influenced Ms. Brooks and her artwork. The goal of the show was to give students an experience they hadn't had before and to raise awareness of the need to create cultural art opportunities for individuals who are visually impaired or blind.

**Pedagogy**

This study offers the following set of guidelines that can be followed in developing schools that can effectively reach out to students who are visually impaired or blind. These should be of special interest to educators and specifically art educators.
concerned with meeting the needs of these students. I have organized the findings under the following categories: teachers, artist in the classroom, investigating resources, Individual Education Programs, auditory approaches, tactile approaches, demonstration techniques, multi-sensory approaches, technology, and art programs.

**Teachers**

The study offered many benefits of working with a classroom teacher. This partnership included shared time and resources. Mrs. Tilton-Mauer was fundamental in the creation of this study. She showed a willingness to devote the necessary class time and personal time to allow an artist into her classroom and for me to conduct this study. She provided us with fresh perspectives and suggestions. Her experience working with students who are visually impaired or blind supplied us with a wealth of knowledge about teaching strategies and approaches.

**Artist in the Classroom**

One approach teachers should consider utilizing is to invite local artists into their classrooms. Artists within the community can offer a special dimension to the regular classroom and the art room. Mrs. Tilton-Mauer willingness to allow Ms. Brooks into her classroom supplied her students with an experience that most sighted and non-sighted students are never given the chance to
experience. She shared these feelings about having Queen Brooks
work with her students at the Ohio State School for the Blind:

I think for the students this quarter, to have an
opportunity to work with an artist and to have a chance to
be valued by someone who is a professional artist was very
beneficial. The students seem to have a very positive
feeling about their own artwork. I thought that was a
really good sort of side benefit. It's really what you hope
to achieve and this was within a short period of time. (D.
Tilton-Mauer, personal communication, November 11, 1998)

Artist can also function as teachers in the classroom. They
can share their special talents and techniques with students.
Many times they possess skills in a media that classroom
educators and art educators may not have. Mrs. Tilton-Mauer
expressed advantages of having a professional artist in her
classroom to teach the students an art project:

I think it's been very valuable for the students to get
input from and instruction and encouragement from a
professional artist. I think there is no substitute for
that. An art teacher can be very talented and do a fine job
of instructing and encouraging and stimulating, but the
students really do need people who do this for a living to
have contact with them and encourage them as well.
Otherwise, I think in the back of the students' minds, it's
"yeah, but it's my teacher and it is part of her job to be
encouraging all that", whereas a professional artist they
feel like they are going to be a little more objective and
maybe a little bit more critical. Not in a necessarily bad
way, but just say more bluntly what they think of the
students' work. That may or may not be true, but I do think
that's how students view it. And so, it's kind of like the
professional artist's viewpoint is considered to be a
little more valuable on one level. It probably is. (D.
Tilton-Mauer, personal communication, November 11, 1998)
Inviting an artist into the classroom can teach students many things. Ms. Brooks taught the students involved in this study how her art functions as an avenue for aesthetic and personal expression,

For me, art is about having an experience, a personal experience, and an experience with the world to those who can receive it. So, if I can bring some amount of joy or some amount of thought...I don't do works that are really negative, or try not to, because there are plenty of artists that are doing that. I like to do works that you like to walk away with and like having in your environment. (Q. E. Brooks, personal communication, November 19, 2000)

Visiting artists can also supply students’ knowledge about the current issues that surround the local art community. They can offer insights into the challenges they face to produce and exhibit their work.

**Investigating Resources**

Teachers should effectively research all the available resources to meet the needs of their students who are visually impaired or blind. This may involve finding a local university that offers classes or contacting a local residential school for the visually impaired and blind. Teachers need to go beyond their existing knowledge of visual impairment and blindness to acquire the strategies and teaching methods that are most effective to meet their students’ needs.

The resources I found may be beneficial to both classroom teachers and art teachers. One of the resources I found was an Orientation & Mobility (O&M) class offered at The Ohio State University. The class supplied a variety of practical hand-on
experiences and teaching approaches to aid individuals who are visually impaired or blind in traveling independently in an environment. I was able to implement the skills I learned from the class during my visits to the Ohio State School for the Blind and during the field trips to the galleries.

I also took classes at the Ohio State School for the Blind. These included classes that supplied instruction in daily living skills. Taking this class enabled me to detect and understand some of the obstacles individuals who are visually impaired or blind face on a daily bases. It also supplied strategies and instruction in the skills individuals who are visually impaired and blind need in order to live independently.

During the O&M class at The Ohio State University I discovered that a Pilot Dog program was located in Columbus, Ohio. This is a non-profit organization chartered by the state of Ohio. The goal is to train guide dogs and their masters to travel safely in diverse environments. During a visit to this facility I was not only given a tour, but also hands-on experience working with one of the guide dogs. I learned that the traveler who chooses to use a guide dog must be in good physical condition, have good orientation skills, give clear verbal commands, and be able to care for a large dog.

My trip to the Clovernook Center in Cincinnati, Ohio, gave me the opportunity to tour a private agency designed to serve adult populations who are visually impaired or blind. I learned
that the programs offered at this facility enable many individuals who are visually impaired or blind to live independently. These services include vocational development, rehabilitative services, employment services, and direct assistance with daily living activities. I also took a tour of their in-house publishing facilities and discovered that a majority of the employees are visually impaired or blind.

A trip to the Kentucky School for the Blind, in Louisville, Kentucky, provided a tour of the school facilities, a discussion of school policies, and other related services. This visit supplied me the chance to observe an alternative educational approach. I was able to examine the programs and curricula available for students who are visually impaired or blind that live in Kentucky.

During the trip to Louisville, I visited the American Printing House for the Blind. I discovered that it is the oldest agency for the blind in the United States. It provides books, magazines, and educational material for individuals who are visually impaired or blind. I had the opportunity to observe how Braille pages are embossed on zinc plates and discovered that reproducing materials in Braille and large type is a costly and time-consuming process. I also learned that books duplicated in Braille are much larger in size, than books printed in a standard
font size. I also discovered that the American Printing House for the Blind employs a majority of the graduates from the Kentucky School for the Blind.

I recommend that teachers also explore the resources available in their own school districts. Many districts have itinerant or resource teachers who can aid regular classroom teachers and art teachers. They can help select the most appropriate assessment devices, curriculum material, and instructional activities for students who are visually impaired or blind.

I encourage teachers to take advantage of the services and information that exist. Each location I visited and each class I participated in supplied knowledge about the programs available for individuals who are visually impaired or blind. All of these resources supplied me with a better understanding of the issues surrounding the education of students with visual impairments. In addition to the resources I have listed, teachers should also be aware that there are numerous agencies and organizations that offer additional information. Knowing the variety of resources that are available should aid teachers in developing and adapting their teaching approaches to meet the needs of these students in their classrooms.

**Individual Education Programs**

Based on this study, I recommend that classroom teachers and art teachers learn the processes involved in formulating
Individual Education Programs (IEP) for students who are visually impaired or blind. Teacher preparatory programs should supply instructions and provide the necessary tools for their students to participate in the IEP process. When this information is not provided, teachers need to take a proactive approach to find out where and how to obtain the appropriate information and resources to participate in the creation of an IEP. This includes becoming skilled at establishing appropriate goals and objectives based on the data collected during the assessment procedures. Teachers should be aware that the format for an IEP may vary from one school district to another, but the language, content, and process remains the same.

Art teachers should also be aware that, in some cases their involvement in creating an IEP may not be welcomed, but it is important that they do not get discouraged. They should take their knowledge of the process and promote the benefits art has to offer to their students. This includes recommending the placement of goals, objectives, procedures, and assessment for art on the IEP. This inclusion will help art to be considered as equally vital for students who are visually impaired or blind as other subject areas.

**Auditory Approaches**

Many times individuals who are visually impaired or blind must rely on receiving information only from spoken words. Listening is the chief avenue of learning for students who are
visually impaired or blind when tactile experiences are absent or not available. Teachers should utilize additional auditory information to teach students who are visually impaired or blind. These stimuli could include providing detailed instructions, verbal directions, sharing stories, or using related sounds to enhance a lesson.

Based on the findings of this study, it is recommended that teachers working with students who are visually impaired or blind should look at and talk directly to the student. Teachers should address their students by their names when working in group situations. This enables the students who are blind to know when you are speaking to them. According to Hudson (1997), another benefit of this approach is that it helps students recognize their classmates’ voices.

Information given in class needs to be presented in the form of clear and concise verbal instructions. It is also important that teachers provide detailed descriptions of what they are doing during the entire lesson. When writing on the chalkboard, teachers should read each word out loud to enable the students who cannot see the board to follow along mentally. Among the instructions that need to be included are the location of the materials and equipment, expectations of the lesson, and descriptions of the visual images.

Teachers need to know how to interact with students who are visually impaired or blind. Instead of handing materials to the
student, teachers should instead describe the location of the items using left and right commands in relation to the student’s body. Verbal directions can help students traveling independently in the classroom. Using the students’ stationary body as a reference point, cardinal directions can assist students to establish straight lines of travel. Teachers interested in using these verbal instructions in their classrooms should begin by incorporating compass terms and body orientation strategies into their daily vocabulary and lessons.

The findings also demonstrate the importance of using narrative in the classroom. Ms. Brooks shared stories of her struggles as an artist, her fear of glaucoma, her trip to Africa, and what inspires her to create her artwork. The students learned about the assemblage style of artwork that Ms. Brooks utilized by listening to her describe the technique. They also gained information about her motivation, challenges, and progress as she worked on the artwork for the show.

Storytelling became an avenue that the students used to share their own experiences. Stories enabled the students to reveal aspects of their lives, which supplied us with an opportunity that is typically not utilized in educational settings. Instruction in most classrooms center on the teacher supplying a majority of the narrative and many art programs tend
to focus on creating a product. These programs miss out on the benefits the students’ stories and experiences have to offer in terms of self-expression and motivation.

Educators should also be aware of the benefits of using sounds to enhance a lesson. An art lesson on kinetic sculptures could be reinforced with the use of wind chimes and a lesson on birds could be accompanied with corresponding sounds of birdcalls. Teachers could also incorporate additional sound effects when they read a motivational story to their students.

Teachers need to be aware that students who are visually impaired or blind receive much of their learning through listening. It is the main avenue for instruction for students who are blind when tactile experiences are not available. They also require more auditory stimuli than sighted students. The findings of this case study indicate that using auditory stimuli is an effective strategy to motivate students who are visually impaired or blind.

**Tactile Approaches**

Working with the students revealed that describing materials or concepts does not supply students who are blind with the same information as experiencing an object through touch. According to Wehman (1997), “For children who are blind, tactile learning represents the primary means of gathering information
about the immediate world” (p. 312). Visual information and verbal descriptions should be supplemented by providing students with relevant tactual experiences.

Bringing in examples of her artwork enabled the students to explore these works beyond Ms. Brooks’s verbal descriptions. The students were able to examine the artwork through their sense of touch. Wehman (1997) confirms, “The hands are a tool for learning that provide details about the immediate characteristics of objects and materials” (p. 311).

Haptic exploration of the artwork supplied students with information about the shape, dimensions, and surface characteristics. Tactile examination also enabled them to investigate the construction of the pieces. Physically handling the artwork gave the students the opportunity to use their auditory and olfactory senses to gain additional information. Using these senses aided the students in identifying the materials Ms. Brooks used to create the artwork.

This approach to teaching students who are visually impaired or blind is echoed in the writings of Arnheim (1969), Coon (1953), Swenson (1987), Rodriguez (1984), and Bentzen (1997). They all stress the importance of supplementing visual teaching approaches with other sensory information and experiences. According to Arnheim (1969), “The development of
cognitive ability involves the use of the senses, because nothing can be in the mind that has not first been received through the senses” (cited in Barraga, 1985, p. 41).

Ms. Brooks’s approach during the Spirit Stick workshop provides an example for teachers to follow when they teach art projects to students who are visually impaired or blind. Ms. Brooks utilized an example of her own Spirit Stick for the students to touch, examine, and discuss. By giving the students the opportunity to haptically explore her Spirit Stick, students who were blind were able to understand the physical construction of the piece. This exploration also enabled students to grasp the expectations and criteria of the art project beyond what a verbal description could offer.

The findings recommend that teachers supply their students a variety of different materials for them to explore. Coon’s research emphasizes the benefits of using tangible objects to assist in teaching students who are visually impaired or blind. “It has become increasingly evident that what the children touch becomes a part of their personal experiences” (Coon, 1953, p. 16). This includes following Ms. Brooks’s example and using actual materials as much as possible. Coon continues, “Tangible objects greatly awaken the curiosity and imagination in many children. They help answer the ‘how’ and ‘why’ posed by many blind children” (1953, p. 15).
Many of the materials Ms. Brooks brought to the classrooms were common items that she felt the students would recognize. Without knowing it Ms. Brooks was demonstrating a technique endorsed by many educators. Swenson (1987) advises, “Teachers should choose everyday materials with which the students are familiar and discuss with the students the general use of the materials. Using familiar materials aids in the development and understanding of concepts” (p. 58).

Rodriguez (1984) broadens the methods that Ms. Brooks utilized, to include the use of models in the classroom. She suggests that educators use three-dimensional models and tactual reference materials whenever possible to teach concepts. Hill and Blasch (1980) defined concepts as “A mental representation, image, or idea of concrete objects” (cited in Blasch, Wiener, & Welsh, 1997). Students who are blind tend to have difficulties understanding various concepts.

Space is one of the more difficult concepts for students who were blind or visually impaired to understand. Since the gallery space was too large for the students to see in detail or encompass through haptic exploration, the model I created supplied students with a three-dimensional representation of the artworks and the gallery. Supplying a model gave them a tool to help examine and learn the spatial layout of the gallery. The benefit of the model was confirmed in the findings from Bentzen (1997), where a model was an aid of choice for introducing many
concepts and characteristics of a built environment. The model was a useful orientation tool because it helped the students plan their own travel routes for the trip to the gallery.

These findings demonstrate the importance of using teacher examples, tactile materials, and models in art rooms and in regular classrooms as educational tools. These items can aid in teaching students who are visually impaired or blind lessons and concepts. The writing of Wehman supports Ms. Brooks’s approach: “The teacher who provides opportunities for direct experience will be the most successful in building concepts of the world” (1997, p. 312).

**Demonstration Techniques**

The findings from this study identified teaching approaches that are frequently used with students who are visually impaired or blind to teach hand-on activities. These approaches include the hand-over-hand technique and group demonstrations. Both are designed to help teach different skills. Mrs. Tilton-Mauer’s explained the proper procedures to follow when using the hand-over-hand technique.

You stand directly behind the totally blind or visually impaired student that you are teaching and allow the student to hold the parts of the project in his hand. Place the parts in your hand and demonstrated the movement. Let the student feel the motion of your hands. Then put it back into the student’s hands and manipulate his hands with the motions. Continue to do that until the student is able to imitate the motions and perform the task. (Tilton-Mauer, personal communication, November 11, 1998)
It is also recommended that the teacher describe the movements as they occur. She continued by explaining, "After the student seems to be able to repeat that motion pretty confidently and is showing some independence, then you can back away from the student" (Tilton-Mauer, personal communication, November 11, 1998). She also advised that teachers continue monitoring their student’s progress. "You do have to look and see what the students who are blind are doing often and correct them while they are working to make sure they're on the right track" (Tilton-Mauer, personal communication, November 11, 1998).

Group demonstrations are recommended for students with usable vision. Mrs. Tilton-Mauer explained "I use it for students who can see, you allow them to get closer to you as you demonstrate the activity" (Tilton-Mauer, personal communication, November 11, 1998). She told me that some of her students "Get virtually right on top of you and others have fairly decent distance vision, so they can sit across the table from you, and they simply watch you work" (Tilton-Mauer, personal communication, November 11, 1998). She has found that "Even after you do that sort of demonstration, go around to each student, stand directly next to them, and do whatever you have done in the group demo right next to them so they can see you do it" (Tilton-Mauer, personal communication, November 11, 1998). Mrs.
Tilton-Mauer advised that all teachers who work with students who are visually impaired or blind should learn and utilize these approaches.

**Multi-Sensory Approaches**

The data revealed that the education program should capitalize upon the strengths of all the senses. According to Hooper-Greenhills (1994), “People with one impaired sense were still able to use the others and they all were able to select their preferred sensory learning mode” (p. 113). To give more meaning to students who are visually impaired or blind, art teachers should plan lessons to reach the different senses. They may want to select projects that offer the potential to produce different sounds or that have the capacity to emit a variety of scents and odors.

Teachers could promote sensory skills and learning by altering experiences and utilizing a variety of traditional and nontraditional materials. Instead of focusing just on traditional media, teachers should provide alternative materials that offer new sensory experiences for their students. They also should not overlook the value of using common, everyday items in their classrooms to assist in bridging the gap between the known and the unknown.

Art lessons that move beyond the visual and utilize the other senses should be taught. Perhaps an art lesson could focus on creating edible art. Using fruits and vegetables would supply
students with a variety of sensory experiences. Handling and manipulating the food would enable students to examine the shapes, textures, scents, and colors of each item. Creating musical instruments is a lesson that combines visual, tactile, kinesthetic, and auditory experiences. Art environments could be created that supply a variety of different experiences. Creating an outdoor garden could offer a multitude of sensory opportunities. Teachers should be encouraged to look beyond the walls of their art rooms for inspiration to create artistic experiences that are multi-sensory.

Art Programs

Art activities have the capacity to develop sensory, cognitive, and motor skills. According to Huebner (1986), “Art enhances perception by enabling the child to gain experience with concepts of size, shape, distance, color, sameness, difference, texture, temperature, sound, odor, and weight” (p. 386). Art also has the potential to function as an avenue for self-expression.

The exploration of art media can offer students who are visually impaired or blind opportunities for sensory skill development. These include the use of auditory stimuli such as the squeaky sounds made by markers or the sounds created by kneading and pounding clay on the surface of a table. Tactile skills can be developed through exploration of different textures and temperatures of the art materials. Most markers, paints, and
clays have distinct odors that can be detected. Identifying the
different smells associated with art materials can help develop
olfactory awareness.

Cognitive skills can be developed when students interact
with art media. Working on art projects teach and reinforce the
development is furthered by observation and understanding of the
properties of various media, as well as problem-solving related
to specific projects” (p. 386).

Tracking a piece of clay through a series of steps can help
a student learn the concept of sequencing. The clay begins as a
pliable material, which becomes warm as it is manipulated by the
hands. After the clay is completely dry it hardens and becomes
cold to the touch. This indicates that it is ready to be fired in
a kiln. After the piece has cooled it can be glazed and fired a
second time. At that point the piece has changed texture, weight,
and appearance.

Opportunities to experiment with art materials can benefit
students that have delays in their motor skills. According to
Rosen (1997), deficiencies in the development of muscle tone are
a recognized problem for children with congenital blindness and
visual impairments. Manipulation of art materials can supply
these students with the opportunity to develop good gross and
fine motor abilities.
Along with promoting sensory skills, concept development, and motor development, the exploration of art could also be used to check a students’ comprehension of different concepts in a concrete way. Children with visual impairments often demonstrate inadequate understandings of the world around them. The students’ artworks could be used to demonstrate an understanding of a concept. Art materials, such as clay, could be used to recreate or model artistic elements, scientific processes, mathematical problems, and other concepts.

Many art programs focus on developing skills in handling media or creating a product. These programs tend to miss out on the opportunities for personal expression. Giving students who are visually impaired or blind the opportunity to create art enables them to express themselves. Art can be used to communicate spiritually, socially, politically, and emotionally. Creating art also provides opportunities for the development of aesthetic values.

Art can also teach their sighted peers and teachers about their perception of the world around them. The art that these students create supplies insight into their feelings and their experiences. Examining artwork may also help answer the following questions: Does the art created by individuals who are visually impaired or blind possess more tactile or kinesthetic awareness than that of a sighted artist? Does their artwork communicate tactile aesthetic qualities?
The skills and knowledge students learn in the classrooms and art rooms should not be an isolated experience. This information should be integrated among all the subject areas. Taking concepts, topics, and themes from one subject and incorporating it in another can help students make connections. Integrating lessons not only expands resources but also strengthen curriculum. Learning becomes more meaningful and relevant to students when it is reinforced in different subject areas.

This section discussed the benefits of art exploration. These include the development of sensory and motor skills, and the development of concepts. Students who are visually impaired or blind can use the creation of works of art as an avenue to learn and demonstrate understanding of concepts and of the world around them. Art projects should be designed for students to express their ideas or share their opinions. The recommendations presented should help teachers develop art experiences that are of value to students who are visually impaired or blind.

Technology

The findings of this study recommends that classroom teachers and art teachers become familiar with the assistance available for their students who are visually impaired or blind. Under the mandates of the Individuals with Disabilities Act (IDEA), teachers can obtain computers and specially designed equipment for
their students. The goal of this assistance is to help students who are identified as visually impaired or blind to function more effectively in the classroom.

The American Thermoform Duplicator enables teachers to reproduce Braille from a master copy. It also has the capability to reproduce charts, graphs, and diagrams on Brailon for students to use in the classroom. This provides students with tactile references to supplement verbal descriptions and visual images.

Ms. Brooks learned how to use the thermoform machine to create a work of art for the show. This process enabled her to duplicate an original relief image onto a strong plastic resin that was suitable to be touched numerous times. During the show, the students recognized the feel and texture of the Brailon used in the piece Wink II because they use it in their classrooms (see Figure 17).

Teachers should also learn how to operate a Braillewriter. This piece of equipment is similar to a typewriter, but instead of printing in ink it prints in Braille. Students who rely on Braille use this writing device. A Braillewriter was used to reproduce Ms. Brooks’s artist statement and labels for the artwork.

Another piece of equipment that students use for writing and note taking is a slate and stylus. Leslie (1980) described this as a pocket size device used for producing Braille manually. The stylus is shaped like a small pencil with a sharp pointed end.
that fits into the holes in the metal slate to form raised dots. The slate is similar to a ruler, but has evenly spaced holes to form the Braille cells. Creating Braille manually is a slow process and requires excellent coordination and muscle control.

New technological developments have produced equipment that enable visually impaired students to function more effectively in the regular classrooms. Hudson (1997) identified the Optacon and the Kurzweil readers as two devices used by individuals who are visually impaired or blind to aid in reading. The Optacon is a piece of equipment that reads print and translates the letters into Braille letters. Another reading device is the Kurzweil reader. This piece of equipment translates printed words into speech.

The challenge of education is to match teaching methods and techniques to each student’s needs and abilities. It is recommended that teachers seek the advice of resource teachers and itinerant teachers to aid them in learning the appropriate technology and specialized equipment available to meet the needs of their students who are visually impaired or blind. Teachers should also accompany all verbal instructions with written directions in Braille and large print, especially if presenting complex information or processes.
Guidelines for Artists

This study provides a useful set of guidelines for artists to consider when creating artwork that is accessible to individuals who are visually impaired or blind. The following are procedures and suggestions for the selection of colors and materials. Recommendations for construction and durability to assure safety are also provided.

The discovery that many individuals who are visually impaired can perceive bold colors influenced Ms. Brooks to change her color palette for the show. “I found out that there are people who are visually impaired who can see bright colors, but who are still considered legally blind” (Q. E. Brooks, personal communication, December 11, 1998). The findings suggest that artists should utilize bold colors to help these individuals optimize the use of their remaining vision. Ancona (1971) found that, “Intense, brilliant, and highly contrasting colors best suit the needs of the partially sighted” (p. 84). Artists can also help individuals with varied amount of sight to strengthen their observation skills by creating artworks that possess strong composition, subject matter, and design.

Artists are encouraged to select materials that offer a variety of surface qualities. This includes experimenting with a variety of traditional and nontraditional materials. Altering and manipulating the materials with different treatments can create
additional textures. Carving, wood burning, and using textural paints are only a few methods that could change the surfaces of the artwork.

Another way to enrich an individual’s art experience is to create artwork that utilizes materials that have the capacity to stimulate the visitors’ other senses. Selecting materials and objects that emit different scents or odors can promote visitors to use their olfactory sense. Artists should also attempt to incorporate items that have the potential to produce different sounds. Utilizing a multi-sensory approach encourages further and prolonged exploration of the artwork.

The size of the artwork also needs to be considered. Ms. Brooks discovered that creating artwork that ranged from one to four feet in length permitted students to visually and haptically explore the pieces. Any larger and the viewer is unable to cover the entire piece. Any smaller and the details found in the work of art are difficult to perceive and tend to merge together.

Along with determining the appropriate size, it is also important that the artwork be assembled for safety and durability. It is recommended that artists be aware of all of the issues surrounding construction. They must be certain prior to the exhibition that their pieces of art are safe enough for visitors to handle and explore. This includes insuring that all of the connections are secure and eliminating all sharp edges or rough surfaces that could cause injury.
The purpose of these guidelines is to help artists create cultural experiences for individuals who are visually impaired or blind. Artists are advised that extra attention must be given to the issue of construction, durability, and safety for creating artwork for a hand-on exhibit. It was Ms. Brooks’s hope that her show would spark new initiatives for art exhibitions designed for this audience.

Suggestions for Art Museums and Galleries

The mission of most museums and galleries is to broaden the cultural experiences of their visitors. I have found that there is an almost total absence of experiences that allow individuals who are visual impairments or blind to enjoy art exhibits independently and in the same way as visitors with normal sight. Usually special visits or accommodations must be arranged that usually segregate these individual from others.

The American Foundation for the Blind (1972) strongly believes that the entire population should be made to feel welcome in museums and galleries. The Foundation does not endorse cultural opportunities that inhibit participation by establishing specific hours, or reserving areas for a particular audience. The Foundation also disapproves of any such activity that perpetuates misconceptions and stereotyped thinking that sets individuals who are blind or visually impaired apart from the rest of the community.
The American Foundation for the Blind (AFB) approves of services and activities which recognize the special needs of blind or visually impaired persons. The Foundation supports opportunities such as Ms. Brooks’s show *Touching Revisited* because it didn’t place any restrictions on the visitors. Ms. Brooks knew early on the focus of the show. “This is an inclusive show. Everybody touches the pieces. I don’t want to limit the audience in any way. This is an all-inclusive show” (Q. E. Brooks, personal communication, November 1, 1998). Her show met the recommendation established by the AFB by allowing all audiences equal access to her artwork with no exceptions. Ms. Brooks’s exhibit didn’t single out any group of individuals or place any limitations on her audience. The show was designed to be open and accessible to everyone.

Ms. Brooks’s shows are examples that galleries and museums could examine to develop an awareness of the special needs of individuals with visual impairments. These include making works of art and displays accessible. This involves eliminating obstacles and utilizing models of the galleries. It also includes proper installation of the artwork and providing all the appropriate information, including labels and artist statements, in the form of large print and Braille. Finally, the artwork and displays must be available to be touched by the visitors.

Museums and galleries need to find the means to give access to cultural art events and exhibits to individuals who are
visually impaired or blind, which sighted individuals are able to experience independently. This means eliminating all physical obstacles that could prevent visitors access to the artwork. In this study we found that it is also important for visitors to feel comfortable and safe within the environment. This was accomplished through the use of a model.

Models of galleries or museums allow visitors the opportunity to experience the landmarks, obstacles, and environmental features prior to entering the actual space. The data proved that experiencing a model helps familiarize individuals with the spatial layout of a gallery. Models supply the information necessary to encourage visitors who are visually impaired or blind to choose their own routes and enable them to travel independently throughout the exhibit.

It is important that the artwork be mounted properly. The pieces of art must be “Firmly attached to the walls so that they don't move” (Q. E. Brooks, personal communication, November 25, 2001). The artwork also needs to be placed low enough so that visitors are able to touch the entire work of art. The data indicated that the most effective placement of the pieces of art was at eye level and lower.

It is also important that enough space is left between the works of art. Adequate room between pieces allows visitors without vision to experience every aspect of the pieces. The findings showed that students utilized a variety of techniques to
investigate the artwork haptically. These approaches included tracking, tracing, broad sweeps, grasping, and rubbing motions. All students used active touch to explore and identify characteristics of the artwork. Touching enabled students to detect the proportions, surface qualities, and shapes used in the creation of the actual works of art.

It is advised that all exhibitions be accompanied by labels, programs, and artist statements, presented in large print and Braille. These labels must be placed low enough for the visitors to read and located in the same position for each work of art to help visitors find them easily. It is also recommended that each piece of artwork be properly illuminated. This will enable the visitors with low vision to utilize their limited vision to the fullest.

The final recommendation is for museums and galleries to create provisions that would make art experiences available to all audiences. The most effective way to do this for individuals who are visually impaired or blind is to supply them with the opportunity to touch the artwork with their hands. Museums and galleries need to adapt policies to relax their no touching rule without causing harmful effects on the conservation of the artwork. Perhaps they could utilize casts and reproductions to represent artifacts and works of art that are too fragile to be handled. Brailon could even be used to duplicate and represent
examples of two-dimensional works of art. Along with supplying a
tactile representation of the piece, it may also be beneficial to
make available audio taped descriptions of the pieces. This could
be accompanied by brochures written in large print and in
Braille.

If we are to achieve accessibility to cultural events and
institutions, we must demand changes in their approach toward
individuals who are visually impaired or blind. The findings for
this study provide guidelines for accessibility, installation,
placement, labeling, lighting, and touchable exhibits. The
purpose of these guidelines is to offer suggestions to assure
that art exhibitions be as accessible as possible for these
individuals.

Suggestions for Future Research

Pedagogy

The implementation of Public Law 94-142 has increased the
number of students in public schools who are totally blind or
have very low vision. Through the review literature for this
study I discovered that while there is an abundance of literature
that focuses on the issues surrounding inclusion in general,
there is only a limited amount of information that focuses on
education for students who are visually impaired or blind. My own
difficulty in finding material indicates that more research on
this subject is needed.
Art teachers and classroom teachers in the public schools are seeing increasing number of students who are visually impaired or blind in their classrooms. A majority of the teachers working in the field today do not receive the training necessary to meet these students’ needs. Therefore, it is important that they take the initiative to find the available resources. Teacher preparation and art education programs need to include additional information about the needs of exceptional individuals to assist future teachers and teachers already in the field.

The literature on inclusion education indicates that even students with visually impairments who are able to be mainstreamed into a regular public school classroom are often not given the same opportunities to attend art classes as their sighted peers. According to Frost and Karstens (1979), “Children who can't see well are often overlooked in school art programs” (p. 38). Many of these students are not included in the lesson and therefore miss out on the benefits art has to offer. They believed that giving them the chance to participate actively in the creative process “allows these children to find their own place in the world” (p. 38). The students involved in this study did not have access to a formal art program at the Ohio State School for the Blind.

The aim of a quality visual art education program is to provide an avenue for self-awareness and maximum growth of the whole individual. Through exploring art and cultural productions,
we develop creative and critical sensitivities that make life more meaningful and satisfying. I feel art can be used as a tool for all teachers to reach the students, whether their students are visually impaired, blind, or sighted. A quality visual art program is essential to the educational process of every individual. I feel that there is more to be learned about the benefits art education has to offer individuals who are visually impaired or blind.

Educators interested in this topic may want to investigate the following questions: Could the visual arts have the potential to meet the needs of students who rely on their other senses? Why do art programs typically focus only on the visual aspects of art? Why can’t art projects focus on creating artwork that incorporates all of the senses? Additional research should also focus on developing curriculum and programs to meet the needs of students who are visually impaired or blind.

**Artist in the Classroom**

Additional research could examine other aspects surrounding an artist in the classroom. Most of the time, when an artist visits a classroom over an extended period of time, he or she is involved in a program called Artist in Residence. This usually implies that a local artist is invited to use the classroom as a temporary studio. Most of the time the artists will work on their
own artwork in front of the students. This enables students to watch the process and interact with the artist. Sometimes the artist will work on a project with students.

This was not the type of arrangement Ms. Brooks utilized for the creation of her show. All of the works of art were constructed and assembled at Ms. Brooks’s studio and remained at that location until the shows opened at the Worthington Arts Council’s Gallery and the Barth Galleries. It was never Ms. Brooks’s intention to have students involved in the actual construction of the pieces of art for the show. Artists interested in creating a show for a specific audience might want to compare the different approaches to Ms. Brooks’s to determine which would be most beneficial in their situation. Research could also examine how the balance of power affects the overall experience for the artist and the students involved.

It would have been interesting to examine how the experience with Ms. Brooks would have affected the students’ own artwork. Would they have created artwork that focused on aesthetic expression and personal experiences? How would their experiences with Ms. Brooks compare to working with other artists? What would they be taught by artists who focus on cultural expression, social commentary, visual culture, or political subject matter? How would these experiences create new meanings for these students? Additional research needs to be done
to examine how other artists’ perspectives and production would affect students who are visually impaired or blind and their artwork.

Museums and Galleries

The literature on tactile art museums and exhibits that are designed to be experienced through touch was very limited. The Arts Endowment’s 504 Regulations of the Federal Rehabilitation Act of 1973, state that no handicapped individual shall be excluded from participation on the basis of his or her handicap. In compliance with Section 504, museums have attempted to create barrier-free environments. Museums have responded by widening the walkways, adjusting the height of the public facilities, adding elevators, handicapped ramps, and additional handicapped parking spaces. While these environmental changes are a step in the right direction, additional modifications are needed to meet the needs of individuals who are visually impaired or blind.

According to Rodriguez (1984), the tours that many museums offer these individuals come in the form of “a list of touchable objects for the blind” or they may offer “a touchable section for blind visitors” (p. 263). At the present time some museums provide white-glove tours for individuals who are blind or visually impaired. These types of organized visits and concepts are not encouraged under Section 504, whose focus is to integrate and not segregate. Weisen (1991) warns that these experiences “lack the prospect of being enjoyed independently as everyone
else who visits the museum” (p. 84). The American Foundation for the Blind (1972) disapproves of any activity that isolates individuals from the rest of the community. According to Weisen (1991), these opportunities “merely mask the reality of the social segregation that exists” (p. 84).

At the present time, how are art museums and galleries meeting the needs of this population? Many museums have begun offering audio taped tours and catalogues printed in Braille and large print for these individuals, but the findings of this case study suggest that tactile experiences are also needed to make these experiences as inclusive as possible. Only through touch can individuals who are blind appreciate the artwork to its fullest extent. Research needs to be done to find additional methods to enable artwork to be more accessible to individuals who are visually impaired or blind. Research is also necessary to create access to art exhibitions and institutions on a larger scale.

Conclusion

This case study offers many implications for classroom and art teachers including encouraging them to move beyond their preexisting ideas about individuals who are blind or visually impaired. This research provides educators with pragmatic tools and strategies to use in facilitating the learning of students who are visually impaired or blind. Based on the findings, it is recommended that teachers utilize available resources to learn
about their students’ eye conditions and about effective teaching
strategies. Teaching approaches should be supplemented by
auditory stimuli, tactile materials, and multi-sensory
approaches. Finally, teachers should learn to utilize the
technology and specialized equipment available to meet the needs
of their students who are visually impaired or blind.

It is my hope that this study may encourage schools,
museums, and galleries to think of their responsibilities to
individuals who are visually impaired or blind. Hooper-Greenhill
(1994) finds that “the task for museums and galleries is to find
appropriate ways to enable all individuals to benefit from the
resources they offer” (p. 114). I hope that the findings from
this study encourages educators, art educators, artists, museum
and gallery owners to apply this information in developing
curricula and exhibitions for visually impaired and blind
individuals. Creating art lessons, artwork, and exhibits that
meet all of the guidelines established from this research would
benefit more than just those individuals who are visually
impaired or blind.


Erickson, F. (1986). Qualitative methods in research on teaching. In M.C. Wittrock (Ed.), Handbook of research on teaching (pp. 145-152). New York, NY: Macmillan.


269


Figure 1: Index Tree
Figure 1: Timberland
Figure 2: Jingleman
Figure 3: Celestial Sundial
Figure 4: Mask of My Familiar
Figure 5: Conjurer Woman
Figure 6: Labyrinth
Figure 7: Soft Touch
Figure 8: Sleeping Serpent I

Figure 9: Sleeping Serpent II
Figure 10: Shaman Stick
Figure 11: Spirit Stick
Figure 12: Sleepy Head
Figure 13: Gentle Wind I
Figure 14: Gentle Wind II
Figure 15: Three Shell Dancers
Figure 16: The Wink I
Figure 17: The Wink II
Figure 18: *Melody's World*
Figure 19: Silent Voice
Figure 20: Things Unknown
Figure 21: Sunfish
Figure 22: Party Memories
Figure 23: The Embrace
Figure 24: Mother Remembering
Figure 25: Queen Brooks Working on Timberland