

## INFORMAL LEARNING: THE DESIGN AND DEVELOPMENT OF AN EXHIBITION

Daniel Martin<sup>1</sup> & Brad Hokanson<sup>2</sup>

<sup>1</sup>University of Wisconsin-Parkside; <sup>2</sup>University of Minnesota

This paper describes the development and execution of an exhibition in an academic museum setting. The exhibition is presented as a self-directed learning intervention. The development process included conceptual development, the selection of exhibition materials, the creation of didactic written materials, spatial arrangement of the materials, organizing the flow and interaction of the exhibit, and analysis of the results of the exhibition. We find that interactivity is a viable means to drive interest in the subject(s) of an exhibition and that crowds can make informed decisions about the perception of displayed objects. We propose that interactive didactic exhibitions such as this show potential for successful self-directed learning in a variety of contexts and that further study of the results of such exhibitions are necessary.

**Daniel Martin** is Assistant Professor of Graphic Design at the University of Wisconsin-Parkside. His research interests include graphic design, design education, digital humanities, and creativity studies.

**Brad Hokanson** is Director of Graduate Studies and Professor of Design at the University of Minnesota. His research interests include design education, creativity studies, and visual literacy.

### INTRODUCTION

Learning occurs in a variety of ways; some are more formal, directly addressing the learning process such as in classrooms and online classes. Others are less formal, including self-directed learning and the educational experience of attending an exhibition. This paper will describe the development of an exhibition in an academic museum setting. The process included conceptual development, selection of exhibition materials, arrangement of the materials, making of didactic written materials, and organizing the flow and interaction of the exhibition.

### DESIGN CONTEXT

The idea of exhibitions as a learning activity focuses attention on the interactive elements of the presentation. Science museums and children's museums, for example, are highly interactive and engaging. Learning in these situations is not accomplished through a commanding performance, with a teacher, grades, and attendance. The development of understanding is tied to activities and engagement with the subject matter; this connects exhibition design to instructional design.

In this case, the exhibition was hosted by the Goldstein Museum of Design (GMD), a unit of the University of Minnesota College of Design. According to the Museum's website, the GMD is "an academic teaching museum" that is "dedicated to sharing the value of design" and is named in honor of the Goldstein sisters, Harriet and Vetta Goldstein, who taught at the School of Home Economics at the University of Minnesota from 1910 to 1949. (n.d.) Their book *Art in Everyday Life* (1925) outlined their methods of teaching design and served as the inspiration for the title of the exhibition, *Creativity in Everyday Life*. The museum's collection includes more than 34,000 designed objects from a variety of design disciplines including apparel, ceramics, furniture, graphics, and industrial works. Typically, the GMD produces three exhibits per year at its Gallery 241 space in McNeal Hall on the Saint Paul campus of the University of Minnesota. The

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GMD actively works with faculty and students at the College of Design as part of its educational mission.

## CONCEPTUAL BASIS

The initial concepts for *Creativity in Everyday Life* came from students enrolled in a graduate seminar titled *Innovation Theory and Analysis* at the University of Minnesota. Some of the course readings for the seminar included works on creativity and innovation by Mihaly Csikszentmihalyi, Steven Johnson, Everett Rogers, and Keith Sawyer. The final project for the course challenged small groups of students to develop concepts for a gallery exhibition centered on creativity and utilizing the concepts they had discussed throughout the semester. Each group's concept was presented to the class as well as to the director of the GMD.

Exhibition concepts ranged from the traditional to the undirected, seizing on ideas from the course materials and sometimes combining those concepts with interactive experiences for visitors to the exhibit. Group interaction and its benefits with regard to creativity had been a particular focus of the course reading material, such as Keith Sawyer's (2007) assertion that "Creativity today is everywhere. We all contribute to collaborative webs, even when we don't realize it..." (p. 253) Concept ideas included encouraging visitors to produce and share creative photographs of combinations of exhibited objects, collaborative pottery-making workshops, and an exhibit based entirely on shoes and their relation to social contexts

The concept that was ultimately selected was highly interactive by design. The initial concept called for a two-stage process. The first stage would be the crowdsourcing of ideas centered around the question "What do you consider creative?" This question would be asked of a wide variety of University of Minnesota students, faculty, and staff, as well as of people in the greater Twin Cities community. To try and facilitate as broad a spectrum of answers as possible, student clubs, advocacy organizations, professional societies, and other affinity groups would be contacted to source responses to the question. These gathered ideas about creativity would be analyzed, typified, and would then lead into a second, main exhibition. At this exhibition, the most popular answers, along with objects that served as examples of the concepts in play, would be on display.

The crowdsourcing aspect of this concept was deemed too difficult to implement due to restrictions on time and resources available to GMD staff curators, so it was modified to something more workable. Instead of the two-stage exhibit described in the original concept, the crowdsourcing portion of the concept was integrated into the main exhibit in a different, but still interactive form, which we describe in a later section.

## DESIGN PROCESS

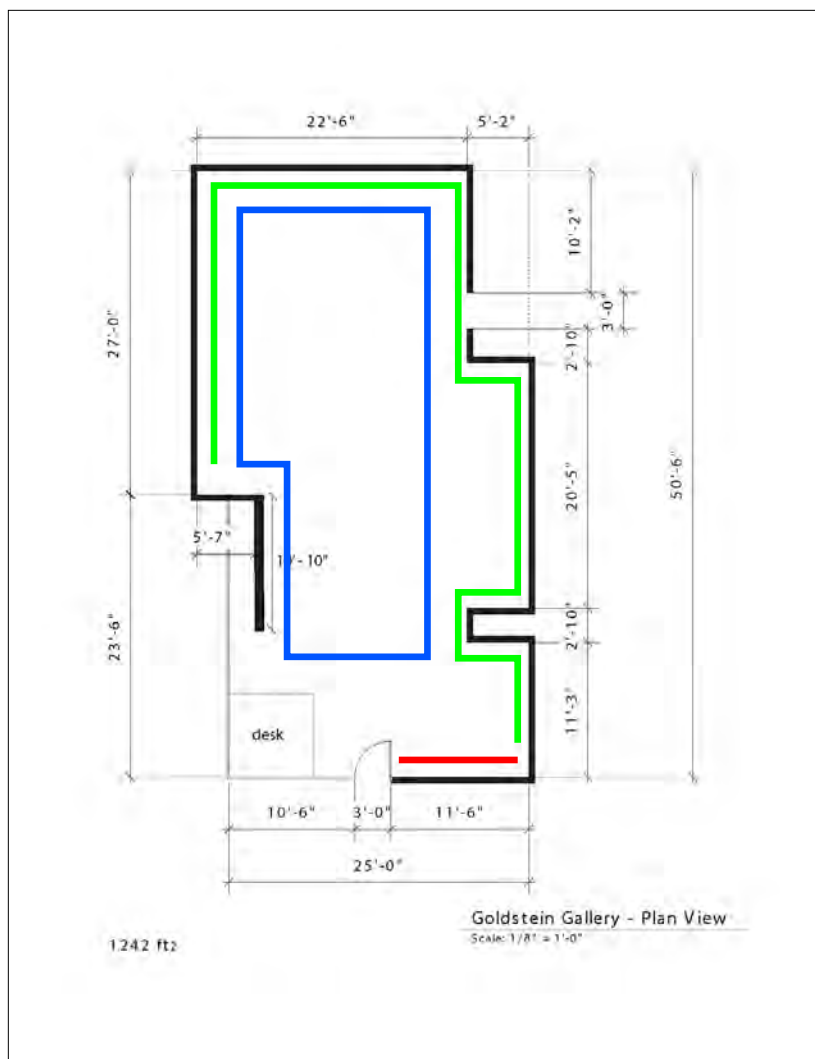
In order to combine the crowdsourcing aspect of the chosen concept with the main exhibit, a change was required. The new concept was based on the system of promotion and relegation used in domestic soccer leagues around the world, where top teams are afforded the opportunity to compete at higher levels and the teams who perform the worst are removed to lower-level leagues (Biancalana, 2020).

In the exhibition, the new concept asked exhibit visitors to first view information and physical examples outlining key concepts of creativity; this became known as the "didactic" portion of the exhibit. Visitors were then asked to directly apply their understanding of those concepts to objects and materials that were included in the exhibition; this became known as the "creativity game" portion of the exhibit. The application of understanding involved voting for objects and materials in the creativity game that each visitor felt best displayed the concepts of creativity they had been shown in the didactic portion. The voting would thus determine the "most creative" object or material in the exhibition, based on the knowledge and experiences of the visitors.

The objects and materials to be used in the exhibition were selected through a process of discussion and winnowing-down by the authors in collaboration with GMD curatorial staff to present an understanding of the definitions and concepts of creativity. These discussions took place over the course of several weeks and relied heavily on the expertise of the staff since the museum's full collection of more than 30,000 objects was far too large for the authors to undertake alone.

Creativity is broadly defined in the research literature as the generation of ideas that are both original and applicable in a context. Plucker and Beghetto describe "Two key elements in the definition of creativity are novelty (i.e., original, unique, new, fresh, different) and usefulness (i.e., specified, valuable, meaningful, relevant, appropriate, worthwhile)." (2004, p. 157) For example, the 1950s View-Master toy selected for the GMD exhibition was a unique object for presenting scenes in three dimensions using 16mm film technology and was enjoyed by millions of children. In today's context, it's dated and has been replaced by VR technology.

Objects and materials in the exhibition fell into two general categories: those that were included in the didactic portion and those that were included in the creativity game. The didactic portion was comprised of fewer objects and materials, each was paired with one of five creativity concepts as an example to aid with understanding. The creativity game featured 28 objects and materials, providing a wide variety of opportunities for viewers to inspect, analyze, and apply their knowledge of creativity through their votes.



**FIGURE 1.** Exhibit layout; the locations of the different parts of the exhibition are situated within the floor plan of Gallery 241. The introduction and instructional portion of the exhibit is shown in red, the “didactic” portion in green, and the “creativity game” portion in blue.

As the exhibition schedule progressed, visitor votes were counted at regular intervals of three weeks, at which point the lowest-scoring display objects were removed from the voting pool while still remaining on display. Visitors were encouraged to return and keep voting for their favorite objects, or to vote for new choices after others had been eliminated. At the end of the exhibition, the display object that received the most votes was deemed “most creative”.

## EXPERIENCE OF THE DESIGN

Gallery 241 is an indoor space measuring 1242 square feet. Upon entering the space, visitors were presented with instructions on how to move through the exhibit—first reading the concepts and inspecting the examples in the didactic portion, then moving to view and vote on the objects in the creativity game portion. The arrangement of the space is shown in Figure 1.

Guiding concepts of creativity were displayed on panels around the outer edge of the exhibition space. These were used to provide a base understanding of the ideas driving the exhibition.

Exhibition visitors were shown descriptions of a series of concepts synthesized from the creativity literature; they would then be presented with a selection of items from the GMD collections and asked to vote on the objects they found most creative, based on their understanding and interpretations of the concepts of creativity. These concepts included:

- Defining Creativity: Ideas that are Original and Valuable
- It’s Not Just Art and Design: Creativity is in All Areas
- Big C and little c Creativity
- Divergent and Convergent Thinking
- Becoming More Creative

Figures 2 through 8 (following two pages) are images of the panels describing the introduction to the exhibition, instructions for the creativity game, and the descriptions of each concept

The Defining Creativity section leaned heavily on the ideas of Plucker and Beghetto (2004) that have been previously referenced. This section attempted to impress upon visitors that creativity is a socially decided value judgment and establish a baseline for the meaning of this and other terms that would be used throughout the exhibit. It’s Not Just Art and Design aimed to dispel the notion

that creativity is only the property of commonly-recognized creative fields like art, music, or design, and is in fact a part of every discipline. Big C and little c Creativity simplifies the ideas put forth by Kaufman and Beghetto (2009) describing the Four C Model of Creativity. Divergent and Convergent thinking describes the concept put forth by J. P. Guilford regarding creative problem-solving. (1967, p. 138 & p. 171) The Becoming More Creative described Robert Epstein’s (2002) four core competencies of creative expression; this section had an additional interactive aspect. A version of J. P. Guilford’s *Alternate Uses Test* (1967, p. 145) was loaded on a computer terminal, and exhibit visitors could participate in this creativity assessment and receive a score in real time. As of this writing, the assessment is still live and can be attempted at <http://z.umn.edu/EverydayCreativity>.

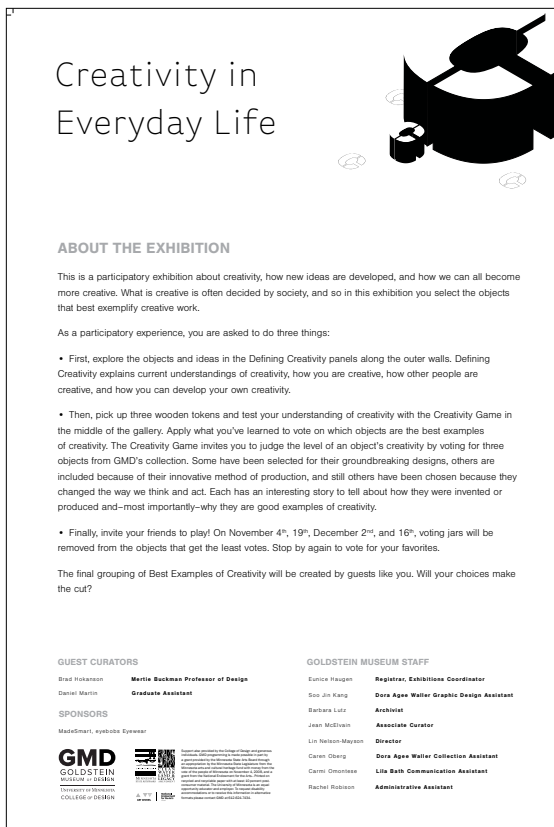


FIGURE 2. Introductory placard describing the exhibition.

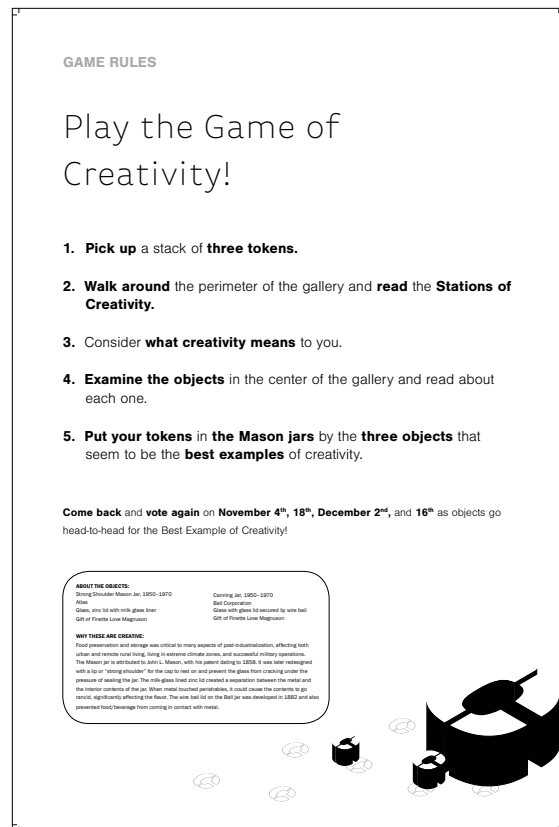


FIGURE 3. A placard describing the rules of the Creativity Game.

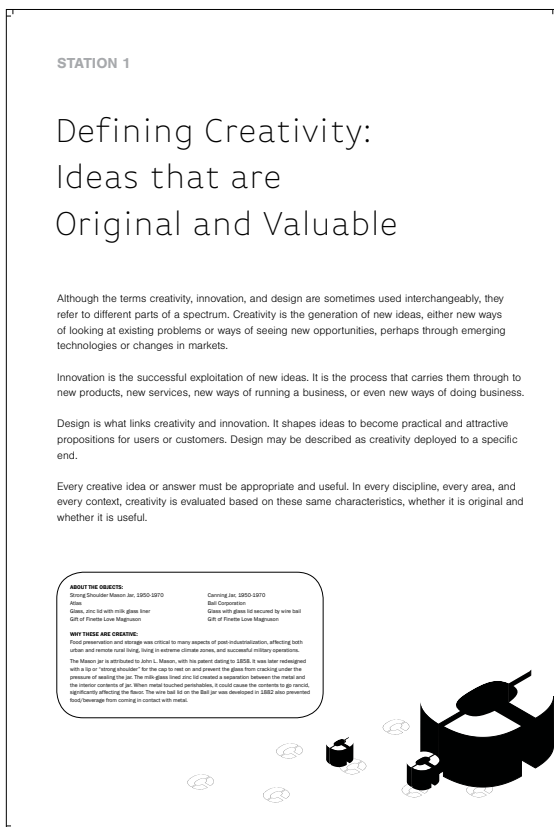


FIGURE 4. Station 1 didactic placard.



FIGURE 5. Station 2 didactic placard.

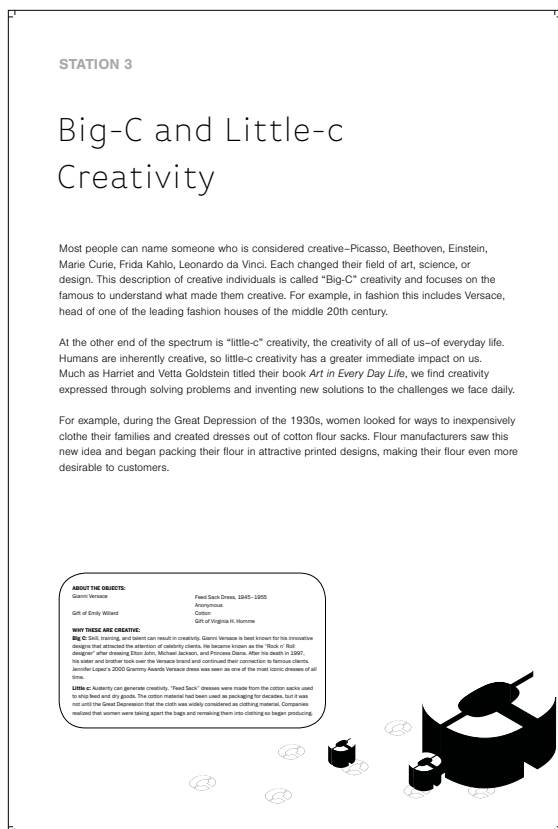


FIGURE 6. Station 3 didactic placard.

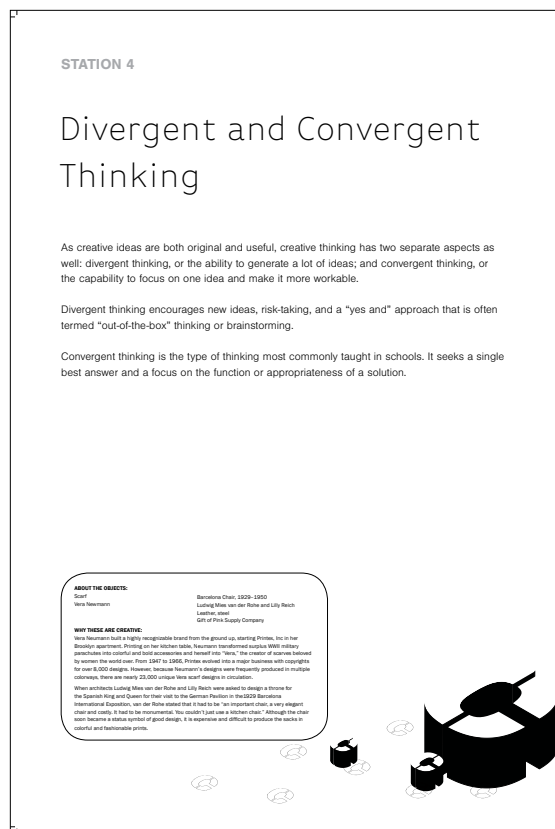


FIGURE 7. Station 4 didactic placard.

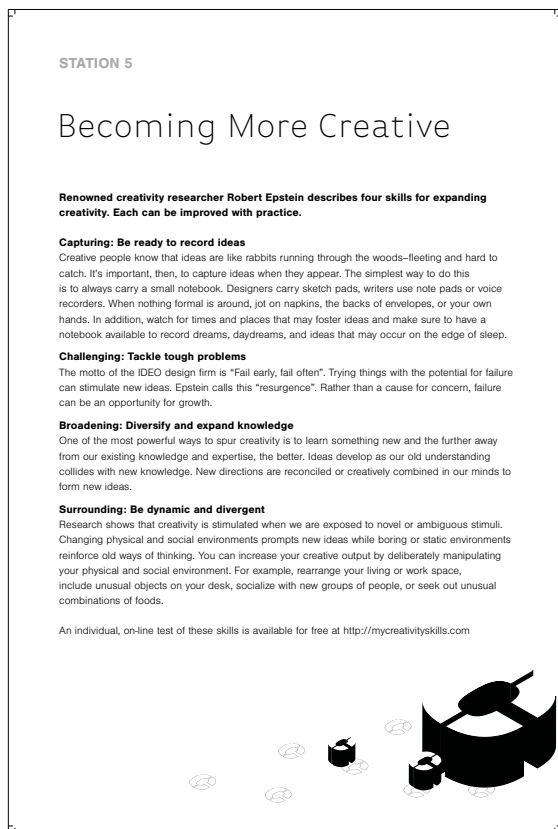


FIGURE 8. Station 5 didactic placard.

In the middle of the space was a selection of objects from the GMD collection picked to highlight the ideas included in the didactic panels. These objects were the subjects of the creativity game. The objects ranged from a "little black dress" illustrating the conceptual shift triggered by Dior in the use of the color black to the first "swimming" suit designed by Jantzen, highlighting the change from "bathing" to "swimming" as an athletic endeavor. This space is outlined in blue in Figure 1.

The items displayed in the creativity game area were, in no particular order:

- Self-Pouring Teapot, 1886, James Dixon & Sons
- Il Conico Tea Kettle, 1985–1998, Aldo Rossi, designer, Officina Alessi, manufacturer
- Walkman, 1980, Sony Corporation
- Second-generation iPod (Touch Wheel), 2002, Apple Computer Inc.
- Jacket, 1999, Issey Miyake
- Dress, 1920-1929, Coco Chanel
- Swatch with original packaging, 2000, Swatch SA
- Swatches, 1983-1994, Swatch SA
- LCW Chair, 1946, Charles and Ray Eames, designers, Herman Miller, manufacturer
- Leg Splint, 1943-1945, Charles and Ray Eames





**FIGURE 9.** A flattened 3D image of the exhibition in Gallery 241 of the GMD.



**FIGURE 10.** A flattened 3D image of the exhibition in Gallery 241 of the GMD.

- Chair, 1876-1960, Michael Thonet, designer, Boutell Brothers Great Northern Chair Company, manufacturer
- Cross Check Chair, 1991-1998, Frank Gehry, designer, Knoll International, manufacturer
- Bathing suit, 1930-1939, Jantzen
- Jeans, c.1935, Levi's
- Jacquard Woven Smoking Jacket, 1960-1979, Maker unknown
- Shoes, 2005-2006, Z-Coil
- Opera Hat, 1900-1925, Knox Hat Company
- View-Master, 1940's, Wilhelm B Gruber, inventor, Sawyer's Inc., manufacturer
- View-Master Virtual Reality Starter Pack, 2015, Mattel
- Converse All-Stars, 1950-1969, Converse
- Air Jordan 3 Retro BG "Katrina", 2017, Nike
- Garmin Nuvi 350 GPS device, 2005-2010, Garmin
- Atlas, Rand McNally
- Axe, 2010-2013, Fiskar
- Mobileg Crutches, 2010-2015, Jeff Weber, designer, Mobi LLC
- Jacket, 1988, Bob Mackie
- Humanscale, Volumes 1, 2 & 3, 1975-1981, Henry Dreyfuss Associates: Niels Diffrient, Alvin R. Tilley, David Harmon
- Power Log Exponential Slide Rule, c. 1960, Pickett
- Jacquard Woven Ribbon, 1860-1870, Maker unknown

Visitors were asked to vote on what they considered the most creative objects in the exhibition. On entry to the exhibition space, each visitor was given three wooden nickels with which to vote. A Mason jar was adjacent to each object to collect the votes. Figures 9 through 15 show a mixture of



**FIGURE 11.** A flattened 3D image of the exhibition in Gallery 241 of the GMD.

3D and 2D images of the installed exhibition, including the Mason jar voting system. The top five vote-getters were:

- View-Masters
- Gehry chair
- Atlas/GPS
- iPod
- Chanel black dress

## FAILURE ANALYSIS

The exhibition failed in one key area: data collection. A method for collecting data on how and why visitors used their votes was not included because of technical and time-related constraints, as well as the fact that the authors did not originally intend to collect data as part of the project. In retrospect, had data been collected, its analysis could have provided insight to the design team into why visitors made their choices, how they internalized the material presented in the didactic portion of the exhibition, and how their opinions on creativity were shaped or changed by the experience. This information would be useful in planning future exhibitions at galleries where curators were interested in implementing similarly-styled voting interactions and informal learning. In the end, any data gleaned piecemeal from this exhibition was experiential, anecdotal, and perhaps qualitative, because the goal of the exhibition was not as a research-oriented data-gathering effort, but mainly as a design effort. Any future implementation of the ideas presented here would be greatly improved upon by incorporating intentional data collection from the earliest planning stages.



**FIGURE 12.** An image from the opening night of the exhibition, courtesy of the Goldstein Museum of Design.

## CONCLUSION

Informal learning occurs by attending and engaging visitors with visual media in a gallery or museum setting (Falk & Dierking, 2013). Such venues are important for participants to develop their own understanding of visual artifacts and to engage their thinking about displayed media. Gallery visitors can develop personal observations and build their skills in visual logic and communication (Yenawine, 2013, Housen, 2002). Housen's methodology of engagement was to pose a set of questions to students about observed artwork: "Directed towards carefully chosen art images, the questions create a kind of 'critical thinking studio' in which learners observe carefully, evaluate, synthesize, justify and speculate – habits of mind which have a long history in education and which we find central to aesthetic growth and critical





**FIGURE 13.** An image from the opening night of the exhibition, courtesy of the Goldstein Museum of Design.

thinking” (p.101). The exhibition, *Creativity in Everyday Life* used a more targeted model of voting and selecting the best visual examples of the theoretical statements supporting the exhibition. Selection of favored artifacts by museum visitors involves a decision process and builds their exhibition experience.

“Recent research...found that children visiting a natural history museum learned initially through concrete engagement with objects, and only then moved into more abstract conceptualization of ideas”. (Falk & Dierking, 2013, p.111) That same engagement occurred in the exhibition, with viewers deeply connected with a range of objects, and pulled by the voting process.

Visitors’ ability to vote on objects proved to be one of the more successful aspects of the exhibition. Numerous comments from exhibition viewers centered on two areas; that the method encouraged viewers to read the materials more extensively than in comparable exhibitions, and second, that the voting made them think more carefully about their choices and decisions regarding the designed objects. Anecdotally, GMD management mentioned higher than usual levels of visitation to the exhibit and the official visitor count was 350 (E. Haugen, personal communication,



**FIGURE 14.** An image from the opening night of the exhibition, courtesy of the Goldstein Museum of Design.



**FIGURE 15.** An image from the opening night of the exhibition, courtesy of the Goldstein Museum of Design. Note the glass jar fixed to the pedestal at the lower left side of the image. Each object that was part of the creativity game portion of the exhibition had its own jar. Visitors were given three wooden nickels upon entering the exhibit and they placed these tokens in the jars corresponding to objects they thought showed the best examples of creativity as described by the didactic portion of the exhibition. The objects with the most votes at the end of the exhibit’s run were deemed “most creative.”

April 22, 2022). This higher rate of visitation was perhaps due to the engaging nature of the exhibit or that visitors were encouraged to return and vote again for their most-favored objects; a question to visitors whether they were returning to vote again would allow further data collection.

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