

## Creating a Space for Learning: Curators, Educators, and the Implied Audience

Karen Knutson  
*University of Pittsburgh*

One of the major insights gleaned from studies of museums within the last decade is the notion that museums and museum exhibitions are not neutral—that, in fact, exhibitions are ideologically based and rhetorically complex arguments (Bal, 1996; Bennett, 1995; Hooper-Greenhill, 1992). This recognition is beginning to impact studies of museums, and some preliminary work on museums has explored the ways in which museum mission (Duncan, 1995; Gurian, 1991), architecture (Yanow, 1998), and even label copy (Coxall, 1991) might affect the reception of resulting exhibitions. These studies suggest that “presentation is more than window dressing” (Roberts, 1997), yet at this point researchers know relatively little about the decision making that happens behind the scenes and how beliefs about the nature and goals of museum experiences, exhibitions, and audiences impact, directly and indirectly, resulting exhibitions.

Research on museums, and on art museums in particular, has tended to focus on visitor interaction with specific exhibit features, or on analyzing the effectiveness of innovative educational programs. These are important studies, but I suggest that a closer examination of the curatorial framework; the intentions, strategies and beliefs that inform the development of exhibitions may provide valuable insight into our understanding of how art museums construct learning experiences.

This chapter has two goals: to provide a rich description of the process of the development of a major temporary art exhibition, and to analyze the curatorial framework for this show; the ways in which museum profession-

als and the consultants involved in the process imagine their audience. What impact do the collection, layout, signage, and visitor services have on the experiences of visitors? Given the complexity of the informal learning environment of a museum, the “free choice” learner (Falk & Dierking, 1992), and the varied agendas that visitors bring to the museum (Doering, 1999), research on museum visitors has had, by necessity, to consider the museum messages at their most gross level. What we tend not to see, or to explore in our museum research, is the fact that exhibitions are, in fact, designed. Exhibitions are not the hapless combination of objects within a space, but rather they are complex rhetorical events that operate on many levels. They are the result of a long and careful process of decisions and deliberation, of solutions devised in response to explicit goals and agendas, mediated by practicalities, unforeseen events, implicit beliefs and values, and the limitations of time and budget. The decisions made during the creation of exhibitions reflect foundational beliefs about what it means to educate and what it means to know.

This chapter reports on an ethnographic study that examined the conversations and decision-making process as a curator works with other museum staff, including an architect, the installation staff, and museum educators, to create an art exhibition. Through the course of developing this exhibition, the conversations that evolved reflected these professionals’ beliefs and values about art and about learning about art in museums. Later, when we, as museum researchers, listen to visitors’ conversations, there are traces and echoes of these originating curatorial conversations. The process of listening in and tracing the conversations of museum professionals during the design of an art exhibition sheds an interesting light on how museums function as learning environments.

With these issues in mind I began a yearlong ethnographic study of the design process for an art exhibition that opened April 7, 2001 in Pittsburgh. *Light! The Industrial Age 1750–1900, Art & Science, Technology & Society* was jointly curated between Louise Lippincott of the Carnegie Museum of Art in Pittsburgh and Andreas Blühm of the Van Gogh Museum in Amsterdam, as a special exhibition to be shown only at these two venues.<sup>1</sup> The show was a large-scale project for the Carnegie Museum, and it represented four years of research by the curators. *Light! 1750–1900: The Industrial Age, Art & Science, Technology & Society*, was, as the name suggests, a broadly based and complex exhibition. As the curators put it:

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<sup>1</sup>The objects were gathered from world-renowned collections, and the high costs of insurance for the expensive and fragile scientific instruments and art works was a major factor in limiting the show to just these two venues.

Light itself doesn't change physically. Therefore a history of light is really a history of the human perception, understanding, and manipulation of light. (Blühm, Lippincott, & Armstrong, 2001, p. 11)

Consisting of over 300 works, including both scientific objects and blockbuster paintings (e.g., works by Turner, Van Gogh, Monet, and Toulouse Lautrec, among others), the show presented a novel and multifaceted approach to the subject of light. In addition to dealing with the complicated notions of the science and technology of light, the show also considered broader themes about society and the impact of technology on daily life during this historical period.

From the beginning, staff felt that the combination of art and science put forth in the show's content called for a new and innovative approach to the design of the installation and to the development of programs. The subject matter was envisioned as providing an opportunity to blend the intellectual story of the history of light told from an artist's point of view with the kind of discovery-learning experiences usually found in science museums. To this end, the show in Pittsburgh included five illustrative displays that presented scientific principles or concepts concerning the developing understanding of light in this period. For example, a prism showed refraction and the spectrum, and a Rayleigh tube illustrated how the atmosphere's particles affect the color of the sky. Elsewhere in the show visitors could use a hand-held camera obscura or a photometer,<sup>2</sup> two scientific devices that artists used to help them with their goal of more accurately representing the world. Large sandwich-board signs explained the science behind these displays.

I was fortunate to have had the opportunity to follow the development of this unique exhibition. I became involved in the process as work on the catalogue was ending and plans for the physical show were just beginning. At the time, I had been working with the Museum Learning Collaborative at the Carnegie Museum of Art conducting research on visitors to the *Aluminum by Design: From Jewelry to Jets* exhibition and asked if I might observe the development of the *Light!* exhibition. The curator graciously agreed. She felt strongly about the potential for this exhibition, with its ambitious aims, diverse objects, and hands-on activities. She believed the exhibition would be challenging, both for the institution and for the art museum world in a broader sense. The curators created a story that looked across disciplinary boundaries. The inclusion of hands-on elements *within* the exhibition space challenged traditional notions of art exhibitions that deal with historical art.

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<sup>2</sup>Due to technical difficulties these photometers were later removed from the show.

Art critics gave the show very positive reviews first in Amsterdam, where the *London Telegraph* reported that it was “the show to see” during the season (Dorment, 2000). The Pittsburgh installation received similar reviews (i.e., *The Wall Street Journal*), and the catalogue was also celebrated with an American Association of Museum Publications Design award. The show’s attendance figures, both in Amsterdam and in Pittsburgh, reflect these accolades.

My interests in studying the *Light!* show, does not however, primarily concern the content of the show, but rather the ways in which the exhibition was crafted, and how the various staff members contributed to its successful final result. Staff members had particular goals concerning the learning experiences offered in this show, and this I felt would offer an interesting opportunity to conduct research on education within an art museum context. Art museums, I suggest, offer particular challenges to the museum learning community, where research has, thus far, focused primarily on science museum exhibits (e.g., ASTC, 1993; Borun, Chambers, & Cleghorn, 1996).

Art museums pose special challenges for the museum researcher. What we need to keep in mind is the fact that, unlike the case of educational science museum exhibits, which convey extant science knowledge to the public the temporary exhibitions presented in art museums contribute to the discipline of art history even as they share “known” information with the public. Art curators are active and central participants in the academic discipline. Temporary exhibitions are a valued way in which knowledge is generated for the field of art history. And so, although the educational role of art museums is vitally important, curators must also speak to a scholarly audience. This fact, coupled with the historic elitism of museums as preserves for the enlightenment of the upper middle classes (Bennett, 1995; Hooper-Greenhill, 1992), can result in exhibitions that speak primarily to an educated audience, while those without the relevant background knowledge are left feeling excluded and alienated by the experience (Bourdieu & Darbel, 1991). In a large-scale study of art museums conducted in 1986, Elliot Eisner and Stephen Dobbs pointed out the resistance to more visitor-friendly measures in art museums, and while changes are happening, this paradoxical relationship between art museums and the visiting public still exists (Rice, 2001). Speaking of museums in general, Roberts (1997) suggested, “one of educators’ biggest challenges has been to deal with the fact that even visitor-friendly interpretations only reach those visitors to whom those interpretations are indeed friendly” (p. 74). In the art museum, this point rings especially true and there is a need to better understand the art museum as a particular set of problems in museum education research. With this study, I am interested in exploring more closely how art museum professionals deal with the tension between providing a challenging cura-

torial message and inviting and accommodating diverse audiences. Although the *Light!* show posed particular and unique challenges for staff, the story outlined in this chapter illustrates common issues and standard phases of practice that art museum professionals might face at any institution.

We currently understand more about the function of science museums as learning environments than we do about art museums. We have documentation of how exhibit designers and content specialists collaborate to create instructional environments that are informative and compelling for the visitor (see Schauble et al., chap. 13, this volume). In science museum exhibits, the goal is explicitly educational in its focus and researchers study the affordances for learning or perform task analyses to gauge just how precisely the desired outcome is reached (i.e., Allen, 1997; Boisvert & Slez, 1995). Increasing emphasis placed on the accountability and educational role of museums has resulted in more expensive and comprehensive exhibit projects that utilize a team-based approach, with specialists and consultants contributing to what was once seen primarily as a curatorial project that would later be supported by educational programming (Toohey & Wolins, 1993). Ethnographic studies of museum practice (in botanical gardens and history museums) have highlighted the team-based approach (see Roberts, 1997; Ames, Franco, & Frye, 1992, respectively). Roberts suggests that the team approach is bringing the museum educator to a position on par with the curator, whereas authors in the Ames, Franco, and Frye volume demonstrate the need for specialized curatorial consultants for the development of successful interpretive history exhibitions. The *Light!* exhibition employed consultants and a team of staff members; I was curious to explore the nature of their roles, and how they perceive the audience.

### Methods

Between April 2000, and May 2001, I attended more than 40 meetings at the Carnegie Museum of Art and conducted interviews with key staff members.<sup>3</sup> I conducted semistructured interviews with the head of education, the architect, the head of exhibitions, the lighting consultant, the publications editor, and two members of the media communications staff.<sup>4</sup> Beginning in September 2000, meetings were held at least once a week and generally lasted 1 to 2 hours. The majority of the meetings were “design meetings,” where the architect, lighting consultants, curator, and two mem-

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<sup>3</sup>All of the staff members encountered in any of the meetings were informed about this ethnographic study and signed consent forms. They were also informed of the study via email memos from the curator, and a discussion of the study at an all-staff meeting.

<sup>4</sup>These interviews included questions about their role at the museum, their work on the exhibition, and their hopes for visitors' experiences of the show.

bers of the exhibition design staff met to discuss the development of the installation plans and architectural design. Other staff members and consultants appeared at these meetings as needed, including registrars, conservators, marketing, and education staff. Many of the meetings were so-called “nuts and bolts” meetings, where a broader cross-section of staff convened to discuss details and progress on their specific individualized schedules. Other meetings that I attended included education departmental meetings, general docent training sessions, docent training on light-specific scientific concepts, and a focus group meeting with members of a special college arts and sciences program at Carnegie Mellon University. I also traveled to Amsterdam to view the initial installation of the *Light!* show at the Van Gogh Museum. While there I attended the curatorial walkthrough provided for the international press, and later toured through the exhibition with both curators, asking them to reflect and cross-examine one another about the Amsterdam installation. This ethnography, while based on conversations with many different staff members and their varied perspectives, is more strongly filtered through the eyes of the Pittsburgh curator. I worked most closely with the curator and met with her on a regular basis to discuss the evolving process, unexpected events, and her response to meetings we had both attended (see Table 1.1).

During the meetings I took detailed notes of the conversations. Several of the meetings were tape-recorded and transcribed.<sup>5</sup> I also gathered artifacts of the production process: the catalogue, memos, media releases, layout plans, lighting plans, object lists, label copy, schedules, and drafts of program ideas. I made extensive notes during the meetings, transcribed interview tapes, and made observation notes throughout the process, analyzing the cumulative record for recurring and emergent themes.

These notes and documents provide a very rich source of data that was used for three different studies. This study concerns staff perceptions of the audience; another explores the notions of practice, expertise, and innovation; a third study examines how visitors respond to the show, using taped visitor conversations that were gathered as part of Museum Learning Collaborative research. This data provides a comprehensive look at factors influencing the development of art museum exhibitions and the communicative processes of museums.

Once a team was gathered to develop and install this art exhibition, and over the course of the process, it became clear that very distinct divisions of

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<sup>5</sup>All of the interviews were tape-recorded and transcribed. I took notes during most of the meetings, as staff felt more comfortable with notes being taken than with having an audio recording of the meeting. I used the audio recorder sparingly during meetings, asking permission to use it, and only if there were extenuating circumstances that would make it difficult for notes to be accurately taken. (i.e., during discussions of the list of objects or during meetings that happened while moving through the museum).

TABLE 1.1  
Types of Meetings Attended

<i>Meetings</i>	<i>Types of Activities</i>	<i>Number</i>
Design meetings	-development of the layout and hands-on activities	19
Schedule meetings	-Nuts and Bolts meetings—update other departments on object status, and design meeting decisions	
	-Organizational committee meetings—interdepartmental schedule planning across exhibitions	6
Education department meetings	-development of programs for <i>Light!</i> show	1
Update meetings	-meetings with the curator to discuss progress	
	-meeting with both curators in Amsterdam	10
Special meetings	-focus group with university students	
	-docent training sessions,	
	-special interest group meetings (joint lecture series)	
	-press tour (Amsterdam)	6
Programs attended	-gas lighting demonstration	
	-curators' lecture	
	-art historian lecture	
	-docent tours	5
Interviews	-role, beliefs and values about practice	8

labor were maintained. To provide a context of the working environment and process surrounding the development of the *Light!* show, I first discuss the roles and activities of four key members of the exhibition development team: the curator, the architect, the head of exhibitions, and the educators. Next, I examine prevalent beliefs and assumptions about the nature of the “implied audience” for this exhibition, as the team members gathered together to discuss the installation of the show. Finally, I provide an extended example of discussions and events surrounding the installation of one element of the show. This example illustrates the complexities of the issues discussed throughout the installation process, as it also points out the resulting interconnected and multifaceted narrative of the exhibition. By providing a variety of approaches to the reporting of this data, and by including a sense of the passing of time, I hope to remind the reader of my role as observer and analyst of this process. I encourage the reader to observe the points at which I have made choices about the routes taken through this data with the belief that the meaning of research results “is not independent of the process that produced them” (Polkinghorne, 1997, p. 9). This chapter documents one possible path through the data, the two later studies provide different perspectives of the process, but all three reflect my own interests in coming to understand the particular tensions surrounding the interpretation of art for the general public.

**CREATING AN ART EXHIBITION—LIGHT!**

The *Light!* exhibition, like all scripto-visual displays, provides a complex message (Blais, 1995). An art show might be experienced solely through the appreciation of beautiful objects, in a fundamentally aesthetic presentation (think “white-cube,” single artist); but in this case the visual combinations of objects were chosen to convey a story, and explanatory labels provided contextual information about the individual objects. Paintings were selected for the *Light!* show not primarily for their aesthetic appeal, but rather as Goode’s “well-chosen specimens to illustrate a story”—to stand in as points in a persuasive narrative about the history of light (Goode, 1889). The *Light!* show was a thematic exhibition, and to this end there were detailed objects labels, group labels that made connections between several objects, one-word section headings, and large-scale room level explanatory labels. The themes of the show were explicit, and important points were repeated in different ways throughout the exhibition. The show was a complex rhetorical event, an argument put forward at a visual and cognitive level. The argument was supported at an affective level as well. It was not a dry and didactic thematic exhibition, but instead, theatrical elements were called in to provide a context for the works, evoking a feeling about the curiosity and wonder that scientists and average people alike must have felt when seeing these new discoveries for the first time.

The installation of the *Light!* exhibition in Pittsburgh was divided into five thematic sections: Rays of Light; The Light of Nature; Makers of Light; Personal Lights; and Public Lighting. The entrance of the show featured a case of sparkling, dazzling objects, including an incredible faceted crystal candelabrum, juxtaposed with an imposing painting showing a prism nicely, but incorrectly, radiating the spectrum. A large specially designed prism hung overhead, throwing a large and brilliant spectrum on the side wall, and “demonstrating” the scientific experiment depicted incorrectly in the painting. These elements—the candelabrum, painting and prism—highlighted the overarching themes of the show: the science of lighting (Newton’s theory of the refraction depicted in the painting), changes to daily life during the time (represented by the candelabrum), and demonstrations of the work of scientists (alluded to by the prism overhead).

The first section of the show, “Rays of Light,” discussed optical theories circulating in the 18th century, with objects illustrating the theories of Newton, and the notions of reflection and refraction. Scientific objects such as mirrors, lenses, microscopes, cameras, and prisms were shown with artworks that demonstrated the impact of theory on artistic practice (e.g., Chardin’s *Glass of Water and Coffee Pot*). The science behind this section was demonstrated by the prism at the entrance and further explored with a hands-on area where visitors could use a camera obscura to look at a dra-



matically lit statue. Many of the reflective surfaces of the objects in this section were situated so that they too reflected the statue in the center of the space. Visual connections between the various objects and the concepts of the show were thus made explicit for the visitor.

The second section, "The Light of Nature," looked at how artists have grappled with the depiction of natural light. Two versions of Monet's *Cathedral at Rouen* illustrated the Impressionists' interest in capturing the changing effects of light on their subjects, while three landscapes, Van Gogh's *Trunks of Trees and Ivy*, Signac's *Place des Lices, St. Tropez*, and Bierstadt's *Light and Shadow*, showed a variety of approaches to the depiction of light filtering through trees. A hands-on activity was provided to show how artists used light meters, "photometers," to calculate the relative light values of a scene. Artists could then create the same light values in their paintings, with the hope of creating more light effects that were true to their landscape subject matter.

The third section, "Makers of Light," focused on the ways that meaning has been ascribed to light, by institutional forces—the church, the state, and various capitalist enterprises. Allegorical paintings of state processions were combined with illustrations of world expositions and their newest lighting inventions. The fourth section, "Personal Lights," combined candleholders and lamps with paintings depicting scenes with artificial lighting. These art works show how life was impacted by the quality of light available after dark, as in Van Gogh's *Potato Eaters*, which shows a poor family crowded around the light of a small kerosene lamp. The final section, "Public Lighting," included paintings of evening street scenes and evening events illuminated by gaslight. Early light bulbs and lamps equipped for both electric and gas were also displayed. The final room of the gallery featured a demonstration of the vastly different qualities of different types of lighting. A painting by Van Gogh, *Gauguin's Chair*, was alternately illuminated by gas, arc, and natural daylight, and the resulting difference in the appearance of the painting was remarkable.

## ROLES AND ACTORS

In this section I look at the roles of four of the key groups of actors involved in the creation of the *Light!* exhibition. The process of developing the show was a multifaceted project that entailed both the independent and joint work of the exhibition team. Like most other museum exhibitions, the process included researching and writing the catalogue, securing the objects, creating a layout plan, writing the label copy, and installing the objects. Other departments worked to market the exhibition and to create supporting educational programs. The objects themselves required care to ensure that they were properly conserved, displayed, and protected with adequate security measures.

I include these four descriptions to provide an outline of the processes and nature of the roles required to develop art exhibitions, as well as to provide a context for understanding this particular case. Each of these four sections describe a particular set of problems and reveal something of the nature of the perceived roles and hierarchy of professional practice in this institution and among this particular set of museum professionals. The curator worked to provide the intellectual framework for the exhibition, selecting and combining objects, and creating the vision for the exhibition. Specifically hired for *Light!*, the architect worked with the curator and then with other staff members to create the look of the show, with a layout plan of the space and specifications for all of the cases and interior walls to be built by Carnegie staff. The architect also suggested a graphic design consultant and a firm of lighting specialists to assist in the design process. As advocates for the many diverse audiences the exhibition was expected to serve, the educators created special programs to support the curatorial messages of the show. They also worked with the design team to make the exhibition more intellectually accessible and physically functional for visitors. The exhibitions staff coordinated among different staff departments, such as security and conservation. They kept track of the overall schedule and focused on the practical concerns of the physical space and objects, always with an eye on the budget.

Within each of the four descriptions, I highlight a key aspect of work for the show that occupied this particular person, situating these overlapping and complicated decisions within a roughly chronological frame, providing a fragmented narrative of the show's development along with an analysis of the actor's role within it.

The concept for the *Light!* exhibition emerged in both Pittsburgh and Amsterdam. Louise Lippincott, the Pittsburgh curator, had become intrigued by the history of gas lighting. At the same time, in Amsterdam, science museum curator James Blackburn and Van Gogh Museum curator Andreas Blühm were talking about creating a joint exhibition that would explore science and art themes around the concept of light. Blühm and Lippincott were introduced by a mutual acquaintance, and an international collaboration began. From 1997 to 2000, research on the show was conducted. The catalogue reached its final stages in April 2000 with much of the research and collaborative writing of the catalogue taking place via email.

### Curator

I have created a simplified timeline using several of the Curator's<sup>6</sup> recurring metaphors to describe the state of the exhibition's development at

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<sup>6</sup>For clarity, from this point I use a capital letter to indicate the identity and role of key individuals in the study (i.e., the Curator, the Architect, the Educator, the Head of Exhibitions).

each stage. In April 2000, for example, she talked about “going public” with the show, that is, presenting the exhibition idea and content to the staff, and the world, via the marketing department and the catalogue. From May to August 2000, she was concerned with “making it real,” figuring out how to translate the catalogue into a three-dimensional exhibition, using a particular selection of objects from the catalogue. From September through to November, as the plans for the exhibition began to gear up, she was concerned with what she called “hammering.” During this period, she was working hard to ensure that other staff departments had begun to think about the work they would need to do for the *Light!* exhibition. She felt that this exhibition, with its combination of art works, scientific instruments, and science concepts, offered a challenge to traditional ways of working at the museum. And she wanted the key design staff to have clear thoughts about the show before going to Amsterdam in November to see that version of the show. In December, January, and February, work on the exhibition became quite intense, and there was an overarching metaphor of “being on the top of the roller coaster.” In the midst of tightening schedules and important decisions the Curator knew that a wild ride was ahead, and she hoped she had done enough planning to make sure the installation would run smoothly. Finally, in March, the Curator described her current feelings as “execute, execute, execute,” meaning that many decisions had been made and it was now just a matter of following the schedule. The team was still busy, but had no more creative decisions to make.

Table 1.2 provides a general overview of the way in which I’ve chosen to divide the timeline and situate the metaphors. The shaded bars indicate the areas of the process and timeline that I discuss shortly. I discuss the Curator’s work on the conceptual framework of the show, the Architect’s development of the layout plan, the Educator’s planning of supporting programs, and the Exhibitions staff work on the budget and installation details. Most of the highlighted activities occurred throughout the development process, the shaded areas suggest the times during which these activities occurred most intensively.

April 2000, my first visit to the Curator’s office. She said that she was just at the point of “going public” with the show, and would soon begin to “make it real.” The search for grant money for the *Light!* exhibition required that substantial work on the show be finished much earlier in the exhibition timeline than for other exhibitions (Curator interview, April, 2000). At this point then, the Architect had already produced a version of the plan and a virtual computer generated walkthrough of the show. The Curator provided a 10-page narrative “walkthrough” of the exhibition in order to apply for these grants. Although some preparatory work had therefore already been completed on the show, the Curator saw it as an important moment, when she officially relinquished the catalogue, object list,

TABLE 1.2  
Overview of the Exhibition Development Process

<i>Timeline</i>	<i>2000 April</i>	<i>May-August</i>	<i>September-November</i>	<i>December-February</i>	<i>March</i>	<i>April-July</i>
Metaphor	Going public	Making it real	Hammering (preparing)	On top of the roller coaster (doing)	Execute	Installed
Curator		Conceptual framework	Layout plan			
Architect		Plan programs				
Educator						
Exhibitions				Budget and details		

and walkthrough to the rest of the staff, including the marketing department who would use this material to begin the process of sending out press releases.

Based on her belief in the notion that people like to shop, she said she'd put way more information and objects out there knowing that people won't look at all of it. The show won't be based on the book directly—but recreated from "scratch" on the big entry wall to her office. (Field notes, March 22, 2000)

Having finished the catalogue, the Curator now needed to figure out how the objects would come together in the physical space—the five rooms called the Heinz Galleries used for large temporary exhibitions at the Carnegie Museum of Art.

The Curator's office: To the right of her desk was a large wall-size window with a low bookcase piled high with books and auction house catalogues. Another row of low bookcases behind her were also stacked high with resource books she'd collected to write the *Light!* catalogue; on her left behind her computer, the wall was decorated with her sons's drawings and cards. The fourth wall of the room, the wall that she faces as she works at her desk, was blank, and covered from floor to ceiling in white cork. Next to her computer, this wall was perhaps the most important part of the workspace. This is the wall where the Curator visualized the exhibition.

Freshly removed from the wall, in piles lying on the ground in front of it, were hundreds of pieces of paper—photocopied images of the objects she had assembled for the catalogue. The piles marked a fresh start, both physically and mentally. The wall would soon be covered again, as the curator began to sort out, in her mind and on the wall, how the rooms of the Heinz Galleries would be filled with the three-dimensional version of the story told in the catalogue. At the same time, thousands of miles away, the Amsterdam curator, a bit further ahead in his schedule—because his show would open in less than 6 months—was similarly hard at work creating his version of the story. Over the course of the next 12 months the Pittsburgh curator would continue to work on the corkboard, mapping out the rooms of the show. The corkboard wall is where the conceptual laying out of the exhibition took place. A semipublic display of the exhibition in progress, staff members could survey the wall and discuss the emerging plans for the show with the Curator (e.g., two lengthy discussions about the layout on the wall took place September 6, and December 1, 2000). The Curator provided staff members with more formal information about the show, circulating drafts of the catalogue essay, and an exhibition walkthrough, and later giving a lecture to all staff members. But it was the wall where the most up-to-date versions of the content of the show were seen.

To create the wall, the Curator used black and white photocopies of the individual pieces, that she had copied from other resource books and cata-

logues. The photocopies, or when these were not available an artist's name or a title, were tacked onto the corkboard and arranged, and rearranged, until a conceptual scheme began to form. Small sticky notes in different colors reminded the Curator of various types of problems: which version of a painting would be borrowed, which loans were not yet secured, or where the location of an object within the conceptual plan was not yet fixed. Other colored strips of paper were later added to suggest different types of labeling and headings to be used in the galleries. The photocopies and labels were arranged, and rearranged, augmented and culled, until a conceptual scheme, and then a layout idea, began to take shape.

This time consuming process was not the same as that used by the Architect later, as he created the layout plan. On the corkboard there were no physical correlations to the actual spaces of the galleries. The wall and the photocopies were not divided according to scale but rather the five rooms haphazardly filled the space on the wall, with only a small label to indicate the beginning of "Gallery 12," or "Gallery C1." In some cases there were multiple photocopies, showing different versions of the same object, or alternate choices that could stand in to make the same point. On the wall a 7-foot-high sculpture seems the same size as a tiny print. The Curator called it a place to represent the contents of her brain on the subject. This was the preliminary step in the process and the place where the thematic divisions would be made to serve the Pittsburgh version of the story. (The two curators had different points of view about how the story should be told, and somewhat different collections of objects with which to work.)<sup>7</sup> The first version of the Pittsburgh story emerged in August, with subsequent alterations occurring up to the second week of September 2000, and some other minor changes taking place much later in the process.

The outline of the exhibition's thematic divisions suggests the vast range of both objects and concepts with which the Curator grappled. With its illustrations of scientific principles, discussions of lighting technology, and lighting's impact on society, the show was not a typical art exhibition. For example, the exhibition installation paired a Turner landscape with a Rayleigh tube experiment. While it made an illustrative point central to the show, the Curator found the pairing somewhat shocking and counter to her art historical training (May 4, 2001). Although the Curator said that she enjoyed the challenge of venturing into other disciplines and using different types of objects, at its heart, the exhibition remained true to its art historical roots. Speaking about one section of the show to the Educator, the Curator acknowledged:

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<sup>7</sup>The Amsterdam show was divided across three floors of the Van Gogh museum. The first floor dealt with science and technology, the second with art and artists, and the third with "amusements" such as light used in portable theatres, or to illuminate narrative scenes on lampshades.

*Curator:* [Gallery] C1 is, I call it “Makers of Light” at the moment. This is the really the whole symbolic section and . . .

*Head of Education:* How big are those?

*Curator:* About this big [using arms to indicate size].

*Head of Education:* Oh that’s not so bad.

*Curator:* And this is quite big . . . then I go into state—fireworks, public illumination, military search lights. . . . This can move over here. But the idea is that only the state can really afford to do this on a big scale. State makes a huge spectacle of light. “Beacons.” Statue of Liberty, and then we’re going on to . . . world’s fairs, showcase for the technology [pointing out smaller concept groupings of objects]. It’s a fairly standard argument. Industrial argument. . . .

*Head of Education:* And that’s [Gallery] C1.

*Curator:* I’ve moved a few. These pictures used to be in “Streets” but otherwise it’s pretty much the same as it was before. And then what I changed. And they still may not go there. Now, [Gallery] C2 starts here and goes down this way. And [Gallery] C3 starts here and goes down this way [gesturing at arrangement on wall]. And basically there’s the history of artificial lighting told through the different fuels that came into use. (September 6, 2000; author notes in square brackets)

Within the show there are also discussions about how the knowledge of light’s actions impacted artists’ work, like this text panel about *Turkish Bath*, a painting by Alexandre-Gabriel Decamps:

Critics of the period admired Decamps’s subtle handling of light and shadow. In this painting, he depicts a ray of light hitting a wall and glancing into the corner, illuminating the space with its reflection. A 19th-century physicist measured Decamps’s work with a photometer (an early light meter) and found him to be one of the few to paint light with an accuracy that met scientific standards.

The text panels asked viewers to pay particular attention to the light effects captured in the art works, and offered information about the scientific thinking about light during the period.

The complexities of finding and securing the loans of various objects for the show had an impact on the process of creating the thematic divisions of the show. Many of these problems originated outside of the Curator’s control. She hoped that some important works in the Van Gogh Museum’s version of the show might also travel to the Pittsburgh exhibition, and waiting for confirmation kept the layout plans from being finalized. On the other hand, the constant search for an elusive or excellent object also impacted the show’s development. For example, a collection of historically significant light bulbs from the Henry Ford Museum, in Dearborn, Michigan, was

among several instances of objects secured late in the design process, further complicating the arrangement of cases in the layout design. The conceptual framework and list of objects were created far in advance of the exhibition's opening, yet the layout plan continued to change up to (and beyond) the opening of the show, frustrating the other members of the design team who needed to make decisions based on a final count of objects. The Curator's never-finalized object list became a standing joke among the team, including the Curator. She was aware of the hardships this indecision placed on the team, but couldn't resist late additions to the show. During one meeting late in the process, she told the design team that although the list of objects was basically complete, she'd located some unusual and highly tempting light bulbs on the auction website, "E-bay." After a smiling groan, exhibitions staff suggested that they would have to get online and bid against her! (February 8, 2001).

The Curator realized early on in the process that the security requirements surrounding this exhibition layout would be difficult for her. Most of the object locations needed to be finalized well before the show's opening. This would temper her natural predilection for what she called her "stage managing" approach to the installation process, where objects could be tested in various locations (August 15, 2000). The time spent developing the layout plan probably contributed to a very smooth installation time (moderate days and no overtime), but she still managed to make room for some last-minute additions to the show. An Edison light bulb was added to the show just before the opening-night party, and a large Sinumbra chandelier was added after the first weekend of the show.

### Architect

The Curator's process of developing the thematic layout of the show was both preceded and followed by the work of the Architect on the design of the exhibition space.

*Architect:* My goal is to create an evocative space that allows the visitor to have an unencumbered experience with the object, which must be respected. Too much in our lives comes to us in a mediated way, and the opportunity to have a direct experience with a real work of art is important to my work as an exhibition designer. (Interview, March 14, 2001)

In contrast with his work on an earlier art exhibition, the Architect noted that the quality of the art in the show demanded a certain kind of respect and that he couldn't have the same artistic freedom that he had previously had in designing the exhibition space. (Field notes, April 13, 2000)

He outlined the traffic pattern through the show, highlighting that he wanted visitors to have an unencumbered experience with the objects and that the in-



formation was all to be provided along one side of the space. (Field notes, April 13, 2000)

During an interview on March 14, 2001, the Architect for the *Light!* show (Paul Rosenblatt, with the firm Damianos+Anthony) spoke at length about the particular challenges for this exhibition design. The above quotations reveal the tensions underlying of the craft of designing art exhibitions. The design of an art exhibition must first and foremost respect and highlight the works on view, while at the same time the design is used to support the messages of the show. Accomplishing a balance between these two goals is a complicated task. As the Curator noted:

I think the challenge of a curator . . . is to find the point of connection between the experience the maker of the work of art is trying to convey and the experiences that visitors can share. [In other words] where is the contact between that past experience that's lost and some experience in the present that [visitors] can connect with? It's nice to think in terms of experience rather than information or background, or aesthetic training; I think experience is a little more democratic. And it also suggests that there are more ways to get that experience than looking at a picture. (Interview, May 4, 2001)

The Architect's consultation process involved both historical research on the objects and ideas of the show, and discussions with the Curator about the nature of the experience that she wanted visitors to have.

The Curator's organizational scheme had to be transferred into the physical space of the gallery. Months before she had finished the catalogue or started the organizational scheme on her office wall, the Curator began work with the Architect to discuss the key ideas of the show and how they might influence the design of the gallery space. Experimenting with a new process, the Architect created a computer model: a virtual exhibition space including simulated people and models of the artworks to scale within a potential layout design of the galleries. This virtual tour allowed the Curator and potential exhibition sponsors to see what the exhibition space might actually look like with different arrangements of objects, styles, and colors of walls and cases.

The Architect had completed a significant portion of his work before the design team began to meet in September 2000. The Architect had worked to combine the notion of scientists and their laboratories with the historical style of the world's expositions, where many of the lighting innovations were first shown to the public. In addition to thinking about the conceptual framework of the show, the Architect also had to consider some challenging practical issues, such as the inclusion of hands-on display areas in galleries that were already targeted for a maximum number of objects and cases. The Architect also knew that the show would feature a number of block-

buster paintings, as well as fragile scientific instruments and books. After spending time reading the catalogue and studying books about the development of light and lighting technology, the Architect developed the notion of Newton and the prism as an orienting device in the space. He began to “do some sketching, and it was those initial drawings that were sort of inspired by the path that light was [taking and] the way that the angle of the light changes as it passes through the prism” (Interview, March 14, 2001). He designed the floor plan with a path suggestive of a beam of light bouncing from one area to another through the space. “Sometimes it’s defined by the edge of walls, sometimes it’s defined by the angle of the axis of a pedestal or a platform in the space. Sometimes it’s not quite as well defined as other times, but it’s always there” (Interview, March 14, 2001). Built walls were angled through the space, creating a back and forth traffic pattern suggestive of angled beams of light coming through a prism (see Fig. 1.1—Layout Plan Gallery 12).

The process of collaboration between the Curator and Architect is instructive. Unlike the work of other staff members on the show, the work of the Architect retains the mark of its creator in its contribution to the Curator’s vision. Recognizing the artistic domain of the Architect, the Curator was careful to preserve, wherever possible, elements that were central parts of the design that was originally presented. At the same time, however, the Architect was similarly deferential to preserving and supporting the Curator’s vision. Finally, the Architect applied his knowledge of other design issues, like graphics, and lighting. He suggested the hiring of the lighting consultants and graphic designers that became involved in the project in December 2000. While he tried to preserve the overall vision of the show, the Architect valued his role as facilitator of the design process. He actively

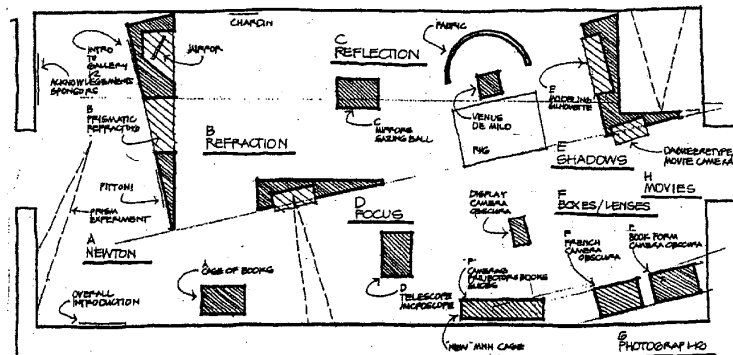


FIG. 1.1. Schematic Layout Plan Gallery 12, December 19, 2000. Reprinted with permission from Paul Rosenblatt ALA of Damianos+Anthony.

generated solutions to emerging problems, working closely with the design team and the Head of Exhibitions to devise practical solutions in light of a changing budget. The resulting design combined the Architect's interpretation of the Curator's vision impacted by the collaborative solutions of the design team to practical and budgetary constraints.

### Educators

... we're assuming that we'll do daily free tours—walk-in tours. We're assuming that we'll have "Ask me about Art" interns at this point, and that we'll do an education resource center. ... We should add here that we'll do adult group tours as well, meaning tours that groups call and make arrangements, and there's someone on hand to do them, so we should add group tours on there. ... under group tours, let's say, we'll do ... local, regional, distant and we'll do college. ... The timing is not good for college and university but we'll want to think of that as an audience to pursue with whatever connection we can. (June 8, 2000)

The educators' conversations surrounding the development of the *Light!* show reveal three strong points of interest: a commitment to serving diverse audiences; a desire to broaden their awareness of, and to collaborate with, other cultural agencies in the city; and a commitment to ensure that the exhibition would adequately support the experiences of a general visiting audience.

In June 2000, educators at the Carnegie held their second departmental meeting about the *Light!* show. They gathered around the long table in the library, and the Head of Education asked each member to report on their progress with the programming for the show (e.g., see Fig. 1.2). The education department was able to implement the plans they had originally devised for the show, nearly a year in advance of the opening. The department serves a wide variety of audiences, and this priority is evident in an examination of the conversations from this meeting. Each member of the group was in charge of representing a particular audience (general adult, families and school-aged children, or teenagers). After presenting progress of the program ideas, the Head of Education further focused the conversation on whether or not they had provided for each type of audience.

*Light!* programs were particularly diverse and well-attended. Academic types were accommodated by a lecture series that included well-known 19th-century art historian, Robert Rosenblum. The two curators discussed their joint creation of the exhibition. Two docents paired up to give special Thursday night tours of the show that highlighted the show's science and arts perspectives. Seth Riskin, a performance artist who works with light, did a "light dance" and talked about his methods. There was a performance by a traveling Magic Lantern theater group. The Rushlight Club spoke about

**EXHIBITION TOURS**

Drop-in tours (daily at 1:30)  
 Gallery attendants (at hands-on experiments)  
 Adult and Student Group Tours (pre-registered, docent-led)  
 Gallery Brochure (annotated floor plan)

**LECTURES/DEMONSTRATIONS**

Dan Mattausch, Rushlight Club  
 Aaron Sheon, Art History, University of Pittsburgh  
 Leonard Shlain, Surgeon, writer, inventor  
 Robert Rosenblum, Art History, New York University  
 Andreas Bluhm, Louise Lippincott, Curator's of Light!  
 Seth Riskin, Artist, MIT (performance)  
 Larry Schaaf, University of Glasgow

**WEBSITE/CD-ROM/ACOUSIGUIDE**

Website for the exhibition  
 CD-ROM sold with catalogue  
 Acoustiguide tour for the show

**ADULT PROGRAMS**

Perspectives Gallery Talks--art and science Perspectives  
 Adult Classes--art history, lunch and learn, studio classes, elderhostel  
 Downtown Lecture Series  
 Outreach Talks (by appointment)

**PROGRAMS FOR KIDS AND FAMILIES**

The American Magic-Lantern Theater (performance)  
 ART ventures--studio activities in the Hall of Sculpture gallery  
 Kids labels-Art Cat (throughout the exhibition)  
 Summer Art Camps (week long)  
 Homeschooler workshop: Art and Science

**TEACHERS AND STUDENTS**

Light Teacher (group of teachers to discuss exhibition content  
 and curriculum ideas)

FIG. 1.2. "Bright ideas for Light! programs" CMOA internal memo draft 1/  
 17/01.

history of gas lighting and lighting fixtures, while lighting up a series of his-  
 toric lamps.<sup>8</sup> Finally, in addition to these special events, the education staff

<sup>8</sup>Watching the constant tending of the lamps, the relative brightnesses of different styles of  
 lamps, and the overpowering smell of fuel oils provided an increased appreciation of lighting  
 technology and its impact on daily life.

implemented their regular daily docent tours. Saturday hands-on activities were planned. Unlike most large-scale shows at the Carnegie, little emphasis was placed on developing school programs, because school would be in session for only part of the run of the show.

Unlike the Curator and Architect, much of the Educators' work on exhibitions comes after the opening of the exhibition, when the implementation of special programs begins. Yet the Educators were involved in the development of the *Light!* show itself, and with the Head of Exhibitions and the publications director, they acted as audience advocates. For example, responding to a presentation of an outline of the show by the Curator, the Head of Education replied:

Yes, we need the arrangement [of objects] to speak loudly but you also need to provide information. Because some people will get it and they won't read the labels and the people that don't get it will need the labels. (August 15, 2000)

Due to their prior commitments to work on other shows that were already running, members of the education department did not attend all of the design meetings but came in, as invited, at key moments in the process. For example, Educators met with the Curator and design team to discuss such things as the graphic design and text style for the exhibition and to go section by section through the organizational structure of the exhibition. In these venues, they worked hard to argue for the visitors, asking that more explicit directions and tools be provided in the exhibition space. As a result, a series of special labels for parents and children were installed in the show, and a comprehensive take-home gallery guide was designed. The child-oriented labels, indicated by a cartoon character "Art Cat," provided simplified explanations and posed questions about key features of the show. For example, next to William Jennings' *A Thunderbolt* (containing a photograph and a stylized sketch of lightening), an Art Cat label asked:

Do you like to watch thunderstorms? Do you close your eyes and cover your ears? Before photography was invented, no one knew the true shape of lightning because the flash happens so quickly. Compare the photograph of lightning to the drawing. Which one says 'lightning' to you?

The glossy, colored gallery guide identified locations of audio tour stops, the children's labels, and key sections of the show on a layout map of the exhibition. Both of these measures, the labels and the guide, were seen by staff as new and important ways in which to help visitors interact with the exhibition's somewhat challenging content.

### Head of Exhibitions

[The Head of Exhibitions] talks about built walls. The built walls are 12–14 ft high. He estimates about \$100.00 a foot plus \$50.00 an hour labor. With the extra finishes that [the Architect] wants, the cost runs to \$200 or \$220. There are 34 feet of walls in the first gallery. They should really try to cut the costs a bit. [The Architect] wants tops and bottoms for the walls, so that they really have style, and look like real walls, to give it a historical feel. The show in Amsterdam had a modern style and it just didn't create the right feeling. So they discuss and decide that maybe [the Curator] will settle for tops only. No bottoms, but she really wants tops. [The Architect] suggests the first wall could be done in the style he wants and then the others having a reduced style element, to lower costs. (November 8, 2000)

So far I have discussed the conceptual planning that was involved in creating the show. The foregoing passage from my field notes illustrates some of the detailed planning work that involved the Head of Exhibitions. The Head of Exhibitions and his assistant were in charge of handling the specific details concerning the physical installation of the show. The exhibition posed particular challenges for Carnegie staff, including the layout and security, as well as standard concerns like setting a timeline and controlling the budget.

Unlike many of the shows done previously at the Carnegie, the precise layout of the show needed to be completed before many of the objects even arrived in Pittsburgh. The value of the objects on loan to the museum meant that many of the objects would arrive with a courier, a representative from the loaning museum, in tow. The courier would stand by as the object in his or her command was installed in the gallery space, according to the demands of the loaning institution. The demands ensure the safety and security of the objects. No couriered object could be moved without the courier present. The objects would be set up, and a security device, such as a protective case or an alarm, would be installed. The objects could arrive at any point in the installation process, and so it was essential to predetermine the exact location of every object in the show. A painting fastened in the wrong location could throw off the measurements for the rest of the room, meaning that the rest of the paintings to hang in a particular group would no longer fit the space.

The Head of Exhibitions and his Assistant were in charge of scheduling and planning the installation of all the shows in the Museum. For any show, various types of installation meetings would occur. "Design Team" meetings primarily involved the Curator, Exhibitions staff and outside consultants (i.e., Architect, lighting designers, sometimes the graphic designers) in the conceptual planning of the *Light!* show. Occasionally, other museum staff (e.g., educators, registrars, publications staff) were also present. "Nuts and

Bolts” meetings were a means for museum staff members of the design team to report to, and hear reports from, other staff, including conservators, registrars, and security, about their respective progress on issues for the *Light!* show. “Organizational Committee” meetings looked more broadly at scheduling issues, determining schedules and deadlines for all of the shows at the museum. Several staff members referred to these meetings by their colloquial term, *organized chaos* meetings, as these meetings involved the creation of interdependent and contingent deadlines across shows. When disagreement about deadlines was intense, the Assistant to the Head of Exhibitions threatened to make a “scary schedule,” a schedule across exhibitions showing *all* of the deadlines. While Exhibitions staff kept a 3-year overview calendar of key installation weeks in their office, most staff preferred to keep only their own most pressing deadlines in view. Any other view of schedules and deadlines was indeed a “scary” and overwhelming sight.

The *Light!* exhibition encountered some difficult scheduling problems. The previous show in the space, “*Aluminum by Design: From Jewelry to Jets*,” would require an especially lengthy de-installation due to the number and size of objects in it. (The show included a car and a full scale replica of a building façade). The unusually valuable objects for the *Light!* show required that a layout plan be finalized earlier than usual. The hands-on scientific experiments, lighting challenges, and funding requests also required a longer lead time than most exhibitions. The Curator was concerned about the scheduling and pressed other departments to engage in their work on the *Light!* show far in advance of their normal lead time. She referred to this time as one of “hammering” away at the staff.

Finally, the Head of Exhibitions was in control of the budget for the show. As the opening section of transcript illustrates, the Head of Exhibitions had a firm grasp of the ultimate costs for different configurations of the space, and throughout the process he was the unfortunate one who had to step in and curtail excited brainstorming sessions about different possibilities for the show suggested by the Architect or lighting consultants.

### THE VISITOR EXPERIENCE

Throughout the design process the Curator operated with beliefs that resonate with those expressed by museum educator Danielle Rice, who sees the goal of art museums as “pleasure through enlightenment. For in revealing the rich, abundant world of ideas behind objects, we encourage people to rediscover . . . delight, curiosity and wonder” (Rice, 1987, p. 19). The conversations that surrounded the development of the *Light!* exhibition reflected a concern for presenting the information and narrative of the show, couched in the desire to help viewers get a sense of the impact that light innovations had on society in the industrial age.

TABLE 1.3  
Dominant Themes of Talk Through Design Process

<i>Themes</i>				
	<i>Aesthetic</i>	<i>Affective</i>	<i>Physical</i>	<i>Practical</i>
Specific Issues	Concern for proper placement and lighting	Concern for attracting, impacting perception of work through environmental cues	Concern for visitor movement and safety through space	Scheduling, measuring, technical concerns, lighting

Although this chapter provides a general overview of the intentions the Curator had for this exhibition, a closer examination of the conversations that took place among staff members reveals certain assumptions they had about the audience and the nature of visitor experience in this exhibition. The conversations that took place over the course of the design development process reveal common and recurring issues that fall into four thematic areas: aesthetic, affective, physical, and practical. Of these categories, shown in Table 1.3, I discuss three: aesthetic, affective, and physical. Practical issues, although a dominant area of concern for the design team, are not a focus of this chapter.

### Providing an Aesthetic Experience

As I described in the section concerning the role of the Architect, there was a strong desire to respect and support the aesthetic power of objects. For the creation of the *Light!* exhibition, and across art museums more generally, the concern for “the aesthetic” forms a point of tension. In art museums, works are displayed to encourage reverence, pleasure, or wonder, to highlight the attractive qualities of the objects, and to document the realness, or authenticity, of the objects. These are primary goals of putting works of art on display. Yet, the Curator and the rest of the design team also believed that the historical works of art and scientific objects needed a context. The Curator was primarily responsible for deciding how the exhibit should tell the story of light and technology during this period, and so conversations about the design primarily concerned the aesthetic experience. The Architect, for example hoped that visitors would be able to have “an unencumbered experience” with the objects that they found compelling (April 13, 2000). During the design conversations, the Curator’s message took a back seat to the consideration of the aesthetic power of the objects. When pressed by educators to move beyond her comfort zone in terms of mediating the objects, the Curator would respond: “as long as a visitor has



one meaningful interaction with one object in the show, then our work is done," or "if they choose to ignore all of this information, that's fine with me." Clearly, with the amount of work she put into the thematic layout of the show and the research and selection of these objects, the Curator was working to tell a particular story about the objects on display. But for this particular part of the process, the emphasis in the conversations was on how the works would be viewed and appreciated by visitors. This was to be an art show, after all, displayed in an art museum, and design choices were made to reinforce this point.

A painting by Chardin, for example, was the subject of a long conversation about proper placement. The work, although small, was considered an important piece; it was an excellent work of art and one that came from the Carnegie's own collection. It needed to be hung in such a manner that it would receive an appropriate amount of attention in the space. On the layout plan, it was situated close to a group of glittering crystal objects and reflective lenses, and these, it was thought, would distract from the painting. However, because the work was small, it might be lost if hung with other paintings.

[The Head of Exhibitions] says we want the environment near the Chardin to be calm. The mirror there is kind of boring. [i.e., the Chardin might work next to the not so glittery Italian mirror]. [Head of Exhibitions] says having one little one there is compelling. More so than 2 paintings. (December 15, 2000)

In the end, the arrangement discussed earlier was implemented and the painting was hung alone on a dark wall with dramatic lighting. The team agreed that the aloneness and isolation from competitors would help to highlight the painting (see Fig. 1.3). In case visitors failed to notice the dramatically lit, wonderful little painting, its importance would also be signified by situating a bench nearby and by including it on the audio tour. The curator added that the small symbol used to mark the items on the tour would be noticed by audio tour users as well as by the general public and would be seen as an important part of the show (May 28, 2001).

The aesthetic experience of the show was considered on a variety of levels, from the proper placement and lighting of the works, to the characteristics and placement of the label copy. During one lengthy conversation about the labeling of the show, the Curator concluded with the stipulation that, where possible, label copy and object should not be in the same field of vision. Instead, the viewer should be made physically aware of moving from an aesthetic viewpoint to an information gathering one (August 15, 2000). As a result, the labels were, where possible, placed along a label rail set along the edge of cases and not on the wall. The physical shape of the la-

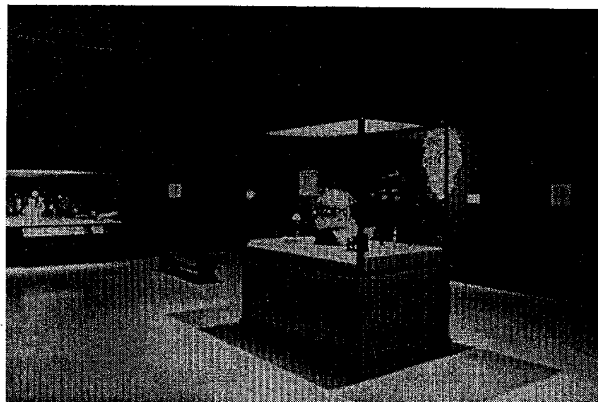


FIG. 1.3. Installation photograph of Gallery 12. (Chardin Painting at center of photograph visible through the case holding the Gazing Ball). From Carnegie Museum of Art, Pittsburgh, PA. Richard A. Stoner, photographer. Reprinted with permission.

bels was also considered and the decision was made to have square shaped object and group labels, so that when placed on the wall they would not “read” at a distance as objects (i.e., like the rectangular framed prints) in the show (February 8, 2001). This concern, to have reading and looking happen on two different planes shows the care and consideration taken to promote and preserve the quality of the aesthetic experience of the works on display.

### Creating an Affective Experience

Although the aesthetic experience of the visitor was an important consideration throughout the design process, the Curator was keenly interested in finding ways to help visitors have something more than an aesthetic experience. She was concerned to find ways to help visitors connect with the distant time period in which the works were created, and to help them experience a sense of the wonder that these new lighting technologies had on society in the 18th and 19th centuries. While these contextual issues are most commonly addressed through the use of text panels accompanying the objects, in fact, the design of the exhibition space itself was envisioned as a means to help create a context for understanding the works and the narrative of the show. The layout, lighting, color choices, and even the design of the object cases were thoughtfully selected in order to help create these effects.

In terms of museum research, the notion of the psychological influence, or the affect, of a physical space remains an unexplored issue. Of the impact of the physical environment in museums, John Falk and Lynn Dierking note, “often these influences are at once the most subconscious and the most powerful, the hardest to verbalize but the easiest to recall. For this reason, the role of the physical context upon learning has been one of the least-studied most-neglected aspects of learning (1995, p. 11). Museum research commonly considers the selection of objects in a show, examines the impact of the label copy, or measures how long visitors spend in front of each object, but the effects of exhibition design on visitor experience are deeply felt but remain somewhat elusive to capture. In this section I discuss the ways in which aspects of the *Light!* show were debated, selected and chosen, in order to provide a compelling affective experience for visitors—an experience designed to support and enhance visitors’ appreciation of the qualities of light, and the role of lighting technologies during this historical period.

[The Curator] notes that she’s not so keen on having a curtain threshold between galleries because she likes the naked one-word signs overhead. [The Architect] says, well the curtains are theatrical and a sign of the times. [But the idea is shortly thereafter struck down.]

The [Head of Exhibitions] talks about the effect of the brick wall above the skylight in the second set of galleries. They change the color of the light. [The Curator] agrees and says that in the first gallery the light is really cold and she doesn’t like the effect. That skylight is near a museum wall made of stone. So [the Lighting Consultant] says well we can compensate for it. It will look cooler at night but during the day we can compensate for it with gels [filters on the lights]. (Field Notes, January 3, 2001)

These two examples, selected from hours and hours of similar discussions, show a range of concern with elements of affect in the *Light!* exhibition. From elements suggestive of a historical context, to the quality of the light in the galleries, the design team has considered, debated, and decided upon the details of the exhibition, from the brand and fittings of the lighting equipment, to the colors of the walls, the style of the font, and the details of the cases. With the Curator presiding, and the Head of Exhibitions (in control of the budget) assisting, all of these decisions were subject to intensive discussions in the design meetings, and these discussions focused on the effect of these decisions on the visitors’ experience of the exhibition.

The color choice for the walls, and the lighting of the galleries were critical to create the right ambience for the show. The first room was painted a dark brown, and dramatic spotlighting emphasized the glittery objects placed there (see Figs. 1.3 and 1.4). The dark brown was also selected for its

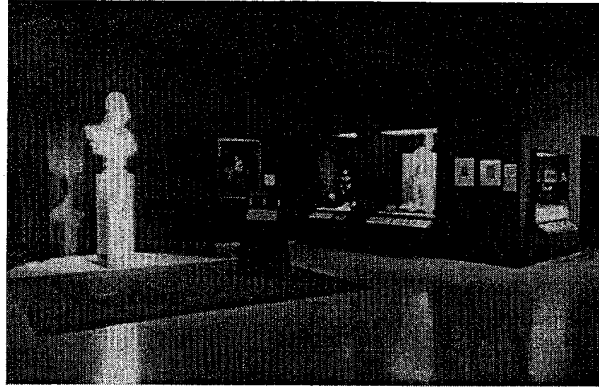


FIG. 1.4. Installation photograph Gallery 12. (Showing brilliantly lit *Pallas Athena* and Camera obscura station). From Carnegie Museum of Art, Pittsburgh, PA. Richard A. Stoner, photographer. Reprinted with permission.

historical connotations—it relates to the Victorian period. A light blue helped to emphasize the feeling of daylight in the room with works by the impressionists. A covered skylight was opened overhead in the gallery to add to the effect. Lighting consultants located special equipment and used filters to help make the objects glitter, shine and glow, or flicker (to simulate the candlelight in which some objects were originally used or seen). Throughout the design process members returned to key concepts, looking to make each room visually support the thematic content areas. The first room was dark and dramatic, the second brilliant and light, moving toward evening, the third powerful and dramatic, the fourth and fifth rooms more calm and neutrally lit.

[The Head of Exhibitions] liked the taxonomy and comparison of the lamps and the exposition idea will come out in that style too. [The Curator and Architect agree]. (Field Notes, December 15, 2000)

The Architect worked with the Curator on the design for the show, with the idea of creating a sense of the historical style of the period between 1750–1900. By suggesting this historical context, the design of the show would help to provide visitors with a richer experience of the objects on display. As he created the design, the Architect worked with the ideas of an old scientific laboratory, or one of the world expositions that took place around the turn of the century. The Curator also suggested that the paintings be hung with a middle line of 65 inches, which is higher than normal. Although this was primarily a decision made in response to large numbers of

predicted visitors to the exhibition (who would be better able to see the paintings when the galleries were crowded), she noted that it would also subtly add to the historical effect, because paintings were often hung higher than eye level in the 19th century.

A look around the Carnegie Museum of Natural History (which is adjacent to, and institutionally integrated with the Carnegie Museum of Art) suggested another way to add to the historical context for the exhibition. Scattered throughout the Museum are beautiful old cases that reflect another age. The carved wooden details, angled tops, and carefully turned legs are quite different from the standard art museum case used today—that common, unadorned, square or rectangular column covered in a plexiglass cube. Several of these old cases were found in the basement of the museum, cleaned up, and used in the *Light!* exhibition as another subtle yet important way to augment the historical and affective feel of the show.

### Imagining a Physical Experience

Conversations that took place in December 2000 and January 2001 are particularly useful for insight into the ways in which visitors' physical experience was conceptualized by museum staff. The creative decisions made within the aesthetic or affective areas were checked against staff understandings of how visitors might actually encounter and interact with the planned installation. Three main categories of concern recurred throughout discussions about the layout. Staff were interested in using the power of attraction to support key aspects of the show. This concept reflects a belief in the individual will of visitors to select the areas of the show to which they might attend. Navigational issues formed a second area of concern, with staff discussing the potential flow of visitors through the space; a third component of discussions focused on accommodating the special physical needs of visitors.

The Curator often made connections between the museum audience and shoppers. This metaphor recurred at numerous points through the development of the show, and evidence of this belief can be seen in the resulting final product. The Curator was interested in the work of Paco Underhill (1999), a shopping researcher, hired by several Fortune 500 companies to surreptitiously examine how shoppers are helped and hindered by the layout of merchandise in a store. Underhill advises companies where to place targeted items for quick sale, and how to arrange entryways and check-out areas for shopper comfort (the more comfortable they are, the longer they shop) and for shopper enticement (how to capitalize on impulse buying). Drawing from this work, the Curator believed that people like to shop, that they would pick and choose what they want to attend to. The Curator, convinced that visitors would not read everything provided, wanted to put "way

more out there," with the realization that visitors would not see everything. This belief system resulted in a very complex exhibition space with far too much to absorb in a single visit. Using the metaphor of visitor-as-shopper meant that the Curator was also aware of the need to provide the same information in slightly different ways throughout the exhibition space. The average visitor should not come out of the exhibition without having gained some small appreciation for the vast changes brought about by the development of lighting technology during the Industrial Age. The metaphor of visitor-as-shopper helped the design team to think about ways to ensure that visitors would be drawn to the most essential works in the show. At a global level, they used dramatic lighting and vista locations for key works. For example, a platform of stunning miniature lighthouses (4 feet high) was placed directly opposite a gallery entrance to draw visitors in; an altar-like setting was created in the center of the final gallery to hold an important lighting demonstration. This display, a room within a room with a black velvet curtain backdrop, shows a Van Gogh painting *Gauguin's Chair*, under different types of lighting. As the Curator noted, however, visitors will also choose to notice items that have audio guide labels, or other special labeling, understanding that this special treatment indicates a "don't miss" highlight of the show.

[The Curator] says we could put the sign next to the books. [The Head of Exhibitions] says and that's the holding area. [The Architect] says there's nothing over there. [Installation] says yeah that's fine. And [The Curator] says we'll put a bench there. [The Architect]: What about an experiment there? [The Curator]: No it'll stop the flow. I think the entrance is traditionally supposed to be sparse, get them in and moving. I like the glittering objects and the Pittoni there just fine. (Field Notes, December 19, 2000)

[The Head of Exhibitions] says he's glad that the introduction is around the corner now. He says, we'll need to figure out the passageway; people will be going slowly here; there's lots of info and they need space to get oriented too. We need to keep people moving. But there are good hooks to them moving. (Field Notes, December 19, 2000)

In addition to discussions of creating an attractive layout, staff also imagined what the flow of the exhibition might be like when the exhibition was installed, and how they might improve upon the design. As projected numbers for the exhibition rose, changes were made to the exhibition plan. Questions about bottlenecks in the traffic patterns arose, and stanchions would be placed in front of all the paintings to protect them from visitors reach. During these types of conversations, visitors were seen as masses to be moved efficiently through the space. Although visitors were sometimes seen as a large mass to be efficiently moved through the space, they were, at

the same time, imagined as shoppers, having their own interests and desires to follow through the show. The Architect noted that he did not believe in guiding the visitor through from one point to the next; instead, the traffic paths should be more open and visitors should be able to exercise their own options in moving through the show (April 13, 2000).

As the installation plan neared completion, educators began to discuss the ways in which the show might be adjusted in order to assist the viewer in relating to the Curator's message. Signage plans were developed to indicate thematic areas in the show, with individual object labels and room level text panels helping to explain the visual connections between the different types of objects displayed. In addition to this integral means of mediating the objects, other supportive measures were taken. Resource areas were planned, and catalogues were situated in the spaces between galleries. A random-access audio guide was designed, a series of child-friendly "Art Cat" labels created, and an elaborate gallery guide was produced, all to help visitors access the type and level of information they desired.

Marilyn Hood (1993) has shown that museums in general have not been proactive in accommodating their visitors' most basic needs, such as wayfinding and providing adequate seating. The Curator and the design team considered these types of needs, making adjustments to label copy and placement based on their knowledge of American Disability Association (ADA) Standards for Accessible Design. They also created elements in "human scale," focusing on the size and spatial requirements for visitors. The height of the label rail and sandwich board kiosks that explained the scientific activities were debated, as the design team wanted to ensure a comfortable reading height for the average visitor. But staff also discussed the placement of labels "so that elderly visitors would not have to bend over to read them." (December 19, 2000). Benches were also provided at several places: inside the entrance and in front of works deserving special contemplation, (e.g., at the Chardin, at a powerful set of three landscapes showing different treatments of light and shadows, (by Bierstadt, Van Gogh, Signac), and at Van Gogh's, *Gauguin's Chair*, with the lighting demonstration that took almost 5 minutes to view). The design team also considered basic wayfinding issues, as the Heinz Galleries are difficult to locate within the large art/natural history museum complex.

#### **HAPPENSTANCE: THE STORY OF VENUS**

"Time to stop." The Curator signs and dates the note, in large letters with a Sharpie pen on a 3-foot-high board. "March 9." And it means no Venus de Milo for the Pittsburgh installation of the art exhibition *Light! The Industrial Age 1750-1900*. (Field Notes, March 9, 2001)

This final section of the chapter looks at the events and decisions surrounding the installation of one key element in the *Light!* exhibition, providing insight into the practical complexities surrounding the installation of a major art exhibition. By focusing on the installation of one object, I hope to capture a sense of the time and contingency that underlies this design process. In addition this extended example illustrates how objects function in this exhibition, exposing aspects of the conceptual roles, physical installation, interpretation and labeling that surround this single object in Gallery 12. March 9th marked a disappointing end for the key work, a statue of Venus, designed to be in the first room of the show. A plaster cast of Venus had been used in the catalogue, shown in the Amsterdam version of the show, and even used in the promotional videotape. With the show opening in less than a month, and many leads for other statues turning into dead ends, the Curator would have to find a solution, and fast.

Plaster casts of famous sculptures have long been an important part of the training of artists. Before budding artists were allowed to sketch from life, they traditionally spent hours sketching collections of plaster casts of famous sculptures like the Venus de Milo, or the Victory of Samothrace. With this history in mind, the curators of *Light!* imagined an installation of a Venus statue, illuminated in such a way as to dramatically affect the light cast on the planes and angles of the sculpture. The cast was to be shown alongside an 18th-century painting of artists working in a studio sketching a cast of Venus; both displayed near a case containing other artists' accoutrements including a cast of a foot, and a poseable jointed 2-foot high wooden human model.

In the Amsterdam installation of the show, a cast of Venus was theatrically shown on a rotating round platform in front of a corner window overlooking the courtyard of the Van Gogh Museum. A wall backed part of the platform so that she was not visible for part of the rotation. The light entering the window cast sharp shadows across Venus, highlighting the planes and shapes that artists would have focused on in their drawings of the sculptures. The rotating Venus conveyed a sense of the modeling, the play of light and shadow on a three-dimensional object that artists think about in their work. In addition to illustrating the concept of modeling, the rotating Venus was a theatrical element in the show. Visible from the courtyard, the Venus, situated on a platform used in automobile showrooms, served as a signpost for the exhibition, and stood as a spectacle and a playful gesture on the part of the Amsterdam curator. The gesture pointed toward the unique interplay of science and art in this exhibition, and marked a departure from the ways in which art from this period is typically shown.

For the Pittsburgh show, a statue of Venus was desperately needed. In the Pittsburgh installation, the Venus would also be used to illustrate scientific principles, to show how a camera obscura works. Visitors would be in-



vited to use a simple camera obscura that would project a tiny and blurry image of the Venus upside down on the screen inside the box. Other reflective lenses in the gallery area would also pick up the Venus, creating a funhouse effect, where Venus would appear contorted in a garden Gazing Ball or upside down in various lens apparatuses.

The Curator had found it difficult to locate a statue of Venus de Milo for the show. She had pursued numerous leads, but for a variety of reasons no one was willing to lend their copy. Months earlier, the Curator was excited about a lead on a copy in Maryland (December 1, 2000). She had done the initial groundwork and spoken with registrars at the potential lending site. She was assured that the Venus copy was in good condition, with only a few minor scratches. The Curator was pleased and waited for the photo to arrive. When it did, she was surprised and dismayed to note that in spite of the registrar's attention to recording the minute details of the condition of the Venus, the registrar had neglected to note that this copy of the Venus actually had no head. A statue that stands for beauty with no head! HmMMM. No.

And so, running out of options, the Curator looked at the Carnegie Venus. The Carnegie Museum of Art has a wonderful collection of casts, from the Parthenon to Venus, standing as they were installed about 100 years ago in the spectacular "Hall of Architecture." But the Curator knew that the Venus in the Carnegie was not her best option. While artworks on loan to the museum took a direct path from freight elevator to temporary exhibition space, this Venus would have to be moved from one end of the museum to another. And this Venus was mounted on a solid-looking base with a marble baseboard, and it didn't look like she would be moved easily. Now forced to try and use the local cast, the Curator was certain that it could somehow be done, and she worked hard to find a way. The Carnegie registrars had dissuaded her from pursuing the Venus cast in the Carnegie collection but they now hesitantly supported her work to detach it. However, after sending a consultant to excavate the base of the sculpture, and finding a concrete core with heavy lathe work and a thick plaster finish, the Curator conceded. The process would be expensive, difficult, time-consuming and it would put the sculpture at risk, even as Venus looked safe, but rather undignified, wrapped in protective sheeting tied with black strapping tape while her base was being excavated. Venus would have to stay put. But perhaps another cast could serve the same purpose? A look around the cast collection revealed another candidate.

A bust of Pallas Athena was selected instead. Heavy, yes, but this one was much smaller and not attached to the base. It would have to do. Instead of a long elegant Venus body, the show would have a head.

So after all this work, decision making, and problem solving, it was disappointing for the Curator to write, "Time to stop" beside the Venus sculpture. But it was deemed not worth the time, energy, and engineering to

stroy the ambiance of the rest of the room. There was talk about having some kind of a light sponge to absorb the light bouncing off the Venus. The idea of having felt or velvet behind her was raised. The idea was considered. The cost was perhaps too high; but no, they could use mill ends, and a local low-cost supplier was suggested. A velvet curtain behind Venus would work as the light sponge needed, it would intensify the effect of the camera, *and* it just might work to enhance the aesthetic effect of the galleries, adding to the drama and the historical context desired to support the content of the show. The idea was expanded to include large curtains hanging in between the rooms of the show, reflecting Victorian parlor room taste. And the velvet curtain could be repeated in the last room of the show behind Van Gogh's painting, *Gauguin's Chair*, that would be a dramatic focal point near the end of the show. The technical effects of changing light sources on the colors in that painting would also benefit from the light sponge qualities of a velvet curtain behind it. The Venus curtain and the *Gauguin's Chair* curtain stayed in the design, while the room divider curtains were later omitted for reasons of cost and for the simplicity of design.

Now work could begin on other aspects affecting the display of the Venus. How many camera obscuras would be needed? Where would they be displayed? How would visitors be guided to pick them up and use them? Could visitors be blinded by the strong light falling on the Venus? Would a barrier be required to keep visitors from going behind the curtain? Did the whole area need a special cue to help define the hands-on nature of this area?

Staff hypothesized about the flow of the space and the number of camera obscuras required. It was thought that visitors might carry them throughout the show. Should this behavior be discouraged? The Curator felt that it was fine for visitors to wait to use the cameras and to carry them around the show (August 15, 2000). Twelve to twenty cameras would be provided, and they would be stored in a sandwich-board "kiosk" designed by the Architect. Instructions would be provided on one side of the sandwich board, and the cameras would be stored in cubicles on the other side. Potential problems were raised. Discussion centered on the wayward visitor who might miss the instructions: Would they stand puzzled with the camera? What if the instructions were blocked by lots of other visitors? It was decided that simple "look here" "point this end toward the sculpture" instructions could be placed right on the cameras. A gallery attendant would also be available during peak times to further assist visitors (February 9, 2001). What if visitors went behind the curtain somehow? What if they were blinded by the light and fell into the sculpture? Could this happen? A rug was added to the design, set in front of the sculpture, to help demarcate the space and to keep visitors safe in some way. The rug had the added benefit of absorbing more of the spill light, reducing possible glare.

### The Statue in the Exhibition

The sculpture of Athena reflected in the camera obscura, in the gazing ball, and in the assorted lenses displayed nearby. The curtain draped beautifully in a semicircle behind her and in this dramatic setting, she looked quite stunning (see Fig. 1.4). As the foregoing story suggests, the design team—Educators, Curator, Exhibitions staff, and Architect—came together to ponder choices that would affect visitors' physical experiences of the Athena statue and the camera obscura activity. Yet these decisions did not reflect the didactic elements of the display—the arrangement and texts created by the Curator to explain and support the concepts underlying the show. Next, I provide a discussion of the space where the statue was situated, along with the text panels that made direct reference to the statue, to offer a sense of how the themes and concepts and works of art interacted with one another within the exhibition space.

The Pallas Athena was situated in the first room, along with “Light of Day text.” The section in which she stood was marked overhead with a sign, “Shadows.” A thematic level text panel (serving a small group of related objects), read:

Modeling, the use of light and shadow to create the illusion of three-dimensional form, is a technique developed in western Europe and used by artists since the Renaissance. By the 18th century, the practice had been codified in art schools and was an established convention of drawing and painting. Artists practiced their modeling skills by drawing sculpture under different lighting conditions. Monochromatic plaster casts, such as this reproduction of the Pallas Athena, were especially suited to the study of light effects in black-and-white drawings.

A book nearby showed a picture of Venus and a gazing ball, Venus carefully contorted on the surface of the ball, a print showed Venus being examined in a gallery at night by a crowd, with some people holding torches up to illuminate her. Across the room, a camera obscura was located in a case. The text panel said:

This device is focused on the statue of Pallas Athena. Its image is projected onto the translucent screen at the back of the camera obscura. A second lens inside the box makes the statue appear right side up on the screen.

A daguerreotype camera also referred to the Athena statue:

This camera is focused on the statue of Pallas Athena. The image is projected upside down on the translucent screen at the back of the camera. The pho-

tographer would focus the image on the screen, then insert a light-sensitive metal plate to make a photograph.

An odd brass model of an eye was accompanied by the text:

Scientists believed that the human eye operated on the same principle as the camera. The lens, or cornea, admitted light and projected it upside-down on the opposite surface, or retina, at the back of the eye. This model of the eye has a lens on one side a translucent glass screen on the other side, where the upside-down projected image of the Pallas Athena can be viewed.

An activity area was situated to the right of the statue, with a sandwich-board shaped kiosk holding 20 long rectangular camera obscuras, sitting on the edge of an oriental rug in front of Athena. The text on the back explained:

Each box is a simple camera obscura. To make it work, point the end with the pinhole toward a brightly lit object, such as the Pallas Athena, nearby. Look through the opening at the end opposite the pinhole, and you will see a small, upside-down image of the statue on the translucent paper inside the box. An 18th-century diagram of how the camera obscura works can be seen in an adjacent case, along with examples of a camera obscura used by an artist, a model of the eye, and an early photographic camera that all work on the same principle.

These objects and texts suggest the ways in which connections were made between the various objects on display, and the degree to which the scientific concepts were discussed.

## CONCLUSION

This chapter illustrates some of the complex negotiation and team work that is involved in staging a large-scale temporary art exhibition. Although current trends are leaning toward team-based exhibitions, several art museum educators have noted the difficult tensions inherent in this approach, as curators and educators battle for somewhat different ends (Roberts, 1994; Toohey & Wolins, 1993). Watching the *Light!* exhibition develop from a conceptual plan into a realized installation revealed a design team that had clearly defined boundaries, and a leader (the Curator) who maintained a clear focus on an ultimate goal for the show. Ames, Franco, and Frye (1992) emphasized the importance of strong leadership and a focused vision to the success of history exhibitions, and in this case, the Curator's sense of leadership was similarly important. Early on in the installation phase, the Curator, with her metaphor of "hammering," indicated this lead-

ership, and with 4 years invested in the project, it is easy to see why she was insistent that other staff try to find time in their schedules to think about issues, that they make time in their schedules to deal with the *Light!* show.

Although the sense of leadership was therefore a key element in the success of the show, it also reveals the traditional tensions between the different members of the team, most importantly those between the Curator and the Educators. The development of this particular show follows a fairly traditional model of art exhibition planning. It is the Curator's vision that is handed down as a completed project to the Educators, who are then invited to support the exhibition's materials. (For example, in many cases, as in this one, exhibition label copy is primarily the creation of the Curator that receives some copyediting.)

And, as I have suggested in this chapter, each member of the design team has a slightly different notion of what it is that the visitor should experience. The process of designing art exhibitions, then, is quite different from the design of science museum exhibits, where a team might work more directly on learning outcomes, and might try to develop a more unified sense of what it is that visitors should learn in the exhibition. Through the development of the *Light!* exhibition there were a variety in conceptions of the visitor. They were envisioned as a physical mass, as individuals with different interests and ways of learning or as a shopper—deciding which parts of the exhibition to examine. This variety of targets resulted in an exhibition that defined visitor experience and visitor learning in very different ways, although the kinds of learning expected by the Curator received perhaps the most attention. This chapter suggests some of the ways in which learning in museums is considered by staff. It also reveals the fact that the consideration of “learning” remains for the most part an implicit construct, institutionally, and occupationally defined.

Although strongly bounded by the Curator's notions of experience, the Educators were allowed the freedom to explore new areas of practice. “Art Cat” labels were designed and written by the Educators to help younger children make sense of a daunting array of scientific concepts and instruments. The extensive gallery guide was also an opportunity for Educators to mediate the Curator's message, and to assist the visitor in navigating through the complicated show. Additive, supportive, and perhaps secondary, Educators' roles in the development of the exhibition were nonetheless essential, and members of the design team deferred to Educator's judgments about accessibility or audience behavior.

Given the current and common structure of art museums, moving toward a fully team-based approach to exhibition design remains a daunting challenge. Unlike curators, educators traditionally work across all of the exhibitions on the schedule, whereas curators might focus on one or two at a time. Research suggests that successful exhibitions require strong project

leaders and the traditional curator/educator role reflects this type of organization. Interactions during the development of the *Light!* show at the Carnegie reflected a symbiotic relationship, where boundaries were clearly defined, and specialized expertise valued. In spite of this, the particular novelty of this exhibition offered participants the opportunity to perhaps engage in more team-based decision making than in other shows. And it seemed clear that the institution was moving toward more experimentation in specifically educational initiatives, with new approaches to label design experiential components and to the accommodation of a diverse public. After this yearlong process of observation, they note that they have focused more closely on how they envision experiences for their visitors. By bringing the exhibition design process to light, museum professionals might begin the process of examining, and perhaps, reconciling, sometimes conflicting notions of their audience, as museum researchers consider a broader range of factors that were designed to influence visitor experiences in museums.

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